Improving Child Welfare Outcomes

Balancing Investments in Prevention and Treatment

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PREFACE

Child maltreatment has significant negative effects on a child's cognitive development, social and emotional competence, psychological and behavioral health, and physical health. Maltreated children fare worse than their peers on many important outcomes within these domains. The effects can persist and have long-term consequences into adulthood, including reduced labor market productivity, increased involvement with the criminal justice system, and increased likelihood of homelessness. Given the far-ranging consequences of child maltreatment, a great deal of attention has been focused on identifying policies and programs that address this issue. These programs and policies fall into two broad categories: those designed to prevent child maltreatment from occurring and those designed to mitigate the effects once maltreatment has occurred. The purpose of this project is to provide objective analyses that can inform the debate about how to allocate funds to improve child welfare outcomes.

The results in the report have been updated to incorporate feedback we received on the prior version regarding the choice of model inputs used to produce the baseline results. We had previously used annual rates as proxies for the lifetime rates (between birth and age 18) of events along the child welfare system pathway (e.g., referral to the child welfare system, investigation of maltreatment report). We now use a combination of literature and data analysis to generate model inputs that more closely reflect lifetime rates. In addition, we used this opportunity to make several additional changes, including improvements to the process used to calibrate the model, adjustments to the cost calibration points, use of a different discount rate for calculating costs, and correction of minor programming errors identified during the code review. All of the changes are described in more detail at the beginning of Appendix B.

The results of this effort will be of interest to policymakers, practitioners, researchers, community leaders, and others interested in better understanding the impact of investing or reallocating resources at different points within the child welfare system. The work described here can help identify strategies that prevent deeper involvement in the child welfare system, assess the costs and benefits of these different strategies, and ultimately improve outcomes for children.

SUMMARY

Every year, nearly 3 million children in the United States are maltreated (Sedlak et al., 2010). The child welfare system is intended to help them and their families by providing services to achieve safety, stability, and permanency for the child. But contact with the system itself can have negative consequences, disrupting families. The effects of maltreatment combined with experiences in the system can persist into young adulthood, manifested in numerous ways, including homelessness, underemployment, criminal conviction, and substance abuse. Overall societal costs associated with child maltreatment may total $80 billion annually (Gelles and Perlman, 2012).

There is broad consensus that the child welfare system and outcomes for the children it serves can be improved. It is also generally acknowledged that success will require action on multiple fronts, including both treatment and prevention.

The child welfare system is a complex network of organizations at the federal, state, and community levels. In 2014, the system spent more than $29 billion on child maltreatment prevention and child welfare services nationwide (Rosinsky and Connelly, 2016). Nearly half of the funds came from federal sources, primarily through Titles IV-B and IV-E of the Social Security Act; the remainder comes from a mix of state and local funding. This total likely does not include funding for all child maltreatment preventive services.

Under current policy, federal funds are primarily available after maltreatment is substantiated (meaning that the investigation concluded that the reported maltreatment did occur) to support such treatment services as foster care, adoption assistance, and kinship support. There has long been concern among state officials and child welfare advocates that this policy favors treatment over prevention. To address this issue, some states have obtained waivers to use some portion of federal funds for preventive services. The federal government has also dedicated resources to child maltreatment prevention and its evaluation through the Maternal, Infant, and Early Childhood Home Visiting state formula grant program. But the effects of increasing only prevention, only treatment, or both prevention and treatment are not well understood.

Our study results suggest that expanding both prevention and treatment is needed to achieve the desired policy objectives. In the simulation model we developed, when increases to targeted preventive and kinship care treatment services are pursued together, all of the policy objectives are met: Maltreatment and the number of children entering the system are reduced, children's experiences moving through the system are improved, outcomes in young adulthood are improved,

and total lifetime expenditures on preventive and child welfare system services are reduced.

Specifically, we found that combining expanded prevention and treatment in the form of support for kinship care leads to a net cost reduction in the range of 3 to 7 percent of total spending (or approximately $5.2 billion to $10.5 billion saved against the current baseline of $155.9 billion) for a cohort of children born over a five-year period.

Individually, none of the policies we considered achieves the full set of policy objectives. Increases in prevention lead to decreases in maltreatment and improvements in young adult outcomes but do not affect the experiences of children who enter the system and result in small additional costs. Increases in treatment lead to improvements in system experience and outcomes and reduce lifetime costs but do not reduce maltreatment. It is only when increases to prevention and treatment are implemented together that all of the policy objectives are achieved. It is not necessarily unexpected that this approach would generate reductions in maltreatment, improvements in system experience, and improvements in outcomes. What we learned from the simulation model was that this approach would result in a net cost savings. Our results suggest that these improvements can be achieved with lower lifetime costs for the cohort.

What We Did

We built a quantitative model that simulated how children enter and flow through the nation's child welfare system. We then used this initial model to project how national policies affect a child's pathway through the system, costs, and outcomes in early adulthood. There are many studies that address prevention, elements of the child welfare system, or subpopulations of children or families. However, ours is the first attempt to integrate maltreatment risk, detection, pathways through the system, and consequences in a comprehensive quantitative model that can be used to simulate the potential impact of policy changes.

The model provides a simplified representation of the child welfare system, which is extremely complicated. To do so requires many assumptions. In many cases, the literature and available data do not provide as much information as would be ideal, and there is certainly room for reasonable disagreement about the assumptions we have made. We have tried to mitigate this problem in two ways. First, we have tried to find the best available data and evidence on which to build the assumptions. Second, we have tried to be very transparent, describing our methods in detail in Appendix B, so that readers can assess the assumptions themselves. The research team plans to continue refining and building on this initial model to explore additional questions and policy options and integrate new and emerging evidence into the assumptions.

It is only when increases to prevention and treatment are implemented together that all of the policy objectives are achieved.

Focus of the Model

The model we developed simulates maltreatment and its detection; describes the movement of children through the system; estimates the costs to federal, state, and local governments of providing child maltreatment preventive and child welfare services; and estimates how maltreatment and contact with the child welfare system affect outcomes in young adulthood. We calibrated the model to reflect the observed data on lifetime rates of experiencing the different events in the model (e.g., maltreatment, referral to the system, placement in foster home). The baseline model, therefore, is intended to represent the current situation. We then used the model to assess the average effects relative to baseline of implementing several different policy, program, or practice changes in jurisdictions across the nation.

Our model estimates lifetime maltreatment and/or involvement with the child welfare system from birth to age 18 of the cohort of children born between 2010 and 2015 (23,891,281 children). We pooled information from administrative data, survey data, agency reports, and research statistics to estimate the probabilities that children experience different events (for example, maltreatment, referral to the child welfare system, temporary foster care placement). We used these data to simulate the childhood experiences for the cohort through age 18 and for several outcomes in young adulthood (ages 23–25).

The model is built with national-level data, which offer an extensive breadth of information but also entail some limitations. In particular, national data aggregate across diverse states and suffer from state-to-state differences in data quality, completeness, and definitions of the underlying data sets (Green et al., 2015). Also, for some key life events, the national data are not longitudinal. The result is a model that estimates the average effect of implementing the policy in all jurisdictions across the country. To simulate the effect for a particular state or locale, the model assumptions and data would need to be changed to better reflect the population and system in the specific jurisdiction. Under some circumstances, such a model might produce results that are larger, smaller, or in a different direction than the results of the national model.

Where Should Efforts to Improve the System Focus?

To determine where policies might focus to achieve maximum effect in the system, we simulated the effect of increasing the quantity and quality of three policy options focused on different decision points in the model:

- **preventive services** designed to prevent child maltreatment from occurring so that children do not enter the system

- **family preservation treatment efforts** designed to provide services and supports (for example, substance abuse treatment for parents) so that children can remain with their parents

- **kinship care treatment efforts** designed to increase temporary placement with kin and to support kin caregivers so that children find permanent placements with them.

We also assessed the effects of a policy package that combined increases in preventive services and kinship care.

These evidence-based options reflect two major debates in child welfare: (1) whether the focus should be on preventing maltreatment or responding once maltreatment occurs and (2) for families involved with the child welfare system, whether to emphasize in-home options or out-of-home placements.

What Effects Do Individual Policies Have?

To understand the effects of individual policies, we estimated how the quantity and quality of preventive services, family preservation efforts, and kinship care affect the number of children who are maltreated, their experience with the child welfare system, outcomes in young adulthood, and system costs. Increasing the quantity of services provided is relatively straightforward to implement with increased funding. Increasing the quality, however, may be more difficult, and the specific actions required may vary across jurisdictions. As such, the quality improvements may be viewed as more aspirational, providing a sense of what is possible if best practices were implemented across all jurisdictions. Consequently, below we summarize the results with a range for each policy option. The lower end of the range is the estimate of the effect of increasing the quantity of services, while the upper end of the range is the estimate of the effect if both quantity and quality are increased. The results we report are all in reference to the baseline—that is, the existing system.

Prevention

Model results illustrate the range of benefits associated with investing in preventive services. Prevention focuses on reaching children and their caregivers before they enter the system and preventing maltreatment from occurring. Consequently, of the options considered, prevention has the broadest systemwide impact: Across the range from only quantity to both quantity and quality, it reduces maltreatment episodes (–1.4 to –4.2 percent), the number of referrals to the child welfare system (–0.2 to –0.6 percent), and, ultimately, the number of substantiated cases being served by the child welfare system (–1.1 to –3.4 percent).

Moreover, reducing maltreatment and the resulting involvement with the child welfare system translates into improved outcomes in young adulthood for all four of the outcomes we considered:

- substance abuse (–1.2 to –3.6 percent)

- underemployment (–1.1 to –3.4 percent)

- homelessness (–1.2 to –3.5 percent)

- criminal conviction (–1.2 to –3.6 percent).

These outcomes, however, represent only a subset of those that prior research has indicated are related to maltreatment and child welfare system involvement (Avery and Freundlich, 2009). Reducing maltreatment might be expected to produce other benefits for children not captured here, such as improved mental and physical health outcomes (Ahrens, Garrison, and Courtney, 2014; Kessler et al., 2008; Pecora et al., 2009) and increased educational attainment (Mersky and Janczewski, 2013; Courtney et al., 2009).

Preventive services may have other short-term benefits that are not considered in the model. Programs that we use as the basis for the targeted preventive services in the model, such as the Nurse-Family Partnership, have been shown to have a number of positive benefits for children and families beyond reducing the likelihood of maltreatment (Olds, 2006). These benefits include improved infant and child health and development and maternal outcomes, such as fewer subsequent pregnancies, greater workforce participation, and less reliance on public assistance.

Increasing preventive services requires new expenditures to provide services to more children and families—a 45-percent increase for both the increased quantity scenario and the increased quantity and quality scenario. We assume that quality increases can be achieved by reallocating existing resources to implement best practices. The increase in spending for increased services is partially offset by reductions in spending on screenings, investigations, services, and temporary placements as fewer children flow through the system (–1 to –3 percent). The net increase is 1 to 3 percent of total spending in the status quo, depending on whether only quantity increased or both quantity and quality increased.

The cost estimates, however, only capture the direct costs of the child welfare system paid by the government and do not reflect any government cost savings that occur in related areas, such as the criminal justice system, physical and mental health care, social services, and education. Because we did not include potential cost savings in other related systems, the cost reductions estimated in the model are conservative and should be considered in combination with prior evidence on the indirect costs of child abuse and neglect (for example, Gelles and Perlman, 2012; The Perryman Group, 2014; Fang et al., 2012).

Treatment: Family Preservation

The option to increase family preservation services focuses on families already involved in the child welfare system. As a result, it does not have a significant impact on the rate of maltreatment or the number of children entering the child welfare system. Rather, it affects the paths that children take through the system, where they ultimately end up, and their likelihood of reentering the system. The family preservation option provides services and supports for families, increasing the likelihood that they are able to stay together and that the child will avoid subsequent maltreatment. Under this option, the changes to the pathways through the system take the form of increases in the likelihood of children remaining with their family and, when an out-of-home placement is needed, increases in the likelihood of reunification with family as a permanent outcome.

In most cases, these changes in system experience translate into better outcomes in young adulthood, due in part to such factors as the effects of the services provided and fewer disruptions associated with out-of-home placements. Specifically, family preservation efforts led to changes in the young adult outcomes, with the largest changes when both quantity and quality of the policy were increased. The effects ranged from 0.4 to –9.8 percent for substance abuse, from –3.6 to –11.2 percent for criminal conviction, from –2.0 to –8.6 percent for homelessness, and from 0.2 to –3.9 percent for underemployment, depending on the scenario.

Cost savings also accrue under the family preservation option. In-home care is less expensive per month than out-of-home placements, and the average duration in care for children who remain with or reunify with family is shorter than for children who have other permanency outcomes. Together, these factors more than offset the increased costs associated with providing family preservation services and lead to substantial cost savings (ranging between a 9- and a 13-percent decrease in total spending, depending on the scenario) for the family preservation option.

Treatment: Kinship Care

Support for kinship placements as a form of treatment within the child welfare system focuses on children and families when it has already been determined that an out-of-home placement is necessary. As a result, this option does not affect the number of children initially entering the system. Rather, for children who require a temporary out-of-home placement, the option seeks to increase the proportion placed with kin and provides services and supports to the kin caregivers. The ultimate goal is to decrease the amount of time a child spends in care and increase the child's chances of returning to the family.

The increases in temporary kinship care and permanency outcomes with kin lead to small improvements in outcomes in young adulthood for substance abuse (–1.1 to –2 percent), criminal conviction (–2.1 to –2.9 percent), homelessness (–1.6 to –2.2 percent), and underemployment (–0.4 to –1.8 percent), depending on the scenario (quantity increased or both quantity and quality increased).

In addition, the kinship care option generates cost savings, largely because kinship care placements are less costly than other types of out-of-home placement. That cost savings is enough to offset the increased expenditures on services and supports to promote kinship care, leading to a decrease in total costs in the range of 6 to 7 percent, relative to the baseline.

The Effects of Combining Options

Improving the child welfare system has multiple objectives, and national-level policy proposals typically combine multiple options in one proposal as a way to satisfy multiple goals—for example, the number of children who are maltreated should be reduced; the children who are maltreated need to be identified and protected; and the effects of maltreatment on their well-being need to be mitigated in the short and long term—all while maintaining or reducing overall costs. None of the individual options that we considered achieves all these objectives.

We estimated the effect of a policy package that combined increases in preventive services and treatment in the form of support for kinship care. The results are summarized as a range for this combined policy option—from a lower end of the range when the quantity of services is increased for both preventive services and kinship care to the upper end of the range when both quantity and quality are increased. Under this option, we found that maltreatment episodes decrease by 1.5 to 4.1 percent. As a result, referrals to the child welfare system also decrease (–0.2 to –0.6 percent). There are fewer substantiated cases (–1.3 to –3.3 percent) and out-of-home placements (–8.3 to –11.2 percent).

The experience of children who do enter the system is improved because more children had temporary and permanent placements with kin. There is a reduction in the likelihood of negative long-term outcomes:

- homelessness (–2.8 to –5.8 percent)

- underemployment (–1.6 to –5.2 percent)

- criminal conviction (–3.3 to –6.4 percent)

- substance abuse (–2.3 to –5.6 percent).

The policy package combining increases to prevention and kinship care pays for itself; there is a net cost reduction of between 3 and 7 percent of total baseline spending, for a savings of approximately $5.2 billion

to $10.5 billion, depending on whether only quantity is increased or both quantity and quality are increased. Underlying this net reduction, prevention spending increases by about 45 to 47 percent, but costs are offset by a reduction of 7 to 11 percent in system spending.

Detailed results from our simulations of all three policies individually and for the policy package appear in Appendix C, available on the project website (www.rand.org/child-welfare-model).

Preventive services address root causes. Generally, options that address risk factors and root causes have the potential for the largest population-level impact and are the only ones that can affect the number of children who are maltreated. Among the policy options considered here, prevention is the only one in this category. Preventive services reduce the number of children who are maltreated, and that is the driving force in this option for improved outcomes in young adulthood. But prevention does not affect the experience of children in the system and also increases total expenditures on preventive and child welfare system services.

Treatments like family preservation and kinship care have positive effects. Efforts to help families stay together and encourage kinship care are very targeted, affecting only children who are involved in the child welfare system. As a result, their potential impact on outcomes is more limited because they potentially impact fewer children. Nonetheless, these options have important effects on the experience of those children who are in the system and their outcomes in young adulthood. Family preservation and kinship care efforts also lead to reductions in the overall cost of the system because they promote placements that are less costly than the other options (foster care or residential care). They have little effect, however, on the number of children who are maltreated.

Therefore, our results suggest that a combination of policies that incorporate additional preventive services and improvements in the experience of children in the system is needed to achieve all of the desired policy objectives. That is, combining increases in preventive services and treatment in the form of support for kinship care can reduce child maltreatment, improve a child's experience moving through the system, positively affect outcomes in young adulthood, and reduce total system costs.

Limitations

Our approach has several limitations. The model provides a simplified representation of the child welfare system, which is extremely complicated. To do so requires many assumptions. In many cases, the available data and literature do not provide as much information as would be ideal to inform those assumptions. For example, there is no one data source that tracks all children through the child welfare system over time. Rather, we have pieced together information from a wide range of sources that do not

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always perfectly align (e.g., different populations, different definitions). In other cases, we have made simplifying assumptions to make the model more tractable. For example, we did not consider interactions with other relevant systems, such as education, health care, or criminal justice.

More generally, the model is built at the national level, reflecting common elements of state systems that differ widely. As such, the results represent a macro-level simulation of how children enter and flow through the system and may not be replicable at the state and local levels without tailoring the model inputs to the specific context to determine the magnitude and direction of the effects. While building a national model was a reasonable starting point and provides information relevant to national policymakers, it does abstract from the important differences across states, such as how preventive services are provided, how the child welfare system is structured, and the characteristics of the population served. Decisions about specific policies to implement are made at the state and local levels, so a jurisdiction-specific model is likely more valuable for informing specific policy decisions. Adapting the model to specific jurisdictions would allow a number of important improvements, including more-specific information on pathways through the system; better data on children's experiences in the system; and information on how the child welfare system interacts with other related systems, such as education or criminal justice.

Conclusion

Despite the challenges and limitations, we believe that the simulation model and results will be useful to national policymakers interested in improving individual and child welfare system outcomes through changes in policy, practice, or programs. While there are many studies that address elements of the child welfare system or subpopulations of children or families, this is the first attempt to integrate maltreatment risk, detection, pathways through the system, and consequences in a comprehensive quantitative model that can be used to simulate the potential impact of policy changes. The estimates presented here provide policymakers with a sense of the relative costs and benefits of increasing different options individually or in combination that can inform the policy debate.

Given the number of assumptions and the limited evidence base on which to build, there is some uncertainty around the estimates presented here. We have done numerous sensitivity tests, and while the estimates of the effects of the policy options on the different elements of the pathway (e.g., maltreatment, referrals to the system, average number of out-of-home placements, young adult outcomes, costs) do vary, sometimes considerably, the overarching pattern of results and the basic story they tell is robust—a combination of increased prevention and treatment is needed to achieve all of the desired policy objectives: reducing maltreatment, improving children's experiences in the system, improving outcomes, and reducing expenditures.

ACKNOWLEDGMENTS

Introduction

Every year, 2.95 million children experience abuse or neglect that puts them at risk for harm (Sedlak et al., 2010). Estimates of lifetime child maltreatment from a national household survey are 11.6 percent for neglect, 8.9 percent for physical abuse, and 0.7 percent for sexual abuse (Finkelhor, Vanderminden, et al., 2014). Lifetime estimates from the same survey for any form of maltreatment (physical abuse, emotional abuse, sexual abuse, and neglect) range from 24.9 to 25.6 percent (Finkelhor, Turner, et al., 2013; Finkelhor, Turner, et al., 2015). National-level studies examining maltreatment that comes to the attention of child protective services (CPS) agencies have estimated lifetime maltreatment investigations at 37.4 percent (Kim et al., 2017) and lifetime substantiated maltreatment at 12.5 percent (Wildeman et al., 2014). Child maltreatment has been linked with child and family characteristics, such as a child's age, race/ethnicity, gender, and special needs status (Sedlak et al., 2010), or to a family's socioeconomic status, family structure, family size, or presence of parental substance abuse or parental mental illness (Sedlak et al., 2010). The risks vary by type of maltreatment: Younger children are more likely to be neglected, girls are more likely to be sexually abused, and children with substance-abusing parents are more likely to be abused (Child Welfare Information Gateway, 2004). Other characteristics might act as protective factors that mitigate risk of child maltreatment, including parenting knowledge and skills, positive family relationships, access to health care and social services, and parental employment and education (Promising Practices Network, 2010).

The objective of this project was to identify ways to strengthen the child welfare system and improve outcomes for children. To do this, we developed a quantitative model that simulates how children enter and flow through the child welfare system. We used the model to project how improved prevention, family preservation treatment services, and kinship care treatment efforts implemented across the nation would affect children's pathways through the system, their outcomes in early adulthood, and system-level costs. The results of the model represent average effects at the national level and will not necessarily apply to any specific jurisdiction

because of differences in systems and populations served. Our research is the first attempt to integrate maltreatment risk, detection, pathways through the system, and consequences into a comprehensive quantitative model that can be used to simulate the impact of policy changes.

Effects of Maltreatment

Maltreatment can affect its victims over both the short and long term, including negative effects on cognitive development, social and emotional competence, psychological and behavioral health, and physical health (Trickett and McBride-Chang, 1995). Maltreated children fare worse than their peers on many important outcomes within these domains (Bass, Shields, and Behrman, 2004; Jones Harden, 2004; Margolin and Gordis, 2000). While the child welfare system helps many children and families and has protective effects that may reduce subsequent maltreatment, involvement with the system itself may also have negative effects by disrupting social networks. For example, children involved with the child welfare system may experience family disruption, school changes, and multiple living situations. The protective and negative effects of the child welfare system are intertwined with the effects of the maltreatment itself, making it difficult to separate them when looking at outcomes (Masten and Wright, 1998).

Over time, the effects of maltreatment and child welfare system involvement can persist, with effects on outcomes that last into young adulthood, including reduced labor market productivity, increased involvement with the criminal justice system, and increased likelihood of homelessness (Courtney et al., 2009; Mersky and Janczewski, 2013). These negative outcomes generate substantial societal costs. One recent study estimated an annual price tag of $80 billion for maltreatment in 2012, with more than half ($47 billion) attributable to the negative outcomes (Gelles and Perlman, 2012).

It is important to remember that child maltreatment and child welfare system involvement do not always lead to negative outcomes. For many children, involvement with the child welfare system may have a protective effect, buffering the child against the cumulative risks of the maltreatment itself. Many children successfully overcome both the effects of maltreatment and any negative effects associated with the child welfare system to achieve healthy, fulfilling adult lives. Strategies that work to bolster protective factors at the individual, family/relational, and community levels can help children and families mitigate the negative consequences of maltreatment.

Child Welfare System

The child welfare system plays an important role in addressing child maltreatment by providing services to ensure the safety, stability, and well-being of children. The system is organized at the state level, with

some states delegating the authority for administering child welfare services to the county. Therefore, across and within states, the structure, policies, and specific procedures of the system vary substantially. But all state systems include several basic functions:

- providing preventive services to at-risk families

- receiving and investigating reports of child maltreatment

- providing services to families to help them care for and protect their children

- arranging for temporary out-of-home care if the child is not safe at home

- pursuing "permanency" goals that include reunification with parents, guardianship, adoption, and independent living (Children's Bureau, 2013).

Funds and services are provided by a complex network of organizations at the federal, state, and community levels, including public agencies, community-based organizations, and foundations. In 2014, this network spent over $29 billion on child welfare services across the country (Rosinsky and Connelly, 2016). Nearly one-half of total spending on child welfare services comes from federal sources, primarily through Titles IV-B and IV-E of the Social Security Act; the remainder comes from a mix of state and local funding (DeVooght and Cooper, 2013). This total likely does not include funding for all child maltreatment preventive services. The survey that generates these estimates asks about funding for these services provided at the federal, state, and local levels. However, the respondents may not have had information about all services being funded, particularly at the local level.

Improving the System

Given the magnitude of child maltreatment, as well as its effect on outcomes and costs, many leaders and practitioners have been seeking ways to improve the system. A great deal of work has been done developing and testing different types of policies, practices, programs, and system changes; the majority of this work has been done at the state and local levels by agencies developing and trying new approaches. Demonstration projects conducted at the state level, under waivers from the Secretary of Health and Human Services, have been a key source of these innovations. Waivers give states flexibility in how they use federal funds, making it possible to fund alternative services and supports that have such goals as preventing entry into foster care, increasing permanency, and addressing child behavioral health needs (James Bell Associates, 2016). Importantly, these demonstration projects incorporate a focus on evaluation and building an evidence

base so that effective policies, practices, and programs can be identified and potentially implemented in other locales. Because in many cases, the literature does not provide as much information as would be ideal, many assumptions had to be made to develop and implement the policy options in the model.

But even with a developing evidence base, it is difficult to know what the impact of a promising policy, practice, or program would be if it were implemented on a wider scale or nationally. National-level policymakers, who define and fund policies to be implemented at the state and local levels, could benefit from analyses to inform their policy decisions.

This study's quantitative model of how children enter and flow through the child welfare system can help national policymakers focus efforts to address child maltreatment. The model simulates and predicts the expected impact of changes in policies, practices, or programs on the system (for example, the number of children following different pathways through the system); their costs; and individual outcomes. The model is built with national-level data, which offer an extensive breadth of information but also entail some limitations. In particular, national data aggregate across diverse states and suffer from state-to-state differences in data quality, completeness, and definitions of the underlying state data sets (Green et al., 2015). Also, for some key life events, the national data are not longitudinal. The result is a model that estimates the average effect of implementing the policy in all jurisdictions across the country. To simulate the effect for a particular state or locale, the model assumptions and data would need to be changed to better reflect the population and system in the specific jurisdiction. Under some circumstances, such a model might produce results that are larger, smaller, or in a different direction than the results of the national model.

Conceptualizing a Complicated System

To build a quantitative model of this complicated system, we first divided the system into three primary components: (1) child maltreatment and its detection, (2) the pathways through the child welfare system, and (3) the effects of these on outcomes in young adulthood **(Figure 2.1)**. The high-level framework represents the possible pathways and decision points within the child welfare system, highlighting places in which factors could affect the pathways and decision dynamics. See Appendix A, available on the project website (www.rand.org/child-welfare-model), for a complete description of the conceptual framework and for detailed diagrams of each of the components in Figure 2.1.

The quality of the data describing the processes involved in this system complicates the development of that component of the simulation model. Because we know only about maltreatment that comes to the attention of professionals who come into contact with children,

FIGURE 2.1

Overview of Child Welfare System Simulation
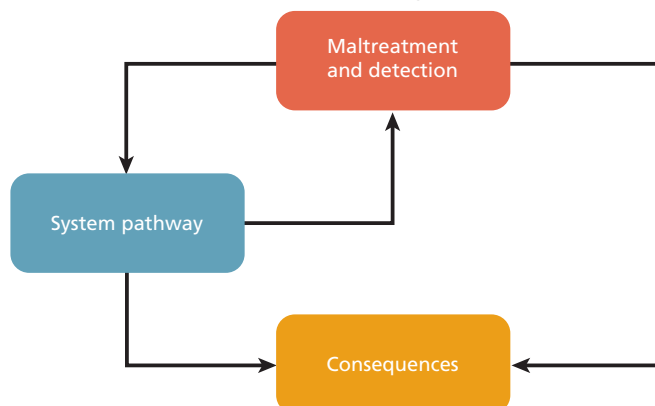
information on the factors that contribute to maltreatment and its detection is quite limited. And even with robust information about the movement of maltreated children through the child welfare system, we know little about how and why different factors may impact those pathways.

In addition, the interplay of relationships between maltreatment, pathways through the system, and consequences is not well understood.

Maltreatment and Detection

The chance that child maltreatment occurs likely reflects a combination of factors, including the child's local environment, child and family characteristics, and the family's exposure to different preventive services. Other factors affect the chance that child maltreatment is detected, including the child's exposure to mandated reporters (a person required by state law to report suspected maltreatment); exposure to other adults concerned about the child's safety; and the various personal, situational, and organizational factors that influence whether these adults report suspected child maltreatment. If the child is maltreated and that maltreatment is detected, then the child's path includes involvement with the child welfare system. If the child is not maltreated or maltreatment is not detected, then the child circles back to the maltreatment and detection component of the model until he or she leaves childhood.

System Pathways

The child welfare system pathways component of the model represents the possible pathways through the child welfare system for a child whose suspected maltreatment comes to the attention of a local CPS agency. While there is wide variability across states and counties in how CPS responds to referrals of alleged maltreatment, the pathway through the system may include a variety of decision points, such as a report decision (screen in or screen out), a response decision (investigation or alternative response), an investigation decision (substantiated, indicated, unsubstantiated), a risk or safety assessment decision, a placement decision (in-home or out-of-home care), and a permanency goal decision (reunification, adoption or guardianship, kinship care, independent living).

At each decision point, the child has a probability of continuing further into the system pathway or exiting the system, depending on the circumstances. For example, each referral of suspected maltreatment is first screened to determine whether the circumstances warrant further investigation. Screened-in referrals then undergo further assessment to determine the type of response (for example, investigation or alternative response). If a report is investigated and then substantiated,

the child's case may follow a number of pathways, depending on such factors as the assessed level of risk.

At each step, there are different exit points depending on the decision made. In addition, a variety of incident, child, family, and agency/system factors have the potential to influence each decision point and alter a child's path through and experiences within the system. Outcomes related to the child's experience moving through the system include type of placements, placement stability, length of time in care, and treatment participation.

Upon exiting the system pathways component, the child continues to the consequences module in the short term and then circles back to the maltreatment and detection module until leaving childhood.

Consequences

A child's experience with maltreatment, detection, and movement through the child welfare system may affect his or her quality of life in multiple domains. In the short term, children who have been maltreated and involved with the system often experience negative effects on their cognitive development, social and emotional competence, psychological and behavioral health, and physical health. These effects can persist into early adulthood and may have long-term effects on their physical health, psychological well-being, behavior, and socioeconomic conditions.

There is some evidence that children who have been involved with the child welfare system, including those placed in foster care, are at risk for certain negative outcomes; however, a complex array of risk and protective factors ultimately influence how children fare over time. The outcomes are influenced by the circumstances that led to the maltreatment itself and, to some extent, the involvement with the child welfare system. At the same time, the child welfare system can provide a protective buffer against the accumulation of risks stemming from the child's circumstance.

Regardless of their exposure to maltreatment or experience with the child welfare system, children also have protective factors at the individual, family, or community level that may buffer them against negative outcomes in both the short and long term. While the maltreatment itself can have negative consequences, a child's involvement with the child welfare system may play a protective role, buffering against some of the effects of the maltreatment, or involvement may contribute to poor outcomes as the child experiences disruptions and placements.

Modeling How Children Enter and Flow Through the Child Welfare System
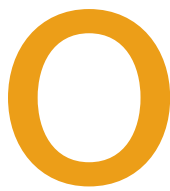
Our simulation model enables us to estimate how different policy, program, or practice options affect pathways through the system, costs, and consequences for long-term outcomes. We estimated maltreatment and/or involvement with the child welfare system from birth to age 18 for a sample of children born between 2010 and 2015.

To model something as complicated as how children enter and move through the child welfare system, we had to disaggregate the system's elements and translate them into a simplified representation that could facilitate understanding of how policy changes flow through one area to impact others. Finding the right balance between simplicity and complexity was a key challenge in building such a model—including enough detail to accurately project the consequences of policy, program, or practice choices but not so much as to develop a model that was too complicated to be useful.

Steps in Building the Model

Building the model involved seven steps:

1. We reviewed the literature describing the child welfare system.

2. That review informed the development of a conceptual model that outlined the key elements of the system, the different ways children could enter and move through it, the outcomes, and the risk and protective factors that could affect their movement and outcomes.

3. We then used data and information from the literature to build a quantitative model that simulates the movement of children through the system.

4. We fine-tuned the model to ensure that it reflected the observed data and accurately represented the current situation, a process called *calibration.*

5. We incorporated estimates of the costs to federal, state, and local governments of providing child maltreatment preventive services and child welfare services.

6. We incorporated estimates of the effects on outcomes.

7. We used the model to estimate the effect of implementing several different policy, program, or practice changes.

These steps are briefly described below and in greater detail in Appendix B, available on the project website (www.rand.org/child-welfare-model).

Step 1: Literature Review. Our comprehensive review of information on child maltreatment and the child welfare system included academic literature, "gray" literature (reports not found through conventional search engines and reports from government and nongovernmental bodies), policy documents, and advocacy websites. Results focused on English-language publications from 2000 through the present. We gathered nearly 2,000 publications and retained 344 articles for full-text review.

Step 2: Conceptual Model. Based on our literature review, we developed a conceptual model illustrating the pathways that children might follow from childhood to adulthood, including maltreatment risk, detection, reporting, child welfare system pathways, and the effect on short- and long-term outcomes. The diagram of the flow through the child welfare system accounted for children's movement within the system, staff decision points at each step, and all the extenuating factors (such as incident, child, family, and agency characteristics). We presented the conceptual model to eight subject-matter experts from academic, policy, and practice domains and then refined it to incorporate their insights. See Appendix A, available on the project website (www.rand.org/child-welfare-model), for a detailed description and diagrams of the conceptual model.

Step 3: Simulation Model. We translated the parts of the conceptual model for which data were available into a series of discrete life circumstances ("model states") and transitions between life circumstances known as a *state-transition Markov chain model.* Each life circumstance represents a combination of child and family attributes, life events, and a point on a pathway through the child welfare system. For example, a child could be female and between 6 and 11 years old (child

attributes), living in an impoverished family (family attribute), experiencing or having experienced neglect (life event), and currently residing in a foster home (pathway). The child may soon be reunified with family and age into adolescence (transition to a new life circumstance).

To simulate a cohort of children, we had to determine how many children would be in the cohort and what characteristics they would have. Different subpopulations have different numbers of children and different proportions of children in each age group and in each socioeconomic bracket. We used U.S. Census Bureau figures to determine the number of simulated children and their characteristics. Our simulated cohort is based on the 2010 to 2015 cohorts of American children in terms of its size and demographic features, such as poverty rate.[1]

To simulate the experiences of these children, we had to determine their chances of experiencing each of the many child welfare events and/or outcomes in our model. We pooled information from administrative data, survey data, agency reports, and research statistics to estimate the probabilities of moving from one point on the pathway to the next (transition probabilities).[2]

The model focuses on children who enter the child welfare system as the result of a report of maltreatment. Some children enter the system and are placed in foster care for reasons other than maltreatment (e.g., child disability, parental death). These out-of-home placements are not included in the model.

Step 4: Model Calibration. To ensure that the model is able to simulate the current reality for maltreatment, detection, and the movement of children through the system, we fine-tuned the model in a process called *calibration*. To do this, we compared our initial model outputs to what we observed on 18 key metrics (such as the rate of maltreatment, the rate of referrals, and the proportion of investigations that are substantiated) representing points along the pathway through the system or a transition in life circumstances. For maltreatment rates, we used the Finkelhor, Vanderminden, et al. (2014) analysis of the National Survey of Children's Exposure to Violence, which provides national estimates of past year and lifetime child maltreatment from a household survey conducted in 2011. For experiences with child welfare agencies, we used the National Child Abuse and Neglect Data System (NCANDS) 2013 data set, as well as the NCANDS Child Maltreatment reports for 2013 and 2015. For experiences with the foster care system, we used the Adoption

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[1] The population of children that runs through the model is based on the 2013 Census data, which placed the size of the population aged 0 to 5 at 23.9 million children, of which 48.9 percent are female. We assume that 15 percent will grow up in severe, consistent poverty, acknowledging that less-conservative measures of poverty might place that figure as high as 22 percent. (See Current Population Survey, undated.)

[2] When lifetime rates are not available, we use a synthetic cohort approach to estimate them. In this approach, we assume that the total number of events happening to 18 cohorts at progressive ages over the course of one year will be approximately the same as the total number of events that will happen to one cohort as it progresses through each of those ages. This is similar to the approach used to calculate life expectancy tables. When possible, we adjust the totals to compensate for differences in cohort sizes, but cohort sizes only varied by an average of 2 percent during this time period.

We estimated the consequences of maltreatment and experience with the system on the odds of four negative outcomes in early adulthood: underemployment, homelessness, criminal conviction, and substance abuse.

and Foster Care Analysis and Reporting System (AFCARS) 2013 data set, as well as AFCARS reports 18–22. We also reference the National Survey of Child and Adolescent Well-Being (NSCAW) Wave II Child Permanency report. With these data, our model simulates the childhood experiences for a cohort that is like the 2010 to 2015 cohort over the course of childhood (see Table B.4 in Appendix B, available on the project website [www.rand.org/child-welfare-model], for a list of all calibration metrics). We then iteratively adjusted the model and calibrated our parameters until the model produced figures consistent with the observed data. On more than 90 percent of calibration targets, the calibrated model outputs differed by 0.3 percent or less from the observed data, representing a very good match.[3] The calibration step improves the model, ensuring that it reflects the current situation and serves as a baseline against which to compare the effects of different policy options. In the discussion that follows, we refer to the current situation as the baseline.

Step 5: Cost Model. As children interact with the child welfare system, the services provided to them incur direct costs. We incorporated these costs into the simulation model by assigning cost estimates derived from the literature to specific model states (for example, receiving preventive services, substantiation, temporary placements) and then tabulated these costs as children move through these states over the course of the modeling run. The model then aggregates costs across all children and generates an estimate of the total costs to the child welfare system for our study cohort from birth to age 18. We calibrated the total costs against empirical estimates of the total federal and state funds spent on child welfare. These estimates come from a survey conducted by Child Trends of federal, state, and local expenditures on child welfare (Rosinsky and Connelly, 2016). All cost estimates are presented in 2016 dollars and are discounted using a 3-percent discount rate to reflect that costs occur at different points in the lifetime of the cohort (National Academies of Sciences, Engineering, and Medicine, 2016).

Our cost estimates were limited to the direct costs to the government for providing services to children and families. Because of data limitations, we did not include other system-level costs that may be associated with maltreatment or involvement with the child welfare system, such as increased health care and criminal justice costs. See Appendix B, available on the project website (www.rand.org/child-welfare-model), for details on the methods for incorporating costs into the model.

Step 6: Outcomes Model. Child maltreatment and experience with the child welfare system may alter a child's life trajectory. In the outcomes model, we estimated the consequences of these childhood experiences on the odds of four kinds of negative life outcomes in early adulthood:[4] un-

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[3] A typical goal for calibration is to get model outputs that are within the natural variance from year to year for each metric. The 0.3-percent difference between our model outputs and the calibration targets is generally much smaller than the natural variance in these metrics. For example, the percentage of discharges to reunification ranged from 52 to 54 percent (a variance of 2 percentage points) between 2010 and 2015.

[4] *Early adulthood* in this case is defined as ages 23 to 25. We chose this age range because it is young enough that childhood experiences are still the dominant influence on each person's life skills and circumstances, but it is old enough for the consequences of such experiences to have manifested themselves.

deremployment, homelessness, criminal conviction, and substance abuse. As stated previously, maltreatment and involvement with the child welfare system do not necessarily translate into poor outcomes in adulthood. But the overwhelming majority of children who are alumni of the child welfare system are also maltreatment survivors, and both alumni and survivors are statistically dissimilar to the general population. This makes it difficult to draw comparisons among groups, as the general population is too distinct for comparison, and the alumni and survivors are not distinct enough. Our approach was to apply a two-stage process using the National Longitudinal Study of Adolescent to Adult Health (Add Health) Wave III data set.

In the first stage, we estimated four predictive models, one for each outcome. The models use a range of characteristics (demographic, personal attributes, worldview and beliefs, and physical and mental health) to predict the outcomes, but they do not include any characteristics related to child maltreatment or experience in the child welfare system. Each model in this stage generates a probability of experiencing one of the four negative life outcomes, regardless of the experiences in the simulation model.

In the second stage, we predicted the four outcomes using characteristics that correspond to child maltreatment and experience with the system as included in our model (such as maltreatment, pathway through the system, and placement). Paired with our predicted probabilities from the first stage, the resulting estimates served as our projection of how maltreatment (and the experience in the system) alters the odds of negative outcomes in adulthood. Following each simulation run, we tallied the percentage of the population experiencing each negative childhood experience and proportionately adjusted the average odds that the population would experience negative outcomes.

The model cannot directly account for all of the complexities in how both risk and protective factors interact and the uncertainties about the causal pathways. However, it allows for an understanding of how child maltreatment and system involvement affect outcomes into young adulthood and beyond.

Step 7: Simulation of Policy Options. To understand how child welfare policies and practices potentially affect outcomes, we estimated the potential effects of policy options by varying our simulation parameters to reflect different proposed reforms. This involved identifying the transition probabilities that policy proposals would affect and altering those probabilities accordingly. We then compared the resulting sequences of transitions, costs, and odds of projected outcomes to those of our baseline simulation. We account for uncertainty in the model by generating bounds around the baseline estimates that can be used to determine whether the policy effects are larger than what could be generated by model uncertainty.

Changes Projected for Different Policy Options

Using the model described in Chapter Three, we generated the baseline estimates for maltreatment and detection, how children move through the system, costs, and consequences. That baseline, described below, reflects the current situation. Subsequently, we simulated the effect of different options representing changes in policy, practice, or programs at various points in the model. We then compared the baseline results to simulated results to determine the average effects on the number of children in the system, how they move through the system, costs, and consequences if the option were implemented in all jurisdictions.

Baseline

It is important to note that the model tracks counts of children experiencing a particular event at a particular step. Unless otherwise noted, the results are counts of events happening to children, not counts of unique children to which events occurred. So, for example, the baseline results suggest that a cohort of 4 million children might expect to experience approximately 766,000 events in which a report of maltreatment was investigated and substantiated between birth and age 18. However, this does not mean that 766,000 children experienced a substantiation. Rather, it means that 766,000 substantiations occurred to children in the cohort, with at least some children experiencing multiple substantiations over the course of their lifetime.

Maltreatment. Within the current maltreatment and prevention landscape, our model projects that about 188 out of every 1,000 children born between 2010 and 2015 will experience maltreatment that endangers them over the course of their childhood. Neglect will be the dominant form of maltreatment for the vast majority (55 percent), with physical abuse (35 percent) and sexual abuse (10 percent) accounting for the rest. Some children experience multiple types of maltreatment (e.g., neglect and physical abuse); the estimates have been adjusted to account for this.

Efforts to prevent maltreatment will also occur during this period. Collectively, our model estimates that prevention efforts, such as home visiting or parent education programs, will reach 469 children per 1,000.

Few of the initial referrals to the child welfare system are substantiated and receive a system response. **Figure 4.1** illustrates the flow from initial referrals of child maltreatment to the investigation result.

Detection. Our model projects that the child welfare system will receive about 1,457 referrals pertaining to alleged maltreatment per 1,000 children, with the majority of these referrals for neglect.

System Pathway. Referrals typically undergo several levels of screening and assessment by CPS to determine the appropriate response, given the circumstances. Our model projects that 32 percent of referrals (469 per 1,000) will be screened out at the referral stage because there is insufficient information or the referral is not consistent with the state's definition of abuse or neglect.

Among those referrals screened in (990 referrals per 1,000 children), 7 percent will be deemed low-risk referrals (74 referrals per 1,000 children). They receive an alternative (or "differential") response that may involve a family assessment, voluntary services, or referrals to community-based services rather than a formal investigation. The remaining 93 percent of screened-in referrals (916 referrals per 1,000 children) will be higher-risk referrals. These high-risk referrals will receive an investigative response to assess the child's safety.

Among the investigations conducted (916 investigations per 1,000 children), our model estimates that 20 percent will result in a substantiated or indicated finding (183 investigations per 1,000), meaning that maltreatment was substantiated, and the child will have ongoing interaction with the child welfare system. The other 80 percent of investigations will be unsubstantiated (733 investigations per 1,000 children) because there is insufficient evidence or because the events did not meet the state's definition of maltreatment.

Among the referrals that are substantiated, 75 percent will be cases in which the dominant form of maltreatment is neglect, compared with

FIGURE 4.1
Flow of Children Through the System at Baseline

NOTE: Numbers may not total correctly because of rounding.
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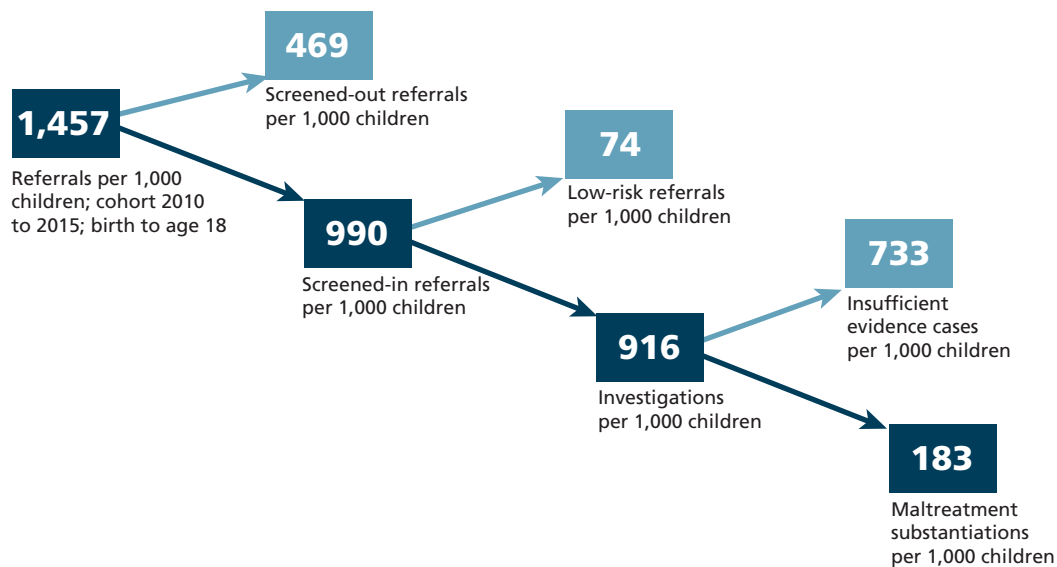
17 percent for physical abuse and 8 percent for sexual abuse. For substantiated cases, a determination is made about whether a child will be kept in the home or placed in out-of-home care.

Lower-risk cases are generally provided in-home services and supports, such as family preservation, parent education, safety planning, and counseling, or are referred to community-based services, such as housing or food assistance. Our model estimates that there will be 140 in-home placements per 1,000 children.

In higher-risk cases, the child is moved from the home to an out-of-home placement. Our model projects that there will be 59 out-of-home placements per 1,000 children. Most children who are removed from the home will experience one or two temporary out-of-home placements (82 percent). But some children (14 percent) face four or more temporary placements before achieving a permanent outcome.

Permanency outcomes favor reunification: 52 percent of out-of-home placements result in reunification with family, 8 percent result in permanent placement with kin, 32 percent result in formal adoption or a guardianship arrangement by kin or non-kin, and 8 percent result in emancipation (at age 18, children are no longer in the system) (**Figure 4.2**). A very small fraction of cases experience other discharges from the system, such as running away, death, or transfer to another agency. Such low-frequency ways for cases to exit the system are outside the scope of the model.

FIGURE 4.2
Permanency Outcomes

RAND *RR1775x1-4.2*

Child protection agencies will spend $155.9 billion on their operations by the time the cohort we studied reaches age 18: $11.8 billion for prevention and $144.1 billion for treatment.
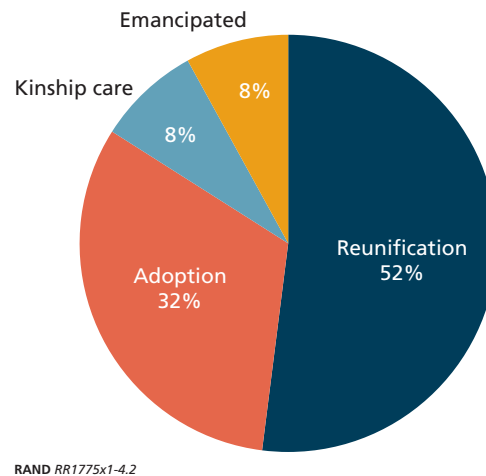
Costs. In total, the model projects that child protection agencies will spend $155.9 billion on their operations by the time the cohort reaches age 18. Of the total, $11.8 billion will go toward preventive services, and $144.1 billion will go to response services.[5]

Consequences. The model considers four long-term negative outcomes: homelessness, underemployment, substance abuse, and criminal conviction. This list is not exhaustive but, rather, illustrative of the types of long-term outcomes that may be affected as maltreated children move into young adulthood.

- **Homelessness.** Our model assumes that about seven children per 1,000 will have experienced a bout of adult homelessness by age 25; child maltreatment and the pathway through the system may be contributing factors for as many as one-third of the young adult homeless population (two per 1,000).[6]

- **Underemployment.** Our model assumes that 157 children per 1,000 will be underemployed between ages 23 and 25. The model projects that child maltreatment and the pathway through the system may be contributing factors in about 6 percent of all underemployed young adults (10 per 1,000).[7]

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[5] Figures are in 2016 dollars. As recommended by the National Academies of Sciences, Engineering, and Medicine (2016), we apply a discount rate of 3 percent to account for future costs.

[6] Homelessness is defined as spending at least one week as an individual who lacks a fixed, regular, adequate nighttime residence by age 25. This includes adults living in travel accommodations, sharing the housing of other persons due to hardship, having a nighttime residence that is not designed for ordinary use as a regular sleeping accommodation, or living in emergency-shelter housing.

[7] Underemployment is defined as having no job or working less than 20 hours per week and not currently enrolled in college.

- **Substance abuse.** Our model assumes that 186 children per 1,000 will engage in some form of illegal drug use or alcohol abuse between ages 23 and 25. Child maltreatment and the pathway through the system are projected to be contributing factors in 15 percent of young adults with substance abuse (27 per 1,000).[8]

- **Criminal conviction.** Our model assumes that 60 children per 1,000 will be convicted (as an adult) of crimes by age 25. Child maltreatment and the pathway through the system are projected to be contributing factors in 19 percent of young adult criminal convictions (11 cases per 1,000).

Policy, Practice, and Program Options

A wide range of policy levers could be used to improve the system- and child-level outcomes associated with the current detection and pathway components of the child welfare system. We considered the potential effects of several different policy, practice, or program changes that act on different elements of the system and are currently or have recently been the focus of federal legislation. The options we considered correspond to two of the larger debates in child welfare:

1. preventing maltreatment versus responding once maltreatment occurs

2. for families involved with the child welfare system, in-home versus out-of-home options.

We consider the effects of increasing the quantity and quality of

- preventive services targeted at high-risk families designed to prevent child maltreatment from occurring

- family preservation efforts designed to provide services and supports that address identified problems and enable children to remain with their parents

- services and supports to promote temporary and permanent placements with kin (for example, grandparents, aunts and uncles) when out-of-home care is needed.

Our choice of policies to assess was informed by a review of recent legislation, waivers, demonstration projects, and literature on the expected effects of such changes. We selected those being more widely implemented, with stronger evidence on aspects of the system pathway that could be simulated in the model and that, as noted above, correspond to the most prominent debates in child welfare.

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[8] Substance abuse includes heavy drinking, defined as typically consuming five or more drinks three times per week, and drug use, defined as use within the past year of cocaine, amphetamines, hallucinogens, or heroin, but not tobacco, marijuana, or prescription drugs.

Below we describe the potential effects of each option individually. We also considered an option that combines prevention and kinship support. For each option, we considered three variations or scenarios:

A. the effects on maltreatment and detection, system pathway, costs, and consequences of increasing the quantity of services provided

B. the effects of increasing the quality, or effectiveness, of the services

C. the effects of increasing both.

Increasing the quantity of services provided is relatively straightforward to implement with increased funding. Increasing the quality, however, may be more difficult, and the specific actions required may vary across jurisdictions. As such, the quality improvements may be viewed as more aspirational, providing a sense of what is possible if best practices were implemented across all jurisdictions.

We assume that the policy options are implemented within each jurisdiction across the nation. The results represent the aggregate effects at the national level and do not necessarily reflect what would happen in any particular jurisdiction.

See Appendix C for tables with results for all policy scenarios (percentage change relative to baseline) and Appendix B for information on the uncertainty in the model. Appendixes B and C are available on the project website (www.rand.org/child-welfare-model).

Preventive Services

Efforts to prevent maltreatment generally focus on addressing risk factors for child maltreatment or supporting the development or strengthening of protective factors (Promising Practices Network, 2010). *Primary prevention* focuses on providing resources and raising awareness of child maltreatment among the general public, policymakers, and people who provide services to families with children. Examples include public service announcements, information kits, and media content.

Primary prevention also focuses on families that have risk factors associated with child maltreatment and includes such approaches as home visiting programs, respite and crisis care, and family resource centers. It can also include parent education programs and skill-based curricula for children. All of these targeted primary prevention programs are being used by agencies and organizations to address specific and predictable risks for child maltreatment, promoting best practices (Thomas et al., 2003).

The evidence base documenting the success of universal primary prevention approaches is scant. Studies of public awareness campaigns

tend to focus on exposure to the campaign, rather than assessing the effect on child maltreatment.

Among promising targeted primary prevention approaches, home visiting is the most widely studied. A number of assessments have found associations between prevention approaches and reductions in the risk factors for child maltreatment. However, the evidence for reductions in child maltreatment itself is more mixed (Mikton and Butchart, 2009).

The **Nurse-Family Partnership (NFP)**, which provides nurse home visits to at-risk families with infants, significantly reduces child maltreatment in families that participated in the program (Olds et al., 1997). Generally, studies of home visiting programs have found that these programs are most effective if they involve more-frequent home visits, the visits begin prenatally, the service providers are properly trained, and the program is focused on a specific issue (Peacock et al., 2013).

Other targeted primary prevention approaches have demonstrated the promise of parent education programs on preventing child maltreatment (Mikton and Butchart, 2009). For example, the **Positive Parenting Program (Triple P)**, a program that provides different levels of services depending on the family's needs, has been found to have significant positive effects on child and parent outcomes, including child maltreatment (Sanders et al., 2014).

In our simulation, we treated NFP and Triple P as exemplar prevention approaches and modeled our simulated prevention programs to match their emphases and effectiveness. In terms of emphasis, our simulated prevention program makes service provision more likely for impoverished families and for families with elevated maltreatment risk. For effectiveness, the precise effectiveness figures depend on the program examined, the effectiveness criteria defined, and the statistical controls used. Because most studies cite a 20- to 50-percent decrease in maltreatment in populations that receive preventive services (MacMillan et al., 2009), we assumed that our simulated preventive service would reduce maltreatment risk by 30 percent. The estimated costs of providing NFP and Triple P are $5,259 and $153, respectively. We took estimates provided by Blueprints for Healthy Youth Development (2016) and adjusted them to translate them into 2016 dollars. The NFP costs were also adjusted downward to reflect one year of program costs rather than two (the typical program length). We made this adjustment because our source for the number of preventive services provided was based on the number of children served in a year. Therefore, children in NFP for more than one year were counted in both years. We adjusted the program cost to avoid double-counting the cost of NFP services.

How the Policy Is Implemented in the Model

We implemented three versions of the prevention policy option **(Table 4.1)**.

TABLE 4.1

Prevention Scenarios

SCENARIO	QUANTITY (compared with baseline)	QUALITY (compared with baseline)
A: Increase quantity	50% increase in preventive services	Same as baseline (preventive services lower maltreatment by 30%)
B: Increase quality	Same as baseline	Preventive services lower maltreatment by 42%
C: Increase both quantity and quality	50% increase in preventive services	Preventive services lower maltreatment by 42%

- The first scenario increases the quantity of funded preventive services by 50 percent but assumes that effectiveness does not change (Scenario A).[9]

- The second scenario holds the quantity of services constant but assumes that preventive services are of higher quality (Scenario B). We assume that the increase in the effectiveness is generated through improved implementation of existing best practices for targeted primary prevention programs and can be done at no extra cost through more efficient use of resources. To reflect the increased quality, we increased the estimated effectiveness of the prevention program from the conservative midrange of those found in the literature (30 percent, used in the baseline) to 42 percent, closer to the upper end of effectiveness estimates (50 percent) (MacMillan et al., 2009). It is possible that increasing quality in some programs would require additional funds. If that is the case, our estimated spending on preventive services will be too low and will overstate any net cost savings and understate any net cost increases.

- Finally, the third scenario, which combines the two prior scenarios, assumes that a 50-percent increase in quantity combined with high-quality services decreases maltreatment by 42 percent (Scenario C).

Results

In 2015, NCANDS-reporting states provided 2.3 million preventive services (U.S. Department of Health and Human Services, 2016). The number of children receiving services is somewhat lower than this because some children may have received services from more than one program. It should also be noted that some preventive services

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[9] It is possible that the effectiveness of the preventive services will diminish as the number of children receiving them increases. This would be most pronounced if the preventive services are provided in sufficient quantity and are very well targeted so that they are currently reaching the families most at risk. The current level and geographic distribution of preventive services, however, suggests that there are places where very few preventive services are provided, and, thus, preventive services likely have not reached all of the most at-risk families. As such, we think it is plausible that the increase considered in this policy scenario would not incur diminishing effectiveness. Still, we ran a prevention scenario that accounted for diminishing effectiveness, reducing the effectiveness estimate from 30 percent to 20 percent. The results were very similar to the standard prevention scenario (results not shown).

FIGURE 4.3

Effects of Prevention Scenarios on Maltreatment and Detection, Percentage Change from Baseline

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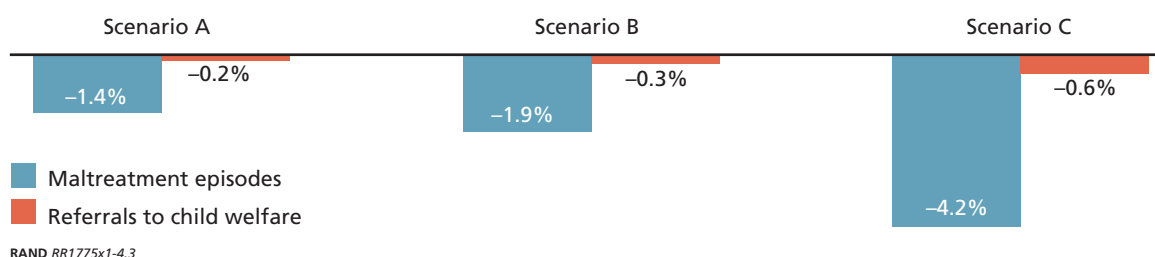
provided by other agencies or community-based organizations may not be included in this total. Over the same time period, the population of children in NCANDS-reporting states was approximately 67.7 million. Taken together, this equates to 33.9 preventive services funded annually per 1,000 children. Translating from annual rates to cumulative rates, we project 469 preventive services per 1,000 children provided over the lifetime of the cohort for our baseline value. A 50-percent increase in the number of children receiving preventive services would increase the chance of receiving preventive services to 704 preventive services per 1,000 children for Scenario A. This represents approximately 5.6 million additional preventive services provided over the lifetime of the cohort (children born between 2010 and 2015). As noted above, we assume that maltreatment rates will be 30 percent lower for children who benefit from preventive services. In Scenario B, we increase the effectiveness of targeted primary prevention to the higher but still plausible value of 42 percent.

Maltreatment and Detection. Under all three prevention scenarios, the number of children experiencing maltreatment declines relative to the baseline results. The overall percentage reduction is small in all three scenarios. However, the major effect is not in reducing the number of maltreated children. Rather, it is in reducing the number of maltreatment episodes per maltreated child. The quantity increases in Scenario A were able to produce a 1.4-percent decline in episodes, while the quality changes in Scenario B result in a 1.9-percent decline in episodes **(Figure 4.3)**. Combining the quantity and quality changes in Scenario C creates about a 4.2-percent decline in the number of maltreatment episodes per child. Therefore, we see important declines in maltreatment episodes when more children receive targeted preventive services and/or those services are more effective.

The reduction in the number of children who are maltreated and the number of maltreatment episodes also translates into small reductions in the cumulative lifetime referrals to the child welfare system under

FIGURE 4.4

Effects of Prevention Scenarios on Investigations, Substantiations, and Placements, Percentage Change from Baseline

Scenario A	Scenario B	Scenario C

−0.3% −1.1% −1.1%

−0.4% −1.5% −1.5%

−0.8% −3.4% −3.3%

- Investigations
- Substantiations
- Out-of-home placements
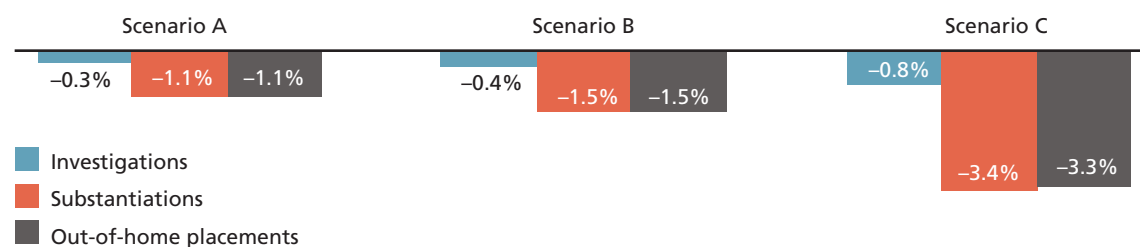
RAND *RR1775x1-4.4*

each scenario, with a 0.2-percent decline in referrals in Scenario A, a 0.3-percent decline in referrals in Scenario B, and a 0.6-percent decline in referrals in Scenario C (Figure 4.3). In other words, increasing both the quantity and quality of preventive services would reduce lifetime referrals by 0.6 percent relative to baseline.

System Pathway. With fewer overall referrals, fewer children enter and flow through the system **(Figure 4.4)**. In Scenario A, which increases only the quantity of prevention, the model estimates approximately 0.3 percent fewer investigations and 1.1 percent fewer substantiations and out-of-home placements relative to baseline. With increases in both quantity and quality (Scenario C), we see somewhat larger changes, with about 0.8 percent fewer investigations, 3.4 percent fewer substantiations, and 3.3 percent fewer out-of-home placements relative to baseline.

Costs. Increasing preventive services requires additional costs to finance increased programming and supports. At the same time, maltreatment declines, so the child welfare system needs to process fewer children, leading to cost savings. The magnitude of the net effect of these changes varies between the prevention scenarios **(Figure 4.5)**.

In the scenario in which only quantity increases (Scenario A), total costs for prevention increase by 45 percent, but costs for services provided to children in the child welfare system would fall relative to baseline by 1 percent, resulting in a net spending increase of 3 percent of the total amount spent under the baseline. When only the effectiveness of preventive services is increased (Scenario B), spending on prevention is almost unchanged. The more-effective services, however, lead to fewer children flowing through the system, and so the child welfare system expenditures fall by 1 percent. The net effect in this scenario is a 1-percent decrease in spending relative to baseline. In the scenario in which both quantity and quality are increased (Scenario C), prevention spending increases by 45 percent, and child welfare system

FIGURE 4.5

Effects of Prevention Scenarios on Costs, Percentage Change from Baseline

Scenario A   Scenario B   Scenario C

+45.4%

+2.5%

−1.0%

−0.3%
−1.3% −1.2%

+44.7%

+0.8%

−2.8%

- Prevention spending
- Child welfare system spending
- Net spending
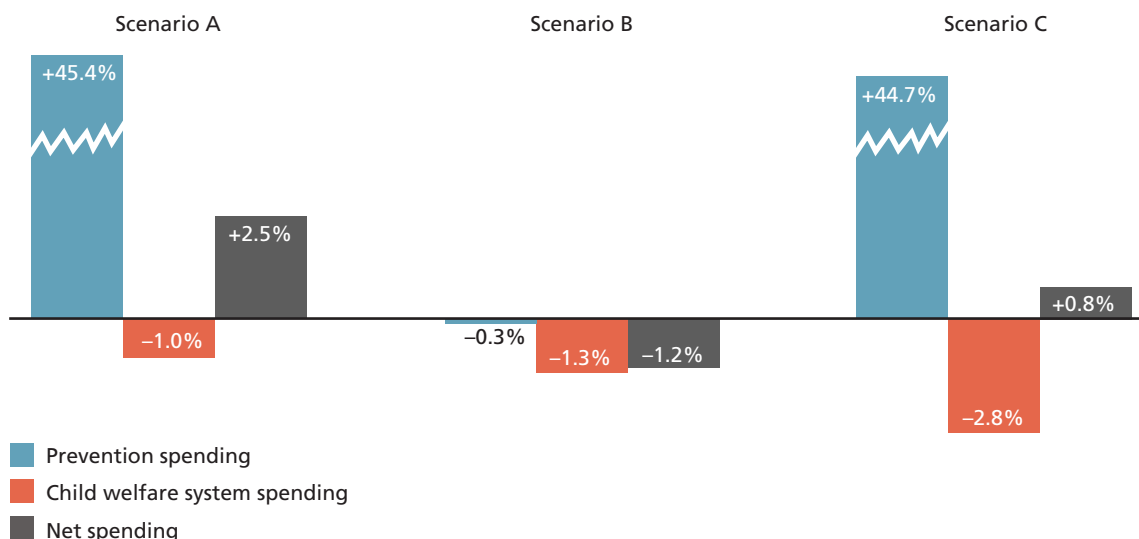
RAND *RR177x1-4.5*

FIGURE 4.6

Effects of Prevention Scenarios on Outcomes, Percentage Change from Baseline

Scenario A   Scenario B   Scenario C

−1.2% −1.1% −1.2% −1.2%

−1.6% −1.5% −1.6% −1.6%

−3.5% −3.4% −3.6% −3.6%

- Homelessness
- Underemployment
- Substance abuse
- Criminal conviction
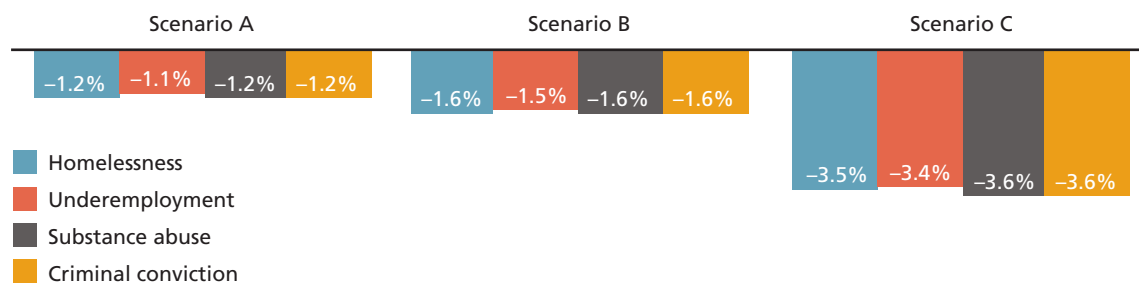
RAND *RR1775x1-4.6*

expenditures fall by 3 percent, resulting in a net increase in costs of 1 percent of total spending in baseline.

Consequences. With fewer children being maltreated and entering the child welfare system, we see improved long-term outcomes under all three prevention scenarios **(Figure 4.6)**. The biggest improvements are generated by the combined quantity and quality scenario (C) because it generates the largest reduction in maltreatment relative to the baseline. As a result, fewer children experience maltreatment and spend time in the system. Across all the young adult outcomes, reductions range from 3.4 to 3.6 percent.

Family Preservation Services

Family preservation programs are designed to prevent out-of-home placements or to reunite children living in out-of-home care with their families. These programs often offer a range of services for a short period of time. That said, there are many different models of family preservation services, and the specific duration or nature of services may vary widely by jurisdiction (National Resource Center for Family-Centered Practice and Permanency Planning, 2008).

One approach to family preservation is found in **Intensive Family Preservation Service (IFPS)** programs, which are designed to assist families in crisis in which the children are at imminent risk of being removed from their homes. These programs have certain key characteristics, including small caseloads, caseworker availability 24 hours a day and seven days a week, frequent contact, and brief length of services (National Family Preservation Network, 2011). **Homebuilders**, an IFPS program, focuses on providing services in the home, ranging from instrumental support (such as food and transportation) to clinical services (Nelson et al., 2009).

A 2006 meta-analysis examined the effectiveness of programs based on the Homebuilders model. It found that Homebuilders programs were associated with a 31-percent reduction in the likelihood of a child being put in an out-of-home placement (Washington State Institute for Public Policy, 2006).

Other established approaches to family preservation services include the following:

- **The Sobriety Treatment and Recovery Team (START)** program focuses on providing family preservation and addiction services. A study of a START program in Kentucky found that, after the program was implemented, the proportion of children remaining in parent custody (rather than being removed to out-of-home care) increased (Huebner et al., 2015). A second study of START in a rural area of Kentucky found that, compared with a matched control group, START participants had a lower rate of maltreatment recurrence within six months and were also less likely to reenter foster care within 12 months (Hall et al., 2015).

- **Place Matters** focuses on connecting children and families with services in an effort to keep children from out-of-home placement. The program is currently being implemented by the state of Maryland. In the six years since the program began, the number of children in foster care in the state has decreased by 43 percent (Dallas, 2014).

TABLE 4.2
Family Preservation Scenarios

SCENARIO	QUANTITY (compared with baseline)	QUALITY (compared with baseline)
A: Increase quantity	10% increase in number of in-home placements; 10% increase in family preservation services	Same as baseline
B: Increase quality	Same as baseline	20% decrease in failure rate for family preservation services; 10% increase in reunification as permanency goal; receipt of supports and services for transition to adulthood
C: Increase both quantity and quality	10% increase in number of in-home placements; 10% increase in family preservation services	20% decrease in failure rate for family preservation services; 10% increase in reunification as permanency goal; receipt of supports and services for transition to adulthood

- **Project Connect** is a program that provides families with a range of services, including substance abuse services, court advocacy, and family counseling. It also connects families with additional community-based resources. Although an evaluation of this program did not find that the program increased the likelihood that children would remain in the home, program participation was associated with a higher rate of reunification for children in out-of-home care (Olsen, Laprade, and Holmes, 2015).

How the Policy Is Implemented in the Model

We implemented three versions of the family preservation policy option **(Table 4.2)**. Scenario A increases the number of in-home placements, so that more families are eligible for family preservation services, and then increases the percentage of eligible families who receive family preservation services. Scenario B improves the quality of family preservation services by decreasing the failure rate (that is, fewer re-reports for in-home placements) and increasing the percentage of families that experience reunification as their permanency outcome. It also assumes that these children receive supports and services that positively affect the transition to adulthood.[10] Scenario C combines the quantity increases of Scenario A with the quality improvements of Scenario B.

Results

Maltreatment and Detection. While the family preservation option is primarily concerned with changing the dynamics of how children move through the system, the scenarios also impact maltreatment and

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[10] These services cumulatively reduce the risk of underemployment, substance abuse, criminal conviction, and homelessness by 31, 39, 47, and 73 percent, respectively.

Effects of Family Preservation Scenarios on Maltreatment and Detection, Percentage Change from Baseline

- Maltreatment episodes
- Referrals to child welfare
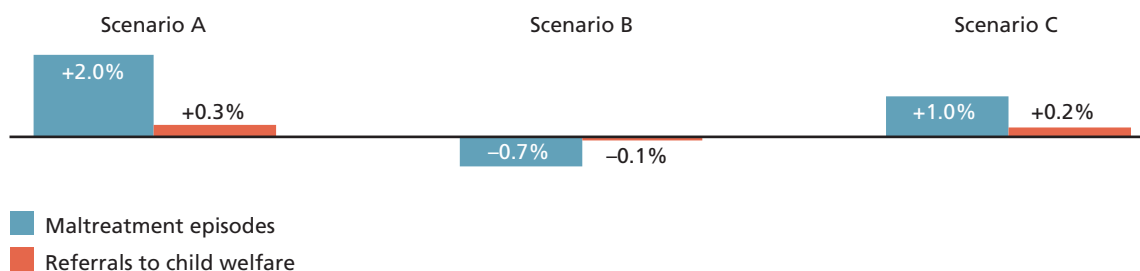
detection in the population at large **(Figure 4.7)**. Families who have had past maltreatment incidents remain at elevated risk for future maltreatment, so children who stay with their family or are reunified with them face some risk of reentering the system. These risks may be mitigated through better services to families or exacerbated by increasing the number of children living in high-risk households. The scenarios reveal that the way family preservation services are implemented significantly affects how children fare in terms of subsequent maltreatment and detection.

In our quantity scenario (A), the average number of maltreatment episodes increased 2 percent. The number of referrals for maltreatment also increased slightly, both because the number of incidents increased and because of increased opportunities for detecting maltreatment when families receive family preservation services. For the quality scenario (B), both the average number of maltreatment episodes and maltreatment referrals decreased slightly. This illustrates the competing effects of a family preservation program: increased risk for more children living in high-risk families; decreased risk from better services provided to those families.

In our combined quality and quantity scenario (C), the net effect was negative. Despite higher-quality services, the number of maltreatment episodes (1 percent) and the number of referrals (0.2 percent) increased. Across all of the scenarios, we found that the effect on the number of maltreatment episodes was larger than what could be generated by model error. However, the effect on the number of referrals was within the error band of the estimate, so this result should be interpreted with some caution.

FIGURE 4.8

Percentage of Cases with In-Home Placements and Reunification at Baseline and Under Family Preservation Scenarios
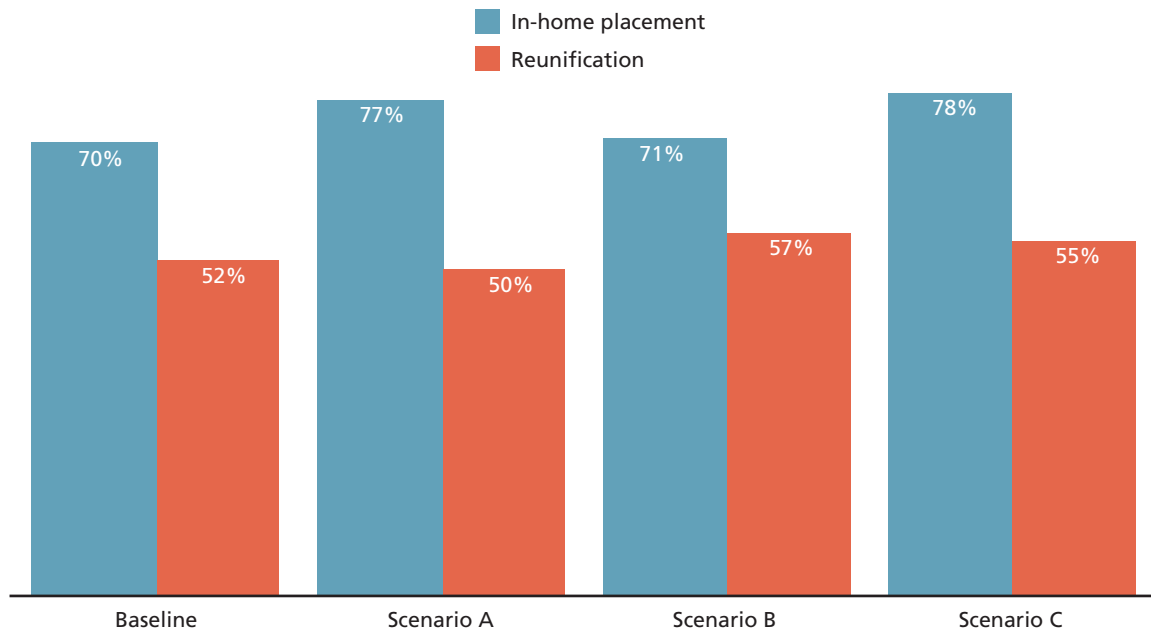
■ In-home placement
■ Reunification

	In-home placement	Reunification
Baseline	70%	52%
Scenario A	77%	50%
Scenario B	71%	57%
Scenario C	78%	55%

System Pathway. For children in the child welfare system, the model projects how the family preservation scenarios affect the number of cases with out-of-home placements, in-home placements, and reunification as the permanency outcome. The average number of placements (baseline = 0.32) decreases 23 percent with only changes in quantity, decreases 4 percent with only changes in quality, and decreases 26 percent with changes in both quantity and quality. For placement type, the percentage of cases with in-home placements increases to 77 percent with only changes in quantity, stays about the same with changes in quality, and increases to 78 percent with changes in both quantity and quality (**Figure 4.8**).

The family preservation scenarios also changed the percentage of cases with reunification as the permanency outcome. The percentage decreases slightly to 50 percent with only changes in quantity, increases to 57 percent with only changes in quality, and increases to 55 percent with changes in both quantity and quality.

Costs. Increasing family preservation services incurs some additional costs, but fewer out-of-home placements and more reunifications lead to significant cost savings overall relative to baseline. The magnitude of the net effect varies between the family preservation scenarios (**Figure 4.9**). Increasing the quantity of family preservation services

FIGURE 4.9

Effects of Family Preservation Scenarios on Costs, Percentage Change from Baseline

Scenario A Scenario B Scenario C

+0.2% −0.3% −0.1%
−9.9% −6.7% −13.7%
−9.1% −6.2% −12.7%

- Prevention spending
- Child welfare system spending
- Net spending
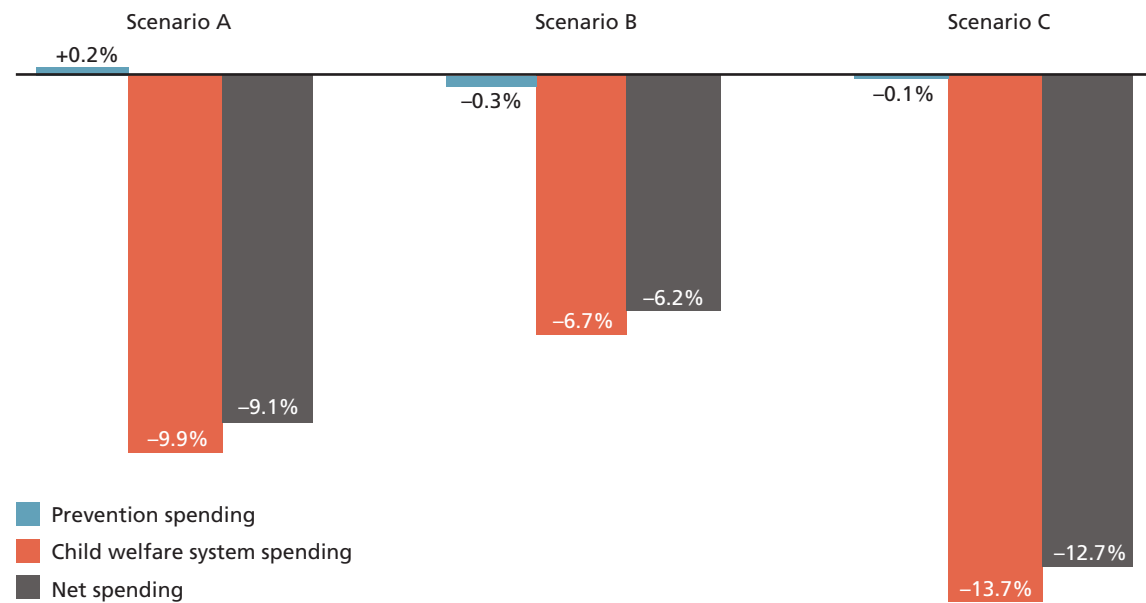
RAND RR1775x1-4.9

FIGURE 4.10

Effects of Family Preservation Scenarios on Outcomes, Percentage Change from Baseline

Homelessness Underemployment Substance abuse Criminal conviction

−2.0% 0.2% +0.4% −3.6%
−6.3% −3.7% −9.8% −7.3%
−8.6% −3.9% −9.8% −11.2%

- Scenario A
- Scenario B
- Scenario C
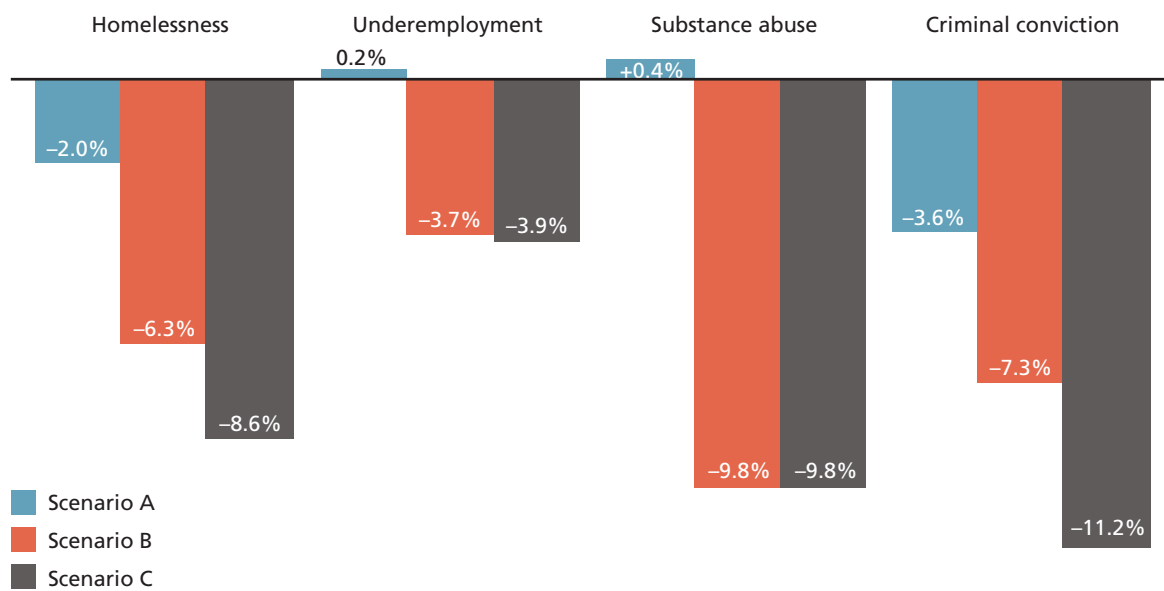
RAND RR1775x1-4.10

decreases total spending by about 9 percent. Improving the quality of family preservation services results in a 6-percent decrease in total spending. For the combined scenario that increases both the quantity and quality of family preservation services, there is a 13-percent reduction in total spending.

Consequences. The model examined how different family preservation scenarios changed long-term outcomes **(Figure 4.10)**. Family preservation services have net negative impacts on the average number of maltreatment episodes per child; however, they also have a net positive effect on the average adult outcomes of children in the cohort. The quality scenario improved outcomes more than the quantity scenario. Changes in both the quantity and quality of family preservation services had the strongest effects on outcomes, with criminal conviction (–11.2 percent) improving the most in the combined scenario.

Kinship Care Supports

Kinship care entrusts children involved with the child welfare system to a relative (for example, an aunt or a grandparent) or other adult (such as a trusted neighbor or a member of the child's best friend's family) with whom the child has an existing relationship that could become the basis for more extended caregiving, including physical support and nurturing. Kinship care support programs are designed to provide additional resources to kin caregivers of children to increase the number, quality, and permanency of these types of placements. These efforts include financial assistance and support services.

Financial assistance to kinship caregivers varies by state but can include such services as Temporary Assistance to Needy Families (TANF) child-only grants, Social Security, Supplemental Security Income, and foster care payments. Nationwide, approximately 68 percent of caregivers in formal kin caregiving situations (that is, situations that are known to CPS) receive financial assistance, which is markedly better than the 22 percent of informal kin fostering situations in which caregivers receive financial assistance (Murray, Macomber, and Geen, 2004).

Support services provide a range of programming designed to assist kin caregivers with the challenges of parenting. These include support groups for the caregivers themselves, home visiting, mentoring, counseling, respite care, and legal services (Lin, 2014). How and where services are offered varies significantly (for example, they can be peer to peer, provider-led, school-based, or community-based). Training and education interventions can support kin caregivers by teaching them parenting skills and helping them understand child development.

The **Kinship Navigator Program**, a nationwide comprehensive intervention created through the Fostering Connections to Success and

TABLE 4.3
Kinship Care Scenarios

SCENARIO	QUANTITY (compared with baseline)	QUALITY (compared with baseline)
A: Increase quantity	25% increase in temporary kinship care placements, with cases primarily diverted from other out-of-home placements	Same as baseline
B: Increase quality	Same as baseline	25% increase in kinship care as a permanent outcome and 7.5% increase in adoption or guardianship as a permanent outcome; receipt of targeted preventive services; receipt of supports and services for transition to adulthood
C: Increase both quantity and quality	25% increase in kinship care placements, with cases primarily diverted from other out-of-home placements	25% increase in chances of kinship care and 7.5% increase in adoption or guardianship as a permanent outcome; receipt of targeted preventive services; receipt of supports and services for transition to adulthood

Increasing Adoptions Act of 2008, is one example of a support services program. It is designed to link kin caregivers to existing financial and support services available to them and their children. It operates in 24 sites across the United States. Because the program is relatively new, evidence of its effectiveness is still emerging. Early positive results from two evaluations indicate that caregivers were better able to access financial assistance and perceived improved skills in caring for the children and that children had better well-being outcomes and increased permanency (James Bell Associates, 2013; Nelson-Dusek and Gerrard, 2012).

How the Policy Is Implemented in the Model

We implemented three versions of the kinship care policy option **(Table 4.3)**. Scenario A increases the number of children who are placed with kin, with children primarily diverted away from other types of out-of-home placement. Scenario B improves the conversion rates of kinship placements into permanent outcomes (permanent kinship care, adoption, or subsidized guardianship) and also provides all kin serving in kinship care capacity with supportive services. It also assumes that these children receive supports and services to facilitate their transition to a healthy, productive adulthood.[11] Scenario C combines the quantity increases of Scenario A with the quality improvements of Scenario B.

**Results**

Maltreatment and Detection. These scenarios are primarily concerned with effecting change in pathways through the system and have

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[11] These services cumulatively reduce the risk of underemployment, substance abuse, criminal conviction, and homelessness by 31, 39, 47, and 73 percent, respectively.

FIGURE 4.11

Effects of Kinship Care Scenarios on Costs, Percentage Change from Baseline
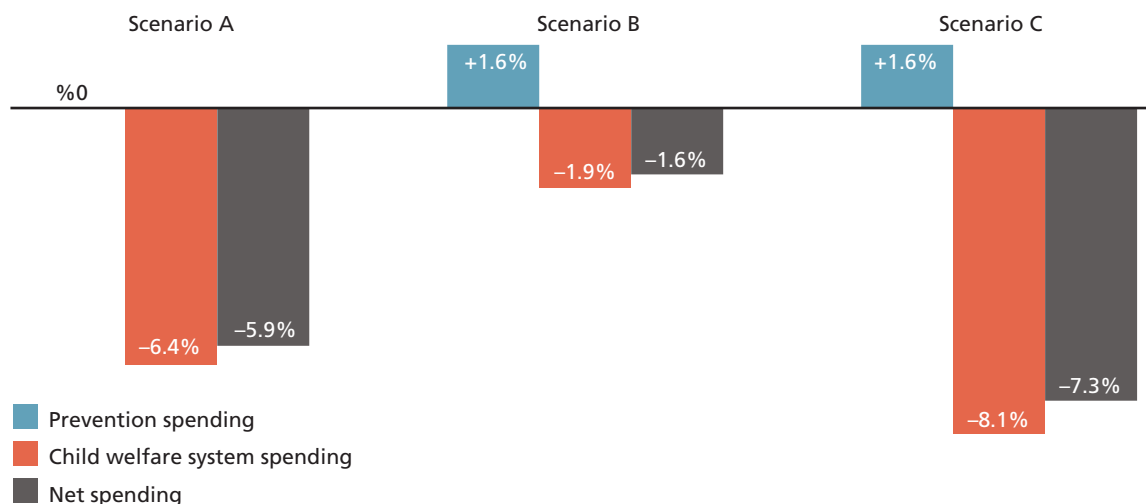
RAND RR1775x1-4.11

relatively little impact on detecting maltreatment in the population. There is a very slight increase (0.4 percent or less) in maltreatment episodes and referrals, likely due to such factors as increased opportunities for observation or an inability of some caregivers to protect the child in their care. While plausible mechanisms exist to generate this result, the estimates are generally within the range of what could be generated by model error.

System Pathway. For children in the child welfare system, the model projects how the kinship care scenarios affect the number of placements and percentage with kinship care as a permanent outcome. When only the quantity of kinship care is increased, the average number of placements decreases by 7 percent, but placements decrease by only 1 percent with changes in quality. With changes in both quantity and quality, the average number of placements decreases by 8 percent.

Costs. Increasing kinship care supports and services to increase permanency incurs some additional costs to finance the increased programming and supports; however, system costs are slightly lower, leading to cost savings overall relative to baseline **(Figure 4.11)**. Increasing the quantity of kinship care decreases total spending by about 6 percent. Improving the quality of kinship care services results in a 2-percent decrease in total spending. For the combined scenario that increases both the quantity and quality of family preservation services, total spending falls by about 7 percent.

FIGURE 4.12
Effects of Kinship Care Scenarios on Outcomes, Percentage Change from Baseline

Scenario A   Scenario B   Scenario C

−1.6% −0.4% −1.1% −2.1%   −0.6% −1.4% −0.8% −0.7%   −2.2% −1.8% −2.0% −2.9%

- Homelessness
- Underemployment
- Substance abuse
- Criminal conviction
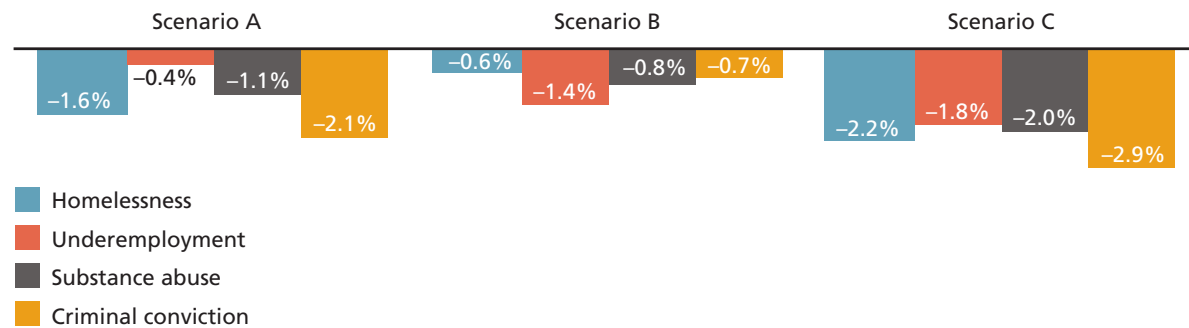
Consequences. The model examined how the different kinship care scenarios changed long-term outcomes **(Figure 4.12)**. Across all scenarios, the effects range from −0.4 to −2.9 percent.

Combining Preventive Services and Kinship Care Supports

This option increases both preventive services and kinship care supports. We tested this policy package because these approaches represent different intervention points in the system and have been at the forefront of the child welfare policy debate.

How the Policy Is Implemented in the Model

As with the other policy options, we implemented three scenarios to increase both prevention and kinship care in the model **(Table 4.4)**. The first, which focuses on quantity, results in a 50-percent increase in the quantity of funded preventive services and in the number of children placed with kin (Scenario A). The second option focuses on quality by assuming that the preventive services are of higher quality, thereby decreasing maltreatment by 42 percent, improving the conversion rates of kinship placements into permanent outcomes, and providing supporting services to kin caregivers (Scenario B). The third scenario combines the quantity increases of Scenario A with the quality improvements of Scenario B.

Results

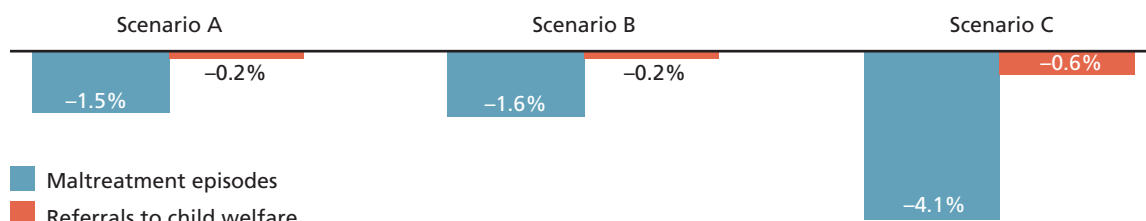**Maltreatment and Detection.** Under all three scenarios for this policy package, the number of children experiencing maltreatment goes down relative to the baseline results. The largest effect is when both the quantity and quality of prevention and kinship care increase **(Figure 4.13)**. Driven by changes in prevention, the quantity increases (Scenario A) will result in a very small decline in maltreatment episodes, while the

TABLE 4.4

Combined Prevention and Kinship Care Scenarios

SCENARIO	QUANTITY (compared with baseline)	QUALITY (compared with baseline)
A: Increase quantity	50% increase in preventive services; 25% increase in temporary kinship care placements, with cases primarily diverted from other out-of-home placements	Same as baseline
B: Increase quality	Same as baseline	42% reduction in maltreatment risk; 25% increase in kinship care and 7.5% increase in adoption or guardianship as a permanent outcome; receipt of targeted preventive services; receipt of supports and services for transition to adulthood
C: Increase both quantity and quality	50% increase in preventive services; 25% increase in temporary kinship care placements, with cases primarily diverted from other out-of-home placements	42% reduction in maltreatment risk; 25% increase in kinship care and 7.5% increase in adoption or guardianship as a permanent outcome; receipt of targeted preventive services; receipt of supports and services for transition to adulthood

FIGURE 4.13

Effects of Combined Approach of Prevention and Kinship Scenarios on Maltreatment and Detection, Percentage Change from Baseline

Scenario A: −1.5% Maltreatment episodes, −0.2% Referrals to child welfare
Scenario B: −1.6% Maltreatment episodes, −0.2% Referrals to child welfare
Scenario C: −4.1% Maltreatment episodes, −0.6% Referrals to child welfare

■ Maltreatment episodes
■ Referrals to child welfare

RAND RR1775x1-4.13

quality changes (Scenario B) will result in a similar 1.6-percent decline in episodes. Combining the quantity and quality changes for both options (Scenario C) will result in a 4.1-percent decline in maltreatment episodes.

As described earlier, referrals to the child welfare system decrease with fewer maltreated children. The quantity changes in Scenario A will reduce referrals by 0.2 percent; the quality changes in Scenario B will reduce referrals by 0.2 percent. The combined quantity and quality changes in Scenario C will reduce referrals by 0.6 percent.

System Pathway. Under the combined prevention and kinship care approach, increasing quantity will result in small decreases in investigations (–0.3 percent) and substantiations (–1.3 percent) and an 8.3-percent decline in temporary out-of-home placements **(Figure 4.14)**. Changes in quality will result in 0.3-percent fewer investigations, 1.2-percent fewer

Effects of Combined Approach of Prevention and Kinship Scenarios on System Response, Percentage Change from Baseline

Scenario A Scenario B Scenario C

−0.3% −1.3% −8.3%

−0.3% −1.2% −2.3%

−0.8% −3.3% −11.2%

Investigations
Substantiations
Out-of-home placements

Increases to both prevention and treatment work together to achieve desired policy objectives.

substantiations, and 2.3-percent fewer out-of-home placements. With increases in both the quantity and quality of preventive services and kinship care (Scenario C), we see somewhat larger changes, with approximately 0.8-percent fewer investigations, 3.3-percent fewer substantiations, and 11.2-percent fewer out-of-home placements.

Costs. Increasing both preventive services and kinship care leads to increases in prevention spending and decreases in child welfare system spending. The magnitude of the net effect of these changes varies between the scenarios **(Figure 4.15)**. In the scenario in which only quantity increases (Scenario A), total costs for prevention increase by 45 percent, but costs to the child welfare system fall relative to baseline by 7 percent, resulting in a net spending decrease of 3 percent of the total amount spent under the baseline. When only the effectiveness of preventive and kinship care services is increased (Scenario B), spending on prevention increases very slightly, but child welfare system expenditures decrease by about 4 percent. The net effect in this scenario is a 3-percent decrease in spending relative to baseline. In the scenario in which both quantity and quality are increased (Scenario C), prevention spending increases by 47 percent, and child welfare system expenditures fall by 11 percent, resulting in a net decrease in costs of 7 percent of total spending relative to baseline.

Consequences. The model examined how the combined prevention and kinship care scenarios changed long-term outcomes **(Figure 4.16)**. The quantity scenario (A) and the quality scenario (B) both improved outcomes at about the same level. Across all the outcomes, reductions range from 5.2 to 6.4 percent in the combined quantity and quality scenario (C).

FIGURE 4.15

Effects of Combined Approach of Prevention and Kinship Scenarios on Costs, Percentage Change from Baseline
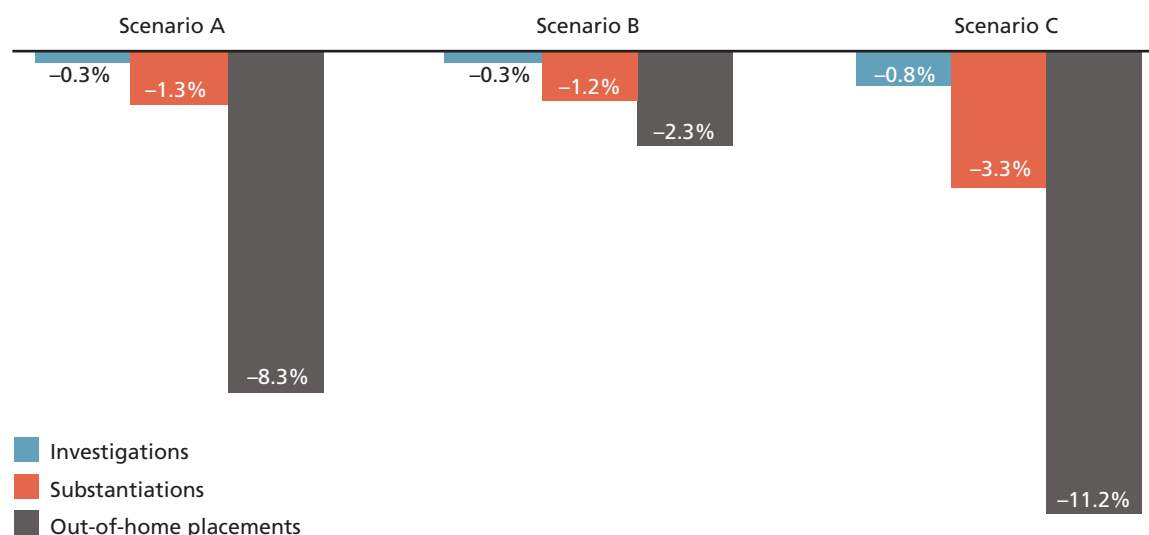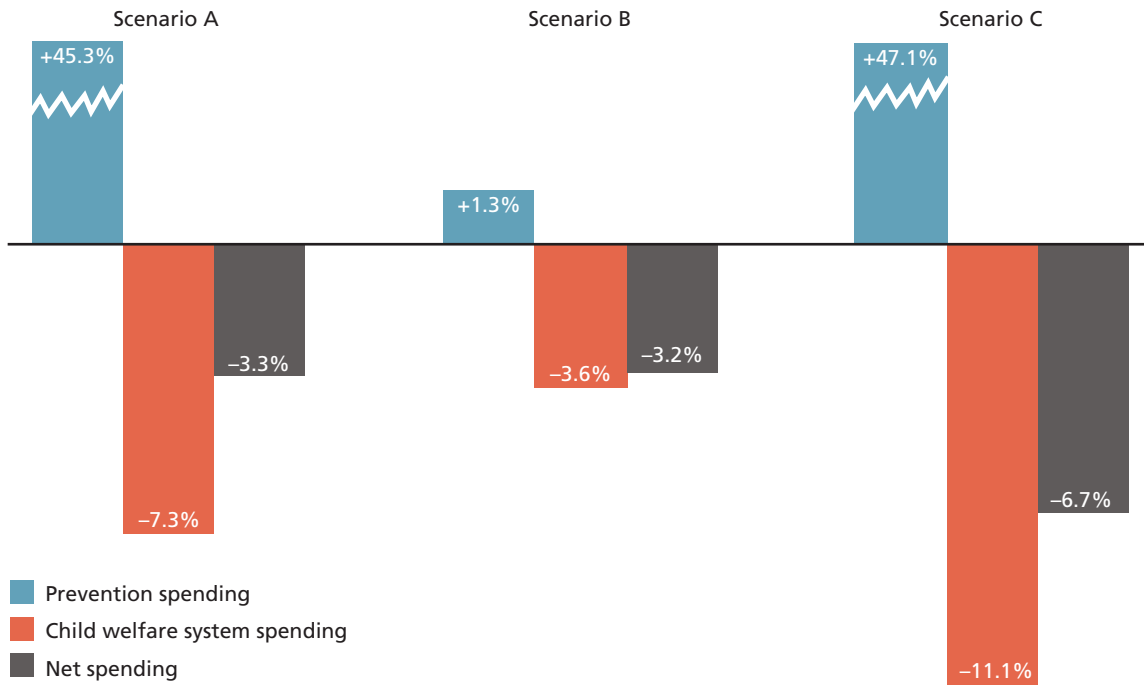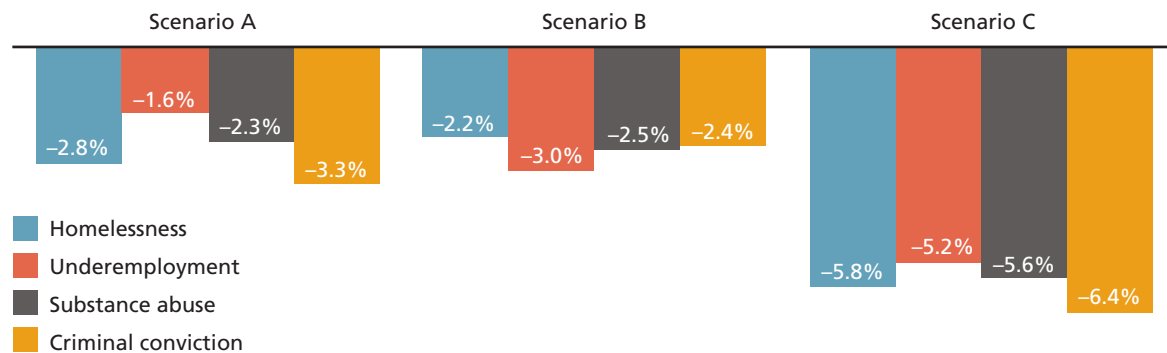

RAND *RR1775x1-4.15*

FIGURE 4.16

Effects of Combined Approach of Prevention and Kinship Scenarios on Outcomes, Percentage Change from Baseline

RAND *RR1775x1-4.16*

Discussion

Under current policy, federal funds are primarily available after maltreatment is substantiated to support such treatment services as foster care, adoption assistance, and kinship support. There has long been concern among state officials and child welfare advocates that this policy favors treatment over prevention. To address this issue, some states have obtained waivers to use some portion of federal funds for preventive services. The federal government has also dedicated resources to child maltreatment prevention and its evaluation through the Maternal, Infant, and Early Childhood Home Visiting state formula grant program. But the effects of increasing only prevention, only treatment, or both prevention and treatment are not well understood.

Our study results suggest that expanding both prevention and treatment is needed to achieve the desired policy objectives. In the simulation model we developed, when increases to targeted preventive and kinship care treatment services are pursued together, all of the policy objectives are met: reductions in maltreatment and the number of children entering the system, improvements in children's experiences moving through the system, and better outcomes in young adulthood. At the national level, the results further suggest that these objectives can all be met while also reducing total expenditures on preventive and child welfare system services.

Individually, none of the policies we considered achieves the full set of policy objectives. It is only when increases to prevention and treatment are implemented together that all of the policy objectives are achieved. It is not necessarily unexpected that this approach would generate reductions in maltreatment, improvements in system experience, and improvements in outcomes. What we learned from the simulation model was that this approach would result in a net cost savings.

Summary of Findings

We developed a model of how children enter and flow through the child welfare system and simulated the impact of different policy, program, and practice changes intended to prevent maltreatment and improve a child's experience with the system, ultimately having a positive impact on outcomes in young adulthood. The model estimates the average effect of implementing the policy in all jurisdictions across the country, reflecting aggregate national patterns and not necessarily the effect for any specific jurisdiction. We considered several variations of three different policy, program, or practice options that intervene at different points in the system and have been discussed by policymakers. The options work in different ways. Preventive services are designed to prevent child maltreatment from occurring and thus reduce the number of children that ever enter the system. If a child has been maltreated, family preservation treatment efforts are aimed at providing services and supports that address identified problems and enable children to remain with their parents, thus avoiding the disruption associated with out-of-home placements. When an out-of-home placement is needed, kinship care treatment supports are aimed at promoting temporary and permanent placements with family members, which in many cases creates less disruption for the child than other out-of-home options (such as placement with a foster family or residential or group care).

Each option has different effects on the number of children in the system, how they move through the system, their outcomes, and the costs of the services provided.

Policy Options

Prevention. The model results illustrate the range of benefits associated with increasing preventive services. Prevention programs focus on reaching children before they enter the system and preventing maltreatment from occurring. Consequently, of the options considered, preventive services have the potential for the broadest systemwide impact because they have the potential to reduce the number of children that are ever maltreated, the number of referrals to the child welfare system, and, ultimately, the number of substantiated cases being served by the child welfare system.

Moreover, reducing maltreatment and the resulting child welfare system involvement translates into small improvements in outcomes in young adulthood for all four of the outcomes we considered: substance abuse, underemployment, homelessness, and criminal conviction. These outcomes, however, represent only a subset of those that prior research has indicated are related to maltreatment and child welfare system involvement (Avery and Freundlich, 2009). Reducing child

maltreatment might be expected to produce other benefits for children, such as improved mental and physical health outcomes (Ahrens, Garrison, and Courtney, 2014; Kessler et al., 2008; Pecora et al., 2009) and increased educational attainment (Mersky and Janczewski, 2013; Courtney et al., 2009).

Preventive services may have other short-term benefits that are not considered in the model. Prevention programs—such as NFP, which we use as the examplar program for the targeted preventive services in the model—have been shown to have a number of positive benefits for children and families beyond reducing the likelihood of maltreatment (Olds, 2006). These benefits include improved infant and child health and development and maternal outcomes, such as fewer subsequent pregnancies, greater workforce participation, and less reliance on public assistance.

Increasing preventive services requires new expenditures to provide services to more children. The increase is partially offset by reductions in spending on screenings, investigations, services, and temporary placements as fewer children flow through the system. We assume that quality can be improved at no additional cost by reallocating resources and implementing best practices. If this is not possible, the scenarios that include a quality increase will understate the costs of improving preventive services. At the same time, however, the cost estimates across all scenarios only capture the direct costs of the child welfare system and do not reflect any cost savings that occur in related areas, such as the criminal justice system, physical and mental health care, social services, and education. On the whole, because we did not include the potential cost savings in other related systems, we believe that the cost reductions estimated in the model are likely conservative.

Family Preservation. The option to increase family preservation treatment services focuses on families already involved with the child welfare system, so this option does not have a significant impact on the rate of maltreatment or the number of children entering the child welfare system. Rather, it affects the paths that children take through the system, where they ultimately end up, and their likelihood of reentering the system. The family preservation option provides services and supports for families, increasing the likelihood that they are able to stay together and that the child will avoid subsequent maltreatment. Under this option, the changes to the pathways through the system take the form of increases in the likelihood of children remaining with their families and, when an out-of-home placement is made, increases in the likelihood of reunification with family as a permanent outcome. These changes in the system experience translate into better outcomes in young adulthood, due in part to such factors as the effect of the

services provided and fewer disruptions associated with out-of-home placements.

Cost savings also accrue under the family preservation option. In-home care is less expensive per month than out-of-home placements, and the average duration in care for those who remain with or reunify with family is shorter than for children who have other permanency outcomes. These factors together offset the increased costs associated with providing family preservation services and lead to substantial cost savings for the family preservation option.

Kinship Care. Because treatment in the form of support for kinship placements focuses on situations in which it has already been determined that an out-of-home placement is necessary, this option does not affect the number of children initially entering the system. Rather, for children who require a temporary out-of-home placement, the option seeks to increase the proportion placed with kin and provide services and supports to the kin caregivers to ultimately decrease time in care and increase the child's chances of returning to the family. The increases in temporary kinship care and permanency outcomes with kin lead to small improvements in outcomes in young adulthood. The positive change in outcomes reflects both a shift away from independent living as a permanent outcome and fewer overall foster care placements.

The kinship care option generates some cost savings, largely because kinship care placements are less costly than other types of out-of-home placement. That cost savings is enough to offset the increased expenditures on services and supports to promote kinship care, leading to a decrease in total costs relative to baseline.

Combining Increases in Preventive Services and Kinship Care. National-level policy proposals typically take a multipronged approach, combining a number of different options into one proposal as a way to satisfy multiple objectives. When we simulated a combined approach with increased preventive services and treatment in the form of supports for kinship care, we found that outcomes improved more than when increases to either option were implemented individually. In addition, the combined option generated a net cost savings.

More generally, options that address risk factors and root causes have the potential for the largest population-level impact and are the only ones that can affect the number of children who are maltreated. Among the policy options considered here, prevention is the only one in this category. Preventive services have the potential to reduce the number of children who are maltreated, and that is the driving force in this option for improved outcomes in young adulthood. But prevention does not affect the experience of children in the system and also increases total welfare system spending.

Family preservation and kinship support services are very targeted, only affecting children who are involved in the child welfare system, so the potential impact on outcomes is more limited because they impact fewer children. Nonetheless, these options have important effects on those children's experiences in the system and their outcomes in young adulthood. Family preservation and kinship care efforts also lead to reductions in the overall cost of the system because they promote placements that are less costly than the others (foster care or residential care). They, however, have little effect on the number of children who are maltreated.

Therefore, our results suggest that a combination of policies that incorporate additional preventive services and improvements in the experiences of children in the system is likely needed to achieve all of the desired policy objectives.

Limitations

Our approach has several limitations. The model provides a simplified representation of the child welfare system, which is extremely complicated. Building such a model requires many assumptions. In many cases, the available data and literature do not provide as much information as would be ideal, and there is certainly room for reasonable disagreement about the assumptions we have made. We have tried to mitigate this problem in two ways. First, we have tried to find the best available data and evidence on which to build the assumptions. Second, we have tried to be very transparent, describing our methods in detail in Appendix B, so that readers can assess the assumptions themselves.

There is ample literature describing the child welfare system and underpinning our conceptual model of the system and its flow. However, the evidence base to support the estimation of the transition probabilities is more limited. In some cases, the studies described in the literature are associated with a particular jurisdiction, reflecting its system and the population it serves. In choosing estimates from the literature, where possible, we gave preference to studies that were broader in scope geographically because they would be more applicable to the full population of children in the model. However, this was not possible in all cases.

There is no one data source that tracks all children through the child welfare system over time. To address this data limitation, we used a combination of data sources to develop the model inputs. We used the longitudinal Foster Care Data Archive (FCDA) to estimate the probability that children make various kinds of transfers between foster placement settings and eventual discharge. However, we calibrated these statistics to synthetic cohort calculations based on the AFCARS records on discharges, as well as foster care placement distributions reported in NSCAW Wave II. Each of these data sets has unique

advantages, and we attempted to blend them in a way that leverages these strengths. FCDA is maintained by the Center for State Child Welfare Data and includes data from 21 states. AFCARS is a public database into which states are legally required to contribute data. FCDA has superior data depth and longitudinal tracking. AFCARS has superior breadth and makes our model comparable with the main foster care database used in research in this field. However, debate exists on the compatibility of these data sets, with scholars such as Courtney, Needell, and Wulczyn (2004) arguing that the AFCARS approach overrepresents the most successful cases and obscures those that linger in the system. Given the debate, we analyzed the simulation log files to understand how our FCDA-fueled, AFCARS-calibrated simulation behavior compared with the FCDA data on which it is based. The differences we found are consistent with arguments that AFCARS underrepresents children who move between many temporary placements and age out instead of finding a permanent placement. However, it is difficult to say how much of the discrepancy represents real differences in the sources and how much is simply the result of not being able to make an apples-to-apples comparison between empirical data and the internal calculations by which a simulation model mimics empirical data.

There are also limited data on lifetime rates of experiencing the different events in the model (e.g., maltreatment, referral to the system, placement in foster home) that can be used for the calibration targets. There is no nationally representative longitudinal data set that would allow the direct calculation of these rates. As a result, we used a combination of estimates from the literature and secondary data analysis to estimate the calibration targets related to lifetime experience within the child welfare system. For many of the calibration targets, we used a synthetic cohort approach based on cross-sectional data. In this approach, we assume that the total number of events happening to 18 cohorts at progressive ages over the course of one year (i.e., annual counts) will be approximately the same as the total number of events that will happen to one cohort as it progresses through each of those ages. This approach projects the current situation forward and thus does not account for trends over time that may affect the number of events occurring in the future (e.g., increases in neglect cases related to the opioid epidemic). For maltreatment rates, because the estimates in the literature vary depending on the method of data collection and definitions of maltreatment, we used estimates from a national household survey that provides estimates of past year and lifetime child maltreatment.

For the policy options, the evidence base related to the effectiveness and costs of different programs or services was often quite limited. For all three policy options, the evidence base is still emerging, with some limited information on the effectiveness of specific programs on

maltreatment, maltreatment-related outcomes, or system experience outcomes. This meant that we had to make assumptions about the quantity and quality at baseline and then alter those assumptions using the best available information for the scenarios that increased quantity and quality. Additional research in this area is needed to better estimate the effectiveness and costs of these programs.

The lack of a robust evidence base was particularly problematic for modeling the effect on outcomes in young adulthood. While there is evidence that children who are maltreated and are involved with the child welfare system face a range of negative long-term outcomes, there is very little evidence about how those vary based on the child's pathway through the child welfare system. Moreover, there is very little evidence that can help to disentangle the effects of maltreatment from the effects of system experience on outcomes. To address this problem, we augmented the information we found in the literature by conducting data analyses designed to address this question specifically, but additional research in this area is needed to better understand and project the effects of maltreatment and child welfare system experience on young adult outcomes.

In addition, due to the limited evidence base, we did not attempt to monetize the cost savings associated with the improved outcomes (such as reduced expenditures in the criminal justice system or on social services). We also did not try to monetize the value (for example, in terms of improved well-being) to the child of avoiding maltreatment or improving his or her experience in the system. At the same time, we assumed that increasing the quality of services could be done at no additional cost through more efficient use of resources to implement best practices, potentially overstating the net cost savings in scenarios in which quality is improved. This effect is likely small relative to the other benefits that are not monetized. Therefore, on the whole, we believe that our estimates of the cost savings associated with the policy options we considered are conservative.

Beyond calibration, we were not able to test model performance. Ideally, we would have compared our model results against a true empirical comparator, but that would require finding a data set that follows a statistically representative group of children for 25 years, is large enough to have a statistically valid subsample of children exposed to the child welfare system, and contains detailed items about their interactions with the child welfare system and detailed measures of their life outcomes. While pieces of this data set exist in NCANDS, AFCARS, NSCAW, and Add Health, they were used to develop the model and are not sufficient for a stronger test of model performance.

The model is built at the national level, reflecting common elements of state systems that differ widely. As such, the results represent a

macro-level simulation of how children enter and flow through the system and may not be replicable at the state and local levels without tailoring the model inputs to the specific context to determine the magnitude and direction of the effects. While building a national model was a reasonable starting point, it does abstract from the important differences across states, such as how preventive services are provided, how the child welfare system is structured, and the characteristics of the population served. Decisions about specific policies to implement are made at the state and local levels, so a jurisdiction-specific model is likely more valuable for informing specific policy decisions. Adapting the model to specific jurisdictions would allow a number of important improvements, including more-specific information on pathways through the system; better data on children's experiences in the system; and information on how the child welfare system interacts with other related systems, such as education or criminal justice.

Finally, while the baseline model does a good job of replicating observed data (such as the rate of maltreatment and the number of referrals to the child welfare system), there are certainly places where the model could be refined and expanded to address additional questions and generate more-nuanced results. For example, in future work, we would like to increase the number of individual or family characteristics included in the model that affect the probability that children move between states in the model. Another important expansion would be to incorporate ways that child welfare agencies respond to changes in the number of children flowing through the system (for example, staffing changes, case loads) and how those agencies interact with other relevant systems (such as the education system and the criminal justice system). This would add greater depth and complexity to the model and would provide additional insights. However, the data and evidence to support such modeling at the national level are limited. It might best be undertaken when tailoring the model to a specific jurisdiction.

Conclusion

Our study results suggest that expanding both prevention and treatment is needed to achieve the desired policy objectives. In the simulation model we developed, when increases to targeted preventive and kinship care treatment services are pursued together, all of the policy objectives are met: Maltreatment and the number of children entering the system are reduced, children's experiences moving through the system are improved, outcomes in young adulthood are improved, and total lifetime expenditures on preventive and child welfare system services are reduced.

Specifically, we found that combining expanded prevention and treatment in the form of support for kinship care leads to a net cost reduction in the range of 3 to 7 percent of total lifetime spending (or

Reducing maltreatment and the resulting child welfare system involvement translates into improved outcomes in young adulthood.

approximately $5.2 billion to $10.5 billion saved against the current baseline of $155.9 billion) for the cohort of children studied.

As we've noted, there are some limitations inherent in our modeling. But despite these challenges and limitations, we believe that the simulation model and results will be useful to national policymakers interested in improving individual and child welfare system outcomes through changes in policy, practice, or programs. While there are many studies that address elements of the child welfare system or subpopulations of children or families, this is the first attempt to integrate maltreatment risk, detection, pathways through the system, and consequences in a comprehensive quantitative model that can be used to simulate the potential impact of policy changes. The estimates presented here provide policymakers with a sense of the relative costs and benefits of increasing different interventions individually or in combination that can inform the policy debate.

Given the number of assumptions and the limited evidence base off which to build them, there is some uncertainty around the estimates presented here. We have done numerous sensitivity tests, and while the estimates of the effects of the policy options on the different elements of the pathway (e.g., maltreatment, referrals to the system, average number of out-of-home placements, young adult outcomes, costs) do vary, sometimes considerably, the overarching pattern of results and the basic story they tell is robust: A combination of increased prevention and treatment in the form of support for kinship care is needed to achieve all of the desired policy objectives: reducing maltreatment, improving children's experiences in the system, improving outcomes, and reducing expenditures.

ABBREVIATIONS

Add Health	National Longitudinal Study of Adolescent to Adult Health
AFCARS	Adoption and Foster Care Analysis and Reporting System
CPS	child protective services
FCDA	Foster Care Data Archive
IFPS	Intensive Family Preservation Service
NCANDS	National Child Abuse and Neglect Data System
NFP	Nurse-Family Partnership
NIS-4	Fourth National Incidence Study on Child Abuse and Neglect
NSCAW	National Survey of Child and Adolescent Well-Being
START	Sobriety Treatment and Recovery Team
TANF	Temporary Assistance to Needy Families
Triple P	Positive Parenting Program
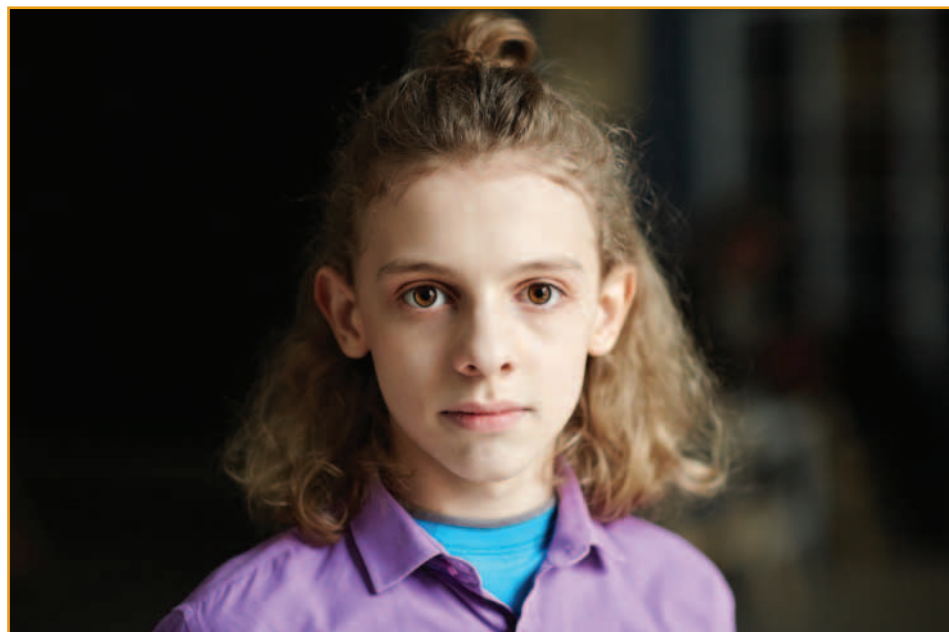
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