

Child Welfare Screening in Wisconsin: An Analysis of Families Screened Out of Child Protective Services and Subsequently Screened In

Prepared for the Wisconsin Department of Children and Families

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Table of Contents

List of Figures	v
List of Tables	v
Foreword	vi
Acknowledgments	vii
Executive Summary	viii
Introduction	1
Effects of Child Abuse	1
Wisconsin System	2
Other County-Administered Systems	4
California	4
Minnesota	5
North Carolina	5
Virginia	6
Related Research	6
Reporting Policies and System Structures	6
Substantiation and SOSI	7
Community Response (and Similar) Programs	8
Methodology	10
Data	10
Unit of Observation	10
Window of Observation	10
Groups	11
Comparison Group	13
Descriptive Statistics	13
County Variation	14
Hypotheses	14
Hypothesis Testing	15
Results	16
County Variation	17
Findings of Hypotheses	19
Substantiation and SOSIs	22
Additional Findings	22
Timing Between SOSI Reports	23
Limitations	23
Recommendations	24
Reporting Management	24
Community Response Programs	24
Statewide Call Center Analysis	25
Conclusion	26

Appendix A: Mandated Reporters	28
Appendix B: Explanation of Groups.....	30
Appendix C: Descriptive Statistics by Group.....	31
Appendix D: County Variation.....	34
Appendix E: Logistic Regression Results–Odds Ratios of SOSI.....	37
Appendix F: Logistic Regression Results – Odds Ratios of Substantiation.....	41
Appendix G: Impact of Timing on the Likelihood of Substantiation.....	42
References.....	43

List of Figures

Figure 1: Wisconsin Child Protective Services Screening Process	4
Figure 2: Wisconsin CPS Screening Process with Group Classification	12
Figure 3: Proportion of Families Reported to CPS, 2008-2010, by Screening Decision	17
Figure 4: All Screened in Families, Percentage by County	19
Figure 5: Investigation Finding by Time between Initial and Screened in Report	23

List of Tables

Table 1: Group Definitions	11
Table 2: Risk Factors of SOSI (Applicable Hypothesis in Parentheses)	19
Table B.1: Examples of Families within Each Group	30
Table B.2: Screening Decision Matrix by Group	30
Table C.1: Descriptive Statistics: Reference Person	31
Table C.2: Descriptive Statistics: Victim	31
Table C.3: Descriptive Statistics: Age of Youngest Child	31
Table C.4: Descriptive Statistics: Allegation	32
Table C.5: Student's T-Tests: Descriptive Statistics, Initial Screen-In Families Compared to SOSI Families	33
Table D.1: Frequency of Families by Group, by Wisconsin County	34
Table D.2: Analysis of Variance Results: Group Distribution, by County	36
Table F.1: Model 1—Odds Ratios of SOSI	37
Table E.2: Model 2—Odds Ratios of SOSI, Including Youngest Child Younger than 5 Years	38
Table E.3: Model 3—Odds Ratios of SOSI, Including Reference Person Younger than 25	39
Table E.4: Model 4—Odds Ratios of SOSI, Including Having More than Four Children	40
Table F.1: Model 5—Odds Ratios of Substantiation	41
Table G.1: Model 6—Logistic Regression of Substantiation, Including Time between Initial and Reports	42

Foreword

This report is the result of collaboration between the Robert M. La Follette School of Public Affairs at the University of Wisconsin–Madison and the Wisconsin Department of Children and Families. The objective of this project is to provide graduate students at the La Follette School the opportunity to improve their policy analysis skills while contributing to the capacity of partner organizations.

The La Follette School provides students with a rigorous two-year graduate program leading to a master’s degree in public affairs. Students study policy analysis and public management, as well as concentrated study in at least one policy area. The authors of this report are all in their final semester of their degree program and are enrolled in the Public Affairs 869 Workshop in Public Affairs at the University of Wisconsin–Madison. Although studying policy analysis is important, there is no substitute for engaging actively in applied policy analysis as a means of developing policy analysis skills. The Public Affairs 869 Workshop gives graduate students that opportunity.

The Department of Children and Families works to improve the economic and social well-being of Wisconsin’s families, and administers the public systems that protect children and youth from maltreatment and abuse. Wisconsin is viewed as a national leader in child protection programs and services, using a county-based partnership to manage child abuse reports and investigations. The department has a strong history of seeking innovative strategies to prevent child maltreatment through intervention. This report represents an analysis of child abuse reports to detect patterns associated with cases returning to the system after initially being screened out.

I am grateful to the Department of Children and Families for partnering with the La Follette School on this project. Department staff have been exceptionally generous with their time to support this project, including collaborating on data analysis. The students have collectively contributed hundreds of hours to this project and, in the process, developed critical insights about the child abuse reporting system. The La Follette School is grateful for their efforts and hope that this report proves valuable for the department and the State of Wisconsin to improve the welfare of vulnerable families.

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Executive Summary

Child maltreatment affects thousands of children throughout Wisconsin each year. In Wisconsin, county-based Child Protective Services (CPS) receives allegations of maltreatment and decides whether to screen in the family to the child welfare system, based on state law that defines child abuse. However, a significant number of families that are not initially screened in are later re-reported and subsequently screened in. These cases, termed “SOSI” (screened out and subsequently screened in) in this report, are understood to be instances where family circumstances deteriorated over time in the absence of needed interventions, representing potentially preventable abuse. This report seeks to better understand these families to inform state policy and prevent child maltreatment in Wisconsin.

Analyzing data from 2008-2010, we found that almost 9 percent of all families were SOSI (meaning they were screened out and later screened in on a subsequent report). Sixty-three percent of families were screened in on their initial report, and the remaining 28 percent were never screened in. Because individual Wisconsin counties rather than a centralized state authority are responsible for making screening decisions, we examined screening by county and found substantial regional variation. For example, from 2008-2010 Vilas County screened in 98 percent of families on the first report, while Marinette County screened in only 15 percent of families on the first report. Wisconsin’s most populous county, Milwaukee County, initially screened in 80 percent of families, with a 5 percent SOSI rate.

We used a logistic regression to identify characteristics that increase a family’s odds of being SOSI, rather than screened in on the initial report. Cases where a mandated reporter, such as a teacher or police officer, made the first report were 40 percent less likely to be SOSI. Reports made after hours were 30 percent less likely to be SOSI. Allegations of physical abuse were 20 percent more likely to be SOSI, while allegations of sexual abuse were 50 percent less likely to be SOSI.

We performed an additional logistic regression to identify factors that increase a family’s odds of having a substantiated finding of abuse. Notably, we found that SOSIs were 10 percent less likely to be substantiated than cases that were screened in on the initial report. This finding supports the belief of state officials that initial screening decisions are made correctly, that SOSIs do not represent cases of “missed” abuse. Additionally, we found that cases with mandated reporters and cases with after-hours reports were twice as likely to be substantiated. Cases of physical abuse were 20 percent less likely to be substantiated, and cases of emotional abuse were 50 percent less likely to be substantiated, while cases of sexual abuse were more than twice as likely to be substantiated.

Based on the findings of our analysis and a scan of literature and promising practices in other states, this report recommends that the Wisconsin Department of Children and Families improve reporting practices, including modifying data fields to reduce human error and allow for easier tracking of families over time; expand research on and implementation of community response programs that provide services to screened in families; and conduct a rigorous analysis of the costs and benefits of implementing a statewide call center, or several regional call centers, to enhance and standardize screening practices.

Introduction

Every year thousands of reports alleging child maltreatment are made in Wisconsin. Allegations made by community members are received by county-based Child Protective Services (CPS) workers who determine whether the report rises to the level of maltreatment, as defined by state statute. According to the Wisconsin Department of Children and Families (DCF), 32 percent of reports are determined to meet the statutory definition of maltreatment. When a report meets this threshold, the CPS worker “screens-in” the family indicated by the report. CPS completes an initial assessment of the family to determine if maltreatment actually occurred. If the report is substantiated, the county decides the best course of action to ensure the safety of the child.

Some cases have multiple allegations before they are screened in for an initial assessment. From 2008-2010, more than 11,000 families were screened in following one or more prior “screen-outs.” We refer to these cases as “SOSIs.” Their incidence does not necessarily indicate that cases were inappropriately handled during initial reports or that there were false negatives. Based on anecdotal evidence, DCF staff believes that in some cases the initial report is a warning sign. Though the situation has not yet reached the threshold of maltreatment, circumstances within the family may deteriorate. DCF is concerned that opportunities to identify a family’s need of prevention services are being missed, potentially leading to the endangerment of a child.

The purpose of this analysis is to improve the understanding of SOSIs. While we cannot address the issue of false negatives of initial reports for SOSIs, we examine options for reducing the occurrences of SOSIs due to deteriorating conditions without advocating that CPS screen in or substantiate more reports. We also complete a quantitative analysis to determine if any meaningful differences exist between SOSIs and families that were screened in during initial reports. We first briefly explore the scope of child maltreatment problem and its impacts. We then describe Wisconsin CPS, a county-based system, and examine practices in other states with similar systems. Our qualitative analysis is followed by our quantitative analysis of three years of Wisconsin CPS data to identify characteristics that increase and decrease the odds that a case is SOSI, as described in the methodology and results sections. Last, we suggest three recommendations to DCF to improve reporting management, to reduce the incidence of SOSIs, and to decrease the prevalence of variation in county screen-in decisions.

Effects of Child Abuse

Child maltreatment, including neglect and abuse, has wide and long-lasting impacts. In Wisconsin, approximately 13 percent of cases were substantiated in 2013, with 5,466 children taken into the system of 24,846 initial assessments. Of substantiated cases, neglect constituted 59 percent, physical abuse 18 percent, sexual abuse 22 percent and emotional abuse 0.01 percent (Wisconsin 2014, 70-73). Besides the obvious, immediate harm to victims’ health and well-being, maltreatment results in significant negative impacts in terms of long-term health and behavioral outcomes, as well as short- and long-term economic consequences.

A pattern of being maltreated as children has been shown to result in increased behavior problems in adolescents, known as internalizing and externalizing. Internalizing problems

include social withdrawal, anxiety and depression, while externalizing problems include delinquent and aggressive behavior (Li 2014, 24). Severe verbal and physical aggression by parents has been positively associated with adolescent behavior problems (LeRoy 2014, 898).

As adults, survivors of maltreatment tend to suffer higher rates of behavioral and mental health problems, disability, and chronic disease. They are also at increased risk of delinquency, behaving violently or committing crimes. Maltreated children report lower levels of economic well-being and quality of life as adults (Fang 2012, 157). A 2012 study looking at victims of maltreatment during 2008 found average lifetime costs associated with victims of nonfatal maltreatment to be \$210,012, and the average lifetime cost of fatal child maltreatment to be \$1,272,900 (Fang 2012, 160-1).

Wisconsin System

In the United States, a child maltreatment prevention and intervention is the responsibility of the states. Wisconsin has a state-supervised, county-administered child welfare system, where screening decisions are generally made locally. Milwaukee County, the state's most populous county, is the exception, as the state administers its child welfare system. In a March 12, 2015, interview, Fredi Bove, Administrator of the Division of Safety and Permanence for DCF, said the agency believes that counties are in the best position to make decisions regarding local cases. However, certain aspects of the system, such as training requirements and decision-making frameworks, are implemented statewide.

A CPS case begins with a reporter. Any member of the public who suspects child maltreatment may report it, either to the local police department or the Child Protective Services office in the area where the child resides (Wisconsin 2014, 26). "Mandated reporters" are people who, because they hold occupations such as teachers or police officers, are required by state law to report maltreatment. (Failure to report may result in six months in prison and/or a \$1000 fine.) A full list of mandated reporters can be found in Appendix A.

The reporter explains an observation or situation to a county CPS intake worker. CPS intake workers throughout the state must complete required training within their first six months on the job, and subsequent training is also required. Their educational backgrounds vary; some counties require a social work degree, while others have recently begun to hire caseworkers with alternative educational backgrounds, including criminal justice and child psychology. This move away from requiring social work degrees, which occurred in late 2013, is believed to build a broader knowledge base and strengthen the organization.

Once reports are received, typically over the phone, county case workers decide whether the allegations constitute maltreatment following definitions laid out in state law. According to state statute, four categories of maltreatment for children younger than 18 are recognized:

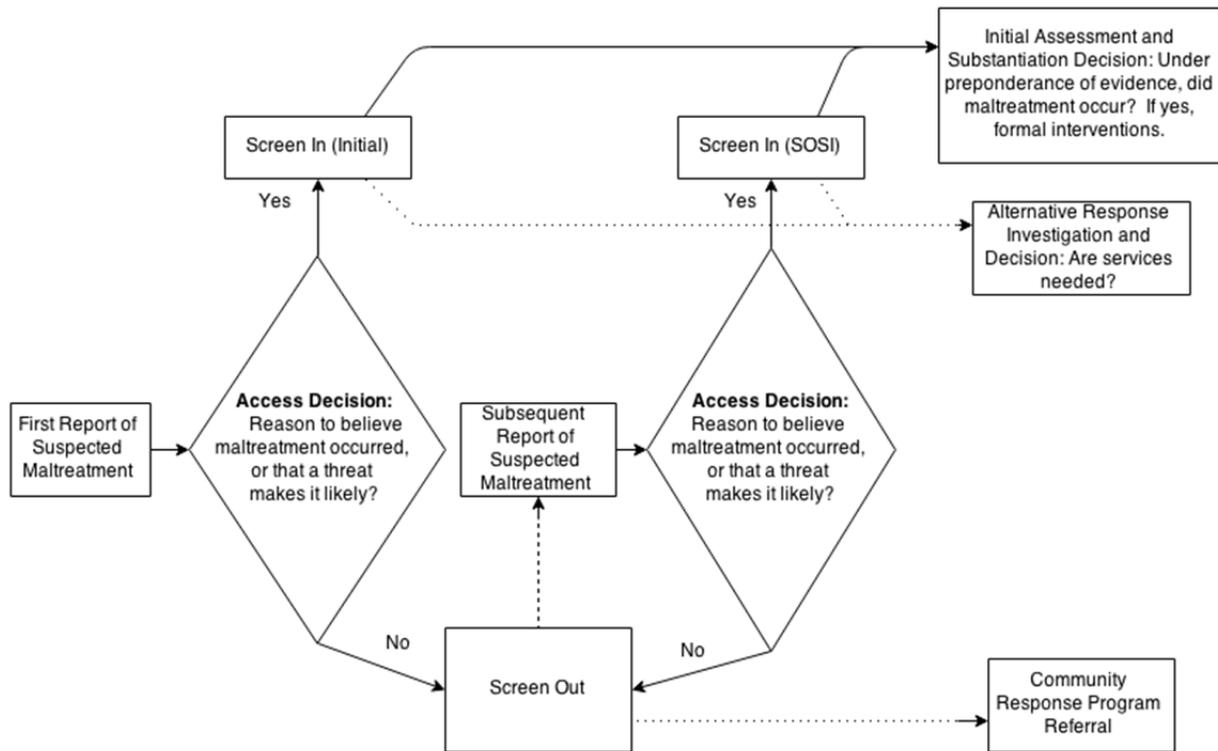
- Physical neglect:
 - "Failure, refusal or inability on the part of a parent, guardian, legal custodian or other person exercising temporary or permanent control over a child, for reasons other than poverty, to provide necessary care, food, clothing, medical or dental care or shelter so as to seriously endanger the physical health of the child."

- Physical abuse:
 - “Physical injury inflicted on a child by other than accidental means...includes but is not limited to lacerations, fractured bones, burns, internal injuries, severe or frequent bruising or great bodily harm.”
- Sexual abuse:
 - “Sexual contact with a minor, recording or photographing a child engaged in sexually explicit conduct, encouraging or permitting a child to engage in prostitution, exposing one’s genitals to a child, causing a child to view or listen to sexual activity, or other acts.”
- Emotional abuse:
 - “Emotional damage for which the child’s parent, guardian, or legal custodian has neglected, refused, or been unable for reasons other than poverty to obtain the necessary treatment or to take steps to ameliorate the symptoms.” (Wis. Stat. § 48.02).

Screening and response time decisions must be completed within 24 hours of receiving the report. Reports may be screened in if the alleged victim is 18 or older, the family or child cannot be located or identified, the alleged abuser is not a “caregiver” of the child, or the allegations do not meet the statutory criteria (Wisconsin 2007, 24).

If a report is determined to meet the minimum standards for maltreatment, or screened in, a CPS interviewer gathers information on the family and the circumstances of the maltreatment for an initial assessment. If the initial assessment finds significant evidence of child maltreatment, the report is substantiated and the county then takes steps to ensure the safety of the child. A substantiated report is different from a report that has only been screened in. A screened in report means that the allegation actually meets the definition of child maltreatment while a substantiated report means that evidence was found to confirm that maltreatment actually occurred. *Figure 1* illustrates Wisconsin’s access process, including the grouping structure used later in our quantitative analysis.

Figure 1: Wisconsin Child Protective Services Screening Process



Source: Authors

Other County-Administered Systems

After examining the Wisconsin CPS system, we gathered information and conducted interviews with administrators from other states with county-administered CPS systems to better understand practices in other states that may have applications in Wisconsin. Our findings helped to ground our quantitative analysis and inform our recommendations for DCF.

California

Like Wisconsin, California has a county-administered child welfare system in which counties are responsible for investigating reports of child maltreatment, removing children from unsafe homes, placing them elsewhere, and providing services to families (Taylor 2013, 17).

In 2013, the California Legislative Analyst’s Office issued a report looking at trends and issues affecting child protection in that state. Since 2000, California has seen an increase in the proportion of unsubstantiated reports—exceeding half of all reports in recent years. In 2011, only 18 percent of maltreatment reports were substantiated. Almost 20 percent of cases were screened in without a formal investigation. Nearly half of maltreatment victims were 5 years old or younger, 89 percent of perpetrators were the child’s parent, and two of three perpetrators were 20 to 39 years old. Allegation and substantiation rates varied by race: White children had an average substantiation rate of 7.4 per 1,000 children, while African-American children had a rate of 20.1 per 1,000 children (Taylor 2013, 13-14).

Among other issues, the report looked at factors that increased the risk of maltreatment. In identifying potential risk factors among parents, California researchers found that those with substance abuse problems, mental health disorders, and low educational attainment were more likely to maltreat children. Children of young parents or parents who were maltreated as children also had an increased risk of maltreatment. Additionally, young children and infants were found to be more at risk, as well as those with low birth weights or disabilities. Families with single-parent households, low socioeconomic status, histories of domestic violence and those with multiple children were more at risk for child abuse and neglect (Taylor 2013, 14).

Minnesota

Minnesota's Office of the Legislative Auditor evaluated the state's child protection screening procedures in 2012. The report found that two-thirds of the abuse allegations were screened in and that overall counties were making "screening decisions in a reasonable and deliberative manner" (Alter, Bombach and Hauer 2012).

One critique of the Minnesota system made by the auditors was that screeners from different parts of the state would respond differently to the same allegations as a result of vague statutory language. The state clarified the language later in 2012 with the Minnesota Child Maltreatment Screen Guidelines document (Minnesota Department of Human Services 2012). The evaluation found many screened in families received many of the same services and treatments as screened in families. Screened in families might also be referred to other agencies for help with issues such as adult mental health or chemical dependency.

North Carolina

In a March 9, 2015, interview, North Carolina Program Administrator Rick Zechman said North Carolina's county-based child welfare system was the subject of a thorough, four-year review and recommendation process in 2013. The 2013 report found the top three child maltreatment issues in North Carolina to be substance abuse in families, lack of consistent, accessible mental health services, and domestic violence.

Zechman said the state has focused on providing services to screened in cases in recent years. He said recognizing that child welfare is not solely the job of Child Protective Services and using that mindset to create a collaborative system is ideal. He provided North Carolina's public-private partnerships as an example of one of the system's great successes, saying that evidence-based, community response approaches show promise in that state. Counties in North Carolina had expressed interest in offering services to families in screened in cases, and a pilot program was put in place three years ago. The state gave four awards of \$100,000 apiece from the Children's Trust Fund so that counties could pursue community partnerships: Partnerships with two county agencies and one local subcontractor and a memorandum of understanding with Easter Seals resulted. Though the programs have not been evaluated, the state hopes to extend it further. Zechman said that even in some cases where victimization is not found, ongoing services can effectively prevent abuse from occurring.

Virginia

In Virginia, 120 local departments of social services are responsible for receiving and investigating CPS reports and providing services. Virginia's intake process is guided by detailed and robust screening "tools," decision-making documents created and disseminated by the state Department of Social Services that provide a general uniformity of practice among local agencies. In a March 12, 2015, interview, Director of Family Services Carl Ayers said the intake tools help guide the worker's choices regarding case escalation and prioritization. However, intake supervisors have a discretionary override that allows them to escalate a case in severity. Virginia's system also boasts a centralized hotline to augment local hotlines and a burgeoning differential response system, both of which will be explained later.

Related Research

We identified three main themes, which eventually led to our recommendations for DCF. The first is the consideration of the merits of a centralized call system, as found in Virginia and 30 other states. The second is the re-examination of the differences between a substantiated case versus a non-substantiated case and how non-substantiation is a poor predictor of future maltreatment, while service provision is a better predictor. This theme led us to examine prevention services for screened in families, specifically community response. Third, data collected by different states vary significantly in nature and quality, making comparison across states difficult.

Reporting Policies and System Structures

A central focus of debates regarding CPS structures concerns the merit of centralized structures compared to decentralized, or county-based, structures. Centralized systems have one statewide entryway (i.e., one statewide hotline) that is staffed by one unit, while decentralized systems have multiple entryways (i.e., a separate hotline for each local unit). In recent years, the trend among state CPS systems has been toward centralization. Some states also have hybrid structures, in which both state and local entryways for reporting exist, with one of the entryways being primary and the other usually only available during hours in which the primary entryway is closed (Steen and Duran 2014). As noted above, Wisconsin has a generally decentralized system.

Proponents of each structure have generally argued that their preferred structure increases the likelihood of a reporter submitting a case to CPS. Those favoring centralization observe that one statewide hotline provides a clear entryway that is easy to locate, while those favoring decentralization reporting systems argue the public may be more familiar with the local office and may feel more comfortable discussing the case with local workers known to them. However, a large 2014 study by Steen and Duran found that the greater effects of reporting structure may lie elsewhere. Centralized systems screened in 10 percent more reports than decentralized systems and had a higher overall rate (out of the entire population) of screened in reports. Hybrid systems did not have a statistically significant difference from decentralized systems by these measures. The authors concluded that system structure appears to exert its influence through the behavior of system employees rather than the person reporting the abuse. They found no relationship between system structure and the overall report rate, even though they did find

significant differences in how reports were handled. The authors believe that their findings “may point to a fundamentally different mindset” from one system type to another:

Employees in decentralized systems make decisions in a different environment than the one found in centralized systems. In decentralized systems, the same unit receives, screens, and investigates reports. In centralized systems, the central unit receives and screens reports and the local unit investigates the reports. In a centralized system, the employees receiving reports may be more likely to make screening decisions irrespective of resources within the local investigating unit, since their contact with the local investigating unit is minimal. Hence, the screener in a decentralized system may be more hesitant to screen in a report when the local investigative unit is resource-poor or overwhelmed with high caseloads (Steen and Duran 2014, 872).

The authors also posit that hybrid systems have significantly higher substantiated report rates than the other two because, in hybrid configurations, “the state level may act as an additional accountability measure. If reporters are not satisfied with the responsiveness of one level, they may call the other.” Combining the implications of these reporting findings, “administrators seeking to maximize access may select hybrid systems with a primary entryway at the state level” (Steen and Duran 2014, 873).

Virginia exemplifies states that have moved toward a hybrid system, although with a primary entryway at the local level. It has a statewide CPS hotline staffed 24 hours a day, seven days a week with five full-time and some part-time employees. This hotline handles a small minority of total calls. After taking intake information, the hotline staffer forwards the call to the appropriate local agency for the screening decision (Ayers 2015). CPS hotline staff may provide general information and educational materials about child abuse or neglect to callers. Hotline staff are also trained to provide crisis counseling and intervention, and can provide information and referral assistance to callers to locate prevention and/or treatment programs in their area (Virginia Department of Social Services 2013).

Substantiation and SOSI

In a landmark study, Drake et al. studied Missouri cases for 54 months following initial reports to examine whether substantiated and unsubstantiated cases of child maltreatment have similar rates of returning to the child welfare system. The authors stated that “[u]ntil the current time, the implicit assumption has been that substantiated cases can safely be regarded as genuine or true child maltreatment events, whereas unsubstantiated cases should be seen as erroneous reports, unnecessary intrusions, or at least, very low-risk cases” (Drake et al. 2003, 248-9).

The authors found that substantiation of one event failed to meaningfully predict re-referrals, and that even for victims eventually placed, more than three quarters of all cases were unsubstantiated when they first came to the attention of child protection. Social and economic support service use was associated with fairly substantial differences in re-referral rates at both the substantiated re-referral and the placement levels, with family preservation service cases associated with higher rates of re-referral, and cases served by traditional child welfare with re-referral rates roughly comparable to the not-served group (Drake et al. 2003).

Overall, the authors found that nearly half of the children and more than half of the cases returned to the attention of child welfare authorities within 4.5 years, and the rate of re-referral for the unsubstantiated cases was only slightly lower than for the substantiated ones. They noted that, because the rate of recurrence is so similar between substantiated and unsubstantiated victims, the large number of initially unsubstantiated victims accounts for more than three quarters of the victims that later return to the attention of the child welfare system. Moreover, the provision of family-centered or foster care services appeared to cancel out any risk associated with a previous substantiation. Finally, the most consistent predictors of re-referral besides substantiation were neighborhood poverty at the census tract level, younger child age, and the presence of a parental perpetrator (Drake et al. 2003).

The study's implications are that substantiation's utility lies primarily in its relationship to leveraging court action, particularly because that substantiation does not appear to have a direct relationship to the primary goal of child welfare: protecting children. The value of substantiating a case is predicated on the need to meet the evidentiary requirements of the legal system. Therefore, any case where court action is appropriate should be pursued accordingly, but in unsubstantiated and even the majority of substantiated cases in which the requirements for court involvement are not met, need-based rehabilitation is likely to be more appropriate. In other words, except for the most severe cases, policies should focus on community support and a "friendly visitor"-style paradigm." The authors write, "A more broadly applied case management model [may] achieve more than a selective, intensive, and narrowly focused intervention approach" (Drake et al. 2003, 258-9).

Wisconsin may draw lessons from this evidence by focusing less on investigating cases that do not require court action and more on offering a broader array of services to a broader group of reported cases.

Community Response (and Similar) Programs

A burgeoning method for a broader-based provision of services is community response programs that provide interventions to families that are not screened in for CPS services, specifically targeting families that were screened in or who had no finding in their initial assessment after a screened in report. These programs have already shown some promise in Wisconsin.

Community response programs come in a number of forms and have been implemented in a number of pilot programs launched by the Wisconsin Children's Trust Fund, beginning in 2013. CPS caseworkers refer the family to programs at the time of the screen-out decision if they determine that the family would benefit from services. Services could include financial supports, parenting and behavioral supports, or additional referrals to other community services (Maguire-Jack et al. 2013, 113).

Wisconsin has been a leader in the development of community response programs. As of 2013, 22 states offered no formal response for families that were screened out or had no finding in a CPS assessment, and only nine states had a formal statewide response (Maguire-Jack et al.

2013, 97). Community response programs are being evaluated by Institute of Research on Poverty at the University of Wisconsin–Madison using a randomized control trial in the city of Milwaukee. The results of the trial are forthcoming, but these programs are becoming an increasingly relied upon practice within and outside of Wisconsin for dealing with cases that could be considered “borderline,” or with those families that would benefit from services, but are not able to receive them due to screening decisions.

The limited body of evidence for community response programs may be strengthened by early support for differential response programs. In such systems, certain screened in families (as opposed to screened out families in community response programs) may receive either a traditional investigation or an alternative assessment response. As with community response programs, lower-risk cases generally are selected for the alternative response track, which produces a decision of whether services are or are not needed, rather than whether an allegation is or is not substantiated. Differential response relies on a family’s voluntary participation in services. As of September 2014, 20 states had statewide differential response, seven had regional or countywide implementation of differential response, and at least eight were planning such initiatives. In general, results from national studies indicate that “children are at least as safe in [alternative response] as in traditional...cases, parents are engaging in services, and families, caseworkers and administration are supportive of [differential response]” (Child Welfare Information Gateway 2014, 12).

Virginia, a state similar to Wisconsin in its CPS approach, began implementing a differential response program in 1996. According to the most recent evaluation, the statewide percentage of cases that are treated as family assessments had steadily increased, from 55 percent in 2002, to 70 percent in 2007. Meanwhile, the data indicate that ongoing services reduce the risk of abuse or neglect, as the percentage of families identified as high risk decreased from 67 percent to 17 percent, and the percentage at “low risk” increased from almost none to 48 percent. Seventy-eight percent of the families did not have another referral during in the following year and a half, compared to 42 percent that did not have another referral in a comparable window without services in the prior year. The recurrence rate was lower in families whose service needs were fully addressed than in those where the needs were only partially addressed. These findings support “the impression that services properly tailored to family needs” contribute to preventing maltreatment (Virginia Department of Social Services 2008).

Wisconsin has similarly begun to implement this approach, rolling it out in several counties starting in 2010, with a plan to ultimately implement it statewide (Legislative Fiscal Bureau 2015). While the subjects are technically in a different screening category from participants in community response programs and are connected to services by different entities, both groups represent borderline cases that are treated under the theory, strongly supported by the research of Drake et al., that broad-based service provision may be more effective and efficient at preventing SOSI cases than investing in extensive investigation to categorize borderline cases and avoid missing “true” reports.

Methodology

The results of our qualitative research were useful in guiding the process of our quantitative analysis. The purpose of our quantitative analysis was to identify characteristics of families that increase their odds of SOSI.

Data

The data used for this analysis contain all CPS maltreatment reports from 2008-2010, as tracked through the Wisconsin Statewide Automated Child Welfare Information System (eWiSACWIS). eWiSACWIS tracks information on children who have interacted with the child welfare system, and it includes measures on child safety and well-being, placement and permanency, and provider and licensing information. Statewide Automated Child Welfare Information System (SACWIS) databases are federally funded and tailored to individual state policies and practices. In Wisconsin, caseworkers and/or administrative staff at the county level input child data into the system (eWiSACWIS 2015).

Limitations of the eWiSACWIS dataset prevented inclusion of potentially significant variables in our analysis. First, information on household income is not collected during the access process, but is otherwise a variable of interest for our analysis. As a proxy for household income, we use the median income level corresponding to zip code entered in the database. Additionally, presence of drug and alcohol abuse is expected to be a meaningful factor in the incidence of child abuse; however, it has not been tracked reliably over time in the eWiSACWIS database. No reliable proxy for drug and alcohol abuse is available, so we were not able to include it in our analysis.

Unit of Observation

The separation of cases into groups, described in the following section, allows us to create a study that resembles a retrospective cohort study. We aimed to only include groups of families for which we had entire case histories, allowing us to limit discrepancies in the data. Our sample is large, and includes all of those child welfare cases whose case history began 2008 through 2010. After cleaning the data for missing information, we had 135,159 observations. While this approach has some limitations, to be discussed later, it provided us with the most consistent data possible for analysis, given the time constraints in the data.

As a result of our restructuring families into groups, our primary unit of analysis is the family, denoted by the reference person, rather than the report. All of the study results are reported in terms of the family—risk factors make a *family* more or less likely to be subsequently screened in, and descriptive statistics describe families rather than any other unit. This may cause our reported figures to be vastly different than those in other studies, which may describe findings in terms of the report or the child.

Window of Observation

Our analysis comprises only a window of observation for 2008-2010. As described in detail below, our analysis studies families whose case histories began in this period. As a result,

our data are censored, and many families would have been reported before or after we observe data. Other studies with different windows of observation may have different results. Despite this, we believe that the data censoring would solely provide underestimates of effect sizes, which is preferable than overestimating.

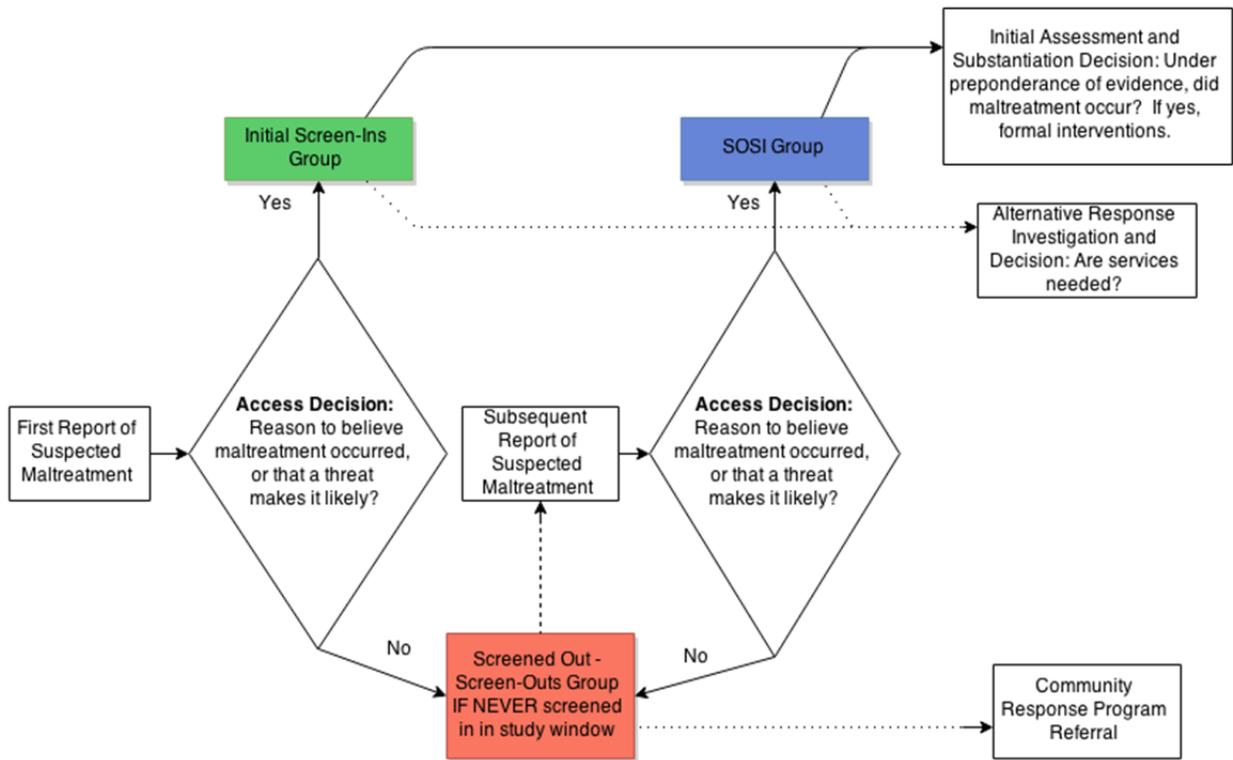
Groups

We separated families from eWiSACWIS into three groups to be compared and analyzed based on if and when the family was screened in. The Initial Screen-In group includes only those families that were screened in on their first ever CPS report. SOSIs consist of families that were not screened in on their initial report, but rather, were screened into CPS after at least one screened out report. “SOSI” is a relatively imprecise term—a family in any of these groups may experience many reports throughout its case history, and as such, may be referred multiple times. Our use of the term denotes the specific group of families that were screened in after an initial report was screened out. The Screen-Outs group was never screened in before or during the time period we analyzed. Any of these groups may have had multiple reports after 2010. However, the families of interest for the purposes of this analysis involve the initial report and the screened in report (in the case of initial screened ins, these are the same report). Table 1 defines the groups, and to Figure 2 shows where these groups fall in the screening process.

Table 1: Group Definitions

Group Name	Description
Initial Screen-Ins	Families screened in on their first report
SOSIs	Families that were screened out on their first CPS report and subsequently screened in on a later report
Screen-Outs	Families never screened into CPS

Figure 2: Wisconsin CPS Screening Process with Group Classification



Source: Authors

Before the data could be analyzed, we restructured the information to develop these groups and to produce appropriate observations for each. The data were collapsed to the level of reference person ID, and each report was then coded in the date order for each family (i.e., the first report for the family, second, third, etc.). Due to the need to make the groups as coherent as possible for the purposes of the analysis, several caveats should be kept in mind. The initial screen-in group includes only those families that were never previously screened out or screened in, meaning our data include an observation for that family’s initial screen-in. No data were tracked for the first group past the initial report, with the exception of the investigation finding. As a result, the members of the initial screen-in group may have subsequent screen-outs or screen-ins that are not tracked in this analysis. We are interested in capturing the transition a family makes from being considered a screened out family to a screened in family, and as such, we focused our analysis around solely the *first ever* report for the family and the first *screened in* report in their case history.

The second group, SOSIs, includes only families that were screened out and subsequently screened in within the three-year period. Data were tracked for each of these families’ screenings, and each family may have multiple screen-out reports before their initial screen-in. Descriptive analysis was available for this group in terms of the timing between each screen-out, but for the purposes of comparison, the entire group’s data were separated into initial screen-out and initial screen-in. As a result, the data for the middle screen-out reports were not included in the comparative analysis.

The screen-out group includes those families that were never screened in during the time period, and additionally, were never screened out or screened in in any earlier time period (as computed by the data on CPS screen-in and screen-out prior to 2008, provided by DCF). This group may include some families that could be screened in at a later time and includes some families that were screened out earlier, for which we have no data. Since the majority of these families never entered the system, the data on their families are inconsistent. Since the aim of the report is to identify families at risk of a maltreatment situation, we chose to eliminate this group from the analysis, with the exception of its inclusion in descriptive statistics.

Clarification of our grouping structure and examples are available in Appendix B.

Comparison Group

Our analysis will attempt to gauge risk factors for a family being screened in after an initial screen-out, rather than being screened in on the initial report. Our reasoning for performing this type of comparison is twofold: first, data for the families who are never screened into CPS are sparse and would produce weak statistical models. Second, since we are attempting to analyze which families could have benefitted from services earlier in their case histories, we felt that the initially screened in families provided a more appropriate comparison group.

Several caveats to this approach deserve mention. We are not making a value judgment that families should have been screened in sooner—through anecdotal evidence and our own experiences with the data, we do not believe that CPS frequently makes screening mistakes. Rather, we are making an assumption that families that are subsequently screened in could have benefitted from services earlier. As an extension of this assumption, we are not implying that being screened in or having a substantiated finding is in any way desirable. Rather, we are attempting to expand the base of families who are able to obtain services if they are needed, and to better understand which families could benefit from improved access to these services.

Descriptive Statistics

After restructuring the data and dividing families into groups, we were able to track descriptive statistics at the family level using the eWiSACWIS data provided to us by DCF. We obtained additional data from the US Census Bureau for median incomes by zip code to serve as a proxy for the socioeconomic status of the families. At the family level, we looked at the number of children, the family marital status, socioeconomic status, ages of the reference person, and race.

At the child level, we looked at a number of characteristics including age, gender, race, and whether the family includes a child with a reported disability. Information is incomplete about some characteristics including pregnancy and disability, but these inconsistencies were noted. Much of this information was specific to the youngest child in the family, and some children included in this analysis were not necessarily the victims of abuse.

Some variables, such as days between reports, ages, and allegation type, were recoded into categorical variables to aid in the ease of analysis.

We performed iterations of Student's T-Test on each of the above descriptive factors to test if observed variation between the initially screened in group and the SOSI group is statistically significant. This step allowed us to infer which factors may have a significant impact on the screening decision and to develop our hypotheses.

County Variation

Because Wisconsin is a county-administered system, we anticipated some variation in screening rates by county. As a result, we performed some descriptive analysis at the county level, and in turn, controlled for county fixed effects in our statistical models. We primarily looked for county variations in group distributions. We sought to control for county fixed effects in our models because we were aware that in other county-administered systems, such as Minnesota's, county agencies experienced variation in the way that they screen reports. To test for the variation in groups by county statistically, we performed an analysis of variance (ANOVA) test.

Hypotheses

Based on our literature review, interviews with other county-administered systems, and the descriptive statistics we generated, we developed a number of hypotheses regarding factors that we believe increase the probability that a family will be SOSI, rather than being screened in initially. The following hypotheses were generated using the SOSIs as the group of interest, with the initial screen-ins employed as the counterfactual. Families with CPS reports that were never screened in are not included in this analysis.

H₁: Families with an initial call involving a mandated reporter, such as a teacher, physician, or police officer, will be more likely to be screened in than SOSI.

We hypothesized that an allegation reported by a mandated reporter would be given more consideration by a screener, as mandated reporters are trained to recognize signs of abuse. Additionally, we hypothesized that mandated reporters would provide more of the necessary information (family name, address, etc.) that would result in a screen-in.

H₂: Families with an initial report received after business hours will be more likely to be screened in; families that had reports that were received during business hours, as a result, will be more likely to be SOSI.

We hypothesized that an allegation reported during the night or on a weekend would be treated with more urgency and could imply a child is in a dangerous situation. Such circumstances would make a family more likely to be screened in to the system for an assessment.

H₃: Families with allegations of sexual or physical abuse are more likely to be screened in initially than other types of allegations (i.e., neglect, emotional, etc.). As a corollary, neglect is the category most likely to be a SOSI.

Because an allegation of physical or sexual abuse could potentially imply an urgent situation with a child in danger, and because neglect tends to be harder to prove and may escalate, we hypothesized that families suspected of physical and sexual abuse are more likely to be screened in initially. Allegation types were categorized into five broad types of abuse: physical abuse, neglect, emotional abuse, sexual abuse, and other.

H₄: Families with an allegation involving a young child or young parent is more likely to be initially screened in.

Younger children are generally considered to be more vulnerable than older children, and younger parents are more likely to have younger children and to experience other risk factors for abuse (i.e., lack of education, low socioeconomic status, etc.). We hypothesized that these children are likely to be initially screened in, rather than SOSI, because they may be in more immediate danger than older children. We are only looking at initial reports and initial screen-ins; young children are also more likely to fall into these groups, since this report implies their first interaction with the CPS system.

H₅: A family with lower socioeconomic status will be more likely to be initially screened in.

A lower socioeconomic status is associated with many risk factors for child maltreatment, including low levels of education, a lack of parental resources and support, and higher levels of familial stressors. We believe that these families are most likely to be in need of services, and as a result, we hypothesize that they will be screened in rather than SOSI.

H₆: A family with four or more children will be more likely to be initially screened in.

We anticipate that families with many children (four or more) are more likely to be initially screened in because more children potentially in danger may imply more urgency.

Hypothesis Testing

We chose to analyze our hypotheses using a logistic regression model. This model was selected over a probabilistic or linear regression for several reasons: first, the relationships we aim to analyze are clearly not linear, as our dependent variable is binary—screened in families must have been screened in on the first report (initial screen-ins) or screened out on the first report with a later screen-in (SOSIs). Second, logistic and probabilistic models should produce very similar results with a sample of this size. Last, the use of the logistic model allows us to report our results in terms of odds ratios.

Odds ratios may provide some ambiguity in terms of results, but this ambiguity should be resolved by our large sample size. By convention, odds ratios provide a strong estimate of relative risk when the condition (in our case, being SOSI) is sufficiently rare. We believe that since our sample size is large, and our condition, SOSI, only occurs in 8.7 percent of all families, the odds ratio will provide a strong estimate of relative risk, and will allow us to gauge the likelihood of SOSI, based on our independent variables.

Use of the term “risk” implies the comparison of a negative outcome to a positive one. We are not intending to make a judgment about the relative value of being SOSI over being initially screened in. Rather, we use this term in a less specific way to gauge the probability of experiencing one condition over the other. Results can be reliably reported in terms of probabilities (i.e., a family is 50 percent less likely to experience one condition over another), but this interpretation is not entirely precise, since a probabilistic model was not used. As such, results can be reported in of the following ways:

1. Odds ratio/relative risk (most precise): reports the odds of being SOSI instead of being initially screened in; reported in relation to 1, an Odds Ratio of 1 implies no association between the independent variable and an increased likelihood of being SOSI or initially screened in.
 - Odds ratio of 0.6: The family has 0.6 times the risk of being SOSI, given the independent variable
 - Odds ratio of 1.5: The family has 1.5 times the risk of being SOSI, given the independent variable
2. Probabilistically: reports the likelihood of being SOSI, as compared to being initially screened in; obtained through the odds ratio.
 - Odds ratio of 0.6, reported probabilistically: the family is 40 percent less likely (has 60 percent of the risk) of being SOSI, given the independent variable
 - Odds ratio of 1.5: the family is 50 percent more likely (150 percent of the risk) of being SOSI, given the independent variable

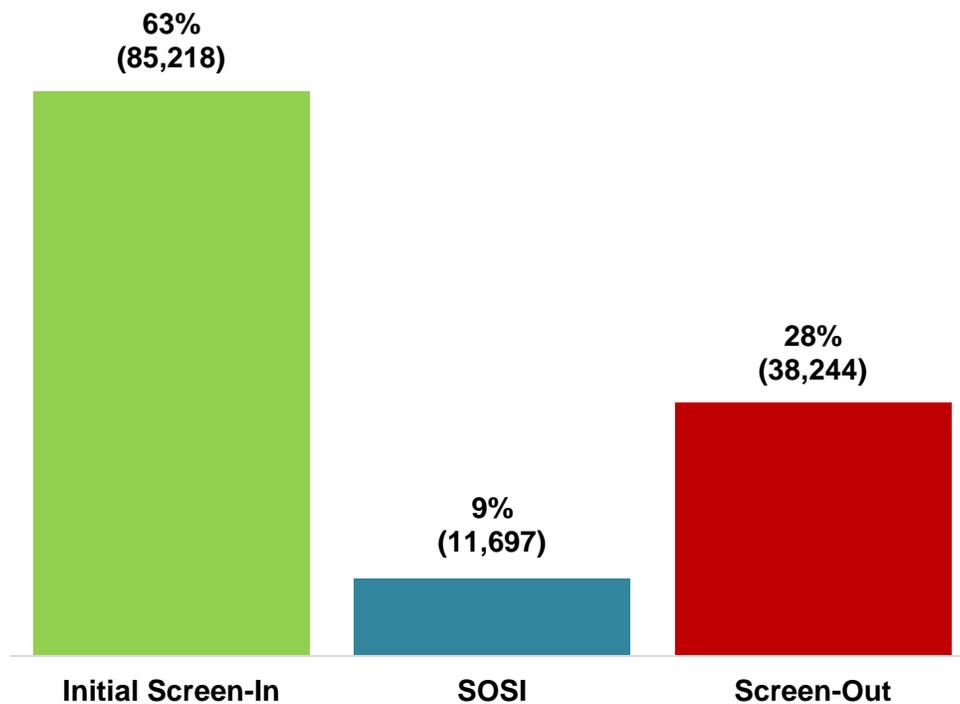
Several iterations of a logistic regression model were run to test for various risk factors. For example, we needed to test separate models for the effects of having a young reference person or a family having a young child, because these two variables were collinear. We also needed to utilize a separate model to test for family size, since having many children was strongly correlated with having a young child younger than 5 years.

Results

In creating our groups for analysis, we aimed to only classify families for which we had sufficient case histories for 2008-2010. Once families with prior CPS screened out and screened in reports were removed from the dataset, we had 135,159 families for the three-year period. Of these, 85,218 (63.1 percent) were initially screened in, 11,697 (8.7 percent) were SOSIs, and 38,244 (28.3 percent) were never screened in (see Figure 3). Of all families initially screened in, 23.4 percent were screened out and subsequently screened back in—this finding is likely an underestimate, as some families that were never screened in within our timeframe may be screened in later. As described above, any of these families could have multiple reports over their case histories. These numbers likely vary by year and are limited in scope by our timeframe. Our unit of observation is the family, and as described above, may be different than that of many statistics produced in the CPS annual Child Abuse and Neglect Report, which publishes screening decision tabulations in terms of reports. A family with five CPS reports

would be count as one observation in our tabulations, rather than five, for example. Demographic and report circumstances percentages by group can be found in Appendix C.

Figure 3: Proportion of Families Reported to CPS, 2008-2010, by Screening Decision



Source: Authors' tabulations of eWISACWIS data, 2008-2010

County Variation

As anticipated, we found substantial variation in screening by county, as detailed in Appendix D and Figures 4, 5, and 6. The results of the analysis of variance test, also available in Appendix D, Table D.2, shows county variation in screening results to be significant at the 0.01 level. Figure 4 shows the percentage of families that are initially screened in by county. The lighter color green represents fewer initial screen-ins and the darker color shows a greater number of initial screen-ins. Figure 5 shows the percentage of SOSIs by county, with darker blue colors indicating a higher percentage of SOSIs. This map shows the northwestern part of the state tends to screen in fewer families initially than those elsewhere. Additionally, these counties, and some counties in the northeastern part of the state, tend to have higher SOSI rates than those in the southern part of the state. Figure 6 shows the percentage of all screen-ins, combining those that were screened in on the initial report and those that were screened out and later screened in.

Vilas County has the highest level of initial screen-ins at 97.7 percent of families, compared to Marinette County, which initially screens-in 14.8 percent of reported families in our dataset. The percentage of SOSI families also varies substantially by county; Vilas County has 0

percent SOSIs, compared with Forest County, which had the highest percentage of SOSIs, 17.6 percent.

Since these counties are especially small in terms of population, we also looked at county percentages sorted by population. Milwaukee County, Wisconsin's most populous and the only county that is state administered, initially screens-in 80.6 percent of its families, and experiences a SOSI rate of 5.4 percent. The second largest county, Dane, has an initial screen-in rate of 53.2 percent and a SOSI rate of 10.2 percent. While we only have data for 2008-2010, we anticipate that these numbers could change substantially over time based on the types of reports coming in, providing even more variation.

As anticipated, there is clearly substantive variation in the proportion of initially screened in reports and SOSIs by county. This finding supports our choice to control for county fixed effects in the regression models.

Figure 4: Initial Screen-In Group

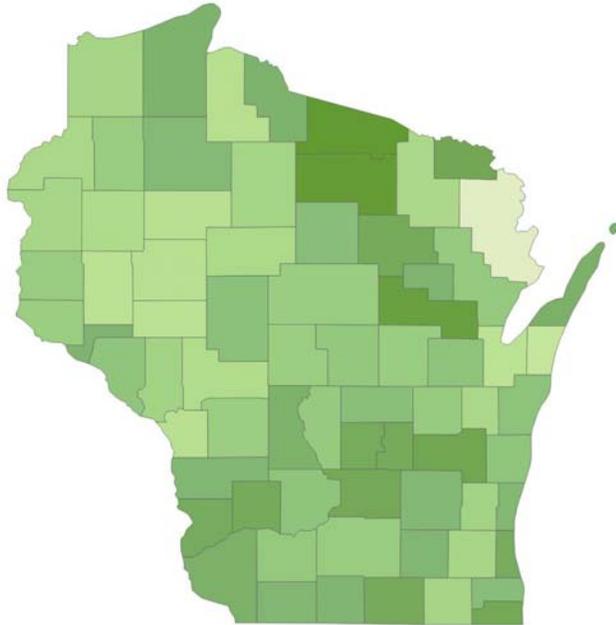
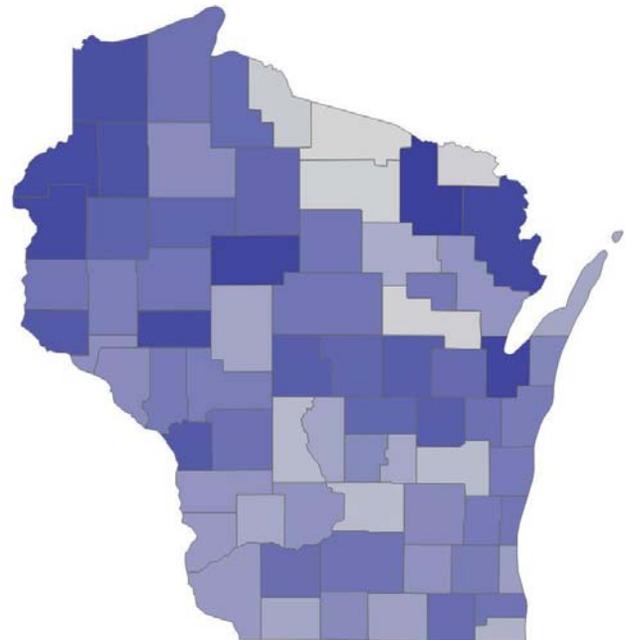
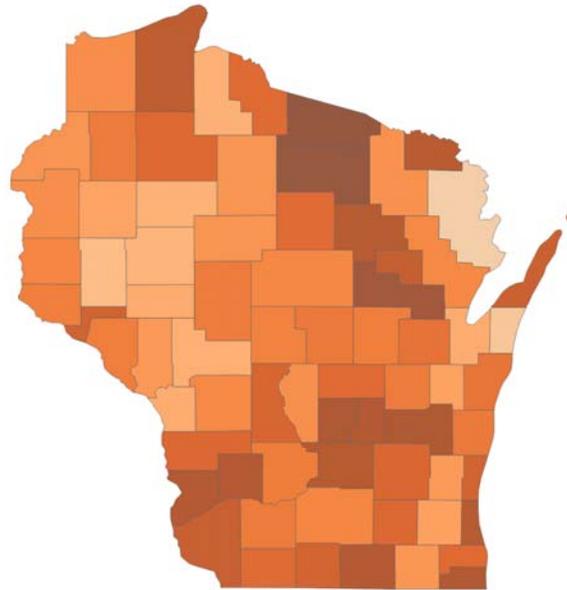


Figure 5: SOSI Group



Source: Authors' tabulations of eWiSACWIS data, 2008-2010
Note: Darker colors indicate a higher percentage of the group of interest

Figure 4: All Screened in Families, Percentage by County



Source: Authors' tabulations of eWISACWIS data, 2008-2010
 Note: Darker colors indicate a higher percentage of the group of interest

Findings of Hypotheses

Reported as odds ratios, findings for Hypotheses 1-5 are available in Appendix E, Table E.1, and are summarized in Table 2, below. As described above, with our sample, the odds ratio provides a good estimate of the relative risk caused by an independent variable, or the likelihood of experiencing the condition (being initially screened out), compared to being initially screened in, for all screened in families. All of the following estimates come from a model in which county fixed effects are controlled for. All reported findings are statistically significant at the 1 percent level, unless otherwise specified.

Table 2: Risk Factors of SOSI (Applicable Hypothesis in Parentheses)

Increases Risk of SOSI	Decreases Risk of SOSI	No Statistically Significant Effect
Physical abuse allegation (H ₃)	Mandated reporter on initial screening (H ₁)	Neglect allegation (H ₃)
Emotional abuse allegation (H ₃)	After hours report on initial screening (H ₂)	Median income by zip code (H ₅)
Youngest child younger than 5 years (H ₄)	Sexual abuse allegation (H ₃)	Child race
Reporter is younger than 25 years (H ₄)	Family has four or more children (H ₆)	
Child in the family reports a documented disability		

H₁: Families with an initial call involving a mandated reporter, such as a teacher, physician, or police officer, will be more likely to be screened in than SOSI.

Families with a mandated reporter in the initial report were 37 percent less likely (odds ratio of 0.63) to be in the SOSI group, and thus were more likely to be screened in on the initial report. This finding is consistent with our hypothesis that a mandated reporter's allegation is viewed as more credible by screeners, or provides screeners with more adequate information, than a non-mandated reporter's allegation.

H₂: Families with an initial report received after business hours will be more likely to be screened in; families that had reports that were received during business hours, as a result, will be more likely to be SOSI.

Families whose initial reports were received after regular business hours were 36 percent less likely to be SOSI (odds ratio of 0.64) compared to a call received during business hours (which is more likely to be screened in on the initial report). This is consistent with our hypothesis that reports received after hours may be more serious or urgent than other calls.

After an interview with Wisconsin CPS staff, we suspect that calls received after hours are under-reported because this variable reports the results of a checkbox indicating an after-hours call, which screeners may not consistently utilize. Furthermore, some counties do not staff CPS hotlines after hours. If a person wishes to report an allegation during these hours, they would have to call the local police station. The police would then transfer the call to a qualified screener by cell phone. Possibly, fewer calls are placed during these hours because a reporter feels uncomfortable interacting with law enforcement instead of CPS.

H₃: Families with allegations of sexual or physical abuse are more likely to be screened in initially than other types of allegations (i.e., neglect, emotional, etc.). As a corollary, neglect is the category most likely to be a SOSI.

Families with an allegation of physical abuse on the initial report were 1.2 times more likely to be SOSI rather than initially screened in, along with families that had allegations of emotional abuse, which were 2.1 times more likely to be SOSI. Alternately, an allegation of sexual abuse was 50 percent less likely to be SOSI (odds ratio of 2.0), and thus, is more likely to be initially screened in. While we were surprised with the finding regarding physical abuse, the higher likelihood of a sexual allegation being initially screened in was expected. Generally, we believe that sexual abuse is likely to be underreported. Sexual abuse may carry a stigma, and to friends and family of the alleged perpetrator, may be difficult to believe. Additionally, sexual abuse may be less likely to have a witness, and children who are victimized may be afraid to report the abuse to a trustworthy adult. As a result, it seems likely that a screener would take an allegation of sexual abuse especially seriously. The finding regarding emotional abuse was unsurprising, as emotional abuse is particularly difficult to substantiate.

Having an allegation of neglect had no statistically significant impact on a family's likelihood to be SOSI in the original model. However, when we utilized different independent variables in Model 3 (available in Appendix E, Table E.3), which controls for having an especially young reference person. This model found that allegations of neglect were 1.1 times more likely to be SOSI at the 5 percent significance level. However, since this finding was not

found to be significant in the three other utilized models, we believe that this result is likely a coincidence and does not reflect a significant relationship.

H₄: Families with an allegation involving a young child or young parent is more likely to be initially screened in.

Having a young child in the family and having a young reference person were collinear as a result of the association between parent age and child age, so separate models were used to test the impact of having a child younger than 5 years or a reference person younger than 25 years old. The results of these separate regressions are available in Appendix E, Tables E.2 and E.3. We found that when the youngest child in the family is younger than 5 years, the family is 1.1 times more likely to be SOSI. However, in other iterations of the model, this effect was not significant.

While this effect is minimal, it is surprising, since we hypothesized that younger children would be considered more vulnerable and are frequently victims of abuse, and, as a result, would be initially screened in more frequently. However, we suggest this result may be caused by the fact that very young children are in less contact with mandated reporters. Since an earlier finding revealed that reports received by a mandated reporter were more likely to be initially screened in, these very young children may be less likely to be screened in initially.

A family with an especially young reference person, under age 25, is 1.1 times more likely to be SOSI, rather than initially screened in. This finding serves as an extension of the finding regarding young children, since having a child under 5 is highly correlated with a reference person being under age 25.

H₅: A family with a lower socioeconomic status will be more likely to be initially screened in.

None of the variables representing the income level of the family's zip code were statistically significant when they were delineated. When the variable was held constant without being broken into intervals, it was statistically significant; however, we are choosing not to report this finding because it is a categorical variable and should not be reported in this way.

This finding may be caused by the fact that it is very unlikely that the screener would have knowledge about the family's income, so income is unlikely to factor directly into the screening decision. It may also be caused by the fact that the use of the median income by zip code may not be a good proxy for family income. Even to the extent that it is a good proxy, countervailing correlations may negate our expected association. Areas with lower socioeconomic status might tend to have systems that are more resource-burdened or employees who themselves are more stressed, which might incentivize the screening-out of more families in order to reduce caseloads.

H₆: A family with four or more children will be more likely to be initially screened in.

As expected, having four or more children was associated a family being 30 percent less likely to be SOSI (odds ratio of 0.72). This finding was expected, as families with many children

in a potentially unsafe situation may imply a more urgent situation. Additionally, many children in a family increase the contact with potential reporters. A separate model, available in Table E.4 in Appendix E, was run to test this hypothesis because having many children was associated with having an older reference person and having a young child under the age of 5 years.

Substantiation and SOSIs

H_A: A family that is SOSI is more likely to be substantiated compared to the initial screened in group.

When controlling for the same factors as the earlier model, we found that SOSI families were 12 percent less likely to be substantiated after an investigation. This finding goes against our hypothesis that SOSIs would be more likely to be substantiated than the initial screen-ins. Full results for this logistic model can be found in Appendix F.

Regardless of the exact cause, we consider this finding to be an important reflection of DCF's current screening methods. It reinforces DCF's notion that SOSIs largely occur not because the initial screening decision was "wrong," but rather because of changing family circumstances or deterioration in the household situation. This finding, in turn, supports the conclusion that finding "missed screen-ins" is difficult and that SOSI may be a better indication of missed opportunities to reach out to families that are good candidates for additional services.

Additional Findings

Our study revealed several findings outside of our hypotheses. In terms of risk of SOSI, having a child in the family with a documented disability was associated with a risk of SOSI 1.4 times that of a family without a disabled child. We also had a number of findings related to substantiation. First, when controlling for group, families for whom the initial report was obtained from a mandated reporter were 2.0 times more likely to have a substantiated finding, implying that mandated reporters are more successful at identifying and reporting signs of maltreatment. Next, families whose initial report was received after hours were 2.0 more likely to have a substantiated finding.

Several allegation types had statistically significant variation in substantiation rate, according to the model used to analyze substantiation in Appendix F. Families with allegations of physical abuse were 23 percent less likely to be substantiated (odds ratio of 0.77) and families with allegations of emotional abuse were 48 percent less likely to be substantiated (Odds Ratio of 0.52). The effect for allegations of neglect was not statistically significant at the 10 percent level. However, families with allegations of sexual abuse were 2.2 times more likely to be substantiated, following our hypothesis that allegations of sexual abuse tend to be underreported, and as such, more likely to be credible reports.

Another finding of interest is that within our sample, families with children who have documented disabilities were 1.3 times more likely to have substantiated finding. Since our model for gauging risk factors of SOSI indicated that disabled children were more likely to be SOSI, this finding implies that children with disabilities should be screened into the system earlier in their case histories rather than being SOSI.

Timing Between SOSI Reports

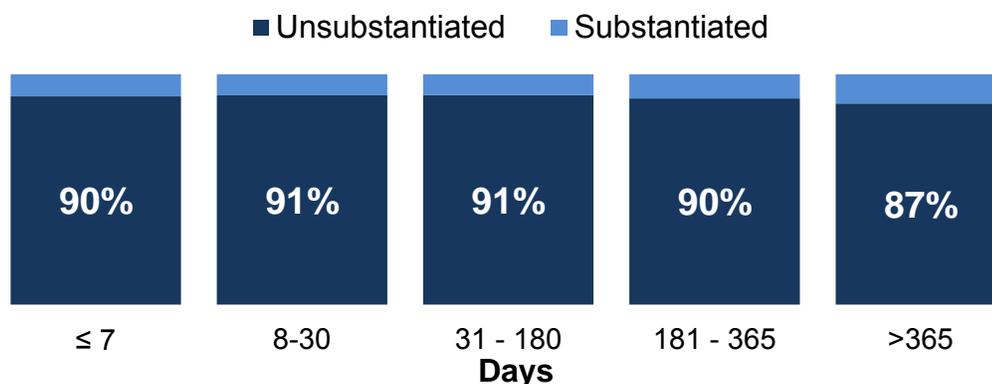
Approximately 75 percent of the 11,697 SOSI families were screened in on their first re-referral or second overall report. Around 10 percent of families in this subset were screened in within a week of the initial screened out report and 23 percent were screened in within the first 30 days from the initial screened out report. Eighty percent of the families who were initially screened out and subsequently screened in were screened in within a year of their first report. *See Figure 7.*

About 18 percent of the SOSI families were screened in on their second re-referral, or third overall report. Almost 2 percent of this subset was screened in within a week of the initial report, meaning the report was screened out twice before being subsequently screened in in a seven-day period. Eleven percent was screened in within a month from their first report, and 66 percent was screened in within a year of their first report.

A much smaller percentage of the SOSI families were screened in for the first time on the fourth or fifth report, meaning that they had three or four screen-outs, respectively, prior to their first screen-in. There were 662 families screened in on their fourth report to CPS and 242 families screened in on their fifth report to CPS.

Despite the substantial variation in the time before families formally enter the system through a screen-in, timing does not appear to affect substantiation rates in a significant way, as shown in the logistic regression table presented in Appendix G. Using the same controls as the hypothesis tests, discussed at length in the following section, none of the timing intervals had any statistically significant impact on the likelihood of a substantiated finding (Figure 7).

Figure 5: Investigation Finding by Time between Initial and Screened in Report



Source: Authors' tabulations of eWiSACWIS data, 2008-2010

Limitations

Although we present compelling findings, our analysis was limited in a number of ways. First, we were limited by the necessity to include only families whose histories began in 2008-2010. This timing may have additional impacts on the quality of our analysis, since it occurred

during a period of economic decline and uncertainty in the United States, which may have affected programmatic resources available and maltreatment rates. The constraints additionally required us to censor our data and to eliminate families from the analysis for which we did not have complete case histories. Furthermore, some families we classified as screen-outs may have subsequently been screened in post-2010, meaning that they were misclassified in our analysis.

Our analysis was further limited by the lack of data in areas. First, it was difficult to analyze socioeconomic factors that influence SOSI rates because we did not have a good estimate of familial income. Second, we would have liked to expand our analysis to include other risk factors for maltreatment, most especially substance abuse and mental health concerns within each family of interest.

Recommendations

We have three recommendations for DCF that we formed through our research on other states with similar CPS systems and through our quantitative analysis. Our first recommendation is to improve reporting management. This could be done in three ways, including the use of forced data entry fields, a tracking system for SOSIs, and the production of annual update on the state of SOSIs. The second recommendation is to follow and support community response efforts. Last, we recommend a rigorous analysis of the costs and benefits of a statewide call center.

Reporting Management

Because inconsistencies in the dataset complicated our analysis, we recommend that CPS employ more forced fields within eWiSACWIS to ensure that the responses entered are valid. Some of the substantive inconsistencies we found involved the ages of the parents, which ranged from -2 to 1,098 years of age. Though we dropped these outlying values in our analysis, forcing a value between 15 and 80, for example, would reduce human error and improve data quality for future analyses.

For our analysis on SOSI families, we had to perform an extensive restructuring of the data. If DCF is interested in tracking and reporting on SOSI rates over time, introducing a flag for SOSI families to the database would allow for easier and more efficient identification of these cases.

To better track the scope of SOSI issues statewide, we recommend adding annual data on SOSI cases, including county-level data and descriptive information, to CPS's data collection efforts. These data should be reported to county agencies to raise awareness of SOSI cases. This analysis could be presented as an independent annual report, or could be rolled into CPS's existing annual Child Abuse and Neglect Report. This reporting would add to the body of knowledge about SOSIs and could better inform DCF about the nature of SOSIs over time.

Community Response Programs

As noted above, Drake et al. have found very little difference between substantiated and unsubstantiated cases in their rate of re-referral to the CPS system; however, they also found that

the provision of social and economic support services to prevent deterioration of family circumstances greatly reduces that rate for all cases (Drake et al. 2014, 257). Our own findings have shown that patterns in SOSI cases in Wisconsin are difficult to discern, and that SOSI rates vary drastically from one setting to another. Some groups that are more likely to be SOSI may bear special attention, but it is impossible to tell with high accuracy whether any one case will be SOSI, and service efforts that are too targeted will likely fail. We have also discussed the fact that re-referrals are quite pervasive and potentially very costly. Given these high costs, the costs of offering broader service programming for initially screened in cases might be largely offset by any abuse that they prevent. We echo Drake et al. in recommending a focus on broad provision of services for screen-outs.

Community response programs target services at families that have contact with CPS, but do not generally receive services. These programs aim to refer these families to services earlier in their case history. As a result, community response programs attempt to reduce the prevalence of re-referrals by reducing maltreatment within that population (Slack et. al. 2012, 3). Wisconsin's community response programs are rooted from the Wisconsin Children's Trust Fund, which has funded 14 across the state since 2006 (Bakken et. al. 2014, 7). According to an interview with Institute for Research on Poverty Director Lonnie Berger on March 10, 2015, the community response program system is being evaluated through a randomized controlled trial in Milwaukee County that focuses on financial resources

Community response program evaluation is still in production, but the outlook is promising. Moreover, similar differential response programming is demonstrating success at providing social services to borderline cases with cost effectiveness and no sacrifice of child safety (Child Welfare Information Gateway 2014, 12). We recommend CPS heed the progress of the community response program evaluation and continue to consider the services as a potentially promising practice aimed at reducing re-referral. One could conclude that case types that, according to our findings, have a higher risk of being re-referred—such as those in families with a child who is younger than 5 years or who has a disability—are especially promising for community response program referral. However, we believe that referrals may prove to be cost-effective across the broader group of all screened in cases. Further research on the effectiveness of community response programs should be supported and could be supplemented by the collection of additional data specifically on re-referred cases.

Statewide Call Center Analysis

As noted above, Steen and Duran's research indicates that centralized call centers may allow a state to smooth over resource differences among counties and produce in them a more uniform process and rate of screen-ins. Centralized call centers may be desirable to address the high variation in the screen-in rates of Wisconsin's counties. Other Midwestern and peer states are moving in this direction. In 2014, Minnesota considered a bill to establish a work group to explore centralizing county call centers due to variations across counties in the screening decisions for the same fictional calls (Skallet 2013). Centralized call centers have been established in 31 states. Before Indiana centralized its call centers in 2010, the state was home to more than 200 numbers to call in 92 counties to report abuse. When Indiana centralized its call centers, it staffed them with 72 specially trained family care managers. Furthermore, the call center included a computerized call system, which allowed for quicker and standardized data

records even for calls that did not meet the definition of abuse or neglect (Indiana Department of Child Services 2012). Michelle Rawlings, the Bureau Director of Wisconsin's Division of Safety and Well Being, said in an April 14, 2015, interview, Colorado created a centralized call center that serves as a screening center, but the initial assessment decisions are made at the county level.

Because implementing a centralized call center entails a large cost, we recommend that Wisconsin consider a rigorous analysis of the monetized benefits and the costs of a more centralized call center structure. Many variations of centralization and their effects bear consideration. A purely centralized call center may boast administrative simplicity and have the effect, as reported by Virginia's Ayers, of providing a lower-stress working environment for intake workers that boosts retention. On the other hand, as Steen and Duran note, it might increase the overall rate of screen-ins, decrease child maltreatment reports from potential reporters who want local familiarity, or detract from the extra accountability provided by a two-layer system, all of which may not be desirable. Furthermore, such a drastic power shift from the current system might not be politically or administratively feasible. A hybrid structure, in which a statewide center augments local centers, might prove most advantageous. Alternatively, we note that a group of western Wisconsin counties plans to implement a regional call center. Their experience may be instructive. A set of regional call centers, perhaps particularly attractive for smaller counties, may be all the centralization required.

Conclusion

The data from 2008-2010 show that approximately 9 percent of families reported to CPS during those years in Wisconsin were SOSIs, but that SOSI families are 10 percent less likely to be substantiated. This finding indicates that the Wisconsin Department of Children and Families is generally making correct screening decisions, though services could be offered to screened in families to prevent borderline cases from reaching the point of maltreatment.

Significant variation exists among Wisconsin counties' screening decisions. At the extremes, Vilas County screened in 97.7 percent of families on the first referral, while Marinette County initially screened in only 14.8 percent of those families. Milwaukee County initially screened in 80.6 percent of families, with a 5.4 percent SOSI rate, while Dane County has an initial screen-in rate of 53.2 percent and a SOSI rate of 10.2 percent.

Families who had a mandated reporter were 4.9 percent more likely to be screened in upon the first referral. They were 8.1 percent more likely to be substantiated, as well, and were therefore less likely to be SOSI. Families whose initial report was made after regular business hours were 3.9 percent more likely to be screened in initially and 9.2 percent more likely to be substantiated. Families with allegations of physical abuse were 2.7 percent more likely to be SOSI, while families with allegations of sexual abuse were 2.2 percent more likely to be screened in initially. Families with different allegations had varying levels of substantiation—physical abuse was 4.3 percent less likely, and emotional abuse was 7.3 percent less likely to be substantiated, whereas sexual abuse was 7.9 percent more likely to be substantiated. SOSIs were 1.9 percent less likely to be substantiated compared to families that were screened in initially.

We recommend that DCF take steps to specifically track SOSI families, as well as adding forced fields to eWiSACWIS to improve the quality of data collected. We also recommend that a report regarding SOSIs be published annually, so that counties can be made aware of their progress.

We also recommend community response programs be studied further and potentially expanded into more counties. If offered to screened in families, these services have the potential to keep a significant number of family situations from deteriorating and rising to the level of maltreatment.

Finally, we recommend that DCF evaluate the benefits of a hybrid system of statewide or regionalized and county-based call centers. While decisions regarding whether to screen-in families would remain in the hands of individual counties, centralized or regionalized call centers may help in achieving efficiencies, retaining employees, collecting uniform data and making more consistent screening decisions. With these measures in place, more families could receive the attention and services necessary to prevent cases of maltreatment from occurring and, ultimately, reduce the rate of child abuse and neglect in Wisconsin.

Appendix A: Mandated Reporters

Any of the following persons who have reasonable cause to suspect that a child seen by the person in the course of professional duties has been abused or neglected or threatened with abuse or neglect that the person believes will actually come to pass is generally required by Wisconsin law to report the case to CPS:

- A physician.
- A coroner.
- A medical examiner.
- A nurse.
- A dentist.
- A chiropractor.
- An optometrist.
- An acupuncturist.
- A medical or mental health professional not otherwise specified in this paragraph.
- A social worker.
- A marriage and family therapist.
- A professional counselor.
- A public assistance worker, including a financial and employment planner.
- A school teacher.
- A school administrator
- A school counselor.
- A school employee not otherwise specified in this paragraph.
- A family court mediator.
- A child care worker in a child care center, group home, or residential care center for children and youth.
- A child care provider.
- An alcohol or other drug abuse counselor.
- A member of the treatment staff employed by or working under contract with a county department for mental health, development disability, alcohol and other drug, or other human services, or a residential care center for children and youth.
- A physical therapist.
- A physical therapist assistant.
- An occupational therapist.
- A dietitian.
- A speech-language pathologist.
- An audiologist.
- An emergency medical technician.
- A first responder.
- A police or law enforcement officer.
- Court-appointed special advocates.

However, some groups are specifically exempted from reporting: those with parental duties; clergy members who learned of the maltreatment through confidential means; and health care providers who provide the alleged victim confidential, sexual-related care and who believe that the alleged victim was capable of giving, and did give, consent, and that the alleged maltreatment was not at the hands of a caregiver.

Source: Wis. Stat. § 48.981.

Appendix B: Explanation of Groups

Table B.1: Examples of Families within Each Group

Group Name	Examples
Initial Screen-Ins	Families who were screened in on their first ever CPS report; these families <i>do not</i> have any prior CPS screen-ins or screen-outs
	<ul style="list-style-type: none"> Families who were initially screened in but subsequently screened out
	<ul style="list-style-type: none"> Families who were initially screened in and subsequently screened in again
SOSI	Families who were screened out on their first ever CPS report; these families <i>do not</i> have any prior CPS screen-ins or screen-outs
	<ul style="list-style-type: none"> Families who were screened out on two reports and screened in on their third call
	<ul style="list-style-type: none"> Families who were screened out on three reports and screened in on their fourth call
	<ul style="list-style-type: none"> Families who were screened out on four reports and screened in on their fifth call
	<ul style="list-style-type: none"> Any of the above families who have subsequent screen-ins or screen-outs after their initial screen-in
Screen-Outs	Families who were never screened in to CPS on any report throughout 2008-2010; these families <i>did not</i> have any prior CPS screen-ins
	<ul style="list-style-type: none"> Families with up to five CPS screen-outs during the time period
	<ul style="list-style-type: none"> Families with up to five CPS screen-outs during the time period who were also screened out prior to 2008

Table B.2: Screening Decision Matrix by Group

Group	Initial Screening Decision	CPS Screen-In Prior to 2008?	CPS Screen-Out Prior to 2008	Subsequent Screening Decision
Initial Screen-In	Screen-In	No	No	Screen in or screen out (Not Tracked)
SOSI	Screen-Out	No	No	Screen out (Up to Three More Times), Eventual Screen-In
Screen-Out	Screen-Out	No	Maybe	Screen out

Appendix C: Descriptive Statistics by Group

Table C.1: Descriptive Statistics: Reference Person

	Group 1	Group 2	Group 3
Mean Age	32.09	31.71	33.79
Mean Number of Children	2.6	2.4	2.3
Household Income <\$38,500	23.2%	15.1%	13.2%
Race			
<i>American Indian/Alaskan Native</i>	3%	3%	3%
<i>Asian</i>	2%	1%	2%
<i>Black/African-American</i>	25%	16%	11%
<i>Native Hawaiian/Other</i>	0%	0%	0%
<i>Unable to Determine/Declined</i>	4%	4%	7%
<i>White</i>	66%	76%	77%

Table C.2: Descriptive Statistics: Victim

	Group 1	Group 2	Group 3
Female			
Male			
Disability	15%	20%	13%
Race			
<i>American Indian/Alaskan Native</i>	3%	4%	3%
<i>Asian</i>	2%	1%	2%
<i>Black/African American</i>	28%	20%	13%
<i>Native Hawaiian/Other</i>	0%	0%	0%
<i>Unable to Determine/Declined</i>	4%	4%	7%
<i>White</i>	63%	71%	74%

Table C.3: Descriptive Statistics: Age of Youngest Child

	Group 1	Group 2	Group 3
Less than 1 Year	15%	17%	11%
Between 2 and 5 Years	27%	28%	24%
Between 6 and 11 Years	33%	33%	35%
Between 12 and 15 Years	18%	17%	21%
Between 16 and 18 Years	7%	5%	9%

Table C.4: Descriptive Statistics: Allegation

Allegation of First Report	Group 1	Group 1
<i>Physical Abuse</i>	30.93%	32.36%
<i>Neglect</i>	49.37%	53.67%
<i>Emotional Abuse</i>	1.83%	4.87%
<i>Sexual Abuse</i>	16.9%	7.75%
<i>Other</i>	0.97%	1.35%
Allegation of First Screen in		
<i>Physical Abuse</i>	30.93%	32.33%
<i>Neglect</i>	49.37%	51.53%
<i>Emotional Abuse</i>	1.83%	2.51%
<i>Sexual Abuse</i>	16.9%	12.89%
<i>Other</i>	0.97%	0.74%

Figure C.1: Allegation Type – Initial Report, By Group

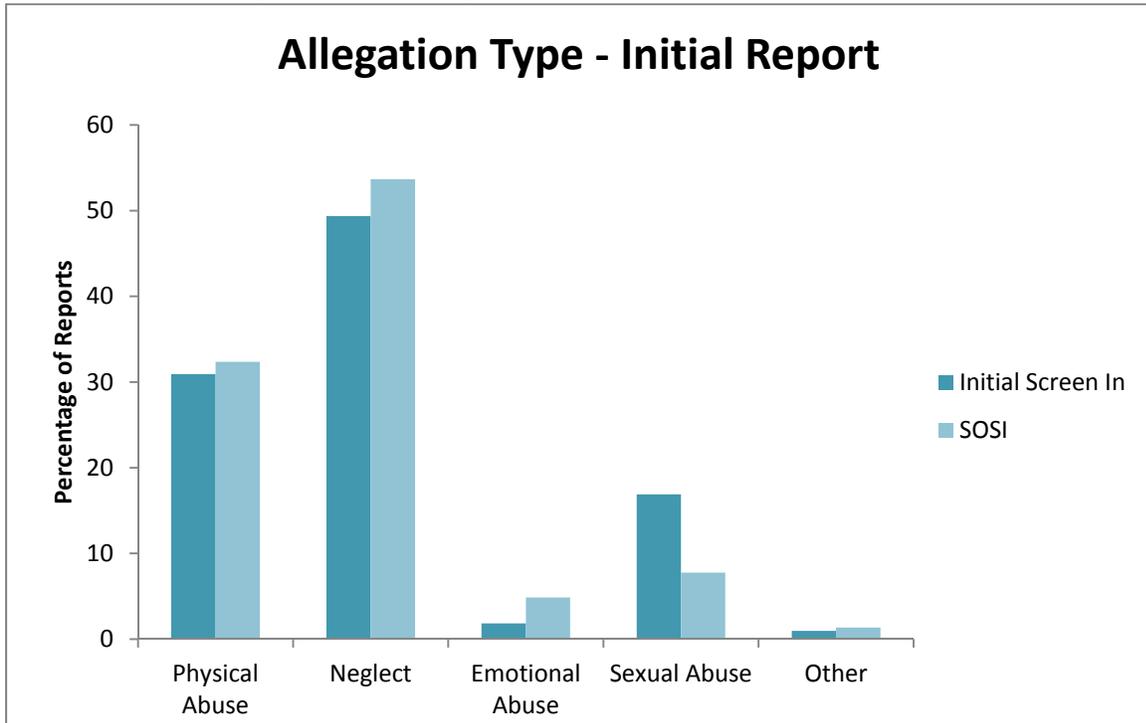


Table C.5: Student's T-Tests: Descriptive Statistics, Initial Screen-In Families Compared to SOSI Families

Independent Variable	Coef.	Std. Error
Child Age at the Time of Report Observations	0.401 ^{***} 96,917	(0.0501)
Child Race Observations	-0.337 ^{***} 84,329	(0.0211)
Child Disability Observations	-0.0581 ^{***} 43,498	(0.00513)
Child Gender Observations	0.00379 95,628	(0.00495)
Child is Hispanic Observations	0.0277 ^{***} 61,829	(0.00427)
Median Income by Zip Code Observations	-2193.8 ^{***} 92,104	(133.4)
Number of Children in Household Observations	0.290 ^{***} 96,917	(0.0145)
Age of Reference Person Observations	0.447 ^{***} 83990	(0.113)

Standard errors in parentheses
^{*} $p < 0.10$, ^{**} $p < 0.05$, ^{***} $p < 0.01$

Appendix D: County Variation

Table D.1: Frequency of Families by Group, by Wisconsin County

COUNTY	Total Number of Families	Initial Screen-In	SOSI	Screen-Out	% Initial Screen-In	% SOSI	% Screen-Out
Adams	388	213	18	157	54.9%	4.6%	40.5%
Ashland	393	139	44	210	35.4%	11.2%	53.4%
Barron	1,446	571	177	698	39.5%	12.2%	48.3%
Bayfield	271	200	28	43	73.8%	10.3%	15.9%
Brown	6,516	2,062	1,091	3,363	31.6%	16.7%	51.6%
Buffalo	221	131	16	74	59.3%	7.2%	33.5%
Burnett	381	161	60	160	42.3%	15.7%	42.0%
Calumet	1,137	481	120	536	42.3%	10.6%	47.1%
Chippewa	1,388	491	138	759	35.4%	9.9%	54.7%
Clark	742	464	35	243	62.5%	4.7%	32.7%
Columbia	1,152	965	28	159	83.8%	2.4%	13.8%
Crawford	261	212	15	34	81.2%	5.7%	13.0%
Dane	8,211	4,372	834	3,005	53.2%	10.2%	36.6%
Dodge	1,456	1,007	111	338	69.2%	7.6%	23.2%
Door	454	346	20	88	76.2%	4.4%	19.4%
Douglas	1,606	728	241	637	45.3%	15.0%	39.7%
Dunn	891	291	78	522	32.7%	8.8%	58.6%
Eau Claire	2,210	725	352	1,133	32.8%	15.9%	51.3%
Florence	161	137	1	23	85.1%	0.6%	14.3%
Fond du Lac	2,794	2,401	69	324	85.9%	2.5%	11.6%
Forest	159	66	28	65	41.5%	17.6%	40.9%
Grant	730	555	42	133	76.0%	5.8%	18.2%
Green	872	624	64	184	71.6%	7.3%	21.1%
Green Lake	325	268	14	43	82.5%	4.3%	13.2%
Iowa	460	261	50	149	56.7%	10.9%	32.4%
Iron	99	73	1	25	73.7%	1.0%	25.3%
Jackson	580	222	52	306	38.3%	9.0%	52.8%
Jefferson	1,262	885	81	296	70.1%	6.4%	23.5%
Juneau	432	324	11	97	75.0%	2.5%	22.5%
Kenosha	4,422	3,720	148	554	84.1%	3.3%	12.5%
Kewaunee	226	64	18	144	28.3%	8.0%	63.7%
La Crosse	2,769	960	376	1,433	34.7%	13.6%	51.8%
Lafayette	339	238	15	86	70.2%	4.4%	25.4%
Langlade	856	702	33	121	82.0%	3.9%	14.1%

COUNTY	Total Number of Families	Initial Screen-In	SOSI	Screen-Out	% Initial Screen-In	% SOSI	% Screen-Out
Lincoln	511	331	50	130	64.8%	9.8%	25.4%
Manitowoc	1,914	1,174	174	566	61.3%	9.1%	29.6%
Marathon	2,719	1,434	268	1,017	52.7%	9.9%	37.4%
Marinette	1,232	182	200	850	14.8%	16.2%	69.0%
Marquette	344	278	26	40	80.8%	7.6%	11.6%
Menominee	295	215	28	52	72.9%	9.5%	17.6%
Milwaukee	31,324	25,255	1,679	4,390	80.6%	5.4%	14.0%
Monroe	1,425	739	150	536	51.9%	10.5%	37.6%
Oconto	418	235	26	157	56.2%	6.2%	37.6%
Oneida	872	841	5	26	96.4%	0.6%	3.0%
Outagamie	4,818	2,894	543	1,381	60.1%	11.3%	28.7%
Ozaukee	993	687	97	209	69.2%	9.8%	21.0%
Pepin	88	64	6	18	72.7%	6.8%	20.5%
Pierce	842	440	114	288	52.3%	13.5%	34.2%
Polk	1,293	575	205	513	44.5%	15.9%	39.7%
Portage	853	488	101	264	57.2%	11.8%	30.9%
Price	274	126	32	116	46.0%	11.7%	42.3%
Racine	6,451	4,208	646	1,597	65.2%	10.0%	24.8%
Richland	310	256	13	41	82.6%	4.2%	13.2%
Rock	7,532	6,157	376	999	81.7%	5.0%	13.3%
Rusk	385	132	46	207	34.3%	11.9%	53.8%
Saint Croix	1,597	851	158	588	53.3%	9.9%	36.8%
Sauk	905	546	58	301	60.3%	6.4%	33.3%
Sawyer	446	305	32	109	68.4%	7.2%	24.4%
Shawano	715	663	4	48	92.7%	0.6%	6.7%
Sheboygan	2,347	1,392	219	736	59.3%	9.3%	31.4%
Taylor	360	147	61	152	40.8%	16.9%	42.2%
Trempealeau	542	254	50	238	46.9%	9.2%	43.9%
Vernon	570	398	36	136	69.8%	6.3%	23.9%
Vilas	621	607	0	14	97.7%	0.0%	2.3%
Walworth	1,853	849	206	798	45.8%	11.1%	43.1%
Washburn	253	134	37	82	53.0%	14.6%	32.4%
Washington	1,284	599	119	566	46.7%	9.3%	44.1%
Waukesha	4,509	1,990	408	2,111	44.1%	9.0%	46.8%
Waupaca	1,315	700	172	443	53.2%	13.1%	33.7%
Waushara	760	484	89	187	63.7%	11.7%	24.6%
Winnebago	3,907	2,134	505	1,268	54.6%	12.9%	32.5%

COUNTY	Total Number of Families	Initial Screen-In	SOSI	Screen-Out	% Initial Screen-In	% SOSI	% Screen-Out
Wood	2,672	1,395	349	928	52.2%	13.1%	34.7%

**Table D.2: Analysis of Variance Results:
Group Distribution, by County**

Number of Observations: 135,159			
	Statistics	F	Prob>F
County	W 0.8645	298.30	0.0000***
	R 0.1355	298.30	0.0000***
	L 0.1568	298.30	0.0000***
	R 0.1568	298.30	0.0000***
Notes:	* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ W: Wilks' lambda R: Roy's largest root L: Lawley-Hotelling trace R: Pillai's trace		

Appendix E: Logistic Regression Results—Odds Ratios of SOSI

Table F.1: Model 1—Odds Ratios of SOSI

Group	
Mandated Reporter, Initial Report	0.628 ^{***} (0.0203)
After Hours - Initial Report	0.638 ^{***} (0.0422)
Reference Age: 22-25 years	0.855 ^{**} (0.0561)
Ref. Age: 26-30 years	0.766 ^{***} (0.0508)
Ref. Age: 31-35 years	0.855 ^{**} (0.0587)
Ref. Age: 36-40 years	0.932 (0.0685)
Ref. Age: 41-45 years	0.753 ^{***} (0.0650)
Ref. Age: 46-50 years	0.851 (0.0863)
Ref. Age: Over 50 years	1.241 ^{**} (0.124)
Child Age: 2-5 years	1.067 (0.0576)
Child Age: 6-11 years	1.096 (0.0636)
Child Age: 12-15 years	0.964 (0.0649)
Child Age: 16-18 years	0.740 ^{***} (0.0681)
Initial Allegation - Physical Abuse	1.244 ^{***} (0.0548)
Initial Allegation - Neglect	1.062 (0.0433)
Initial Allegation - Emotional Abuse	2.070 ^{***} (0.204)
Initial Allegation - Sexual Abuse	0.507 ^{***} (0.0362)
Child Disability	1.441 ^{***} (0.0575)
Income: 100-150% of Federal Poverty Level	0.912 (0.119)
Income: 150-200% of FPL	1.055 (0.138)
Income: 200-250% of FPL	1.136 (0.151)
Income: 250-300% of FPL	1.089 (0.150)
Income: 300-350% of FPL	1.167 (0.163)
County FE	Yes
Observations	39648

Exponentiated coefficients; Standard errors in parentheses
^{*} $p < 0.10$, ^{**} $p < 0.05$, ^{***} $p < 0.01$

**Table E.2: Model 2—Odds Ratios of SOSI,
Including Youngest Child Younger than 5 Years**

Group	
Mandated Reporter, Initial Report	0.618*** (0.0191)
After Hours - Initial Report	0.660*** (0.0415)
Youngest Child is Under 5	1.142*** (0.0349)
Initial Allegation - Physical Abuse	1.220*** (0.0517)
Initial Allegation - Neglect	1.062*** (0.0410)
Initial Allegation - Emotional Abuse	2.022*** (0.191)
Initial Allegation - Sexual Abuse	0.490*** (0.0330)
Child Disability	1.472*** (0.0563)
Income: 100-150% of FPL	0.978 (0.125)
Income: 150-200% of FPL	1.115 (0.141)
Income: 200-250% of FPL	1.161 (0.150)
Income: 250-300% of FPL	1.112 (0.149)
Income: 300-350% of FPL	1.173 (0.159)
County FE	Yes
Observations	43130

Exponentiated coefficients; Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table E.3: Model 3—Odds Ratios of SOSI, Including Reference Person Younger than 25

Group	
Mandated Reporter, Initial Report	0.626 ^{***} (0.0194)
After Hours - Initial Report	0.654 ^{***} (0.0415)
Reference Person is Under the Age of 25	1.083 ^{**} (0.0403)
Initial Allegation - Physical Abuse	1.287 ^{***} (0.0539)
Initial Allegation - Neglect	1.094 ^{**} (0.0419)
Initial Allegation - Emotional Abuse	2.038 ^{***} (0.190)
Initial Allegation - Sexual Abuse	0.505 ^{***} (0.0343)
Child Disability	1.385 ^{***} (0.0535)
Median Income, Percentage of Federal Poverty Level	1.036 ^{**} (0.0170)
County FE	Yes
Observations	43085

Exponentiated coefficients; Standard errors in parentheses
 * p < 0.10, ** p < 0.05, *** p < 0.01

**Table E.4: Model 4–Odds Ratios of SOSI,
Including Having More than Four Children**

Group	
Mandated Reporter, Initial Report	0.624 ^{***} (0.0193)
After Hours - Initial Report	0.661 ^{***} (0.0419)
Family Has 4 or More Children	0.702 ^{***} (0.0274)
Initial Allegation - Physical Abuse	1.193 ^{***} (0.0507)
Initial Allegation - Neglect	1.036 (0.0400)
Initial Allegation - Emotional Abuse	1.917 ^{***} (0.179)
Initial Allegation - Sexual Abuse	0.466 ^{***} (0.0317)
Child Disability	1.370 ^{***} (0.0530)
Median Income, Percentage of Federal Poverty Level	1.032 [*] (0.0169)
County FE	Yes
Observations	43085

Exponentiated coefficients; Standard errors in parentheses
^{*} $p < 0.10$, ^{**} $p < 0.05$, ^{***} $p < 0.01$

Appendix F: Logistic Regression Results – Odds Ratios of Substantiation

**Table F.1: Model 5–
Odds Ratios of Substantiation**

Substantiation	
Group	0.883 ^{**} (0.0531)
Mandated Reporter, Initial Report	2.011 ^{***} (0.0766)
After Hours - Initial Report	1.968 ^{***} (0.0971)
Child Age: 2-5 years	0.525 ^{***} (0.0278)
Child Age: 6-11 years	0.474 ^{**} (0.0246)
Child Age: 12-15 years	0.582 ^{**} (0.0340)
Child Age: 16-18 years	0.597 ^{**} (0.0476)
Initial Allegation - Physical Abuse	0.774 ^{**} (0.0788)
Initial Allegation - Neglect	1.035 ^{**} (0.102)
Initial Allegation - Emotional Abuse	0.524 ^{**} (0.0926)
Initial Allegation - Sexual Abuse	2.164 ^{***} (0.225)
Child Disability	1.267 ^{***} (0.0556)
Income: 100-150% of FPL	0.915 ^{**} (0.107)
Income: 150-200% of FPL	0.925 ^{**} (0.108)
Income: 200-250% of FPL	0.866 ^{**} (0.105)
Income: 250-300% of FPL	0.777 ^{**} (0.100)
Income: 300-350% of FPL	0.992 ^{**} (0.127)
County FE	Yes
Observations	30705

Exponentiated coefficients; Standard errors in parentheses
^{*} $p < 0.10$, ^{**} $p < 0.05$, ^{***} $p < 0.01$

Appendix G: Impact of Timing on the Likelihood of Substantiation

Table G.1: Model 6—Logistic Regression of Substantiation, Including Time between Initial and Reports

Substantiation	
Time: 7-30 days	-0.248 (0.245)
Time: 30-180 days	-0.135 (0.213)
Time: 180-365 days	-0.0148 (0.216)
Time: >365 days	0.0279 (0.218)
Mandated Reporter, Initial Report	0.0901 (0.104)
After Hours - Initial Report	-0.0613 (0.236)
Age of Reference Person	0.00478 (0.0330)
Child age: 1 year or less	0.0409 (0.272)
Child age: 2-5 years	-0.233 (0.254)
Child age: 6-11 years	-0.485 ^{**} (0.246)
Child age: 12-15 years	-0.261 (0.256)
Child age: 15-18 years	0 (.)
Initial Allegation - Physical Abuse	0.192 (0.146)
Initial Allegation - Neglect	0.171 (0.138)
Initial Allegation - Emotional Abuse	-0.130 (0.303)
Initial Allegation - Sexual Abuse	0.0915 (0.238)
Child Disability	0.356 ^{***} (0.112)
150% or less of FPL	0.597 (0.621)
150-200% of FPL	0.892 (0.606)
200-250% of FPL	0.734 (0.608)
250-300% of FPL	0.194 (0.625)
>300% of FPL	0.742 (0.618)
Constant	-2.632 ^{***} (0.708)
Observations	3867

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