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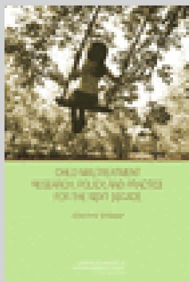

Child Maltreatment Research, Policy, and Practice for the Next Decade: Workshop Summary

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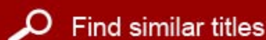

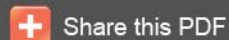

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CHILD MALTREATMENT RESEARCH, POLICY, AND PRACTICE FOR THE NEXT DECADE

WORKSHOP SUMMARY

Steve Olson and Clare Stroud, *Rapporteurs*

Board on Children, Youth, and Families

INSTITUTE OF MEDICINE *AND*
NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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[1]Institute of Medicine and National Research Council planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published workshop summary rests with the workshop rapporteurs and the institution.

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Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this report:

Lucy Berliner, University of Washington
Mark Chaffin, University of Oklahoma Health Science Center
Rob Geen, The Annie E. Casey Foundation
Sarah (Sally) M. Horwitz, Stanford University
Frank Putnam, Cincinnati Children's Hospital Medical Center
David Sanders, Casey Family Programs
Charles H. Zeanah, Jr., Tulane University

Although the reviewers listed above have provided many constructive comments and suggestions, they did not see the final draft of the report before its release. The review of this report was overseen by **Elena O. Nightingale,** Institute of Medicine. Appointed by the Institute of Medicine, she was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the rapporteurs and the institution.

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D BACKGROUND PAPER: MAJOR RESEARCH ADVANCES SINCE THE PUBLICATION OF THE 1993 NRC REPORT *UNDERSTANDING CHILD ABUSE AND NEGLECT*: HIGHLIGHTS FROM THE LITERATURE 119

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Acronyms

ACF	Administration for Children and Families
ACYF	Administration on Children, Youth and Families
ADHD	attention-deficit/hyperactivity disorder
AFCARS	Adoption and Foster Care Analysis and Reporting System
ARC	Availability, Responsiveness, and Continuity
CAC	Child Advocacy Center
CAPTA	Child Abuse Prevention and Treatment Act
CEBC	California Evidence-Based Clearinghouse for Child Welfare
CFSR	Child and Family Service Review
CPS	Child Protective Services
DBT	dialectical behavioral therapy
DJJ	Department of Juvenile Justice
DSS	Department of Social Services
GAL	guardian ad litem
HHS	U.S. Department of Health and Human Services
HPA	hypothalamus-pituitary-adrenal
ICD	International Classification of Diseases
IEP	individualized education program
IH-CBT	In-Home Cognitive Behavioral Therapy
IOM	Institute of Medicine
IRB	institutional review board

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MDT	multidisciplinary team
MST	multisystemic therapy
MTFC-P	Multidimensional Treatment Foster Care for Preschoolers
NCANDS	National Child Abuse and Neglect Data System
NCS	National Children's Study
NIH	National Institutes of Health
NIS	National Incidence Studies
NPM	New Public Management
NRC	National Research Council
NSCAW	National Survey of Child and Adolescent Well-Being
PTS	posttraumatic stress
PTSD	posttraumatic stress disorder
QSR	quality service review
SACWIS	Statewide Automated Child Welfare Information System
UNICEF	United Nations Children's Fund

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1

Introduction and Overview[1]

In 1993 the National Research Council (NRC) released its landmark report *Understanding Child Abuse and Neglect* (NRC, 1993). That report identified child maltreatment as a devastating social problem in American society. It observed that social service agencies received case reports involving over 2 million children in the year 1990 alone. From 1979 through 1988, about 2,000 child deaths (ages 0-17) resulting from abuse and neglect were recorded annually. As the report noted, the services required for children who have been abused or neglected, including medical care, family counseling, foster care, and specialized education, cost many hundreds of millions of dollars annually.

At that time, according to the report, research in the field of child maltreatment studies was relatively undeveloped when compared with related fields such as child development, social welfare, and criminal violence. To reduce the physical and emotional tolls of child maltreatment, the report called for a wide-ranging research program with four separate objectives:

1. *The Nature and Scope of Child Maltreatment.* Clarify the nature and scope of child maltreatment, guided by well-developed research definitions and instrumentation.
2. *The Origins and Consequences of Child Maltreatment*. Provide an understanding of the origins and consequences of child maltreatment in order to better inform theories regarding its etiology

[1]This report has been prepared by the workshop rapporteurs as a factual summary of what occurred at the workshop. The planning committee's role was limited to planning and convening the workshop. The views contained in the report are those of individual workshop participants and do not necessarily represent the views of all workshop participants, the planning committee, or the National Research Council and Institute of Medicine.

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and to establish a foundation for improving the quality of future policy and program efforts to address the problem.

3. *Treatment and Prevention of Child Maltreatment*. Determine the strengths and limitations of existing approaches and interventions in preventing and treating child maltreatment to guide the development of new and more effective interventions.
4. *A Science Policy for Research on Child Maltreatment*. Develop a science policy for child maltreatment research that recognizes the importance of developing national leadership, human resources, instrumentation, financial resources, and appropriate institutional arrangements for child maltreatment research.

By pursuing this agenda, the report argued, researchers could "develop knowledge that can improve understanding of, and response to, child maltreatment."

RESEARCH, POLICY, AND PRACTICE FOR THE NEXT DECADE

Nearly 20 years later, on January 30-31, 2012, the Board on Children, Youth, and Families at the Institute of Medicine (IOM) and the NRC held a workshop to review the accomplishments of the past two decades of research related to child maltreatment and the remaining gaps. "There have been many exciting research discoveries since the '93 report," said Anne Petersen, research professor at the Center for Human Growth and Development at the University of Michigan. She was chair of the panel that produced the report and also chaired the planning committee for the workshop. "But we also want people to be thinking about what is missing."

The workshop brought together many leading U.S. child maltreatment researchers for a day and a half of presentations and discussions. Presenters were asked to review research accomplishments, identify gaps that remain in knowledge, and consider potential research priorities. A background paper highlighting major research advances since the publication of the 1993 NRC report was prepared by an independent consultant to inform the workshop discussions; this paper is included in Appendix D. In the past two decades, there has also been significant progress in research on child development more generally, but it was beyond the scope of the workshop to consider this broader topic (see Box 1).

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BOX 1
Research on Child Development

As presenters noted throughout the workshop, the past two decades have seen an outpouring of original research and syntheses of research on child maltreatment. There has also been much effort to improve our general understanding of child development and the ways in which the social and physical environments of children interact with their health and development. For example, the National Research Council and Institute of Medicine report *From Neurons to Neighborhoods: The Science of Early Childhood Development* (NRC and IOM, 2000) reviewed studies of early childhood development and their implications for policies and programs that affect the lives of young children. This report noted that "an explosion of research in the neurobiological, behavioral, and social sciences has led to major advances in understanding the conditions that influence whether children get off to a promising or a worrisome start in life" (p. 1). Much additional research has been undertaken in the 12 years since the report was published, but it was beyond the scope of this workshop to review the broad literature on child development.

A VISION FOR THE FUTURE

The workshop was sponsored by the Office on Child Abuse and Neglect, which is situated in the Children's Bureau of the Administration on Children, Youth and Families (ACYF). ACYF is part of the U.S. Department of Health and Human Services' (HHS's) Administration for Children and Families (ACF). The Children's Bureau was founded in 1912 to improve the lives of children and families. The centennial of the bureau "provides a wonderful opportunity . . . to step back and reflect on what we know and have learned and to make sure that we are clear about the foundation that has been laid and where we ought to be going in the future," said Bryan Samuels, Commissioner of the ACYF, in his opening remarks at the workshop. "The timing couldn't be better."

Samuels noted that there continue to be questions about the fundamental goals and purposes of the field of child maltreatment and the provision of services for children and families. For example, he said, child welfare systems emphasize safety and permanency, but they place less emphasis on the well-being of children. The workshop "is an opportunity to look, in the context of maltreatment, at how we build and improve a system to

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address the healing and recovery for children who have been exposed to it, as well as to, in some respects, learn how we do a better job of preventing maltreatment."

Research is a critical contributor to policy and practice, said Samuels. When he was director of the Illinois Department of Children and Family Services, he relied heavily on the research literature to produce a better child welfare system even as the system got smaller. Research results on the prevention of child maltreatment informed policies to reduce the incidence of maltreatment, while understanding the consequences of maltreatment informed responses. Drawing on this knowledge, Samuels said, he was able to make "significant changes in the system."

The objective of the workshop, he said, should be not just to understand the current system, but to provide a vision for the future of research, policy, and practice.

ABOUT THIS SUMMARY

This document is intended to summarize the presentations and discussions at the IOM/NRC workshop *Child Maltreatment Research, Policy, and Practice for the Next Generation*. The summary also highlights participant suggestions for future research priorities, policy actions, and practices that would enhance understanding of child maltreatment and efforts to reduce and respond to it. The workshop speakers and presentation topics were selected to cover a range of important issues in child maltreatment research, policy, and practice. However, it was impossible to include all potential topics during the course of a day-and-a-half workshop and, in their presentations, speakers could not exhaustively cover all relevant findings and issues for each topic. Consequently, some relevant topics could not be included in the workshop and, by extension, are not included in this workshop summary.

Whenever possible, ideas presented at the workshop are attributed to the individual who expressed them. Any opinions, conclusions, or recommendations discussed in this workshop summary are solely those of the individual participants and should not be construed as reflecting consensus or endorsement by the workshop, the Board on Children, Youth, and Families, or the National Academies. The workshop agenda is in Appendix B and a list of registered participants is in Appendix C.

The 21 presentations at the workshop are divided into eight chapters following this introductory chapter. (For clarity, the presentations have

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been somewhat reorganized from the agenda.) Chapter 2 summarizes the keynote address at the workshop, which looked back to the research done in the 20 years since *Understanding Child Abuse and Neglect* and forward to the research that still needs to be done. Chapter 3 examines the medical and psychosocial assessment of child abuse and neglect as the instigating event in the provision and planning of services. Chapter 4 considers social trends and child maltreatment trends, largely on a national level, and probes the relationships among those trends. Chapter 5 considers the causes and consequences of child maltreatment, with a particular emphasis on the neurobiological effects of abuse and neglect. Chapter 6 looks at research on primary, secondary, and tertiary preventions and the impact of this research on policy and practice. Chapter 7 discusses the design and delivery of services, including implementation research. Chapter 8 looks at system-level issues in responding to child maltreatment, including responses in different countries, alternative child welfare services, and legal action to build evidence-based systems. Chapter 9 provides Petersen's final observations on themes that arose during the workshop and lists selected suggestions for future research priorities proposed by presenters during the workshop.

At the time of the workshop, an IOM/NRC consensus study on child maltreatment research was being planned. The workshop presentations and discussions, as summarized here, could serve as a source of information for the committee that will be convened to conduct the consensus study.

There continues to be discussion about the definition of types of child abuse and neglect. Individual states set their own definitions of child abuse and neglect while meeting minimum federal standards. Furthermore, workshop participants noted the research challenges stemming from a lack of consensus on definitions of child abuse and neglect; this is discussed in Chapter 2, Chapter 4, Appendix D, and various other places throughout the workshop discussions. For the purposes of initial illustration only, therefore, Box 2 presents example definitions of the major types of child abuse and neglect from a Children's Bureau publication (HHS, 2008).

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BOX 2
Defining Major Types of Child Abuse and Neglect

The Federal Child Abuse Prevention and Treatment Act (CAPTA, 42 U.S.C.A. § 5106g) sets a minimum set of acts or behaviors that define child abuse. States provide their own definitions on child abuse and neglect that meet these minimum standards. Furthermore, there is little consensus on definitions used in research. The following definitions are provided in a Children's Bureau publication as examples; actual definitions vary by state (HHS, 2008).

"**Physical abuse** is nonaccidental physical injury (ranging from minor bruises to severe fractures and/or death) as a result of punching, beating, kicking, biting, shaking, throwing, stabbing, choking, hitting (with a hand, stick, strap, or other object), burning, or otherwise harming a child, that is inflicted by a parent, caregiver, or other person who has responsibility for the child….

Neglect is the failure of a parent, guardian, or other caregiver to provide for a child's basic needs….

Sexual abuse includes activities by a parent or caregiver such as fondling a child's genitals, penetration, incest, rape, sodomy, indecent exposure, and exploitation through prostitution or the production of pornographic materials….

Emotional abuse (or psychological abuse) is a pattern of behavior that impairs a child's emotional development or sense of self-worth, This may include constant criticism, threats, or rejection, as well as withholding love, support, or guidance."

SOURCE: HHS, 2008.

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2

Reflections on the 1993 NRC Report *Understanding Child Abuse and Neglect*

Key Points Raised by the Speaker

- Despite increased levels of research over the past two decades, the incidence of different kinds of abuse and neglect remains unclear.
- Differing definitions of child abuse and neglect continue to hinder research, prevention, and treatment.
- Though the consequences of child maltreatment are better understood today than they were two decades ago, the contextual factors that influence maltreatment need more study.
- Child maltreatment research needs to move from the fringe to the mainstream, with increased funding and better use of research results to shape policy and practice.

Looking back provides an opportunity to look forward as well, said Cathy Spatz Widom, in her keynote address at the workshop. She is a distinguished professor in the psychology department at John Jay College, a faculty member at the Graduate Center of the City University of New York, and a member of the panel that produced the 1993 NRC report. Any such review has the temptation of painting a picture of great progress. “Alas, I think the story is more complicated,” she said.

EXPANSION OF RESEARCH

The research literature on child abuse and neglect has undergone a substantial increase since 1993 (Figure 1). During the 1980s, approximately 8,000 medical and psychological articles were published in the

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areas of child abuse and neglect. By the first decade of the 21st century, that number had risen to nearly 25,000.

However, the approximate parity between the increases in medical and psychological articles obscures an important trend. In the areas of physical and sexual abuse, publications from medicine and from psychology are increasing at about the same rate. In the area of neglect, however, medical publications are increasing at a significantly faster rate than psychological publications. “I would suggest that we have neglect of neglect by psychologists,” said Widom.

NATURE AND SCOPE OF CHILD MALTREATMENT

More data are available today on the incidence and prevalence of child maltreatment than were available in 1993. (Chapter 4 of this summary addresses major data sources and trends over time.) However, fundamental questions remain, Widom noted. According to data from the National Incidence Studies (NISs), the incidence of child maltreatment declined 19 percent in the 12 years between NIS-3 and NIS-4. Most of the decline appears to be related to significant decreases in physical and

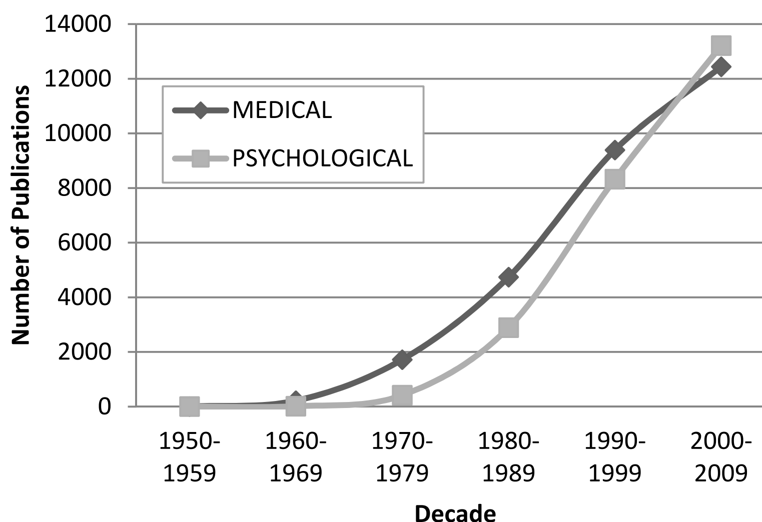

FIGURE 1 Published articles on child abuse and neglect: 1950-2009.
SOURCE: Widom, 2012.

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sexual abuse, whereas the level of child neglect has remained about the same. Other studies—for example, of hospital admissions—do not show such dramatic changes. This discrepancy needs further study, said Widom.

Widom suggested that a more accurate picture of the nature and scope of maltreatment is needed. In particular, the picture needs to include the types of child maltreatment currently excluded from existing official statistics. She recommended a series of large population-based epidemiological surveys that would include the types of maltreatment missed today. Ideally, these surveys would become part of a series enabling comparison of rates over time.

DEFINITIONS OF CHILD ABUSE AND NEGLECT

Less progress has been made than Widom might hope on definitions of child abuse and neglect. No gold standard exists to determine whether child abuse and neglect have occurred, she observed. For example, a pediatrician might have a low threshold for considering a situation to be abuse or neglect; a child protective services worker, guided by state laws and limited agency resources, might have a higher threshold; and a prosecutor might have the highest threshold in pursuing only the most serious cases.

For researchers, knowledge gaps in the definition, identification, and assessment of child abuse mean that maltreated and control populations might not be comparable. Unless studies use the same or similar definitions, Widom remarked, findings will not converge.

A related issue is that the amount of time a researcher spends assessing child maltreatment can also generate tensions. Survey instruments have notable advantages such as relative ease of administration and scoring, but some surveys include only a few items to assess maltreatment, and these assessments may be vague or ambiguous. Also, child maltreatment is sometimes bundled with other life adversities, which runs counter to a recommendation from the 1993 NRC report to clarify the common and divergent pathways in the etiologies of different forms of maltreatment.

Reliable and valid clinical diagnostic research instruments for child maltreatment are essential needs, said Widom. A consensus on research definitions should be established for each type of child maltreatment.

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These definitions should be tested for relevance and usefulness in economically and culturally diverse populations.

CONSEQUENCES OF CHILD MALTREATMENT

The medical, cognitive, behavioral, and psychological conditions associated with child maltreatment are better understood today than they were 20 years ago (Table 1). But, Widom said, contextual factors need much more study, including genes, poverty, parenting styles, beliefs regarding discipline, cultural differences, and community resources. Furthermore, these contextual factors need to be studied in combination to understand both the causes and consequences of maltreatment. Researchers need to design studies to test and analyze theoretical models using more sophisticated statistical techniques.

The almost exclusive reliance on cross-sectional studies has limited progress in understanding the origins and causes of child abuse and neglect, Widom stated. This situation could be remedied by including child maltreatment in the National Children's Study (NCS). Authorized by the *National Children's Health Act of 2000*, the NCS plans to recruit and follow a nationally representative sample of 100,000 children from before birth until age 21 to examine the effects of physical, chemical, and social environments on their growth, development, and health.

Child maltreatment is not now included in the National Children's Study. However, a planning workshop for the study indicated that investigation of the causes and consequences of child maltreatment was an appropriate scientific hypothesis to test. Inclusion of this topic in the study could help identify early markers of problematic parent–child interactions and factors that contribute to the likelihood of child maltreatment. This could provide valuable information about the delivery of cost-effective interventions to prevent and address the consequences of child maltreatment. "I would urge anyone who is involved in a sentinel site or in a leadership position or on the advisory board of the NCS to lobby to have child maltreatment included as one of the focal topics," said Widom.

By contrast, Widom pointed to neurobiology as an example of an area where major progress has been made in understanding the consequences of early stress and maltreatment. Recent studies have shown that maltreatment is associated with critical changes in the central nervous system. (Chapter 5 describes some of these changes in more detail.) Sim-

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ilarly, study of how interactions between genes and the environment affect the immune system has brought attention to child maltreatment research. Researchers studying the origins of many adult diseases have begun to recognize the importance of early experiences in shaping the neurological and hormonal pathways through which individuals handle stress and physical and emotional threats. Animal models also provide opportunities to understand transgenerational processes. “We have made great progress,” she said.

TABLE 1 Outcomes Frequently Associated with Child Maltreatment

Neurological/ Medical	Cognitive/ Intellectual	Social/ Behavioral	Psychological/ Emotional
• Brain damage • Neurobiological effects • Mental retardation • Speech defects • Physical handicaps • Physical health problems • Death • Increased health care use	• Lowered IQ • Inattention • Learning disorders • Poor reading • Poor school performance • School drop-out	• Aggression • Truancy • Running away • Delinquency • Prostitution • Teenage pregnancy • Problem drinking • Drug use • Crime and violence • Partner violence • Child abuse • Unemployment	• Anxiety • Depression • Dysthymia • Low self-esteem • Poor coping skills • Hostility • Suicide and Attempts • Posttraumatic stress disorder • Dissociation • Borderline personality disorder • Antisocial personality disorder

NOTE: This table shows outcomes often associated with child maltreatment, but the evidence linking child maltreatment to these outcomes varies in quality, quantity, and consistency.
SOURCE: Widom, 2012.

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ETHICAL ISSUES

Ethical issues, such as legal reporting requirements, continue to pose difficulties, said Widom. Conducting research with maltreated children is challenging due to difficulties in recruiting samples, in navigating ethical and legal reporting requirements, and in collecting information from families where abuse has occurred. In particular, mandatory child abuse reporting laws make researchers fearful of losing participants because of the impact of reporting. This was an issue with the National Children's Study, where the advisory board was concerned about the need to report, although communicable or life-threatening diseases also would need to be reported, said Widom.

Early career investigators and institutional review boards (IRBs) need education in how to deal with these issues. Empirical evidence from several longitudinal studies reveals that these challenges are not insurmountable. "The potential knowledge to be gained is critical to further our understanding of child abuse and neglect," said Widom.

SCIENCE POLICY FOR CHILD MALTREATMENT RESEARCH

Finally, Widom addressed several issues involving science policy that were discussed in the 1993 NRC report. That report recommended that federal agencies concerned with child maltreatment research formulate a national research plan. The creation of the Child Abuse and Neglect Working Group, which includes representatives of the National Institutes of Health (NIH) and other federal agencies, represents progress on this recommendation, she said, but more is needed. "We need to figure out a way to raise the profile and importance of child abuse and neglect research," she said. In particular, research on child maltreatment should be recognized as critical for the federal government's children's research agenda.

Neurobiological studies provide an opportunity to integrate research on child maltreatment into the broader stress and trauma literatures. Another such opportunity is the PhenX toolkit project developed by the NIH, in which groups of experts have developed phenotypic and exposure measures for use in genome-wide association studies (RTI International, 2012). This toolkit includes a measure of exposure to violence and child abuse, which can provide genetics researchers and others with lim-

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ited expertise in measurement of these constructs in a way to integrate them into multidisciplinary studies.

Administrative and grant review processes need to ensure that reviewers have adequate expertise with child maltreatment so that maltreatment research proposals are evaluated on the basis of the quality of work proposed. In addition, special efforts are needed to find new funds for research on child maltreatment, Widom said. In 1992, research expenditures in the field were about $15 million. In 1997 they were $33.7 million, and the estimated budget for 2012 is $32 million. In comparison, $55 million goes for suicide and suicide prevention research, which is associated with child maltreatment (NIH, 2012).

Also, the capabilities of the researchers who can contribute to child maltreatment research need to be sustained and improved. Relatively few postdoctoral fellowship awards from the NIH are devoted to this subject. A conference grant supports annual meetings of a child neglect consortium that brings together scholars in this area, and a data archive at Cornell holds summer training sessions.

The interdisciplinary nature of child maltreatment research requires both specialized disciplinary expertise and opportunities for collaborative research. However, categorical funding for federal research programs creates significant barriers to collaborative or innovative efforts among researchers concerned with maltreatment. In many cases children and families reported for maltreatment experience multiple other problems, such as substance abuse, intimate partner violence, mental health disorders, poverty, inadequate housing, poor schools, and violent neighborhoods. Researchers working in these separate areas need systems to communicate with one another, Widom said. In addition, child and developmental psychologists need to recognize child maltreatment as an important contributor to a wide range of social problems and family pathologies.

A funding mechanism is needed that can reflect the interdisciplinary nature of child maltreatment research and extend to graduate and postgraduate training. Perhaps the new NIH initiative in translational research can provide a needed infusion of funding, Widom suggested.

FROM ANALYSIS TO ACTION

Finally, Widom examined how to translate research findings for practitioners and policy makers. Researchers in the field of child abuse

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and neglect are continually pressed to translate their findings into clinical applications as well as recommendations for policy and practice. With some exceptions, however, the infrastructure to support the dissemination and translation of basic research findings into policy and practice is limited. Organizational changes need to improve the process by which child maltreatment research findings are converted into action.

Progress in understanding child maltreatment has been slowed by many factors, including ethical and legal challenges, a lack of consensus in research definitions, and a lack of trained investigators. But perhaps the most important factor has been the perception that child maltreatment is a fringe issue, Widom concluded. It is not. “Child maltreatment remains a public health and a social welfare problem. It compromises the health of our children. It threatens their long-term physical and mental health as adults. It impacts their parenting practices. And it negatively affects their economic productivity as wage earners.” The high burden and long-lasting consequences of child maltreatment warrant increased investment in preventive and therapeutic strategies from early childhood, Widom added. “We need to bring child maltreatment research out of the fringe and into the mainstream.”

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3

Recognizing and Assessing Child Maltreatment

Key Points Raised by Individual Speakers

- The diagnosis of child maltreatment, which is based on a combination of clinical features rather than a single diagnostic test, is often difficult for pediatricians to make, yet it can have major consequences for children and families.
- Many maltreated children have not only physical symptoms, but significant mental health problems, which also need to be assessed if they are to be addressed.
- Evaluations have become more collaborative and multidisciplinary.
- Effective evaluation tools have been developed and are available for use, but a lack of workforce skills can hinder their use.
- Assessments are of little value unless they are used to guide intervention plans.

The first step in treating and preventing child maltreatment is to recognize children who have been maltreated and to evaluate their condition. Two speakers at the workshop discussed the progress that has been made in recognizing and assessing child maltreatment from both a physical and a mental health standpoint.

MEDICAL AND PSYCHOSOCIAL ASSESSMENT AND DIAGNOSIS OF CHILD ABUSE AND NEGLECT

The first epidemiological study of child maltreatment appeared in an article titled “The Battered-Child Syndrome” (Kempe et al., 1962). The article summarized observations of about 750 children, most of whom

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had been seriously injured or who had died because of abuse. The article described some of the key clinical features of child maltreatment, including the discrepancy between clinical findings and the historical data, some of the physical and radiographic findings of abuse, and why physicians would have difficulty believing parents can hurt their children. The publication of the article was a "landmark" for the field of child abuse and neglect, said John Leventhal, professor of pediatrics at Yale University School of Medicine and an attending pediatrician at Yale-New Haven Children's Hospital. Many problems it described are still problems today.

Challenges in the Assessment of Maltreatment

One such problem involves the diagnosis of maltreatment, noted Leventhal. Diagnoses of maltreatment are based on a combination of clinical features rather than a single diagnostic test. Furthermore, these diagnoses have major implications for children and families related to safety, placement, and possible termination of parental rights. Pediatricians continue to struggle with this diagnosis, said Leventhal. "Many of us know physicians who have made the wrong diagnosis and have sent abused children home, and sometimes those children come back with more serious injuries due to abuse or even die from an abusive injury. We take these problems very seriously."

An additional problem cited by Leventhal is that some so-called experts in court continue to deny that abuse has occurred and propose specious theories of causation, such as vitamin deficiencies or reactions to vaccines.

In contrast to the 750 children described in the 1962 article, Leventhal and his colleagues have estimated that in the United States about 4,500 children annually enter the hospital with serious injuries due to abuse (Leventhal et al., 2012). The majority of these children are younger than age 3, and most of those are less than a year old. The mortality rate for these children is very high, at around 6 percent in the hospital.

Changes in the Assessment of Maltreatment

Partly in response to the problems he identified, the assessment of maltreatment has undergone major changes over the past two decades, Leventhal observed.

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First, evaluations have become more collaborative and multidisciplinary. Once done largely in a hospital setting or by child protective services (CPS) or the police, assessments are increasingly done in child advocacy centers (CACs) or by multidisciplinary teams (MDTs). In Connecticut, for example, MDTs can include prosecutors, CPS workers, physicians, forensic interviewers, social workers, mental health treatment staff, and school social workers. In Florida, pediatricians are closely involved in CPS work and provide advice to agencies about the kinds of investigations, medical workups, or other assessments needed.

Second, hospitals have emphasized child protection teams, with support from the National Association for Children's Hospitals and Related Institutions, which recently published standards of excellence for such teams (NACHRI, 2011).

A new focus on sentinel injuries has directed attention to less serious injuries that often occur before serious injuries. In Connecticut, for example, every child reported to CPS who is less than a year old and has a physical injury triggers a consultation with a pediatrician to decide whether that child needs a more substantial investigation.

Finally, in 2009, 191 pediatricians were certified in the new specialty of child abuse pediatrics, which has changed perspectives in departments of pediatrics, according to Leventhal.

Research Advances Relevant to the Assessment of Child Maltreatment

Leventhal described several research advances that have furthered the assessment of child maltreatment. For example, much research has focused on defining the disease (and nondisease) and generating strong evidence about the range and specificity of clinical findings due to physical abuse. Some research has examined the process of evaluation, such as the use of skeletal surveys as a diagnostic test or the evaluation of the siblings of abused children. However, little research has examined decision making by clinicians, such as their biases and reporting patterns.

As an example, Leventhal described research on bruises as an indicator of abuse in young children. Children can be bruised when they start "cruising," or pulling themselves upright and walking from object to object, at about the age of 9 months. "These studies have suggested that children who cruise can bruise, but children who are not cruising are less likely to have bruises as part of normal activities," said Leventhal. Children with unexplained bruises at less than 9 months of age need careful evaluations to determine whether abuse has occurred to the child. Other

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studies have examined children less than age 48 months and have found different distributions of bruising in the abuse group versus the accident group. This research has led to a mnemonic called TEN-4, where "TEN" stands for the location of bruises that are worrisome for abuse—torso, ears, and neck, and "4" stands for children who are less than 4 years of age or any bruise in a child less than 4 months old (Pierce et al., 2010). "TEN-4 is a great way to teach about this problem," Leventhal said.

He also described a study of 434 primary care clinicians who collected data on more than 15,000 child injury visits in two national practice-based research networks (Jones et al., 2008). More than 1,600 of these children had a "suspicious" injury, but only 95, or 6 percent, were reported to CPS, and 27 percent of "likely" or "very likely" abuse cases were not reported to CPS. Reasons given for not reporting the children included familiarity with the family ("if we like them we don't report them"), aspects of the case history ("I kind of believe what the mother said"), the use of available resources ("I'll handle that on my own"), and negative views of CPS, which is an attitude that Leventhal has heard from primary care colleagues.

Leventhal briefly described research on the evaluation of suspected child sexual abuse. For example, the interview protocol developed by Lamb (the National Institute of Child Health and Human Development Interview Protocol) provides helpful ways of interviewing children and has been studied extensively, as have the various influences on children's memories (Lamb et al., 2007). Again, decision making by physicians, CPS workers, and police has received less attention, and little research has been done on the value of the multidisciplinary approaches despite the proliferation of CACs, MDTs, and other collaborative efforts.

Finally, individual family variables have received a moderate amount of research. These variables include domestic violence, substance abuse, and the mental health of parents. One variable that has not received enough research, said Leventhal, is the abuse inflicted by males. "A lot of the serious abuse that we see in hospitalized patients comes from men—either fathers, stepfathers, or boyfriends. How to reach that part of the society to prevent some of these serious injuries is an important challenge." In addition, less is known about combinations of factors, how individual parents respond to a child's behaviors such as crying, and how to ameliorate the risk of maltreatment if it is elevated.

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Future Research on Assessment and Diagnosis

Leventhal concluded by listing several suggestions for future research. Systems of evaluation and care need additional study, including the linkages between child abuse pediatricians and CPS. The role of CACs and MDTs also needs more study, especially because these evaluation systems are so tightly linked to treatment.

Leventhal mentioned the need to fund fellowships in child abuse pediatrics. "We need to figure out ways to train these physicians and enhance their research expertise."

Finally, research should examine how to improve the decision making of primary care clinicians, emergency room physicians, and child abuse pediatricians, Leventhal said. How can physicians be trained not to overreport or underreport injuries that are reasonably suspicious? The process of evaluation also should be a subject of research. Which children need which diagnostic tests? This question should be studied in multiple sites to yield widely applicable findings, Leventhal said. Later in the workshop, Charles Sabel, the Maurice T. Moore Professor of Law and Social Science at Columbia Law School, discussed the importance of decision making by other frontline workers such as case workers, teachers, and police officers. He said that more research is needed to study innovative systems-level changes that may address challenges associated with decision making by frontline workers in the current system. His presentation is summarized in Chapter 8.

Discussion

During the discussion session, Frank Putnam from Cincinnati Children's Hospital Medical Center and the University of North Carolina School of Medicine observed that hundreds of thousands or possibly millions of videotaped interviews done for maltreatment assessments exist, but there are no guidelines on how those interviews can be used. They could be a valuable research resource, but they are sensitive tapes that need to remain confidential. "How long do we maintain them? Who has access to them?"

Also, Joy Osofsky of the Louisiana State University Health Sciences Center recommended doing research in cooperation with CACs, which Leventhal labeled an excellent idea. For one thing, he noted, such research could make IRBs more accepting of CAC procedures.

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ASSESSMENT FOR MENTAL HEALTH SERVICES PLANNING

A substantial portion of children in the child welfare system have significant mental health problems, observed Benjamin Saunders, a professor in the Department of Psychiatry and Behavioral Sciences at the Medical University of South Carolina. Given this observation, the child welfare system has a responsibility to provide proper interventions for those problems. Providing interventions requires that children undergo screening for mental health needs, and this screening requires appropriate training, tools, and systems. The important point, said Saunders, "is that the system has agreed that doing this type of assessment is appropriate. . . . We need to find good ways of making it happen."

The Nature of Assessments

One of the first questions that needs to be answered, said Saunders, involves the type of assessment. Should it be shorter, easier, and free, which would be easier for the existing child welfare workforce to handle? Or should it be more comprehensive to obtain all of the information that might be needed? Such assessments would require professional skills "that are probably far beyond the child welfare system workforce and therefore would require substantial coordination with community resources," said Saunders. This is a question that applies not just in assessments, but throughout human services, he added.

A fair number of evaluation tools have been developed and tested. For example, Johnson et al. (2008) reviewed 85 instruments covering patterns of social interaction, parenting practices, parent or caregiver histories, and problems accessing basic necessities, and found 21 to be sound. "Automated" assessment, interpretation, and service planning frameworks have been developed, along with multidisciplinary approaches. "We have a lot of psychometrically sound, useful measures of the common problems exhibited by children in the child welfare system," Saunders said. "Doing mental health types of assessments for the purposes of service planning is a well-accepted operation within the child welfare system."

Assessment frameworks point to multiple sources of information, including the child, siblings, parents, other caregivers, teachers, family members, and peers. The "gatherers" of information include departments of social services, guardians ad litem, forensic interviewers, medical providers, mental health providers, victim advocates, law enforcement, and

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school personnel. Methods for gathering information include open interviews, structure interviews, standardized assessment instruments, observations, and other forms of interaction. Targets for information gathering include family and social history, abuse history, other trauma history, anxiety, depression, behavior problems, delinquency, substance abuse, academic performance, social functioning and support, and family functioning and support.

Outcomes of Assessments

Despite the attention devoted to assessments, not much research has examined whether they improve outcomes for children, particularly mental health outcomes. For example, few studies have assessed whether purported best practices are being followed and, if they are, whether they lead to better outcomes. "We can ask administrators and mental health systems how many people their centers saw in the past year, and they can tell you with extraordinary precision how many new patients they had," said Saunders. "They can tell you with precision how many units of service they delivered. They can tell you how much they can bill. [But] very few people can tell you how many people actually got better."

The research that has been done points to the difficulty of implementation, Saunders said. "We know a lot," he said. "We have some tools to do some very good work. However, actually translating that into the daily behavior of the typical child welfare worker turns out to be extraordinarily difficult."

Standardized systems that are highly dependent on worker compliance have been criticized as taking away from worker judgment. "Of course, that is exactly what they are intended to do," said Saunders, but this outcome is a two-edged sword. "The computer does not always make great decisions." On the contrary, research on the input to standardized systems suggests that they still require judgment and information input by the worker, though this input can vary from person to person based on experience.

Research also demonstrates that many assessment findings are not followed. People may do an assessment, but pay little or no attention to the results in a service plan. The child welfare workforce needs certain levels of knowledge and skill to use assessments effectively, but the question is whether the child welfare system can establish such prerequisites for the workforce. "Our history has not been all that great in this," Saunders said.

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Many stakeholders are involved in making a decision in the child welfare system. Some are doing assessments; others are doing service planning and delivery. Many times a judge is at the center of conflicting inputs. "When it is not coordinated, the judge hears about different treatment plans, some of which are completely contradictory, which then extends the life of the case and makes it more difficult for people to actually get treatment," Saunders said (Figure 2). A community-based approach may be one way to provide greater coordination for these inputs.

Future Research on Assessment

Saunders concluded by listing a number of critical research questions, many of which involve implementation:

- Within the context of frontline child welfare practice, how well do current (and proposed) assessment tools and procedures identify children with particular problems who likely need mental health services?

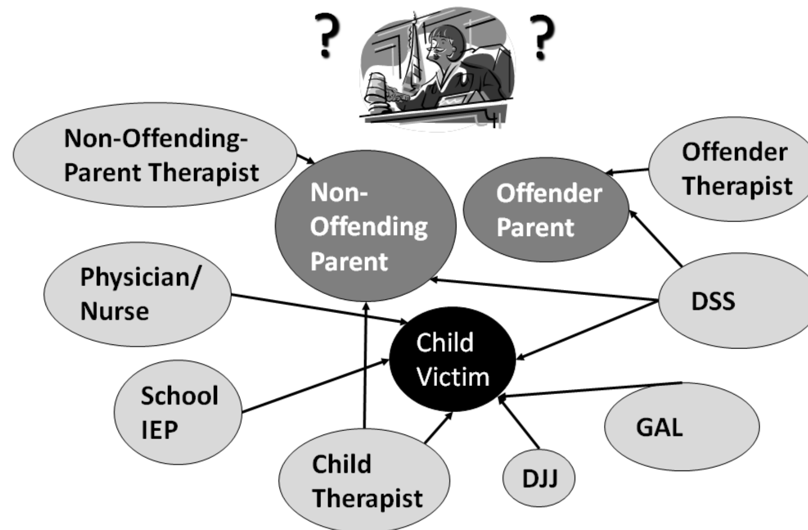

FIGURE 2 Competing treatment plans in child maltreatment cases.
NOTE: DJJ = Department of Juvenile Justice; DSS = Department of Social Services; GAL = guardian ad litem; IEP = individualized education program.
SOURCE: Saunders, 2012.

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- What are the major sources of error in child welfare assessment approaches?
- How should assessment approaches be adjusted due to factors such as culture, ethnicity, race, and gender to reduce disparities?
- What is the influence of worker background and experience on the implementation of assessment systems?
- What are the most cost-effective and efficient approaches (in terms of financial cost, worker and family time, training, supervision, and compliance effort) to effective assessment?
- What levels of assessment can be reasonably performed by typical child welfare workers, and what levels require additional community professional resources?
- What are the minimal knowledge and skills needed in the child welfare workforce to do the levels of assessment necessary for good practice?
- What sorts of initial and ongoing training, supervision, and monitoring of practice are needed to achieve and maintain effective assessment activity?
- To what degree can technology be used to make the assessment process (and application of assessment results) more efficient and more effective without negating appropriate child welfare worker judgment?
- Does greater coordination of assessment tasks with community resources and the family result in better assessment?

Discussion

During the discussion session, Clare Anderson from the ACYF pointed to research showing that increased mental health assessment can lead to the increased use of psychotropic medications among children in foster care. An important research question, she said, is whether the scaling-up of evidence-based practices would affect the use of psychotropic medications in this population.

In responding to a comment about procedures for doing mental health assessments, Saunders argued for a combination of standardized tools and professional judgment. Such a balance would accommodate a realistic view of how well the workforce ever will be trained, he said.

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4

Social Trends and Child Maltreatment Trends

Key Points Raised by Individual Speakers

- American families have been undergoing major changes in demographic structure, economic status, and health care coverage, all of which can influence child maltreatment.
- Many sources of data point to a substantial reduction in the incidence of child physical and sexual abuse, but not neglect, over the past two decades.
- The causal factors behind changes in child maltreatment rates are difficult to untangle, but an increased emphasis on prevention may be responsible for the reduction in physical and sexual abuse.
- Despite some positive trends, pockets of severe unmet need continue to exist throughout the United States.

Multiple sources of data on child maltreatment are available, each with strengths and weaknesses. Four speakers at the workshop explored these various sources of data, thereby providing a valuable context for the other workshop presentations. Data on child maltreatment also can be compared with data on broad social trends to probe the causes and consequences of child abuse and neglect. This chapter examines the broad relationships between social trends and child maltreatment trends, while the next chapter looks at more specific causes and consequences.

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SOCIAL TRENDS AND THEIR IMPLICATIONS FOR UNDERSTANDING RATES OF CHILD MALTREATMENT

Broad social and economic factors can influence trends in child maltreatment. The connection between the two is difficult to ascertain because of the uncertainties in the data and the complex causal relationship factors that contribute to maltreatment. Nevertheless, it is important to monitor and probe social trends to explore their possible effects on child maltreatment, said Christina Paxson, dean of the Woodrow Wilson School of International and Public Affairs and the Hughes Rogers Professor of Economics and Public Affairs at Princeton University. Understanding these trends can indicate what might happen in the future as social and economic influences continue to change and can shape the research agenda to anticipate these changes.

Demographic Structure of American Families

American families look much different today than they have in the past. In the 1950s, only about 5 percent of U.S. births were to unmarried women. After a steady increase over the past five decades, that number is today approximately 40 percent (Ventura, 2009). This does not mean that children are living in households without men, said Paxson. Slightly more than 50 percent of children who are born to unmarried women live with parents who are cohabiting, and these relationships are often stable. Nevertheless, the increase in unmarried births has focused the attention of researchers on what happens in these families. For example, children who are born to unmarried women, whether cohabiting or not, experience a greater frequency of transitions in living arrangements within their households. They are more likely to live with nonbiological fathers, and they are more likely to have step-siblings in a household. “How do these different family structures influence children?” asked Paxson.

Longitudinal data are needed to understand how family structure is related to maltreatment, said Paxson. Such data can reveal the family transitions that have happened over time, how such transitions affect the attachment of parents to children, and the types of risks to which children are exposed. “This is an important area for research and one that is necessitated by the continuing trends that we see in the structure of American families,” Paxson said.

Another notable change has been in the birth rate for teenagers in the United States, which has dropped by approximately 50 percent for all

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U.S. women ages 15-19 since 1970, reducing such births from a high of about 600,000 in 1970 to about 400,000 today (Ventura and Hamilton, 2011). Research has suggested that children born to teenage parents are at higher risk of maltreatment, and in that respect the decline in teen births is a "good news story," said Paxson. The reasons for this drop are contentious because they involve such issues as the provision of birth control and sex education for teens. But the drop provides an opportunity for research to examine how changes in U.S. fertility patterns may have influenced rates of child maltreatment.

Economic Status of American Families

The poverty rate among children is higher than for any other age group in the United States. This rate has varied between about 25 and 15 percent over the past half-century, with a movement upward over the past few years to about 22 percent in 2010 (DeNavas-Walt et al., 2011). The percentage of children with unemployed parents has also gone up in recent years, to about 9 percent in 2011. Increases in caseloads under the Supplemental Nutrition Assistance Program grew from 9 percent of Americans in 2007 to 14 percent in 2011, though growth of caseloads under the Temporary Assistance for Needy Families program has been slower (Isaacs, 2011).

Poverty is an important factor in child maltreatment, said Paxson, and poverty has been worsening. One way to learn more about the effects of poverty on child maltreatment would be to look at the uneven effects of the recession on different parts of the United States. "This will be a good opportunity to look at how economic factors influence maltreatment."

Health and Health Care

The fraction of poor children without health insurance has been dropping in recent years—from 23 percent of children below 200 percent of the poverty line in 1997 to 12 percent in 2009—even as the percentage of children without health insurance above this income level has remained fairly stable (at about 5 percent) (HHS, 2011). This decrease, made possible largely through Medicaid and state children's health insurance programs, has been another success story, said Paxson.

The *Affordable Care Act* will further change access to health care by providing more adults with health insurance. This change may provide an opportunity to deal with some of the physical and mental health problems among adults that can contribute to child maltreatment, though

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many of these adults will be covered by state Medicaid programs that may have limited resources to deal with such issues as substance abuse and mental health.

In particular, substance abuse is an important factor in child maltreatment. Recent trends have seen a slight increase in marijuana use, while cocaine use is down slightly (SAMHSA, 2011). "A continuing focus on substance abuse in adults who are parents or could become parents is important," said Paxson.

Fiscal Capacity of Governments

Projections of the fiscal capacity of governments to support children and families point to "a really difficult time," according to Paxson. Over the past 20 years, funding to support at-risk families has shifted from state and local budgets to federal budgets (CBO, 2011). This may provide insulation from the budgetary ups and down of state and local budgets, but over the next few decades, federal expenditures could be severely constrained. Support for children and families, as well as for research on children and families, is very likely to be squeezed.

A major factor in the fiscal constraints at the federal level is the projected increase in healthcare spending. This is ironic, said Paxson, because in essence the federal government will be putting more resources into health care and less into programs to support the health and well-being of American families. Paxson suggested thinking hard about how to use Medicaid as a vehicle for the prevention and treatment of child maltreatment. The constrained fiscal outlook also calls for the development of cost-effective primary prevention models, sophisticated tools to assess the risk for secondary maltreatment (maltreatment in addition to another kind of trauma identified as the primary descriptor for the situation, e.g., domestic violence), and better methods for tracking and monitoring high-risk families.

Child maltreatment imposes large costs on society in terms of prevention, treatment, legal fees, foster care, and other expenditures, Paxson stated, in addition to the costs to children. "Adding in these other costs is important because it helps make the case that this is an issue that we need to pay attention to."

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DATA SOURCES FOR UNDERSTANDING CHILD MALTREATMENT

Andrea Sedlak, a vice president of Westat, described the major data sources used to assess national levels of child maltreatment and trends over time.

National Child Abuse and Neglect Data System

The National Child Abuse and Neglect Data System (NCANDS) is a data system created in response to the requirements of the *Child Abuse Prevention and Treatment Act* (CAPTA). NCANDS centralizes the annual collection, tracking, and analysis of child maltreatment information as reported to CPS agencies in each of the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico. In the early 1990s, states submitted NCANDS data as aggregated counts. Since the mid- to late 1990s, NCANDS has been converting to a case-level data submission system, which now encompasses 51 of the 52 jurisdictions.

NCANDS seeks to obtain a full census annually. States use their own definitions and codes to classify cases and then map their state codes into the NCANDS codes by agreed-upon rules. The original codings come from workers in local agencies who use their state's system, and these codings are eventually reflected in the NCANDS data.

NCANDS data provide rich information, Sedlak observed. They provide the numbers of screened-in versus screened-out referrals, report dispositions, the sources of reports to CPS agencies, response times, and CPS workforce and caseload levels. They classify child victims by maltreatment type, sex, age, race, ethnicity, disability status of the child, caregiver domestic violence, and caregiver alcohol or drug abuse. They report on fatalities, perpetrators of maltreatment, and services the cases have received.

NCANDS classifies maltreatment into six categories: physical abuse, sexual abuse, neglect, medical neglect, psychological maltreatment, and other. NCANDS also provides indicators of compliance with federal mandates on the absence of maltreatment recurrence, the absence of maltreatment in foster care, and first-time victims.

National Incidence Study

The NIS, which is also mandated by CAPTA, is conducted approximately once every decade under a contract from the Administration for

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Children and Families. It seeks to estimate broadly the national incidence of maltreatment through both investigated and noninvestigated cases of child abuse and neglect. The NIS collects and categorizes data according to standardized definitions for types of child maltreatment, the severity of maltreatment, and key demographic characteristics of maltreated children and their families.

The NIS began with definitions for the Harm Standard in 1979-1980 and modified definitions for the Endangerment Standard in NIS-2 in 1986. The Harm Standard definitions are stringent in requiring that a child already have experienced demonstrable harm from abuse or neglect before they could be counted in NIS estimates. The Endangerment Standard includes children who were endangered by the events of abuse or neglect that they experienced.

Unlike NCANDS, which is a census-based approach, the NIS uses a representative sampling of counties. The latest cycle (NIS-4) collected data from a nationally representative sample of 122 counties in 2005 and 2006. Information gathered in each county includes CPS data, but it also includes cases seen by individual sentinels, or community representatives, in public schools, public health departments, public housing, juvenile probation, law enforcement, hospitals, day care centers, shelters, and other institutions.

Also unlike NCANDS, which relies on the states' definitions of abuse and neglect, the NIS applies standardized definitions to case details. Its reports include the numbers and rates of maltreated children by maltreatment type; child victims by sex, age, race/ethnicity, disability, and school enrollment; family characteristics by employment, socioeconomic status, family structure and living arrangement, grandparent caregivers, family size, and metropolitan status of residence area; perpetrators' characteristics; and maltreated children by the sources recognizing their maltreatment.

"We obtain narrative descriptions of what happened to this child," Sedlak explained. "Who did it? What have you seen in terms of injuries? What were the actions or omissions going on? What else was going on?" These reports are then evaluated in the terms of the standardized definitions that the NIS applies to classify maltreatment events, injuries, and circumstances.

The maltreatment classification has eight overarching categories: physical abuse, sexual abuse, emotional abuse, physical neglect, educational neglect, emotional neglect, other maltreatment, and maltreatment

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that is not countable in the NIS. These eight categories encompass 60 separate codes that describe the nature of the maltreatment.

In addition, the NIS provides detailed information about CPS investigation rates by maltreatment type and recognition source, CPS agency structure and practices related to investigation rates, CPS screening policies related to uninvestigated children, and sentinel training and reporting of maltreatment.

Other Data Sources

The Adoption and Foster Care Analysis and Reporting System (AFCARS) is a database of all case-level information on foster children under the care of state child welfare agencies, including information on foster and adoptive parents. States are required to submit AFCARS data on a semi-annual basis to the ACF, which uses the data to inform a variety of initiatives.

AFCARS does not focus on abuse or neglect, but it includes the reason for a child's removal into foster care, such as physical abuse, sexual abuse, neglect, and other potential reasons. Many states can now link their NCANDS case-level data with AFCARS data to provide indicators of maltreatment recidivism in foster care. Unfortunately, said Sedlak, this system does not support tracking individual children across years.

Finally, Statewide Automated Child Welfare Information Systems (SACWISs) are in place in 36 states, with 3 in development and the other states using non-SACWIS models. SACWISs are comprehensive automated case management tools. States use their SACWIS data to provide NCANDS and AFCARS reports.

From Data to Knowledge

Both the NIS and NCANDS reveal national trends. NCANDS provides annual trends, including trends in report sources, dispositions, response times, and overall victimization rates. The NIS shows long-range trends over 7- to 12-year periods in overall maltreatment and in major maltreatment categories. It also provides significant changes in victimization rates (overall and by category) for subgroups (by child and family characteristics).

However, NCANDS does not provide trends by maltreatment type, although this information can be extracted from the raw data. Sedlak urged that these important trends be part of the national analysis and distribution of the data, rather than having individual researchers extract the

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trends from the data. The NIS does not report trends in specific subforms of maltreatment, though again more information can be extracted from the data.

In NCANDS, states' varied definitions of maltreatment can affect trend statistics. By contrast, the NIS directly codes case-level descriptions of maltreatment through notes and narratives. NCANDS loses some maltreatment event information, whereas uninvestigated maltreatment is filtered through sentinels' observations in the NIS. Changes in sentinels' processes can affect trend statistics, so NIS-4 established baselines to calibrate these changes. An analysis done by Sedlak and her colleagues showed the NIS found more multiple-maltreated children than NCANDS sees from its CPS sources. "When you are using something for case management, you suffice in terms of your coding," she said. "But we are losing stuff because of that, or we are not seeing it. It is buried."

Future Opportunities to Enhance Use of Data Sources

Important uncertainties surround the meaning of findings from NCANDS and NIS, said Sedlak. NCANDS makes little effort to understand the findings in relation to agency policy or administrative practice. Administrative changes in a few states that drive an overall trend are buried in appendixes or brief summary notes, with no analysis of trends. In contrast, NIS has improved on this. The NIS-4 had included supplementary studies of CPS agencies' organization, practices, and policies and analyses to relate those results to the overall NIS results on investigation rates and uninvestigated children. For example, analyses have found lower rates of investigation in places that relied on referrals being filtered through hotlines. "Things like that that are important to know about how your practice [and] your policy may be affecting what you are seeing . . . and how successful you are in reaching maltreated children," said Sedlak.

A major problem is that the findings from these data sources are not being well disseminated, Sedlak stated. States hardly use, publicize, or even know about their own NCANDS data trends. Many states do not use or know how to use their SACWIS data to examine patterns in caseloads, to compare to other systems' data, to make sense of policy changes, or to make other improvements. Federal clearance processes introduce extensive delays in releasing reports on important findings, not just in HHS, but in other departments as well.

National systems provide data on maltreated children, but they do not regularly collect data on representative samples of both maltreated

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and nonmaltreated children to see how the risk of maltreatment varies across settings and time periods. Nor are maltreatment data in other systems being used or improved. For example, the National Crime Victimization Survey interviews individuals ages 12 and older about their criminal victimization experiences every 6 months, repeating these interviews for 3 years. Adding proxy interviews on victimization of younger children could provide victimization data for all ages. Surveys with children as young as 9 have been comprehensive, and tools exist for measuring self-reports of neglect in very young children using picture methodologies on computer-assisted systems.

Another missed opportunity is the National Incident-Based Reporting System, which provides detailed information about crimes known to police, including injuries, offenders, and victims. Codes that show whether law enforcement referred to CPS or vice versa and designating offenders as caretakers or noncaretakers when victims are children would provide a rich database on maltreatment.

Finally, Sedlak observed, no one knows how many children in the United States are sexually abused or assaulted. Law enforcement data cannot now be compared with NCANDS, NIS, or other data sources to arrive at this number. "Given that this is such an important policy issue, it is alarming to realize that we don't know and we have no plans for getting" this information. In addition, the other victimization experiences children undergo, such as abduction by family and nonfamily members, peer victimization, and dating violence, are largely undetected. Many children are traumatized in multiple ways that do not come under the jurisdiction of CPS agencies. "Without understanding that, we really can't understand what we need to do to intervene," Sedlak concluded.

Discussion

During the discussion session, Bernard Guyer from Johns Hopkins University raised several issues about the underlying theory of measurement in the field of child maltreatment. Distinguishing incidence and prevalence could make a big difference in looking at trends. Similarly, is maltreatment an acute disease or a chronic disease? Once children have been maltreated, are they maltreated for life? How are children seen in multiple places for maltreatment tallied? Finally, he asked whether changes in birth cohorts could account for the decline in abuse seen in national data.

Sedlak responded that the NIS gives just period prevalence rates, while NCANDS also gives the period rate and numbers for the children

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investigated over the course of the year. She also said that NCANDS and NIS make efforts to deduplicate cases through data matching and modeling, and that considerable work has been devoted to improving the reliability of individual data sources.

Richard Barth, University of Maryland, pointed to the use of vital statistics such as birth records as a source of population information. By linking birth records with other administrative data, important information could be uncovered more quickly than in planned longitudinal studies.

CHANGES IN RATES OF REPORTED CHILD ABUSE AND NEGLECT

Lisa Jones, a research associate professor of psychology at the University of New Hampshire's Crimes Against Children Research Center, described one of the more notable—and contentious—data points discussed at the workshop.

Evidence for a Decline in Physical and Sexual Abuse

NCANDS data indicate a steady decline in physical abuse and sexual abuse over the past two decades (Figure 3). According to these data, sexual abuse has declined by 62 percent since 1990, while physical abuse has declined by 56 percent. Neglect also has declined, but by much less—just 10 percent since 1992. These data embody "one of the most interesting and important events that have occurred in the epidemiology of child maltreatment," said Jones.

NCANDS data come from CPS agencies across the country and represent substantiated cases of maltreatment. Jones noted that the declines are seen across the entire country, not just in a few states.

Some have expressed concerns that state and local finances or worker caseloads might be affecting CPS agencies in such a way that fewer child maltreatment reports are being indicated or substantiated. However, Harvard School of Public Health researchers explored this possibility and found no evidence to support this (Almeida et al., 2008). Instead, they found evidence that supports "a true decline in incidence of substantiated child sexual abuse cases during the latter part of the 1990s" (p. 373). Furthermore, research by Jones and colleagues (2001) found no evidence that less severe abuse and neglect dropped more than severe types of maltreatment, which would be expected if CPS agencies were triaging cases.

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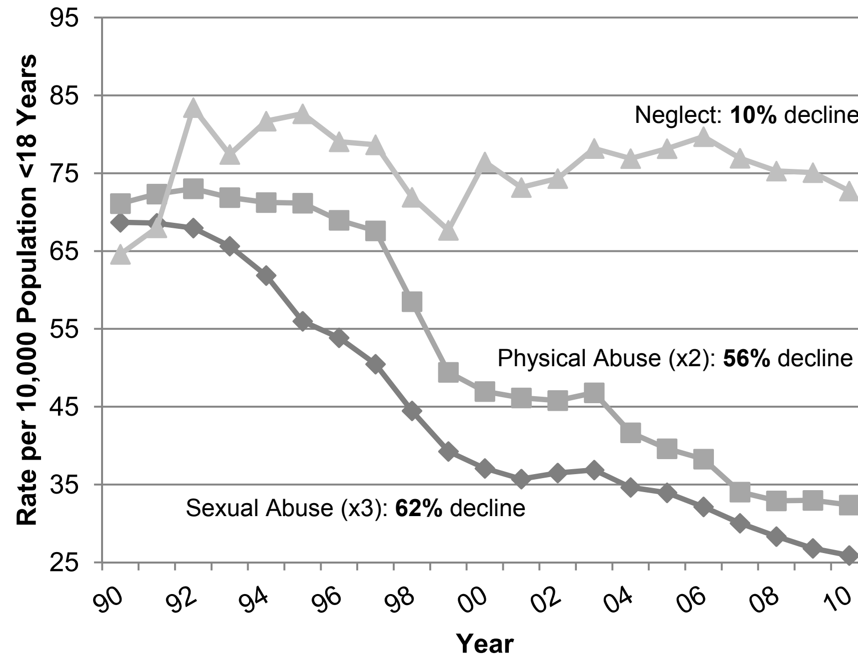

FIGURE 3 Substantiated cases of maltreatment compiled by NCANDS, 1990-2010.
SOURCE: Jones, 2012.

Other data sources such as the NIS support the trends seen in NCANDS data. Between NIS-3 in 1993 and NIS-4 in 2005, sexual abuse was down 44 percent and physical abuse was down 23 percent, even though the sentinel data in the NIS come from a different source than the NCANDS data.

Self-reported data from a school survey in Minnesota with 6th-, 9th-, and 12th-graders show a decline of 28 percent in children reporting sexual abuse and 20 percent in children reporting physical abuse from 1992 to 2010. Similarly, the National Crime Victimization Survey shows declines in juvenile sex victimization of 52 percent between 1993 and 2005.

Many correlates of child maltreatment show remarkably similar trends. Teen birth rates underwent a 48 percent decline from 1994 to 2009, youth runaways rates were down 66 percent from 1994 to 2009, teen suicide declined 43 percent from 1994 to 2007, teen drug use was

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down 27 percent between 1997 and 2007, and domestic violence fell 60 percent from 1993 to 2005. "What is remarkable and convincing about these trends is that we are not talking about just one data source, but extremely similar trend patterns coming from many different studies and sources," said Jones.

Possible Explanations for the Decline

Jones suggested several possible explanations for the declines. One possible source could be economic fluctuations. The greatest declines occurred in the 1990s, when the United States was going through a relatively positive economic phase, with a slower decline in the past decade. However, throughout the past decade, and even in the recent recession, rates of physical abuse, sexual abuse, and neglect have continued to fall. "This suggests that we need to look for other explanations," Jones said.

An "optimistic possibility" is that the tremendous amount of work done in the past several decades to prevent child maltreatment is having an effect. An observation supporting this idea is that sexual abuse declined first and then physical abuse. Sexual abuse received a lot of attention during the 1980s and early 1990s through, for example, prevention programs in schools and increased protection efforts in youth programs like the Boy Scouts. There is a possibility, said Jones, that these efforts had an effect on maltreatment.

Also starting in the late 1980s and increasing in the 1990s, the criminal justice system became more involved in child abuse and domestic violence. Consistent with the trend patterns, this involvement centered more on sexual abuse and physical abuse and less on neglect. "It may be that the increased incarceration and prosecution of offenders is having a direct effect," Jones said. "It may also be having a preventive effect as it conveys the idea that these are serious crimes and that it is something that officials take seriously."

Better mental health and trauma treatment may have reduced child maltreatment by reducing intergenerational transmission. In addition, access to psychopharmacological medication to treat depression and anxiety may have had an effect.

Finally, Jones pointed to something less measurable: cultural norms around caring for and protecting children. These may have improved as researchers learned more about what children need. "On a national level, some of that information [may have] gotten through to families in a way that decreases the amount of maltreatment that we have been seeing."

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Contrasting Indicators

Jones also cited two indicators from the child welfare data that do not track the declines in sexual and physical abuse—neglect and child fatalities. The much smaller decline in neglect may indicate that these cases are harder to prevent and treat. Alternatively, a decline in child neglect may not be showing up in the data because of changes in definitions and increased awareness of the problem. As support for this possibility, NIS data found reduced levels of physical and educational neglect from 1993 to 2005. But a category called emotional neglect underwent a dramatic increase. Researchers have found that this increase was explained partly by an increase in the reporting of situations where children were witnessing domestic violence and were in households exposed to drug use. Shifting standards for the sentinels reporting on neglect may explain these findings and mask what would otherwise be a decline in neglect in recent decades.

Child maltreatment fatalities have increased since 1993, according to NCANDS data. However, other child homicide data from the FBI and other sources show declines in child fatalities. The data seem to indicate, said Jones, that states are changing how they count child maltreatment fatalities and how they are delivering that information to NCANDS.

Future Opportunities to Use Data

Jones urged that the data available today be used more effectively. NCANDS and NIS data provide critical public health information on child maltreatment trends, but this information is being underused. The Children's Bureau needs to publicize these data more effectively to help professionals, media, and the public learn about and understand trends.

Also, delays in the release of NIS data have been troublesome and have limited awareness about and impact of the findings that come from those data.

Finally, more funding and research focused on epidemiological approaches to child maltreatment can reveal what is working so that interventions have an even greater effect than they have had in the past.

Discussion

The reliability of the data sources demonstrating a reduction in maltreatment rates were discussed throughout the workshop. Putnam said he and his colleagues have seen dramatic increases in maltreatment in recent years that are not being counted by data systems. For example, in Ohio in

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2010, just three of the seven children's hospitals in the state reported 90 cases of inflicted head injury to CPS, yet the state's SACWIS reported just 10 cases for the same period. He asked, "How do we do better public health surveillance? . . . How do we get a much better system that actually tracks what is happening not only at the state level, but at the community level where we can intervene with preventative interventions?"

Sharon Newburg-Rinn from the Children's Bureau raised the issue of whether the increased use of differential response systems, which are described in Chapter 7, could account for part of the drop in victimization rates.

Leventhal pointed to data on hospitalizations of children that are collected by all hospitals and are available through the Kids' Inpatient Database. Child abuse codes in that database are another way of examining the occurrence of serious injuries to children due to abuse. According to those data, he added, serious injuries of hospitalized children did not decline from 1997 to 2009, in contrast to the NCANDS data.

CHILD MALTREATMENT REPORTING PRACTICES AND PATTERNS

Melissa Jonson-Reid, a professor of social work and director of the Brown Center for Violence and Injury Prevention at the George Warren Brown School of Social Work, Washington University, discussed some of the complications in the systems used to detect, report, measure, and respond to child maltreatment.

First, she observed, different criteria lead to very different estimates of the numbers of children subject to maltreatment. Using the more inclusive endangerment standard, NIS-4 arrives at a maltreatment incidence of about 1 in every 25 children. Using official report data collected by the states, NCANDS arrives at a figure of roughly 1 in 10 children as alleged victims of maltreatment. In contrast, considering only victims with substantiated reports brings the single-year count down to about 1 in 100 children.

However, Jonson-Reid took issue with the substantiation standard. "Using substantiation or the level of harm standard as an indicator that maltreatment has occurred or not in resource or policy is simply not a good idea," she said. Many children in the unsubstantiated category are facing situations of equal risk. The substantiation standard was created as a decision-making point in child welfare. Substantiation or something

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like it may be needed to guide decisions to refer to court, but in other situations meaningful measures should be used that can be mapped onto the need for services. In addition, Jonson-Reid said, the use of only substantiated cases in research can be misleading if unsubstantiated cases are included in the controls.

Changing Definitions

National data systems have made important advances since 1992, Jonson-Reid observed. However, state-level definitions of maltreatment, requirements for services, and designation of professions required to report undergo continual change can complicate these measures. For example, as national measures of child maltreatment were declining over the past decade, reports were increasing in the state of Oregon. National studies of child maltreatment reporting and response need to be large enough to control for state policy, researchers need to look at state-level changes, or uniform national standards need to be adopted. "We have a long way to go in coming to a consensus about what we mean by maltreatment from place to place and how best to measure it in relation to child well-being," she said.

Prevalence Estimates

Jonson-Reid also looked more closely at several existing prevalence estimates. According to Finkelhor et al. (2005), about 1 in 7 children between the ages of 2 and 17 were victims of child maltreatment during a 1-year time frame. Estimates of prevalence among low-income populations were even higher. In the Cleveland area, life-table estimates indicated that 49 percent of African American children and 21 percent of white children would be subjects of reports of alleged child abuse or neglect by their tenth birthday (Sabol et al., 2004). In a California study, about one-third of African American children were reported by their fifth birthday compared to less than 15 percent for other ethnic groups. Children born to lower income families had a rate of referral over 2.5 times higher than others (Putnam-Hornstein et al., 2011)—as high as 1 in 2. Jonson-Reid also noted that mandated reporters do not receive standardized training and, as a result, the level of understanding of what is to be reported varies widely across districts.

Jonson-Reid and colleagues (2009) examined whether such results are influenced by reporting bias as opposed to reflecting significant need. Examination of different kinds of reports across groups indicates that the

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effects of bias are limited and that "there are pockets of unmet need in our country, which in various respects should not be of particular surprise." This finding in turn affects consideration of whether the reporting system should be limited or expanded. Families should not be over-identified based on biases unrelated to maltreatment. On the other hand, families that need services should not be underreported to avoid bias. Data from a variety of sources suggest that the majority of families reported to CPS have service needs, said Jonson-Reid. "I have difficulty with thinking about shrinking what we have as the surveillance system," she concluded.

The reporting system could be expanded by increasing the pool of mandated reporters or by increasing the types of reports considered maltreatment. However, if people are categorized as needing services, those services should be available to them, Jonson-Reid argued. Today, roughly one-third of the children with screened-in reports in CPS get some kind of intervention, and most of those interventions consist only of assessments or low-intensity case management approaches, which typically depend on referrals to other sources. "My concern in expanding the system at this point is that we are already underresourced and if we move it to a broader level, we ought to be thinking about how we also expand those resources."

Measurement Issues

Some types of maltreatment classifications are extremely useful, Jonson-Reid observed. Unmet medical needs or the occurrence of sexual abuse demand responses. But in moving from immediate needs to longer-term well-being, definitions of maltreatment become less clear. For example, research indicates that neglect can have consequences as dire as those associated with physical or sexual abuse. Furthermore, many children experience more than one type of maltreatment. Research continues to explore whether certain types or combination of types of maltreatment are useful in informing responses.

Severity and the need for services raise other measurement issues. For example, initial gatekeeping points are sometimes confused with assessment of severity. In Missouri, which uses a highly structured and computerized decision-making process, many more cases are screened in than in other states. As a result, the child welfare population may be very different in different places. Also, it is problematic to have recurrence be part of how severity is measured as this means that a first report of maltreatment must have much higher levels of other harm to be considered

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severe than a second or third report of maltreatment. The resulting concern is that this tends to delay intervention until after several CPS contacts.

In general, most child welfare assessments are linked to safety and permanence and less so to well-being. Few child welfare systems have universal screening for other indicators of need such as a young child's developmental status or the presence of a mental health disorder. "While much more attention has been paid to documenting outcomes, we are less clear about ways to triage," said Jonson-Reid. "This means consideration of harm apart from safety in the context of developmental timing, family, and community resources."

Communication Among Systems

Finally, many of the children and families who come to the attention of CPS are already engaged in multiple systems. For example, in research Jonson-Reid has done, 25 to 30 percent of children already had contacts in special education or mental health treatment prior to coming into the system. When these children are followed over time, they have high rates of emergency room use, juvenile delinquency, and so on.

The fact that these systems rarely "talk" to each other prevents researchers and service providers from better understanding these families, hinders cross-sector coordination and policy planning, and damages the ability to estimate costs. Jonson-Reid said that integrated data systems are needed to facilitate planning, contribute to cost estimates, and help measure system-relevant outcomes.

Discussion: Data Lags

Several speakers raised the issue of how to get data from national systems more quickly. "How do we get a system that is current for child maltreatment?" asked Putnam. "We wouldn't accept a 2-year lag for flu cases or *Salmonella*."

Jones agreed that the 2-year lag is "terrible" and should be improved. But she also observed that the data systems have gotten better—for example, by providing more disaggregated data. One need, as Jonson-Reid pointed out, is for data systems that can work together. Today, criminal justice data, CPS data, and medical data are not coordinated. Paxson added that a shortcoming of the NIS is that it is done periodically. "We wouldn't monitor influenza every 5 years." Computer technologies could do continuous tracking of sentinels, which would provide more continu-

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ous data. In addition, household-level data are needed to go beyond the population data from NCANDS and NIS.

Sharon Newburg-Rinn from the Children's Bureau described some of the difficulties in getting data processed and released quickly, such as delays in court process and in the substantiation of reports. However, recommendations from researchers to speed the process could have an effect, she said.

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5

Causes and Consequences of Child Maltreatment

Key Points Raised by Individual Speakers

- Neighborhoods exert influences on child maltreatment through multiple pathways, which in turn are influenced by the characteristics of the families and children in a neighborhood.
- Contextual factors are important in understanding the etiology, prevention, and treatment of child maltreatment.
- Childhood neglect produces demonstrable changes in brain structures and function that can be at least partially reversed by interventions.
- Similarly, childhood physical and sexual abuse produces changes in the brain that are linked to a wide range of psychiatric disorders.
- Multiple brain structures and functions may be affected by early childhood trauma, which has attracted great interest, but research in these areas is still in an early stage of development.

Child maltreatment has many causes and many consequences, some of which function in both roles. Three speakers at the workshop examined particular aspects of these causal relationships and their feedback loops on each other. One looked at the influence of neighborhoods on child maltreatment. The other two examined how neglect, early trauma, and stress influence the brain; the expansion of the neuroscience research on the impact of child maltreatment on neurobiology represents one of the research areas that has shown the most growth in recent years. While a single workshop session could not address the broad range of causes and consequences of child maltreatment, together the three presentations exemplified many of the issues involved in studying the causes and consequences of child maltreatment.

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INFLUENCE OF NEIGHBORHOOD ON CHILD MALTREATMENT BEHAVIORS AND REPORTS

One contextual factor that can contribute to both child maltreatment behaviors and reports is the neighborhood in which a family lives, observed Jill Korbin, associate dean, professor of anthropology, director of the Schubert Center for Child Studies, and codirector of the Childhood Studies Program in the College of Arts and Sciences at Case Western Reserve University. Korbin was also on the panel that produced the 1993 NRC report. Neighborhoods exert their influence on families in multiple ways, but these influences are measurable, Korbin said. Getting a full measure of these influences requires mixed-methods research, multiple perspectives, and sophisticated statistical techniques. Nevertheless, this research bears considerable promise in revealing the impact of social environments on child maltreatment behaviors and reports.

Models of Neighborhood Influences

The 1993 NRC report used an ecologically integrative model drawn from the work of Belsky (1980; NRC, 1993). This model envisions the ontogenetic development of an individual within the frame of the family microsystem, which in turn is framed by the community exosystem and the cultural macrosystem (Figure 4). Since the 1993 NRC report, research has explored the workings of each of these systems, yet some of the research needs identified 20 years ago remain significant needs today.

Some theoretical approaches to child maltreatment stem from social organization and human development theory that predate the 1993 NRC report, said Korbin. But a review of more recent research that Korbin and her colleagues conducted identified three newer theoretical approaches. One looks at the association between structural characteristics of a neighborhood and child maltreatment behaviors and reports. These structural characteristics include socioeconomic measures, but they also include factors such as demographics, the number of children compared with adults, and what is sometimes called the child care burden. A second theoretical approach has examined the effect of neighborhood processes on child maltreatment, though the associations between these processes and child maltreatment are weaker and less well understood. A third approach considers the differences in dynamics among different neighborhoods.

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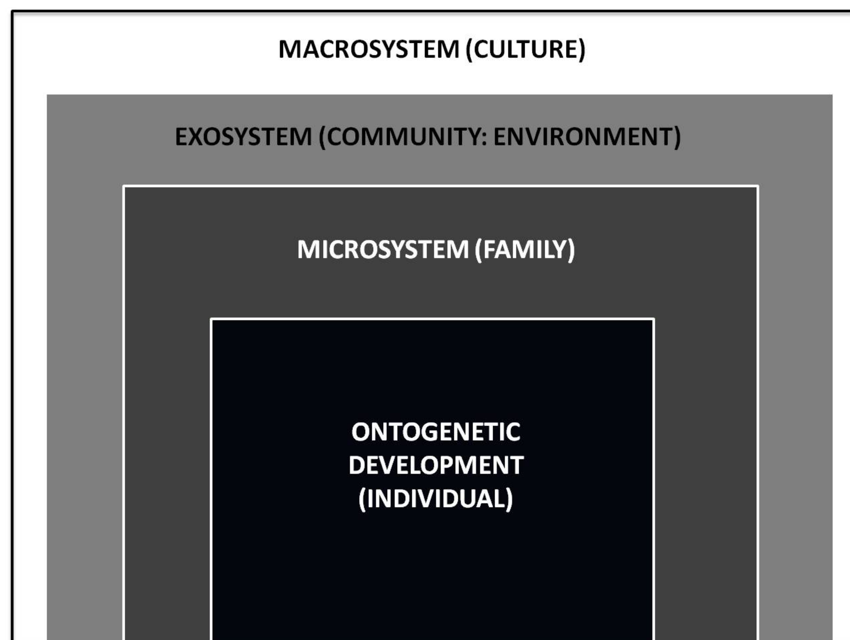

FIGURE 4 Diagram of Belsky's (1980) ecologically integrative model of child abuse.
SOURCE: NRC, 1993, p. 110.

Pathways of Influence

Korbin and colleagues' review identified three potential pathways through which neighborhoods influence maltreatment (Figure 5). One is through neighborhood influences on behavior. A second is through neighborhood influences on the definition, recognition, and reporting of maltreatment. A third is through family and child characteristics. The three are not independent, said Korbin, but each has implications for research, policy, and practice.

Research has demonstrated that child maltreatment reports are concentrated in neighborhoods that have high levels of disadvantage, such as more poor parents and more young parents. However, research has devoted less attention to the neighborhood processes that affect maltreatment behaviors and reports. These processes can exert their effects through transactional processes, exemplified by the balance between environmental stressors and social support, as well as through processes

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involving definition, recognition, and reporting. For example, ethnographic research has looked at neighborhoods where impoverishment has a weaker effect on families and children because of stronger social supports.

Studies that have examined how child maltreatment is defined, recognized, and reported have always been controversial. However, these research questions remain important, said Korbin. For example, are changes in reports of abuse and neglect because of greater scrutiny of poor neighborhoods, the increased use of public services, or stress from living in poor neighborhoods? Such questions are also factors in looking at disproportionalities in the rate at which segments of the population are represented in abuse and neglect reports.

As another example of the research questions raised by this analytic framework, Korbin mentioned the impacts of selection bias and residential mobility on neighborhood characteristics. Researchers do not fully understand how people sort themselves into neighborhoods. It can be especially difficult to separate a neighborhood characteristic from the characteristics of the children and families who live there.

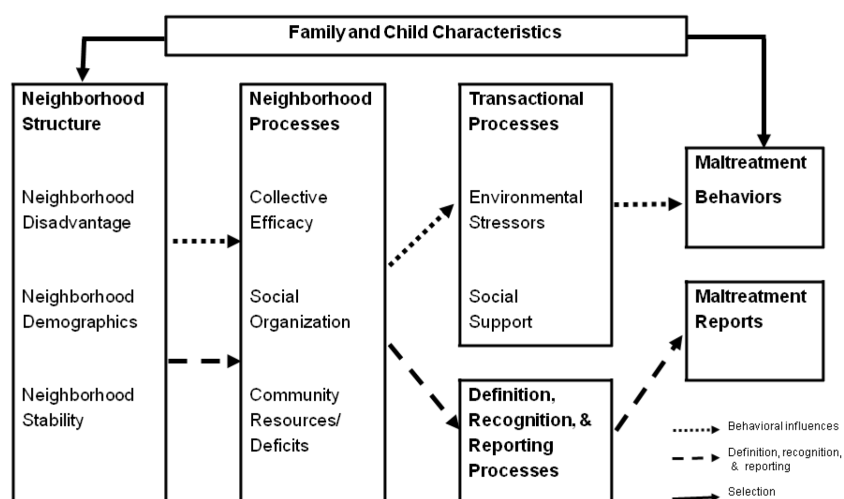

FIGURE 5 Neighborhoods' influence on child maltreatment through alternative pathways.
SOURCE: Coulton et al., 2007, reprinted with permission from Elsevier.

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Understanding Neighborhoods

Complexities arise in understanding how neighborhoods impact child maltreatment. First, how do people define a neighborhood? Possibilities include residents' perceptions, Census tracts, block groups, or ZIP codes. Census definitions have considerable appeal, said Korbin, but Census blocks are not necessarily how residents define their boundaries. Neighborhood boundaries also vary between children and adults. "There are ways to deal with this by looking at common areas or centroids, but we need to be very conscious of what we mean by neighborhoods," said Korbin.

Neighborhoods also are not independent units. For example, research has shown that contact with nearby neighborhoods that are not as disadvantaged may improve outcomes for children and families.

Finally, neighborhoods differ in their relationship to factors demonstrated by research to influence child maltreatment, such as social isolation or collective efficacy.

A full understanding of neighborhoods requires mixed methods research and multiple perspectives, said Korbin. This entails aggregate and structural measures, surveys, ethnography, structured observations, and interviews. "We can't hope to understand the neighborhood impact without talking to people who live there," she said.

Korbin also noted the importance of wider contextual factors, including culture.

Future Research Based on Neighborhood Influence

Korbin identified several research priorities suggested by her and her colleagues' framework for understanding pathways of potential neighborhood influences. Regarding behavioral influences, research is needed to better understand neighborhood conditions, with implications specifically for prevention and interventions to improve neighborhood context. With regard to definitions, recognition, and reporting, research is needed to better understand the factors involved, with implications specifically for improving recognition and reporting practices and policies. In the area of family and child characteristics, research should seek a better understanding of residential selection and efforts to improve housing and neighborhood conditions.

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Discussion

During the discussion period, Putnam, from Cincinnati Children's Hospital Medical Center and the University of North Carolina School of Medicine, described some work that he and a colleague have done in which they were able to predict the geographic locations of a large portion of child maltreatment cases using just five Census tract variables. Similar studies have shown fairly strong correlations between macroeconomic variables like employment changes and child maltreatment rates, he added, raising the question of whether macroeconomic indexes and Census tract data could identify child maltreatment hotspots faster than national data systems. In response, Korbin noted that in their research neighborhood, structural factors also predicted things like low birthweight and teen pregnancy. But she added that it is also important to look at how people regard their neighborhoods as places to live. For example, impoverishment has very different effects depending on the level of perceived social support in the neighborhood.

Jessie Watrous with the Annie E. Casey Foundation asked whether the increased cohesion and social protection provided by some communities might increase reports of child maltreatment, which might distort measures of the incidence of maltreatment. Korbin said that this is an important point and a challenge that should be welcomed. "Do you have wider community norms about what is good or bad for children?" Multiple trends can occur in any given neighborhood, she said. People living in urban neighborhoods are very hesitant to intervene in the behavior of other people's children. At the same time, neighborhoods contain people who are eager to protect children. These countervailing trends should be examined in more depth, she said. Following Korbin's presentation, the focus of this workshop session turned from the influence of neighborhood on child maltreatment to the neurobiological consequences of neglect, trauma, and stress.

NEUROBIOLOGY OF NEGLECT

Humans are an altricial species, which means that throughout early development the young child is very dependent on input from the caregiver. Infants depend on caregivers for temperature regulation, neuroendocrine regulation, protection from infection—"just about everything," said Mary Dozier, Amy E. du Pont Chair of Child Development and professor of psychology at the University of Delaware. When infants or

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children do not receive sufficient input, they can die, or serious behavioral and neurobiological consequences can ensue.

Consequences of Neglect

Neglect can take many different forms, said Dozier. For example, in some institutional settings, infants and children have relatively few interactions with caregivers. In other cases, birth families neglect children who later come to the attention of CPS agencies. This range of neglect provides many opportunities for research into the consequences of neglect.

Children from institutional care often show very stunted growth, though that growth can recover quickly when care improves. Children in foster care also show somewhat stunted growth on average, and children with adverse early experiences can have compromised immune system function. Effects of neglect on behavior include changes in executive functioning, attention disorders, and affective disorders such as depression and anxiety.

Effects on behavior have a bidirectional relationship with changes in the brain, Dozier observed. Early experiences have effects on newly formed connections within the developing brain as well as on the pruning of connections. In turn, these connections modify physiological functioning and behavior. In this way, early experiences can become "biologically embedded" within the developing brain.

Vulnerable Brain Systems

Dozier focused on three developing brain systems that are especially dependent on environmental input—the hypothalamus-pituitary-adrenal (HPA) axis, the amygdala, and the prefrontal cortex.

The HPA axis both produces the steroid hormone cortisol and is affected by cortisol. This system is highly sensitive to the effects of early experience, and the rest of the body is sensitive to this system. It influences short-term physiological systems such as the stress response and long-term systems such as brain development.

Cortisol levels exhibit a diurnal pattern that is essentially independent of the stress response, with higher levels in the morning and lower levels in the evening. However, foster children exhibit flatter diurnal patterns, while neglected children show little change over the course of the day (Bernard et al., 2010). This suggests that there is a basic disruption to a biological system as the result of experiencing neglect, which certainly

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has implications for growth and immune system functioning, and plausibly for the developing brain, Dozier said.

The amygdala, which is the center for processing emotional information in the brain, develops alongside the HPA axis, has a more protracted period of development, and is affected by the developing HPA axis. Early adversity leads to a sensitized amygdala, said Dozier, and a sensitized amygdala is seen among children and adults with greater anxiety. A magnetic resonance imaging study has shown that children who have been institutionalized tend to have a larger amygdala than children who have not been institutionalized (Tottenham et al., 2010). Children who have been neglected have a greater activation of the left amygdala on average when viewing fearful faces than other children.

Finally, the frontal systems, which are responsible for a variety of executive functions in the brain, are very sensitive to early experience. For example, children who have been institutionalized are more likely to show brain wave patterns associated with attention-deficit/hyperactivity disorder (ADHD) (McLaughlin et al., 2010).

Future Opportunities: The Promise of Brain Plasticity

In all of the cases Dozier mentioned, interventions can at least partially reverse the effects of early adverse experiences. For example, parenting interventions can resume the diurnal pattern of cortisol levels seen in low-risk children. Children with deficits in their regulation of emotions or behavior can improve through interventions to counter the neglect they have experienced. "An enriched environment [or] adoption of kids who have been institutionalized, along with other interventions, can enhance regulatory abilities and also change brain functioning," said Dozier.

Abuse has gotten more attention in the neurobiology research literature than has neglect, but it is becoming increasingly possible to examine the consequences of neglect and possible interventions. All of these possibilities can now be investigated neurobiologically, which has created great excitement in the research community, said Dozier.

NEUROBIOLOGY OF TRAUMA AND STRESS ASSOCIATED WITH ADVERSE EARLY EXPERIENCE

Childhood abuse is associated with a wide range of psychiatric disorders, including impulse-control disorders like ADHD, drug and alcohol

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abuse, antisocial personality disorder, generalized anxiety and phobias, major depression, bipolar disorder, posttraumatic stress disorder (PTSD), borderline personality disorder, dissociative identity disorders, and even psychotic disorders. Childhood abuse "is a huge risk factor," said Martin Teicher, director of the Developmental Biopsychiatry Research Program and Laboratory of Developmental Psychopharmacology at McLean Hospital and associate professor of psychiatry at Harvard Medical School.

Furthermore, the more adverse experiences a child has undergone, the greater the risk for depression, drug use, and attempted suicide. If all of these experiences could be eliminated, drug abuse would drop by an estimated 50 percent, current depression by 54 percent, alcoholism by 65 percent, suicide attempts by 67 percent, and intravenous drug use by 78 percent (Chapman et al., 2004; Dube et al., 2003).

Child abuse affects both the gray matter and the white matter in the brain, Teicher noted. However, brain regions differ in susceptibility. The key targets appear to be in the corticolimbic system, which is involved in emotion, behavior, and long-term memory. Also, sensor systems and pathways that convey the adverse sensory input appear to be affected. These effects depend on the timing of exposure. Some brain regions are particularly sensitive during particular parts of the lifespan, and some neurological and clinical consequences may be delayed from the time that brain changes occur.

Susceptible Brain Regions

Teicher focused on three brain regions: the corpus callosum, the prefrontal cortex, and the hippocampus.

The corpus callosum, which is the largest white matter fiber track in the brain, is the information super-highway between the left and right hemisphere. Myelinated regions like the corpus callosum are potentially vulnerable to the impacts of early exposure to excessive levels of stress hormones, which suppress the glial cell division that is critical for myelination. Studies show that children with a history of abuse or abuse and neglect have reduced volume of particular portions of the corpus callosum. Even verbal abuse can diminish the integrity of portions of the corpus callosum (Teicher et al., 2010).

The hippocampus, which plays a critical role in memory consolidation and retrieval, is also a key stress-sensitive structure in the brain. Abused children have reduced hippocampal volumes on average. Volume reduction in the left side of the hippocampus has been associated with maltreated subjects exhibiting PTSD or depression, while bilateral

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volume reductions are associated with patients having borderline personality disorder or dissociative identity disorder.

Animal studies have shown that two portions of the hippocampus are particularly vulnerable to the effects of stress, the dentate gyrus and the CA3 portion of the cornu ammonis. More recently, studies in young adults who had been maltreated as children have revealed similar reductions (Teicher et al., 2012). These studies also have found changes in the sibiculum, which is a part of the hippocampus that suppresses HPA axis response to psychogenetic, but not physical, stimuli. The sibiculum also may play a role in substance abuse and psychosis (Grace, 2010).

The frontal lobes of the brain are important for attention, executive function, working memory, motivation, and behavioral inhibition. The prefrontal cortex is important in planning and anticipating outcomes as well as self-monitoring and self-awareness, which is necessary for the regulation of behavior. Studies have demonstrated a wide variety of effects of childhood abuse on these portions of the brain, said Teicher.

Sensitive Periods

The brain is molded by experiences that occur throughout the lifespan. However, experiences can exert a particularly powerful effect at selective stages of development.

For example, in a study of women who had experienced childhood sexual abuse at different ages, abuse occurring at 3 to 5 years of age had maximal effects on hippocampal volume, abuse occurring at 9 to 10 had greater effects on the corpus callosum, and abuse from 14 to 16 years of age had a particular effect on the prefrontal cortex (Andersen et al., 2008).

If stress exposure targets different brain regions based on the age of exposure, then exposure at different ages may lead to different clinical outcomes. This was found in a study of depressed patients who reported more abuse around age 6, which overlaps with a critical period in the development of the left hippocampus, and around age 16, which overlaps with a similar period in the development of the prefrontal cortex.

Evidence also points toward delays or silent periods in the consequences of abuse. For example, depression does not emerge at the onset of sexual abuse in childhood, but later in adult life. Teicher at al. (2009) found an average delay of about 9 years between the onset of abuse and the first episode of major depression. Similar results appear for drug abuse and binge drinking, where peaks in early adulthood are related to the degree of exposure to maltreatment. Studies in rats have indicated

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that early stress affects hippocampal volume not at the time of the stress, but between the onset of puberty and early adulthood. "Time is of the essence in terms of when the brain is exposed to maltreatment and also when the manifestations emerge of adversity," said Teicher.

The promising aspect of this research is that delayed effects may provide time to preempt the consequences of abuse, Teicher added.

The Nature of the Maltreatment

One hypothesis is that sexual abuse, physical abuse, and other forms of maltreatment such as witnessing domestic violence or verbal abuse have similar effects on the developing brain. Another possibility is that different types of maltreatment have unique effects related to the sensory systems activated and the ways in which specific events are processed.

Support for the second hypothesis comes from a study showing that repeated exposure to childhood sexual abuse reduces gray matter volume by 14 percent in the left primary and secondary visual cortex (Tomoda et al., 2009). In particular, the portion of the visual cortex involved in facial recognition is most strongly affected by exposure to childhood sexual abuse.

With verbal abuse, three fiber pathways in the brain are particularly affected: the arcuate fasciculus, which is associated with verbal IQ; the cingulum bundle, which connects the neocortex to the limbic system; and the fornix, which is another pathway involving the hippocampus associated with symptoms of anxiety and somatization (Choi et al., 2009). Parental verbal abuse and witnessing domestic violence are also associated with changes in the portions of the brain involved in listening and determining the emotional and memory responses to things that are seen.

Compared with abuse, neglect has a more consistent effect on the volume of the amygdala than the volume of the hippocampus. Both abuse and neglect cause increased amygdala activation in response to emotional faces, though the two tend to affect different sides of the amygdala.

These many different pathways and interrelations are complex. But the bottom line, said Teicher, is that abuse and neglect wire the brain to be more sensitized. Further exploration of these effects will have many implications for psychopathology, he concluded.

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Discussion

In response to a question about whether enriched environments have been shown to produce changes in the brain, Teicher said that not much research has been done to investigate this effect in humans. Funding agencies are more likely to support research on disorders than well-being. "That may not be a good priority, but that is the way things go currently."

Leventhal asked about the neurobiological effects of children who experience abuse at very young ages. Teicher said his research excluded any research subject who had injuries above the shoulder, but abuse below the head produces volumetric changes in prefrontal regions and alterations in the dopamine system, which is related to drug abuse, along with changes in the cerebellum and cortical pain pathways. "There is a whole panoply of things that go with physical abuse," he said.

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Preventing Child Maltreatment

Key Points Raised by Individual Speakers

- Universal prevention efforts, especially when focused on new parents, provide evidence of altering parental behaviors and improving outcomes. These positive impacts from early intervention programs are inconsistent across models and populations.
- Home visits targeted at mothers with depression can reduce child maltreatment and the transmissions of those behaviors across generations.
- Brief, focused interventions can substantially reduce child maltreatment recurrence rates compared with more typical and higher dose parenting programs.
- A variety of child maltreatment evidence-based prevention models are now available for dissemination, implementation, and evaluation in community settings.

Because child maltreatment has many causes, different types of efforts are made to prevent it. Speakers at the workshop session on prevention discussed primary interventions for all families, secondary interventions for targeted families (e.g., those that experience mental health disorders or substance use problems), and tertiary interventions to prevent recurrence of child maltreatment and chronic neglect. In all three of these areas, many programs are becoming more focused and targeted on specific behaviors. This trend holds out promise that interventions could be briefer, more structured, and more responsive to outcomes, said several speakers.

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UNIVERSAL PREVENTIVE INTERVENTIONS

Universal prevention programs that target entire populations have evolved in recent decades, said Deborah Daro, Chapin Hall Senior Research Fellow at the University of Chicago. Beginning in the 1960s, researchers moved from simply trying to raise awareness to developing a large number of programs. As their understanding evolved, the focus of programs narrowed to early developmental stages, with a growing emphasis on home-based interventions to maximize impact when children are young. In the past few years, universal prevention programs have emphasized infrastructure and community development, the strengthening of existing programs, and a shift toward evidence-based models.

Shaken Baby Syndrome[1]

A good example of recent trends in intervention efforts is the variety of programs developed to prevent shaken baby syndrome, said Daro. Public awareness and community engagement have been cornerstones of efforts in this area. In addition, recent efforts have concentrated awareness programs on very specific behaviors.

Daro listed several well-known programs, including the Central Massachusetts Shaken Baby Syndrome Campaign, a web-based community engagement program, and a hospital-based initiative at Pennsylvania State University's Hershey Medical Center. One common pathway used by these programs is universal education for new parents on coping skills and parenting practices, often including print or video media. In addition, the programs encourage parents to share what they have learned with others who care for their infants, thus expanding the reach of the curriculum.

Daro particularly emphasized the role of parents as spokespersons for these programs. Two-way communication between parents and broader networks, she said, is a major factor in the education of parents and can play a huge role in disseminating positive parenting skills and approaches. It also is important to educate professionals and first responders, who see families when children are very young. In this way, public and professional education work in concert to improve outcomes.

[1]In 2009, the American Academy of Pediatrics issued a policy statement recommending that the term *abusive head trauma* be used instead of *shaken baby syndrome* to reflect that an injury to the head and brain may be caused by a variety of mechanisms, including shaking and blunt impact (Christian et al., 2009).

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Some randomized trials have shown an increase in parental awareness and the use of alternative strategies. In an upstate New York study, treatment communities had a 53 percent reduction in head trauma from substantiated abuse, comparing pre- and postintervention rates over a 6-year historical control period followed by 5.5 intervention years (Dias et al., 2005). No decrease was recorded in Pennsylvania—where this treatment was not provided—during this time period. Anecdotal evidence, Daro said, also points to greater awareness among parents and to an increased comfort level discussing parenting techniques and skills. The behaviors documented by such evidence "sit at the core of good public health initiatives," said Daro. "Why do we stop smoking? Why do we use seatbelts? It is because individuals are willing to tell other individuals to change their behavior. . . . Person-to-person change is a way to generate normative change in a much quicker way than if you rely solely on a formal intervention."

Shaken babies make up a small percentage of the overall child abuse problem, Daro continued, but focusing on the behavior has merit given its fatal consequences in many cases and the high costs associated with head trauma. In addition, it is a problem for which there are clear and demonstrated ways to lessen its frequency.

Ecological Theory and Community Prevention

Ecological theory provides a useful structure for child abuse work, Daro said. "Child maltreatment has lots of causes," she explained, "and we need lots of ways to address it." But social service systems tend to be narrowly targeted, which is not very hospitable to ecological theory. Much work happens independently without regard for other areas, and success is measured on an individual level rather than a population level. "The idea of doing community prevention," Daro continued, "is in part driven by trying to be more explicitly in tune with ecological theory."

Community programs existed since the turn of the last century, serving as a critical intervention during the Progressive Era. More recently, investments in place-based strategies surfaced again in the 1960s as part of the War on Poverty. Today's community programs to address child maltreatment target high-risk communities and incorporate various interventions, and each program has very different levels of research and evaluation. Some look at the effects of the entire initiative, while others focus only on one or two components.

Common pathways used by these community programs fall into several categories. Expanding services and providing more resources is a

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constant goal, whether through better use of existing resources or adding elements to a program. Many programs also work to change the relationship between provider and participant, Daro said, which is known as "practice reform." This strategy sets clear standards for interaction and describes common messages and specific behaviors for anyone working with families. For example, she noted that Triple P (Positive Parenting Program) has a specific training program where they train every provider in the community in order to put out a common definition about the relationship of parent and child.[2]

Some programs also use agency reform initiatives that are working to change institutional culture. This strategy may focus on creating a systemic response to child abuse, bringing agencies together to act in concert.

Finally, some programs focus on normative change. "They want people to be different," Daro observed. "They want to change the values around mutual reciprocity or appropriate caregiving, and they go to the families themselves." This style of broad-scale outreach, she said, attempts to change the way parents view their responsibilities, both independently and collectively.

Some research on community initiatives has found measurable reductions in child abuse reports, substantiated cases, hospital emergency room use, and out-of-home placements at the population level, though other initiatives have not demonstrated measurable population-level change. "It is not uniform, but there is certainly some evidence that under certain circumstances the strategy can work."

Research also shows changes in parent self-reporting that suggest fewer adverse parenting practices and other normative changes. The target communities have seen better engagement and more mobilization of community resources. "People are doing more. They can generate greater interest. They get more people involved," Daro said.

Continuing Challenges

Implementing these programs and generating positive outcomes continues to face steep challenges. Generating new social networks can be difficult, Daro pointed out, as opposed to enriching ones that already exist. Some families are very isolated when they enter the program and have a difficult time building connections.

Another issue is considering which neighborhoods can support community-level initiatives. Less stressed communities, Daro said, gen-

[2]Additional discussion of the Triple P model can be found in Appendix D.

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erally can implement programs faster, and programs that are quicker to implement have better outcomes. The community also has an impact on the program operations, which has to factor into the decision-making process.

Many programs fail because they do not have an intentional and strategic framework to guide decision making, said Daro. "These are complex initiatives. There are a million balls in the air." Programs with three or four distinct components, she said, inevitably have to let some things go, and someone must make decisions about how to prioritize and allocate resources to keep the operation from being too scattered and therefore ineffective.

Community intervention programs also require large investments, Daro pointed out, which means that consideration must be given to how they can remain sustainable and consistent. Creating measurable change takes time, and a program must be built with that constraint in mind.

Finally, Daro addressed the importance of timing and focus when delivering services. "We lack a science of execution," she said. When parents are "absolutely at wit's end," they need something to help them through that difficult period. "We don't know how to get that something to the parent at the point at which they need it, and that is what we are really struggling with."

Future Opportunities to Strengthen Universal Prevention Programs

The outcomes of programs could be strengthened through an intentional focus on the contexts of intervention programs and individual families, Daro said. Additional research also will be necessary on the sustainability of reform and population-level change.

Assuming that every family is at risk could provide benefits by providing a universal assessment at a specified point in time, Daro said. The system also could benefit from a greater understanding of the critical elements necessary for high-quality interventions and a sense of how much programs can adapt while retaining those ingredients.

In addition, using technology more effectively could have many beneficial impacts, such as improving supervision, empowering participants to seek information, and strengthening provider–participant relationships.

Finally, public and private programs need to be integrated more closely to maximize support for community programs. "There are simply not enough public dollars to meet the needs of families and children at

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risk," Daro concluded. She emphasized that "people need to be empowered to act on their own to support parents and protect children."

Discussion

In response to a question about the expense of preventive services, Daro pointed out that the cost varies widely. "The real trick is linking families with the level of service they need, not more, not less." She added that cost can be minimized by looking to the systems that are already in place and adapting them as necessary. Another participant pointed to a lack of economic analysis in childhood abuse and neglect and the need for precise and targeted cost-benefit and comparative effectiveness analysis of welfare programs; several panelists agreed with this point.

SECONDARY PREVENTIVE INTERVENTIONS WITH HIGH-RISK POPULATIONS

Delivery of services through home visits shows promise for decreasing the transmission of child maltreatment across generations, said Frank Putnam, professor of pediatrics and child psychiatry at the Cincinnati Children's Hospital Medical Center and professor of psychiatry at the University of North Carolina School of Medicine. Home visits are a common intervention in many countries, but they are more limited in the United States and tend to attract high-risk families with inadequate resources. At present, Putnam said, about 500,000 families across the country are participating in home visiting programs.

The Results from Research

In a brief review of research on home visitation, Putnam reported that only one out of five trials found a substantiated reduction of substantiated abuse, but four out of five showed a reduction in parent-reported abuse (Astuto and Allen, 2009).[3] Putnam pointed out that population studies see a higher frequency of parent-reported abuse (including sexual abuse, physical abuse, and shaken baby syndrome) than substantiated abuse reports, so he thinks it is important not to discount those data. Home visitation programs also have demonstrated influence on parenting

[3] Additional discussion about home visiting programs is included in Appendix D, including a summary of evaluations of the effectiveness of home visiting models for promoting child well-being and a discussion of the strength of the available evidence.

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sensitivity and parenting harshness, two important risk factors for maltreatment.

An important factor in understanding research on home visitation is that these programs often have strong site effects, said Putnam. Some sites get very good results, while others do not produce the same kinds of outcomes, which tends to dilute statistical significance (Howard and Brooks-Gunn, 2009). Putnam added that it will be important to research why there are often strong site effects and why the same program seems to produce results in some communities and with some agencies and not with others.

In the research sample Putnam and his colleagues have been studying of 15,000 families receiving home visits, most of the mothers were single or unmarried, had on average an 11th-grade education, and had young children. Many mothers were estranged from their families and socially isolated, and two-thirds of the mothers in the research sample had a history of maltreatment (Ammerman et al., 2011).

Reviews and meta-analysis suggest a two to three times greater risk of maternal depression when mothers have a history of child maltreatment. Maternal depression, in turn, is a risk factor for child abuse and neglect. This result is a vicious cycle, Putnam pointed out. "If you were abused, you are more likely to become depressed. And if you become depressed, you are at a higher risk for maltreatment of your offspring." His study has found that depression and social support strongly affect the relationship between a childhood history of maternal trauma and increased parenting stress. In particular, a Beck Depression Inventory of 800 mothers over the course of 9 months had 44 percent scoring in a clinical range split into three groups: one group that scored high and then improved, one that remained chronically depressed, and one that first scored low and then became depressed. In the literature, Putnam said, the rate of maternal depression in home visiting populations is 30 percent, and the majority of those mothers do not get treatment (Ammerman et al., 2011).

Dealing with Depression

A number of strategies have been put forth for addressing maternal depression in home visitations. Current standard practice involves screening the mother for referral to community services. Another model involves having the home visitors screen the mother and provide a referral to a mental health partner. This technique, Putnam said, was successful in Ohio, with two-thirds of mothers who screened positive accepting

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a referral. Embedding a program within the home visiting model is a third approach. A fourth, which has been used in Louisiana, has the home visitor screen and then provide the counseling directly, supervised by a mental health professional.

In-Home Cognitive Behavioral Therapy (IH-CBT) is an intervention Putnam developed with Robert Ammerman (Ammerman et al., 2011). "Because there are so many different home visiting programs," Putnam said, "we designed this to be as generic and nonprogram-model-specific as possible. In development for 8 years, the program is standardized to 15 sessions plus a booster session, delivered by a social worker with at least a master's-level education who is supervised by doctoral-level psychologists or psychiatrists."

In multiple trials, the researchers saw a positive impact of the embedded program for treating depression. In addition, the program increased their perceived social support. However, their social networks did not expand significantly, which means they were getting more benefit from the same network.

The studies showed almost an 80 percent reduction in depression among mothers who completed all 15 sessions, and 60 percent reduction for those who received treatment but did not go through the full program. Two-thirds of those who had no treatment remained depressed (Ammerman et al., 2011).

A 3-month follow-up showed continued improvement in the treatment population. These trials compare well with randomized controlled trials in clinical settings, as well as with medication trials, Putnam observed. Other studies, he added, show that depressed subjects with a history of maltreatment respond poorly to medication but well to cognitive behavioral therapy.

Future Opportunities with Home Visiting Systems

Home visiting systems provide an opportunity for repeated screening and delivery of services that mothers will accept, Putnam concluded. Mothers learn to trust the home visitors; no-show estimates are lower than for clinic-based services; and the programs can follow families for multiple years. "Delivering those services in the home reduces a lot of barriers. Most of these moms don't have cars. They don't have transportation. They have child care problems. They are poor." Home visitation programs also provide an opportunity to address other risk factors such as maternal PTSD, substance abuse, and domestic violence.

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Discussion

In response to a question about education for providers and home visitors, Putnam pointed out that a number of curricula are being developed, particularly in the area of social work. But education on child maltreatment is not embedded in medicine or in most of psychology. "There are many areas where we need to disseminate this," he said.

Daro expanded on that statement, suggesting that another challenge for workers is learning to strategize with colleagues in different disciplines. The culture does not necessarily support incoming workers with new skills, she said, and they may get dragged into old ways of doing things regardless of what they learned previously.

PREVENTION OF RECURRENCES AND ADVERSE OUTCOMES

Tertiary services are generally not voluntary, said Mark Chaffin, professor of pediatrics at the University of Oklahoma. They focus on families with recurring instances of maltreatment and emphasize effect size more than reach or penetration. "The consumer of these services, in an economic sense and in many other senses, is actually the system," Chaffin said. "It is the child welfare system or the courts." These entities typically select and prescribe these services, but they rarely have done so in a well-informed or assessment-driven manner.

Public child welfare systems are highly regulated, Chaffin observed, but they lack a mandate to use proven effective or evidence-based treatments. Most services are locally derived and delivered by community-based agencies that may invent their own model without strong guidelines. An informal search of the Child Family Services Reviews, which evaluate child welfare systems, resulted in no matches for the term "evidence based."

"Typically, services in this area have been ideology driven, not evidence driven, and that is still the case," Chaffin said. In the 1980s, the prevailing attitude was that any treatment would be too late and that prevention was the only viable option. In the following decade, intervention research focused on sexual abuse and posttraumatic stress (PTS) symptoms. This resulted in evidence-based services for PTS in children, but left many needs unaddressed because fewer than 20 percent of children in foster care show PTS symptoms. As recently as 2004, a review commissioned by the Office for Victims of Crime found only a single inter-

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vention mode—for PTS in child victims—as well supported, and rated no parent-focused or perpetrator models as well supported (Chaffin and Friedrich, 2004).

Recent Progress

More recently, however, there has been substantial growth in the number of well-supported models that extend well beyond PTS, Chaffin said. In 2012, for example, the California Evidence-Based Clearinghouse for Child Welfare (CEBC), which reviews evidence on interventions for families in child welfare, rated as well supported four parent training models, one foster care stabilization model for children, two foster care stabilization models for adolescents, and four models for children with internalizing anxiety, depression, or PTS.

Now it is clear, Chaffin continued, that child maltreatment recidivism reduction recurrence rates can be substantially reduced with a brief, focused intervention, compared with more typical and higher dose parenting programs. One trial showed a reduction from more than 50 percent to less than 20 percent measured using an evidence-based treatment. Researchers have replicated these results in settings outside of laboratories with cases severe enough to face termination of parental rights. The results also have been extended from physical abuse to neglect and from more acute cases to chronic or deep-end cases. A recent statewide trial also showed significant reductions when adding evidence-based modules to a home-based service system. For every 10 to 15 cases treated, recurrence dropped by one within the first year, and greater than one in following years. "These are meaningful reductions that can be achieved."

The majority of current evidence-based treatments have been borrowed from outside child welfare, Chaffin observed. They were developed in other contexts and have been adapted and integrated into service programs for high-risk parents. Many of these evidence-based treatments also require lower doses and fewer sessions compared with previously favored interventions. They take a more behavioral approach, emphasizing adaptive skills, and focus less on verbal exploration of issues. They also tend to be more structured, which Chaffin said gets a mixed reaction from implementation staff.

In ideology-based models, providers tended to value comprehensiveness over depth, trying to fit as many therapies as possible into a program. Evidence-based treatments look different. They focus on fewer things with greater depth and intensity. Greater quality control is empha-

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sized. "This has been the shift that has been going on and will probably continue."

Future Research and Opportunities

Borrowing and adapting from other intervention sources will continue into the future, said Chaffin. "We have a long way to go before we exhaust the possibilities of what we can borrow from other evidence-based treatment literatures," he said. Many of these interventions are more advanced than in child welfare settings and are resilient enough to be translated across communities, problem areas, populations, and cultures.

An important factor to consider is the envelope of effectiveness for different therapies and where their usefulness begins to taper off. Identifying the most useful elements within borrowed treatments, and pulling out those crucial ingredients for use in a child maltreatment setting, would increase effectiveness. Adaptation requires the complex task of fitting various strategies to the service system, the context, the policy environment, and the workforce.

Evidence-based case management pathways are another area for development, Chaffin suggested. People providing services need a background in matching those services to clients and families. Today, service plans tend to be scattershot. Parents often cannot realistically complete all the tasks laid out in their service plan. Assessment-driven service models, with fewer targets and greater focus and depth, could be a better fit, with monitoring for outcomes instead of processes.

Chaffin also suggested that researchers look beyond immediate outcomes to the developmental, occupational, social, and health consequences of interventions for children in the system. Furthermore, new scientific insights into the causes of maltreatment behavior can influence decisions about what interventions to borrow, how to develop new interventions, how to assemble and tailor the elements of interventions, and how to anchor interventions in a clinical science approach rather than an ideological approach.

At the end of his presentation, Chaffin noted that neglect is more stable and recurrent than other types of maltreatment, which results in a flood of chronic cases in the child welfare system. In Oklahoma, for example, more than 40 percent of cases have been seen four or more times in the past, typically for chronic neglect. "We are still married to an episodic and reactive service system. You have to have a report, and that is when you initiate services." Looking to other chronic diseases, he suggested, could inform development of a different methodology for dealing

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with recurrence. Emerging evidence suggests that evidence-based interventions may have a cumulative service benefit or at least a retained probability of positive response even among highly chronic cases, as is seen in addiction treatment. To explore this possibility, research needs to look at the trajectory of interaction with service systems across a family's child-rearing years, changing developmental issues and the match with evidence-based treatments, and the role of monitoring, check-up, and follow-up. For example, who would do such monitoring and how could engagement be sustained, Chaffin asked, especially among highly mobile populations with shifting family compositions?

Discussion

One participant asked about the ingredients of success, which Chaffin listed as quality control, delivery mechanisms, and program structure. In that regard, he also spoke about implementing structured programs that can be delivered by employees with a bachelor's-level education. "If you asked me what the number one problem is in public child welfare, I would say it is a workforce problem," Chaffin said. "Today you have a bachelor's degree in English literature or recreation or landscaping, and 3 weeks from now you are a child welfare worker with a full caseload. I think it is the exception rather than the rule to find much in the way of course work." Matching programs with clients could be handled by decisional algorithms, Chaffin said. Expertise is necessary for developing the algorithm, but once it exists, someone without a Ph.D. can effectively match elements to a case. Putnam added that the use of continuous quality improvement techniques developed in the business community could have a dramatic effect on child maltreatment programs. In contrast to randomized controlled trials, continuous quality improvement is nimble, cheap, and data-driven. It embraces variation as a way of improving a system and depends on quick feedback to foster continual improvements.

John Landsverk, director of the Child and Adolescent Services Research Center at Rady Children's Hospital in San Diego, commented on the lack of data on the cost of prevention services. He noted that child welfare does not have a unit costing system, unlike medical care, in which a certain amount can be attached to each type of visit or procedure. This is an important barrier to achieving precision in cost calculations and cost-benefit analyses. He said that a unit cost approach has been developed in Britain and is currently being adapted for use in the United States. Finally, he stated that there are a number of different interventions in particular areas that are ripe for comparative effectiveness

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research. For example, it may be that one intervention actually delivers a slightly smaller effect than another but costs much less and therefore has a better cost-benefit ratio.

Barth brought up the challenge of reengaging families in chronic neglect situations without a child abuse report as a mechanism. He said that this could be made more difficult because of the expansion of multiple response programs that do not collect or keep complete information from child abuse reports. Chaffin said such a system would look more like a prevention system than an intervention system. However, he added, "We are still very much at the formative state of beginning to think through understanding how chronic families interact with systems and what they benefit from cumulatively or episodically over time. We are just beginning to learn something about chronic neglect cases that would allow us to think about how we would design a different type of system that is less episodic and reactive."

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Design and Delivery of Services

Key Points Raised by Individual Speakers

- Effective parenting interventions are available that can reduce child maltreatment, but they need to be more broadly disseminated and implemented.
- Similarly, great strides have been made in developing treatments for children who suffer from abuse, violence, and neglect, but a large research-to-practice gap continues to hinder the delivery of evidence-based treatments.
- Research has demonstrated the value of brief, single-focus techniques even with multiproblem families, which are the norm rather than the exception. These brief, focused interventions may or may not be less effective than more intensive approaches that seek to address all problems present, but are likely to reach more at-risk families.
- Research on the dissemination and implementation of evidence-based practices can help convert new understandings to interventions that can change lives.

The session on the design and delivery of services at the workshop picked up on many of the themes from the previous session on prevention. Multiple effective service models exist, many of which are adapted from other service sectors (e.g., services to help parents of children with specific behavioral disorders). But a variety of impediments keep evidence-based treatments from being widely used. Research therefore needs, several speakers said, to examine the dissemination and implementation of evidence-based treatments even as it continues to examine the evidentiary basis for those treatments.

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PARENT-FOCUSED INTERVENTIONS

A multitude of effective preventive and treatment models exist for parenting interventions, said John Landsverk, director of the Child and Adolescent Services Research Center at Rady Children's Hospital in San Diego. The primary problem is the translation of those interventions into child welfare service systems and other systems such as child mental health care.

Effective parent-mediated interventions have many elements, including nonharsh methods such as timeouts, consistent consequences for behavior problems, homework, and in vivo practice. Also, a wealth of data is available to support these interventions. A meta-analysis of child psychotherapy trials between 1963 and 2002 grouped trials by issue, finding 94 publications focused on anxiety or fears, 23 dealing with depression, 135 on conduct-related disorders and problems, and 35 on parent-focused or parent-mediated interventions (Weisz et al., 2004). Many issues have been well studied using randomized controlled trials, said Landsverk.

Mental Health Services for Children

Traditionally, child welfare is organized around three mission elements: safety, permanence or stability, and well-being. Child welfare systems typically have been comfortable taking responsibility for the first two, but considerable ambivalence surrounds well-being. It is the most difficult to assess. It also is seen as requiring expertise and resources of sister agencies such as child mental health, developmental services, health, and education.

Parenting interventions can be focused either on the abusive and neglectful behaviors that put children at risk or on the behavior resulting from abusive and neglectful parenting behaviors, said Landsverk. In the latter category, not much diagnostic information exists about externalizing problems. But a San Diego study of more than 400 children dependent on the child welfare system found 42 percent with a diagnosis of moderate impairment, including attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder (Garland et al., 2001). Similarly, a National Survey of Child and Adolescent Well-Being (NSCAW) study on mental health service use found that 45 percent of the sample population met Child Behavior Checklist criteria for behavior problems (Orton et al., 2009).

Current data show that the deeper children get into the child welfare system, the more likely they are to be referred to specialty mental health

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services. Even when the system just investigates a family, the children are more likely to end up with a referral. Moreover, NSCAW data show no sharp drop-off in mental health services once children leave the welfare system, contradicting the hypothesis that there is little continuity of care.

Children suffering from neglect are less likely to be referred to mental health services than those in sexually or physically abusive homes, even if they present with behavioral and conduct problems, Landsverk said, suggesting that bias or assumptions sometimes outweigh clinical decisions when referring children for care. Neglect is rarely present without harsh parenting, which suggests that parenting interventions developed for externalizing behaviors could be applied to neglect situations. "There is now experimental evidence and conceptual evidence to change our thinking about the viability of parenting interventions for neglectful behaviors," Landsverk stressed.

Future Opportunities for Service Design and Delivery

Many parenting interventions borrowed from other disciplines have strong evidence of effectiveness. They are appropriate for different ages of children, problems of varying severity, and diverse populations. "We don't so much need more interventions," Landsverk pointed out. "We need to know how to move them and place them in service systems that can pay for them and deliver them in an effective way. It becomes a problem of dissemination and implementation." Borrowing from other disciplines is a wonderful resource, but it creates the challenge of fitting those interventions into the welfare system, when the interventions were not designed with that framework in mind.

The use of these interventions to deal with neglect poses some special problems, but a body of recent work has demonstrated a variety of ways to approach the problems caused by neglect. "Parenting interventions that were developed for externalizing behaviors may now be a real possibility for use with the largest population in child welfare—namely, neglect."

Child welfare managers need decision tools that they can use to select age- and condition-appropriate parenting interventions and link parenting intervention outcomes to child welfare outcomes. In addition, parenting interventions should be extended downward in age, Landsverk said, with adaptation that makes them suitable for parents with younger children.

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Finally, a number of promising dissemination and implementation studies are under way, some with promising published results where well-being outcomes are associated with the safety and permanence outcomes at the core of the child welfare mission. This dissemination and implementation research should continue to be emphasized, Landsverk said. (Dissemination and implementation studies are discussed in greater detail in the next chapter.)

CHILD-FOCUSED INTERVENTIONS

Since the 1993 NRC report, great strides have been made in developing treatments for children who suffer from abuse, violence, and neglect, said Shannon Dorsey, assistant professor in the Department of Psychiatry and Behavioral Sciences at the University of Washington. Many therapies can be delivered in 12 to 20 sessions in a range of settings. Most draw on cognitive behavioral therapy and are effective as both group and individual approaches. Research supports the effectiveness of these interventions across cultural and ethnic groups and demonstrates that, in most cases, the evidence-based approach works better than usual care. Sources for learning about effective interventions include the CEBC and the Kauffmann Best Practices Project to Help Children Heal from Child Abuse.

Cognitive behavioral therapies tend to be effective for PTSD, depression, and anxiety, Dorsey said. Adolescent depression also responds well to Interpersonal Therapy. Many name-brand approaches target only one disorder, she pointed out. “But when you think about kids exposed to child abuse and neglect, comorbidity is more the rule than the exception.” A modularized approach is frequently needed to address the issue of children with multiple disorders. (Children with multiple disorders are discussed later in this chapter.)

An increasing amount of data is also available on psychopharmacological approaches, which can work in concert with evidence-based psychotherapies. A Treatment for Adolescents with Depression Study that was focused on severe refractory depression found a combined approach to be more effective than therapy or medication alone, though Dorsey pointed out that children with comorbidities may not have made it into the trial and other studies have found cognitive behavioral therapies to be more effective than medication. Less evidence exists for the effectiveness of medication with children suffering from PTSD, complex trauma,

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or emotional dysregulation. With younger children, the goal is to avoid medication.

From Research to Practice

Repeating a point made by Landsverk, Dorsey emphasized that there is a large research-to-practice gap with evidence-based treatments. Efficacy trials show large effect sizes, compared to effect sizes near zero for some usual care practices, but implementation proceeds too slowly. The availability of evidence-based practices for children also is lacking, partly due to the slow acceptance and spread of the methods. "Training in graduate school isn't necessarily consistent with the types of interventions that we teach when we think about evidence-based therapies or evidence-based practices," Dorsey said. In contrast, she pointed to a growing body of work in low- and medium-income countries teaching counselors with little or no training to deliver evidence-based interventions. "They need more training and more supervision, but there is less resistance to this type of approach." Some schools, such as the University of Maryland and University of Washington, are changing their curriculums and training graduate students to be open to these types of interventions.

Part of the problem, Dorsey pointed out, is a lack of incentives for delivering certain types of services. The system rewards any kind of treatment, regardless of type. "Currently we are spending a lot of money on interventions that don't have a lot of evidence of working at all. The cost of doing business the way we are is pretty high."

The system also lacks ways to link adolescents to evidence-based treatments. Child welfare does not mandate evidence-based interventions, and often child welfare workers choose services without much prior information about evidence-based practices. She lamented the lack of training and lack of monitoring to ensure the use of the best available therapies. New approaches need to monitor both outcomes and the adherence to effective therapies, she said.

A small randomized controlled trial in Washington state, which trained case workers in how to refer children to evidence-based practices, saw increased awareness as workers became more familiar with the options available to them (Dorsey et al., 2012). Referrals did not necessarily increase, but the study provided information on how to train brokers to make referrals in light of evidence-based case planning.

Even if new interventions are not necessary, the field needs more research on the effectiveness of interventions and on borrowing interven-

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tions from other areas. Existing evidence-based interventions for children with high emotional dysregulation can be restrictive, and children often end up in residential or inpatient settings where little data exist on the use of effective practices. Also, the use of less-intense interventions could benefit children with high dysregulation, Dorsey said. Dialectical behavioral therapy (DBT), which is used in some programs, shows promise, but there are no trials of DBT with adolescents. For young children, most interventions are parent-mediated, but strong evidence supports the effectiveness of programs like Attachment and Biobehavioral Catch-up and Multidimensional Treatment Foster Care for Preschoolers (MTFC-P).

Dorsey also pointed to the need for improving the provision of services in residential and inpatient settings and for transitioning children from foster care to home placement when they are receiving intense therapies. Also, reliable methods are needed for getting services to children with subclinical levels of internalizing disorders such as PTS who may not be able to get coverage through Medicaid.

Child abuse and neglect require comprehensive approaches, she said. "How do we make sure that families and children get validation, acknowledgment of what happens, psychoeducation, and support for parents . . . in an intervention of a limited nature—only 1 to 3 hours?" This type of comprehensive service has no obvious provider. Child advocacy centers might be a reasonable place to start, but they are not available everywhere. Technology-based approaches and solutions outside traditional delivery models could provide answers, Dorsey suggested.

Trauma-informed systems could be useful as well, but it is important to be clear about what those systems need to do for children and adolescents. Screening, identification of children with externalizing and internalizing disorders, and possibly a comprehensive response are all functions that could be expected of these systems. But trauma-informed systems need to move beyond educating people that trauma is common and has severe consequences for development and brain functioning, to include screening, feedback on screening results, referral, and—when appropriate—treatment provision.

Future Research on Service Design and Delivery

Dorsey addressed several problems in existing research. She called for improvement of sample issues in medication studies and oversight of prescribing practices for psychotropic drugs. In addition, she pointed out that more research on treating grief and loss in children who are cut off

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from their parents due to termination of parental rights would be beneficial.

She echoed other presenters in calling for better use of short-term, evidence-based interventions rather than process-oriented, extended-duration approaches. Research that can examine how to implement evidence-based treatments in community settings is also crucial.

Discussion

Osofsky brought up the issue of support and supervision for counselors, who deal with difficult and draining situations. Dorsey suggested that counselors be trained in exposure, cognitive reprocessing, and other skills for addressing anxiety disorders and trauma.

Angela Diaz from the Mount Sinai School of Medicine pointed out that many children have a history of abuse that is not known to the welfare or legal system, but is often discovered by primary care providers. Lucy Berliner from the University of Washington said that such cases need to be validated, acknowledged, and provided with opportunities for treatment. Dorsey added that parents do not need to be as involved for internalizing disorders, so children who do not want their parents to be part of the process, or are estranged from their family, can still receive services that will improve their situation.

FAMILIES DEALING WITH MULTIPLE PROBLEMS

Multiple problems are the norm in child maltreatment cases, said Steven Ondersma, clinical psychologist and associate professor in the Department of Psychiatry and Behavioral Neurosciences of the Wayne State University School of Medicine. The question is what to do about it.

The assumption that practitioners must make progress in all areas to have any effect "is almost a guaranteed way of inducing hopelessness," he said, "if not in ourselves, then certainly among folks on the front line." Child welfare workers feel they can never provide enough high-quality services and see families as overwhelmed with everything they are asked to do.

Clinical trials have demonstrated the success of some multifocal treatment plans, he acknowledged. "I am not going to make the point that this assumption that doing things together in an integrated way is always wrong, because it is not. I am going to make the point that perhaps it is

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not always right, and we need to attend to that and think carefully about it."

Integrated Versus Nonintegrated Treatment

A meta-analysis looking at integrated and nonintegrated treatment found no difference in their effectiveness in treating substance use, depression, and other issues in people with co-occurring disorders (Tiet and Mausbach, 2007). This study also demonstrated that focusing on one disorder in individuals with co-occurring disorders was just as effective at treating that disorder as with a person only suffering from a single disorder. A trial on Seeking Safety, a popular cognitive behavioral approach for women with a history of trauma and substance use, showed no difference between women assigned to that approach or a women's health education group (Hien et al., 2009).

His own failure in this area was instructive, Ondersma added. When he and two colleagues ran a demonstration program for mothers of drug-exposed infants designed to include every possible treatment option, they found no association between program participation and outcome (Mullins et al., 2005). The do-it-all approach derives from the best of intentions, he pointed out, but it does not always work.

Future Opportunities: The Promise of Brief Interventions

"We have to think carefully about what we are doing and what we are getting for it," Ondersma stated. Researchers tend to focus on treatments with the largest possible effect size. But the community may be better served by a stronger emphasis on distribution and interventions designed for ease of implementation. "If we want to have a broad effect, we have to start thinking more about starting with reach and then, within that constraint, making something as efficacious as we possibly can."

In this respect, findings that brief and single-focus techniques can work well with multiproblem families are promising, said Ondersma. The Family Check-Up is one example. It shows excellent effects on child externalizing problems with a couple of sessions at birth, a session at 12 months, and another at 24 months. The SEEK program by Dubowitz et al. (2009) is another good example of a brief approach with good results. A meta-analysis by Bakermans-Kranenburg and colleagues (2003) showed that interventions on parental sensitivity and child attachment had better results when families received less than 5 sessions and worse results when the number of sessions went above 16. Indeed, Ondersma

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successfully replicated a study using a 20-minute computer-delivered intervention with high-risk parents to decrease postpartum drug use.

"Random assignment to brief interventions very often yields similar effects as to the more extended interventions," he said. Equally interesting, the effects of a brief intervention appear to be more pronounced among people with more severe substance use disorders.

The evidence suggests that parenting interventions may be sufficient even for families with multiple risk factors, Ondersma said. "When co-occurring risks are present, we should think carefully about the possibility of brief interventions with a single focus." Stepped and long-term episodic approaches, such as recovery management checkups and motivational checkups used in the substance abuse field, could also be a useful tool. Judicious use of technology also could greatly improve reach.

In the future, Ondersma concluded, researchers should pay more attention to reach, which demands consideration of nontraditional approaches. In addition, research on stepped, sequential care and proactive identification of families at risk should be a high priority.

Discussion

Given that effective interventions exist but are not widely available, asked Lucy Berliner from the University of Washington, who moderated the session on the design and delivery of services, how can attitudes and outlooks that are impeding the use of evidence-based practices be changed? "Part of the answer is designing things differently," Ondersma replied. Interventions need to be "designed from the start to be implementable given the system that we have." Technology is also an important tool, he added, both for training service providers and for delivering services.

Landsverk pointed out that commercializing interventions makes them difficult to modify. "There's something about product development that gets in the way of doing lots of really interesting adaptations." He added that targeting services correctly with regard to developmental stage could help conserve resources while producing good results. Finally, he suggested an incentive system for developing treatments that function with the current delivery system. Dorsey agreed, adding that efforts to create change especially need to focus on graduate schools and on providers.

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IMPLEMENTATION OF EVIDENCE-BASED PRACTICE

In his review of dissemination and implementation research, Gregory Aarons, a clinical and organizational psychologist and professor of psychiatry at the University of California, San Diego, School of Medicine, began with several definitions. "*Dissemination* is the targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to spread knowledge and the associated evidence-based interventions" (HHS, 2010). He defined *implementation* as the use of strategies to introduce or change evidence-based health interventions within specific settings. *Scale-up* is a type of implementation with the goal of spreading evidence-based practices broadly across a service system. Finally, *sustainment* is the continued use of an evidence-based practice with fidelity and with sufficient spread for public health impact.

A Conceptual Model for Implementation

Bearing these definitions in mind, Aarons presented a conceptual model that illustrates the complexity inherent in implementation. The model divides implementation into four phases: exploration, adoption decision and preparation, active implementation, and sustainment. All of these phases must consider both the outer context and the inner context. Outer context is sociopolitical and involves such factors as funding, legislation, and interorganizational relationships within a service system. Inner context encompasses organizational characteristics such as openness to evidence-based practice, skills and expertise, and goals. Both of these contexts can either support or hinder implementation.

The exploration phase involves consideration of implementing an evidence-based practice and about the "fit" of a given evidence-based practice with outer context (i.e., service system) and inner context (e.g., service organizations, providers, and clients). Once an adoption decision has been made, planning for implementation begins. This phase entails consideration of what factors in the outer (e.g., policies, funding, leadership) and inner contexts (e.g., organizational leadership, workforce) need to be in place prior to implementation. Active implementation involves moving an evidence-based practice into the field and, in the process, problem solving unanticipated issues that may arise. Finally, the sustainment phase is characterized by having the appropriate supports in place to maintain continued use of the evidence-based practice with fidelity.

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Examples of Dissemination and Implementation

Aarons used this model to explore dissemination and implementation experiences with several specific programs. One was a statewide implementation trial in Oklahoma of the child neglect intervention SafeCare (Aarons et al., 2009). With support from the National Institutes of Health, Aarons and colleagues investigated such factors as program impacts on the workforce, the therapeutic process, the relationship of the case manager with clients, and organizational processes. "What implementation research tries to do is say that these things that are nuisance variables, we want to take them head on and understand what the concerns are," Aarons said. "Then we want to design future studies to go in and really improve those processes."

As an example of this work, Aarons described a finding that workforce retention was increased by the program. This result was unexpected because the program had the effect of reducing job autonomy. "I've never been happier to be wrong." Those doing the evidence-based practice were more likely to stay in their organizations, at least partly because of less stress and burnout, according to Aarons. A follow-up study is now looking at the effects of team stability on team climate.

Another study involved an intervention in rural Appalachia known as Availability, Responsiveness, and Continuity (ARC) that works to improve the culture and climate that children's services workers experience (Glisson et al., 2010). The study looked at four conditions: usual care, the ARC organizational intervention only, multisystemic therapy (MST) only, and ARC combined with MST. The study found that ARC alone and MST alone lead to decreased placement changes. It also found that youth receiving MST plus ARC entered out-of-home placements at a significantly lower rate (16 percent) than youth in the control condition (34 percent) and had better 6-month behavior problem outcomes. "This is an example of going in and trying to affect the organizational inner context prior to and during the active implementation phase," said Aarons.

Aarons also mentioned several studies that are in earlier phases. In one—a program to scaleup SafeCare in San Diego County—teams of staff from different agencies are working together to implement evidence-based practice. The San Diego County child welfare system worked with the United Way to develop a seed team trained in SafeCare, which allowed the program to move away from reliance on the National SafeCare Training and Research Center. The structure allows new staff and replacement staff to be drawn from multiple organizations, which improves the fit with the SafeCare model and provides for local and ongoing quali-

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ty assurance. It also may create a pathway for people to gain expertise, become coaches, and expand the program. "The idea is to spread that expertise efficiently throughout the service system and then support it with the seed team. This is ongoing now, and we will be following these teams for the next 4 years to see if they maintain fidelity and if we get successive reductions in child maltreatment reports and recidivism," said Aarons.

Future Opportunities to Enhance Dissemination and Implementation

Both the outer system and the inner organizational context need to be improved to enhance receptivity to evidence-based practice, said Aarons. In particular, understanding of evidence-based practices can be increased in both the outer and inner contexts.

Stakeholder collaboration and partnerships also need to be maximized to support the implementation of evidence-based practice, as does leadership coordinated across the outer and inner contexts.

Methodological innovation in research design and in the methods and measures of implementation is needed. Examples include roll-out designs, system dynamics, network analyses, decision science, and developmental measures of implementation climate. Technological innovations also can serve as implementation methods.

Finally, models of sustainment need to be developed and tested. "Once we have the practice in [i.e., implemented], what do we need to know to effectively sustain evidence-based practice in the outer and inner contexts of child welfare?" Aarons asked.

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8

Systems-Level Issues

Key Points Raised by Individual Speakers

- International comparisons can reveal the potential ways in which characteristics of child protective systems affect outcomes.
- Differential response systems are an alternative to traditional child welfare systems designed to produce better outcomes with reduced costs.
- Experimentalist reforms go even further by devolving responsibility for tailoring treatment programs and monitoring results, with review by peers, to individual case workers.

The final session of the workshop examined several issues at the broadest and most multidisciplinary level—the systems level. International comparisons of systems can reveal the key features of any one system and possible ways to modify those features. System-level analyses also can suggest both incremental and radical reforms designed to achieve particular goals.

A CROSS-NATIONAL VIEW OF CHILD PROTECTIVE SYSTEMS

International comparisons can reveal not just the differing characteristics of child protective systems, but potential ways in which those characteristics affect outcomes. They can highlight differences in the incidence, prevalence, exposure, risk, and burden of child maltreatment. They shed light on different approaches to monitoring and evaluation, which in turn can be related to the epidemiological measures of a system.

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They reveal valuable information on costs, the distribution of resources, and the responsiveness of clients and systems to the supply of and demand for services. Finally, they reveal different approaches to decision making, including the nonrational factors that affect the psychology of decision making including decision-making thresholds.

John Fluke, vice president of the Children's Innovation Institute at the American Humane Association, summarized a recent article in *Lancet* that examined the policy implications of cross-national differences in the responses of child protective systems (Gilbert et al., 2012). Before discussing the *Lancet* article he referred to two sources of data that have been used in cross-national approaches: self-report data and administrative data. The World Health Organization has identified self-report data as the standard for understanding the epidemiology of child maltreatment. Examples of instruments that collect such data are the Parent-Child Conflict Tactic Scales, the Child Abuse Screening Tool developed by the International Society for Prevention of Child Abuse and Neglect, the Juvenile Violence Questionnaire, and the Multiple Indicator Cluster Study developed by the United Nations Children's Fund (UNICEF). The article in *Lancet* drew primarily from administrative data, though the availability of such data depends on the existence of a functioning service delivery system. In some countries, information from health care systems can be a valuable addition to sparse or missing data from service delivery systems.

As an example of self-report data, Fluke cited international results from the UNICEF Multiple Indicator Cluster Survey on physical discipline. It found that physical punishment of children is less likely in households that share the belief that physical discipline is not necessary in child rearing, whereas physical discipline occurs more often in households that do see physical discipline as necessary. Such data indicate the feasibility of achieving a "broadband view from an international perspective across many low- and middle-income countries," said Fluke.

A Six-Nation Comparison

The *Lancet* study looked at policies and practices in six high-income countries or parts of countries: England, Manitoba (in Canada), New Zealand, Sweden, the United States, and Western Australia. These countries are facing similar challenges and have relatively consistent enumeration methods that make it possible to look at multiple indicators. In particular, the study looked at children younger than 11 years old and drew data from hospital admissions and CPS agencies.

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The analysis did not find consistent upward or downward significant trends in most forms of child maltreatment behaviors and reports when comparing the six countries. However, comparisons of measures across countries were more revealing. For example, the rate of violent deaths, drawn from health care data, was more than fivefold higher in the United States than in Sweden. In general, low levels of maltreatment indexes in Sweden and high levels in the United States are consistent with extremes of child poverty and support for parenting, Fluke said.

Also, hospital admissions for various forms of maltreatment, gathered from analysis of International Classification of Diseases (ICD) codes, were comparable between Sweden and Western Australia, but the rate for the United States was substantially lower. This raises "intriguing questions," said Fluke, about access to health care and the effects of universal health care services on use.

The study did not find a consistent decrease in the maltreatment indicators it gathered. While policies might be effective in protection of some vulnerable groups of children, they may be failing to reach others, particularly younger children, Fluke said.

Future Research Using Cross-National Analysis

The study emphasized the importance of measuring multiple indicators, especially for administrative data. It also highlighted the importance of consistent methodologies, especially when comparing trends, and the need to cross-link data more systematically.

All countries have limited measures, and these limits are in different domains. In general, variability in social services data is greater than for healthcare data. Also, it can be difficult to separate cultural factors, such as attitudes, from measurement biases.

Fluke concluded by listing some of the questions that cross-national analyses raise for him. How can methodologies be improved over time? Can the results be clearly linked to different policies? Can cross-national insights lead to better understanding of national data? Can cross-national interpretations of data lead to better understanding of policies and their impacts? What can cross-national analyses reveal about the access and availability of services?

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ALTERNATIVE CHILD WELFARE SERVICES APPROACHES

An innovation that has occurred since the 1993 NRC report has been the development and implementation of differential response systems, which are also known as alternative response, dual track, multitrack, or multiple response systems. Differential response provides a flexible approach to child welfare service delivery, explained Richard Barth, dean of the School of Social Work at the University of Maryland. Referrals with severe child maltreatment or imminent risk of further abuse are assigned to an investigative pathway, which is sometimes called the formal pathway. Referrals initially classified as low or moderate risk enter a noninvestigative pathway, sometimes called the assessment pathway, which emphasizes family engagement and services outside of the court's purview. About a third of the states have a third pathway, sometimes called the prevention pathway, which provides some degree of services for screened-out cases or cases that do not meet the statutory requirements for child maltreatment.

A key feature of differential response systems is the capacity to reassign families to another pathway. For example, if a service agency were to perceive a higher risk, a family could be reassigned to the traditional child welfare pathway. This can be a problem in some differential responses systems if barriers exist to the reassignment of cases.

Also, differential response programs will create significant problems for child protection if the use of data about the prior involvement of the family with CPS is limited because prior reports are among the best predictors of the seriousness of the threat to children. States should be discouraged from destroying information about cases that have ended up in alternative response.

Pathway responses need to be codified, said Barth, so that alternative responses are delivered in a consistent way that can be described. At this time, there is no "best practice" for families who are in any of these alternative pathways. Also, noninvestigative pathways are generally voluntary, and the cases do not have a determination of maltreatment.

As many as 20 states, and possibly more, have differential response systems, Barth said, with additional systems in pilot stages (Figure 6). With recent legislative changes this number may be closer to 30 states.

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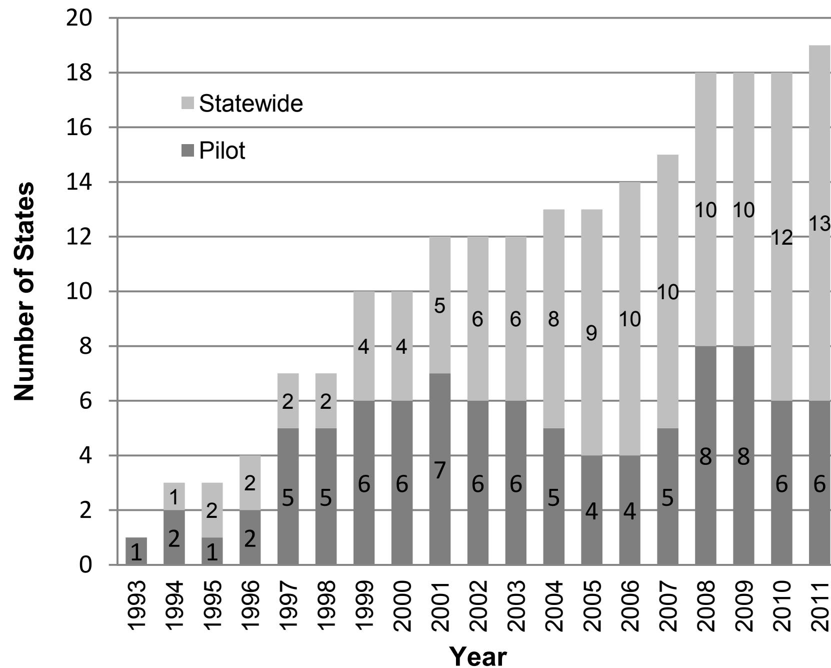

FIGURE 6 Implementation of differential response systems either statewide or as pilot programs since 1993.
SOURCE: QIC-DR, 2011, p. 8.

Purposes of Differential Response

Differential response has several purposes, said Barth. It provides improved matching of cases to services, rather than matching progress through the child welfare system to the availability of evidence. It also enables better engagement of clients without the involvement of the court. Of course some people insist that court involvement is essential to engaging clients, Barth added, but even court-involved clients often do not complete basic requirements such as parent training.

Differential response can reduce court and service costs by reserving resources for severe cases and forensically managed cases. Also, it can produce better engagement of community agencies in serving clients connected with child welfare services because alternative response systems usually have close ties with community agencies. Differential response can support child maltreatment prevention with high-risk cases.

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The overall goal of differential response, said Barth, is for children and families to "get services they need when they need them. They would get help that feels like help."

Existing Research on Differential Response

Several randomized controlled trials have been completed on differential response systems, and others are under way. Other studies have used quasi-experimental designs or administrative data to determine whether children who went down an alternative pathway were safe.

These studies have found that differential response does not result in increased reports of harm to children, though the studies with direct assessment of harm have not been able to rule out the possibility that increased harm might occur. Differential response also appears to increase family engagement. "Families report very positively about it," said Barth, and "for the most part, workers report very positively about it." Child welfare workers who have the choice to work in the alternative track often choose to do so, and they often report greater satisfaction under the noninvestigative pathway, even though differential response typically does not reduce their workload.

Future Research on Differential Response

Barth provided a list of questions that would be useful targets of research on differential response; many are taken directly from or based on questions from a literature review funded by the Children's Bureau on differential response in child protective services (QIC-DR, 2011).

- What is the response, and what do differential response workers do?
- Which aspects of differential response implementation are plausibly linked to improving outcomes for children and families?
- Are the positive effects on families due to assignment to a noninvestigative pathway, so that families are not further harmed by involvement in the child welfare system, or to actual provision of services?
- How do criteria for assignment influence the effectiveness of the noninvestigative pathway (e.g., should some cases only be served under the formal/forensic system)?

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- How does participation in the noninvestigative pathway differentially affect families with different demographic, social, or cultural characteristics?
- Does assignment to a noninvestigative pathway affect child and family well-being beyond safety?
- What is the total cost-effectiveness of differential response when costs to other service and support systems are considered?
- Will the key findings for child and family outcomes hold up under more rigorous evaluation designs?
- What is the impact on the child welfare system as a whole when multiple pathways are incorporated into an agency's response to allegations of maltreatment?
- What changes in administrative data collection and analysis will best capture the impact of differential response?
- Given the limited evidence that cases are being referred from differential response back to CPS agencies, why is this not occurring?

A critical challenge, said Barth, is to change the distinction between substantiation and nonsubstantiation. Descriptions should be more accurate so that, for example, "sexual abuse" has categories that give information about the abuse, including its severity. "This is a real opportunity, as we rethink the reporting that is required for alternative response systems, to also include measures of severity."

Barth also pointed out that differential response systems may be a place to experiment with concepts of child-centered social services homes or medical homes. Cases could be treated as either open or not open, with a behaviorally anchored severity scale that transcends victimization. Such a system would change thinking about recurrence and about how people are brought into child welfare systems.

ROLE OF CLASS-ACTION SUITS IN BUILDING EVIDENCE-BASED CHILD WELFARE SYSTEMS

In his presentation at the workshop, Charles Sabel, the Maurice T. Moore Professor of Law and Social Science at Columbia Law School, professed to be engaged in a classic bait and switch. He said that he would discuss class-action lawsuits as a way to influence child welfare systems, but such suits are neither necessary nor sufficient for improving

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the organization of child welfare services. They mitigate the most horrific circumstances, he acknowledged, but they generally do not produce sustainable improvement in organizations, and their cost-benefit balance is unclear.

However, structural litigation offers one great advantage if it can open up spaces for experimentation, including ongoing experiments in several states that have created a new model of welfare provision. Moreover, federal efforts increasingly reflect and reinforce such reforms. These innovations deserve to be more rigorously studied, Sabel said.

The Problem with Bureaucracy

The problem is easy to state, said Sabel: Big bureaucracies do not work. The reason is that the lowest level of "street-level" bureaucrats—the case workers, teachers, police officers, and so on—exercise discretion in an unobservable way. They have many rules to follow, and they decide which rules to apply. "No one sees them doing the rule application. And if you try and review what they do later on, you repeat the same problem. Different judges or administrative judges come to different conclusions about what was done."

This discretion sets intrinsic limits to the utility of large organizations as instruments of public policy, Sabel observed. Adding more regulations makes the organization less responsive to dynamic changes in its environment and offers even more discretion to street-level bureaucrats. Public bureaucracy is even worse because successive changes in upper level administration lead to a hodgepodge of conflicting instructions. Furthermore, public-sector unions can accelerate the rate at which these problems compound.

The early class-action lawsuits contributed to this problem because they imposed more rules. They were preoccupied with deadlines, quantitative measures, and specific procedural and documentation requirements. The New Public Management (NPM) movement of the 1990s tried to break this logjam, but it, too, defined narrow goals to allow for precise measures of progress and clear incentives, sometimes embedded in contracts with private parties. In this way, NPM fragmented and separated services even as demands for coordination and integration were growing.

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An Alternative to Street-Level Bureaucracy

There is an alternative to this approach, said Sabel. It is to acknowledge and authorize low-level discretion rather than try to eliminate it.

In this model, the case worker is tasked not with determining which clients are eligible for which programs. Rather, the case worker devises, in consultation with the client and a team of expert service providers, a plan that brings the relevant resources to bear on the client's problems. As a condition of this autonomy, the frontline worker (or, increasingly, the multiprofessional, frontline team) provides a detailed report on the client's progress under the plan and evaluates progress by agreed metrics. The plan and monitoring reports are in turn reviewed by a group of peers in the light of experience with comparable situations. These reviews can prompt revisiting of the metrics and decision-making rules.

This system makes the topsy-turvy world of street-level bureaucracy accountable and capable of learning from diverse experiences. Errors can be corrected and innovative solutions identified and generalized. "Instead of hiding the discretion, you make it more transparent. People have to say what they are doing, and they have to say it in front of peers who understand their situation very well." Peer review creates a mechanism for dynamic or forward-looking accountability. The frontline worker is accountable when he or she can justify the actions taken as in the best interest of the client given the overarching purposes of the organization and the range of results obtainable in similar cases. This approach involves compliance with peer judgments rather than rule accountability. When this requires deviation from the rules, the rules are reexamined in light of the higher purposes they serve. It also fosters institutional learning, allowing identification and correction of local error, detection of dead-end policies, and scrutiny and eventual generalization of promising successes.

Experimentalist Reform in Child Welfare

This system, known as experimentalist or pragmatist reform, has been partially implemented in several states. In Utah, for example, the key instrument is called a quality service review (QSR). The QSR begins with selection of a stratified random sample of cases. An agency official and an outside reviewer examine each case over 2 days, including a file review and interviews with the child, family members and other caregivers, professional team members, and others. The reviewers score the

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cases in terms of two sets of indicators: a "child and family status" that measures the well-being of the child and his or her family, and a "system performance" that reflects the capacity to build teams, make assessments, formulate and update plans, and execute those plans. The initial scoring is then refined in a series of meetings, with a final report setting out the aggregate scoring, identifying recurring problems, and illustrating these from specific cases (see Sabel and Simon [2011] for additional discussion of the QSR).

"The idea is that systematic problems—a breakdown in one place in the system—are evidence of systematic failures in the organization of routines that are producing bad decision making," said Sabel. Participation in this process is a way of training the people in the system, so long as they are open to changing how they normally do things. Similarly, QSR data function as a measure of performance and as a diagnostic tool of systemic reform. The scores can be compared over time and (in principle, though not yet in practice) across states, giving rough but serviceable indications of where attention and remedial effort should be focused.

The second experiment Sabel mentioned is the federal Child and Family Service Reviews (CFSRs). Launched in 2000, the CFSR combines review of aggregate case processing and outcome data with qualitative peer review of a sample of cases. It has become less punitive and more diagnostic and remedial, and key federal officials see it as a form of "continuous improvement." CFSR has prompted some states to start qualitative monitoring. In fact, some states have used QSR-type data to challenge the findings of federal CFSR review. "That's the test that a system is working—that it induces reflection on the lower level that compels reconsideration on the higher level."

Limits and Future Opportunities

Today, the audit sample of the CFSR is small even by QSR standards. The performance measures blur process and outcome in a way that impairs their diagnostic value, and their results are not compiled or disclosed in a way that facilitates comparison across states (Noonan et al., 2008). Most importantly, the CFSR currently selects its own cases for review, while a more plausible procedure would re-review a sample of the cases from the state's process. That way, federal efforts would leverage the states' process and integrate with them directly. But these flaws seem remediable, said Sabel; for example, the CFSR could complement innovative state reforms.

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So far, QSR and experimentalist child welfare services lack systematic evaluation of outcomes with random assignment of cases. That might seem incompatible because random assignment evaluation measures the effect of a precisely defined and consistently applied protocol while the aim of experimentalist service provision is to adjust the protocol as the treatment continues. But the "guidance-based" or "treatment to target" strand of the evaluation literature measures the effects of organizational arrangements for customizing therapy. If so, QSR-type reviews can serve as a useful starting point for rigorous evaluation.

Better integrated with an improved system of state QSRs, the CFSR could become a national framework for rebuilding the child welfare system from the bottom up, Sabel concluded. It could also provide Congress with a forward-looking form of oversight that would enhance accountability while improving the capacity of state systems to learn.

Discussion

In response to a question about whether potential liability is a factor in the decision making of child welfare workers, Sabel said questions of liability can never be completely eliminated. However, one way to interpret the firing of child welfare directors is that it connotes greater public accountability for these systems. "After decades where the liability was always pushed down and the people on the top never left, there is a window in which they are being held accountable. If it persists too long and there is nothing but churning, people will turn away in despair and the results will be devastation. [But] this is a moment when that high-level accountability has to be turned to good purpose."

LEADERSHIP AND MANAGEMENT IN CHILD WELFARE AGENCIES

At the beginning of the final discussion session, David Sanders, the executive vice president of systems improvement at Casey Family Programs, offered reflections based on his experience as someone who has spent many years directing large public agencies as well as several reflections on earlier presentations.

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Leadership in Child Welfare Agencies

Sanders spent 13 years as a child welfare director in large urban settings, first in Hennepin County (Minneapolis and suburbs) and later in Los Angeles County. He discussed the demands on child welfare directors in large urban settings and implications for leadership of the agencies. He said that he was asked to run child protection in Hennepin County after a crisis that resulted in the firing of everyone above him in the organizational structure. He added that, at the time, "I had no experience with child protection. I had never set foot in a family's home, but I will tell you that this is not an uncommon experience for many people in child welfare." In Los Angeles County, he was the fifth director in 5 years, and the ninth in the 20 years that the department had existed. Though he was not fired or forced out of his job, most of the other directors of the Los Angeles County child welfare agency that came before or after him were fired because of crises in the child welfare system. This pattern is common throughout the country, he said. He noted that this situation often results in leaders with little preparation for the job, who find the position is fraught with challenges, and who lead "a day to day existence." Continuous and sustainable improvement is difficult in such a situation. "This issue of leadership turnover and leadership preparation, and of strengthening and sustaining leadership, is absolutely critical," he said.

Sanders also discussed leadership and management issues that arise from the perception that public expectations are not being met. In both systems that he led, child safety was the initial priority. In Los Angeles County, for example, the agency investigated 170,000 complaints of abuse and neglect every year, and there was zero tolerance for any error. He described how most of the agencies' effort was dedicated to these investigations and to foster care, with little attention and resources available for implementing evidence-based practices that will improve outcomes for children. Although child safety is critical, he said, it is also critical to expand the focus to think about what well-being looks like.

Finally, Sanders noted that as director he had to spend at least 50 percent of his time dealing with the media, elected officials, and other non-practice-related issues. It is critical, he said, to think more about how systems can be supported to make the changes necessary to incorporate innovative practice.

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Management in Child Welfare Agencies

Sanders emphasized many important issues that previous presenters raised, including issues of worker turnover, distress, capacity to take on new initiatives, capacity to think differently, and management capacity to think differently. He also touched on the role of labor unions in child welfare agencies. In Los Angeles, all changes in workload had to be negotiated. For example, if implementing a new program meant even one extra hour of time over the course of a year, it would have to be negotiated with the union. This meant that the implementation of new evidence-based practices would inevitably be subject to trade-offs and considerations about which issues to raise with the union.

Sanders also discussed the impact on workers of implementing new evidence-based practices. Workers will stay in organizations where they believe they are doing effective work, but many also feel overwhelmed. Careful thought needs to be given to how to introduce changes in such a setting.

Finally, Sanders discussed the implementation of evidence-based practice in the larger context of system-reform. "How [do] you make sure that it really is incorporated into the planning and management and not seen as separate work?" He noted that the challenge is not whether or not there is a good set of evidence-based practices, but rather how to implement them across a large organization with many workers. In Los Angeles, he said, they focused on a small set of outcomes and a small set of strategies. He also suggested implementing evidence-based practice by blending research with child welfare services. Research results can provide support to leadership and justify systemic reforms. "It is a way of incorporating evidence-based practice much more quickly into child welfare agencies than any other structure."

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9

Closing Remarks and Research Opportunities

CLOSING REMARKS

In her final wrap-up presentation at the workshop, Anne Petersen, chair of the planning committee, listed the themes that struck her as important during the presentations and discussions.

1. *The causes of child maltreatment*. If the causes of child maltreatment are not understood, then interventions will just treat symptoms. This approach is not sustainable in the long run. Research has made progress in identifying these causes, and more can be learned.
2. *Definitions and measures*. The problem of defining and measuring child maltreatment was a theme in the NRC 1993 report. Since then, many new possibilities for measurement and definition have been identified.
3. *Systems-level considerations*. Research on the characteristics of systems and possible changes in those systems has enabled new levels of understanding about how systems work to generate both outcomes and data about those outcomes.
4. *Translational research*. Research needs to be designed so that it is relevant to policy and practice.
5. *Child maltreatment science policy*. Science policy for child maltreatment research was identified in the 1993 NRC report as an important issue and it remains important today. Research needs to be funded if understanding is to progress, and emerging data need to be integrated with current systems, said Petersen.
6. *A child-centered perspective*. This also was a theme of the 1993 NRC report and remains a theme of research, policy, and practice today. "We could have a really slick system that is not doing

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anything for the problem of child maltreatment," said Petersen. The current emphasis on child well-being and parenting interventions bears promise that children will be at the center of future reforms.

FUTURE RESEARCH AND OTHER OPPORTUNITIES SUGGESTED BY INDIVIDUAL PARTICIPANTS

The speakers at the workshop identified many priorities and questions for future research and other opportunities for future action. These are compiled here to provide a sense of the range of suggestions made; additional detail and nuanced discussions are available in the preceding chapters. The suggestions are identified with the speaker who made them and should not be construed as reflecting consensus from the workshop or endorsement by the National Academies.

Recognizing and Assessing Child Maltreatment

- A consensus on research definitions needs to be established for each type of child maltreatment based on sound testing for relevance and usefulness in economically and culturally diverse populations. (Widom)
- Systems of evaluation and care for child maltreatment need additional study, including the linkages between child abuse pediatricians and CPS agencies. Particular attention should also be given to the roles of CACs and multidisciplinary teams because these are tightly linked to evaluation. (Leventhal)
- Researchers should examine how to improve the decision making of primary care clinicians, emergency room physicians, and child abuse pediatricians. (Leventhal)
- Research is needed on which children need which diagnostic tests. (Leventhal)
- Many research questions could be asked on assessment for mental health services planning:
    - Within the context of frontline child welfare practice, how well do current (and proposed) assessment tools and procedures identify children with particular problems who likely need mental health services?

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  - What are the major sources of error in child welfare assessment approaches?
  - How should assessment approaches be adjusted due to factors such as culture, ethnicity, race, and gender to reduce disparities?
  - What is the influence of worker background and experience on the implementation of assessment systems?
  - What are the most parsimonious and efficient approaches (in terms of financial cost, worker and family time, training, supervision, and compliance effort) to effective assessment?
  - What levels of assessment can be reasonably performed by typical child welfare workers, and what levels require additional community professional resources?
  - What are the minimal knowledge and skills needed in the child welfare workforce to do the levels of assessment necessary for good practice?
  - What sorts of initial and ongoing training, supervision, and monitoring of practice are needed to achieve and maintain effective assessment activity?
  - To what degree can technology be used to make the assessment process (and application of assessment results) more efficient and more effective without negating appropriate child welfare worker judgment?
  - Does greater coordination of assessment tasks with community resources and the family result in better assessment? (Saunders)

Social Trends and Child Maltreatment Trends

- A series of large population-based epidemiological surveys is needed to produce a more accurate picture of the nature and scope of child maltreatment, including the types of maltreatment that are currently excluded from existing official statistics. (Widom)
- Child maltreatment should be included as a focal topic in the National Children's Study. (Widom)
- The constrained fiscal outlook calls for the development of cost-effective primary prevention models, sophisticated tools to assess the risk for secondary maltreatment, and better methods for tracking and monitoring high-risk families. (Paxson)

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- Longitudinal data are needed to understand how family structure is related to maltreatment. (Paxson)
- The national analysis and distribution of NCANDS data should include trends by maltreatment type or by subgroups and state-level trends by maltreatment type. The analysis and distribution of NIS data should include trends in specific subforms of maltreatment, at least in some categories. (Sedlak)
- Additional efforts should be made to publicize and disseminate existing data; facilitate full use of existing data; systematically collect data to guide prevention, including representative samples of both maltreated and nonmaltreated children; improve maltreatment data in other systems such as the National Crime Victimization Survey and the National Incident-Based Reporting System; and look beyond CPS when defining maltreatment to also consider children's other victimization experiences. (Sedlak)
- The Children's Bureau should publicize NCANDS and NIS data more effectively to help professionals, media, and the public learn about and understand trends. (Jones)
- More research focused on epidemiological approaches to child maltreatment can reveal what is working so that interventions have a greater effect than they have had in the past. (Jones)
- Integrated data systems are needed that could facilitate planning, contribute to cost estimates, and help measure system-relevant outcomes. (Jonson-Reid)
- System decision-making labels like substantiation need to be fully decoupled from research and data systems seeking to discriminate between maltreated and nonmaltreated children. (Jonson-Reid)
- Additional research is needed on the reliability of data suggesting declines in certain types of child maltreatment. Efforts are also needed to improve public health surveillance, including the ability to track data at the community level in addition to the state level. (Putnam)

Causes and Consequences of Child Maltreatment

- The contextual factors that contribute to child maltreatment need more study, including genes, poverty, parenting styles, beliefs regarding discipline, cultural differences, and community resources. These contextual factors should be studied in combina-

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tion to understand both the causes and consequences of maltreatment. (Widom)

- Research is needed on neighborhood and wider contextual conditions that influence child maltreatment, with implications specifically for prevention and interventions to improve neighborhood and community contexts. (Korbin)
- Research is needed to better understand the factors involved in definition, recognition, and reporting of child maltreatment, with implications specifically for improving recognition and reporting practices and policies. (Korbin)
- Research should seek a better understanding of residential selection and efforts to improve housing and neighborhood conditions. (Korbin)
- Further research on the neurobiology of abuse and neglect is needed, given the many implications of this research for psychopathology. (Teicher)

Preventing Child Maltreatment

- Policy makers should explore how Medicaid could be used as a vehicle for the prevention and treatment of child maltreatment. (Paxson)
- Additional research is needed on the sustainability of reform and population-level change. (Daro)
- Research needs to generate a greater understanding of the critical elements necessary for high-quality interventions and a sense of how much programs can adapt while still retaining those ingredients. (Daro)
- The effective use of technology to implement prevention programs should be explored further; this could have many beneficial impacts, such as improving supervision, empowering participants to seek information, and strengthening provider–participant relationships. (Daro)
- Public and private programs and personal acts of mutual reciprocity need to be integrated more closely to maximize support for community programs. (Daro)
- Research should examine evidence-based treatments that can be borrowed from other intervention science sources, identify key cross-cutting elements and adapt them, modularize them, assem-

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ble them, prioritize them, and triage them to better fit for specific child maltreatment settings. (Chaffin)

- Researchers should develop evidence-based case management and assessment-driven service pathways. (Chaffin)
- Researchers should look beyond immediate outcomes to the developmental, occupational, social, and health consequences of interventions for children in the system. (Chaffin)
- Research needs to look at the trajectory of interaction with service systems across a family's child-rearing years, changing developmental issues and the match with evidence-based treatments, and the role of monitoring, check-up, and follow-up. (Chaffin)

The Design and Delivery of Services

- More research is needed on disseminating and implementing evidence-based treatments. (Landsverk, Dorsey)
- Research is needed on treating grief and loss in children who are cut off from their parents due to termination of parental rights. (Dorsey)
- Research needs to look more intensively at how to get evidence-based treatments into community settings. (Dorsey)
- Research on stepped, sequential care, high-reach, brief interventions (perhaps using technology), and proactive identification of families at risk should be a high priority. (Ondersma)
- Researchers need to develop and test models of sustainment for child maltreatment programs. (Aarons)
- There is a need for methodological innovation in research design, implementation methods, and measures, for example, innovative efforts in roll-out designs, system dynamics, network analysis, decision science, and implementation climate. (Aarons)
- Technological innovations should be developed as implementation methods. (Aarons)

System-Level Issues

- Research should examine what cross-national analyses can reveal about the access, availability, and impacts of services. (Fluke)

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- Research is needed on types of leadership and leadership alignment across system and organization levels that support evidence-based practice implementation and sustainment. (Aarons)
- Additional research on differential response could address these questions:
  - What is the response, and what do differential response workers do?
  - Which aspects of differential response implementation are plausibly linked to improving outcomes for children and families?
  - Are the positive effects on families due to assignment to a noninvestigative pathway, so that families are not further harmed by involvement in the child welfare system, or to actual provision of services?
  - How do criteria for assignment influence the effectiveness of the noninvestigative pathway (e.g., should some cases only be served under the formal system)?
  - How does participation in the noninvestigative pathway differentially affect families with different demographic, social, or cultural characteristics?
  - Does assignment to a noninvestigative pathway affect child and family well-being beyond safety?
  - What is the total cost-effectiveness of differential response when costs to other service and support systems are considered?
  - Will the key findings for child and family outcomes hold up under more rigorous evaluation designs?
  - What is the impact on the child welfare system as a whole when multiple pathways are incorporated into an agency's response to allegations of maltreatment?
  - What changes in administrative data collection and analysis will best capture the impact of differential response?
  - Given the limited evidence that cases are being referred from differential response back to CPS agencies, why is this not occurring? (Barth; note: many questions are taken directly from or based on questions from QIC-DR [2011].)
- Systematic evaluations need to be conducted of experimentalist approaches to child welfare services such as quality service reviews. (Sabel)

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- Greater emphasis on dissemination and implementation of research is needed. (Landsverk)

Policy and Support for Child Maltreatment Research

- Administrative and grant review processes need to ensure that reviewers have adequate expertise with child maltreatment to ensure that maltreatment research proposals are evaluated on the basis of the quality of the work proposed. (Widom)
- The capabilities of the researchers who can contribute to child maltreatment research need to be sustained and improved, for example, through postdoctoral grants. (Widom)
- A funding mechanism is needed that can reflect the interdisciplinary nature of child maltreatment research and extend to graduate and postgraduate training. (Widom)
- Early-career investigators and institutional review boards need education in how to deal with ethical issues that may arise during research on child maltreatment, such as reporting requirements. (Widom)
- Guidelines are needed for the use of videotaped interviews done for maltreatment assessments, for example, guidelines regarding confidentiality and access. (Putnam)
- Fellowships in child abuse pediatrics should be funded. (Leventhal)
- More research could be done in cooperation with CACs. (Osofsky, Leventhal)

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Appendix A

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Appendix B

Workshop Agenda

Embassy Suites Convention Center Hotel
900 10th Street, NW, Washington, DC

DAY 1, Monday, January 30, 2012

8:30-8:45 **Welcome and Introductions**
Anne Petersen, University of Michigan
Planning Committee Chair

Goals and Objectives of the Workshop
Bryan Samuels, Commissioner, Administration on Children, Youth and Families, Administration for Children and Families, U.S. Department of Health and Human Services

8:45-9:15 **Keynote Presentation:**
Looking Back and Looking Forward: Reflections on the 1993 NRC Report *Understanding Child Abuse and Neglect*
Cathy Spatz Widom, John Jay College of Criminal Justice, City University of New York

9:15-10:45 **SESSION 1: Interactions Between Child Maltreatment Trends and Social Trends**

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This session will explore trends and shifts in child maltreatment rates and the ways in which they may relate to changes in social and economic environments.

Moderator: Anne Petersen, University of Michigan

Societal Trends and Implications for Understanding Rates of Child Maltreatment
Christina Paxson, Princeton University

Changes in Rates of Reported Child Abuse and Neglect
Lisa Jones, University of New Hampshire

Contributions of Data Sources to Understanding Child Maltreatment
Andrea Sedlak, Westat

Discussion

10:45-11:00 **BREAK**

11:00-12:30 **SESSION 2: What Have We Learned About the Causes and Consequences of Child Maltreatment**

This session will explore changes in our thinking about the risk and protective factors that contribute to child maltreatment, and advances in knowledge of the short- and long-term consequences of various forms of maltreatment on biobehavioral processes and functions.

Moderator: Anne Petersen, University of Michigan

The Impact of Contextual Factors on Child Maltreatment Reports and Behaviors
Jill Korbin, Case Western Reserve University

Neurobiology of Neglect
Mary Dozier, University of Delaware (presenting)
Phil Fisher, University of Oregon (not attending)

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Megan Gunnar, University of Minnesota (not attending)

Neurobiology of Trauma and Stress Associated with Adverse Early Experience
Martin Teicher, McLean Hospital, Harvard University

Discussion

12:30-1:30 LUNCH

1:30-3:00 SESSION 3: What Have We Learned About Prevention Research and Its Impact on Practice and Policy in Human Services and Healthcare Systems

This session will explore the evidence base for effective prevention interventions. Speakers will discuss research that evaluates prevention efforts for universal, selected, and indicated populations (primary, secondary, and tertiary interventions). They will also highlight outcomes for effective preventive interventions and how to evaluate and monitor performance in scaling up promising programs.

Moderator: John Leventhal, Yale University

Assessment of Universal Preventive Interventions in Community and Hospital Settings
Deborah Daro, Chapin Hall, University of Chicago

Assessment of Secondary Preventive Interventions with High-Risk Populations
Frank Putnam, Cincinnati Children's Medical Center

Assessment of Prevention of Recurrent Offenses (for parents) or Prevention of Adverse Consequences (for children)
Mark Chaffin, University of Oklahoma Health Sciences Center

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Discussion

3:00-3:15 **BREAK**

3:15-4:45 **SESSION 4: What Have We Learned About the Design and Delivery of Services?**

This session will examine notable advances in knowledge of how to design and deliver services to maltreated children and their families, with a focus on topics that, if targeted in future research are likely to have a substantial impact on reducing chronic abuse and neglect and the negative consequences.

Moderator: Lucy Berliner, University of Washington

Parenting Interventions: Impact on Child and Family Outcomes and Role in Child Welfare Services
John Landsverk, Rady Children's Hospital-San Diego

Child-Focused Interventions to Address Internalizing Problems of Children Who Experience Abuse, Exposure to Violence, and Neglect
Shannon Dorsey, University of Washington

Prevention and Treatment of Child Maltreatment Risk for Families Dealing with Multiple Problems
Steven Ondersma, Wayne State University School of Medicine

Discussion

4:45 **Closing Remarks and Adjourn**

DAY 2, January 31, 2012

8:30-8:45 **Opening Remarks**
Anne Petersen, Planning Committee Chair

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8:45-10:35 **SESSION 5: Emerging Issues in the Identification, Assessment, and Reporting of Child Maltreatment**

This session will explore recent trends that are influencing the ways in which child abuse and neglect are being detected and reported by institutions and professionals.

Moderator: Richard P. Barth, University of Maryland

Child Abuse and Neglect Reporting Practices and Patterns
Melissa Jonson-Reid, Washington University, St. Louis

Alternative Child Welfare Services Approaches
Richard P. Barth, University of Maryland

Medical and Psychosocial Assessment and Diagnosis of Child Abuse and Neglect
John Leventhal, Yale University

Psychosocial Assessment of Children and Families for Service Planning
Benjamin Saunders, Medical University of South Carolina

Discussion

10:35-10:50 **BREAK**

10:50-12:40 **SESSION 6: Building Effective and Efficient Systems to Respond to Child Abuse and Neglect**

This session will examine cross-cutting elements in effective prevention and treatment interventions and also review cross-cutting elements in disseminating and implementing best practice models. Speakers will discuss lessons learned from translating and scaling up promising interventions as well as the experience with advoca-

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cy efforts (e.g., class-action suits) in moving research into practice.

Moderator: Joy Osofsky, Louisiana State University

A Cross-National View of Child Protective Systems of Response: Trends and Policy Implications
John Fluke, American Humane Association

Research on Evidence-Based Practice Implementation in Child Welfare Systems and Organizations
Greg Aarons, University of California, San Diego

The Role of Class-Action Law Suits in Building Evidence-Based Systems in State Child Welfare Agencies
Charles Sabel, Columbia University

Discussant
David Sanders, Casey Family Programs

Discussion

12:40-12:50 **Final Observations on Themes**
Anne Petersen, University of Michigan, Planning Committee Chair

12:50-1:00 **Closing Comments**
Catherine Nolan, Director, Office on Child Abuse and Neglect, Children's Bureau, Administration for Children and Families, U.S. Department of Health and Human Services

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Appendix C

Registered Workshop Attendees

Clare Anderson, Administration for Children and Families
Linda Baker, Family Resource Information, Education, and Network Development Service (FRIENDS) National Resource Center for Community-Based Child Abuse Prevention
Melinda Baldwin, Administration for Children and Families
Aida Balsano, National Institute of Food and Agriculture
Shay Bilchik, Georgetown University
Dara Blachman-Demner, National Institute of Justice
Caryn Blitz, Administration for Children and Families
Sharon Boles, Children and Family Futures
Kerry Bolger, American Psychological Association
Cheryl Anne Boyce, National Institute on Drug Abuse
Melissa Brodowski, Administration for Children and Families
Brett Brown, Walter R. McDonald & Associates
Karen Walker Bryce, Administration for Children and Families
Mary Campise, U.S. Department of Defense
Sonya Clay, American Academy of Pediatrics
Nancy Crowell, Georgetown University
David de Voursney, Substance Abuse and Mental Health Services Administration
Brian Deakins, Administration for Children and Families
Angela Diaz, Mount Sinai School of Medicine
Helen Epstein, Duke Charitable Foundation/Self-Employed
Cecilia Fiermonte, Alliance for Children and Families
Kathryn Foxhall, Contemporary Pediatrics
Bob Freeman, National Institutes of Health
Bernard Guyer, Johns Hopkins School of Public Health

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Nancy Hanson, National Association of Children's Hospitals and Related Institutions
Isadora Hare, Maternal and Child Health Bureau
Irina Hein, National Children's Alliance
Kurt Heisler, Administration for Children and Families
Andrea Hewitt, The Pew Charitable Trusts
Charisse Johnson, Administration for Children and Families
Canan Karatekin, University of Minnesota
Lauren Kass, Administration for Children and Families
Margaret Keil, National Institute of Child Health and Human Development
Elaine Kelley, Administration for Children and Families
Marylouise Kelley, Family Violence Prevention & Services
Megan Lape, American Public Human Services Association
Suzanne Lay, Child Welfare League of America
Valerie Maholmes, National Institute of Child Health and Human Development
Roxana Meruvia, National Association of Social Workers
Bethany Miller, Substance Abuse and Mental Health Services Administration
Matthew Morton, Administration for Children and Families
Charlotte Mullican, Agency for Healthcare Research and Quality
Sharon Newburg-Rinn, Administration for Children and Families
Wendy Nilsen, National Institutes of Health
Jean Nussbaum, Administration for Children and Families
Rebecca Odor, Administration for Children and Families
Tobey Oliver, George Mason School of Public Policy
Denise Pintello, National Institute on Drug Abuse
Diane Purvin, Annie E. Casey Foundation
Janet Saul, Centers for Disease Control and Prevention
Dori Sneddon, Administration for Children and Families
Stefanie Sprow, Children's Defense Fund
Elaine Stedt, Administration for Children and Families
Kate Stepleton, Administration for Children and Families
Karen Studwell, American Psychological Association
Lauren Supplee, Administration for Children and Families
Deborah Temkin, U.S. Department of Education
Jessie Watrous, Annie E. Casey Foundation
Mary Bruce Webb, Administration for Children and Families
Naimah Weinberg, National Institute on Drug Abuse

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Tammy White, Administration for Children and Families
Tisha Wiley, National Institutes of Health
Maria Woolverton, Administration for Children and Families
Nancy Young, Children and Family Futures
Martha Zaslow, Society for Research in Child Development

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Appendix D

Background Paper: Major Research Advances Since the Publication of the 1993 NRC Report *Understanding Child Abuse and Neglect*: Highlights from the Literature[1]

By Rosemary Chalk[2]

Introduction	120
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Identification, Reporting, and Data Sources	133
Causes	147
Consequences	151
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Treatment Interventions	167
Services and Systems-Level Issues	175
Social Policy	182
Conclusion	188
References	189

[1]This paper was commissioned by the Institute of Medicine (IOM) and National Research Council (NRC) to provide background for the January 30-31 Workshop on Child Maltreatment Research, Policy, and Practice for the Next Generation, hosted by the IOM-NRC Board on Children, Youth, and Families. The responsibility for the content of this article rests with the author and does not necessarily represent the views of the IOM, the NRC, or their committees and convening bodies.

[2]The author wishes to acknowledge the contributions of several individuals who reviewed early drafts of this paper, including Lucy Berliner, Mark Chaffin, Lisa Jones, Melissa Jonson-Reid, John Leventhal, Joy Osofsky, Anne Petersen, Andrea Sedlak, and Melissa Welch-Ross. Yeonwoo Lebovitz, IOM research associate, provided extensive bibliographic and research assistance in the preparation of the paper.

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INTRODUCTION

The problem of child maltreatment has persisted as one of the most serious threats to child health and safety in the United States. The most recent National Incidence Study (NIS-4) reported that more than 1.25 million children, involving 1 in 58 children from the general population, were abused or neglected by a parent during the 2005-2006 survey period according to the evidence of harm standard (Sedlak et al., 2010b). When the broader standard of endangerment is applied (which includes maltreatment by adult caretakers other than parents, or by teenaged caretakers in the case of sexual abuse), the number of children in substantiated cases increases to nearly 3 million children, involving 1 in 25 children, according to NIS-4 data.

More recent data, provided in the FY 2010 report *Child Maltreatment* (HHS, 2011, p. ix), indicates that "the unique victim rate was 9.2 victims per 1,000 children in the population" when considering substantiated reports of child abuse and neglect. The overall rate of child maltreatment deaths, the most tragic consequences of abuse and neglect, was 2.07 deaths per 100,000 children, based on estimates provided by state child welfare agencies (HHS, 2011).

The statistical figures mask a complex picture of child maltreatment, one that frequently challenges the general public's perception of the nature of the problem of child abuse and neglect. For example:

- Maltreatment is frequently viewed as physical or sexual abuse, yet child neglect reports consistently account for the large majority of the reported cases in national surveys and official records.
- The NISs report that the general incidence of child maltreatment declined by 19 percent (harm standard) in the 12 years between the data reported in NIS-3 (which collected data in 1993) and NIS-4 (Sedlak et al., 2010b). This decline occurred during a period of growth in the child population in the United States. When adjusted to account for such growth, the rate of decline per 1,000 children equals 26 percent, approaching the 1986 incidence level reported in the NIS-2 estimate.
- Most of the rates of decline can be explained by significant decreases in reports of physical or sexual abuse of children; the level of child neglect reported in NIS-4 has remained about the same as that reported in NIS-3. Finkelhor and Jones (2006) offer

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additional explanations for the causes of the reported decline in child maltreatment rates.

- One recent study suggests that the perceived decline in NIS reports of abuse and neglect is not consistent with other data regarding trends in hospital admissions for child maltreatment injuries, which have remained stable from 1997 (Gilbert et al., 2012). However, their analysis relied on data that are not nationally representative, excluded indicators of sexual abuse, and also classified as maltreatment cases where injuries in question were classified as of "undetermined cause" (Personal communication, L. Jones, University of New Hampshire, February 10, 2012).
- Although a relatively small proportion of reported cases of child abuse and neglect meet legal criteria for substantiation, several studies have suggested that unsubstantiated cases face equal risks (Hussey et al., 2005; Kohl et al., 2009).

These changes, as well as persistent trends, need to be considered in light of the changing demographics of the U.S. child population. Statistics in the report *America's Children* (FIFCFS, 2011), based on data compiled by the Census Bureau through the Current Population Survey, notes that more than one in five children now live in poverty (see www.childstats.gov/americaschildren/eco1.asp). The report states:

- The percentage of children in families with incomes below the poverty threshold (defined as $21,756), which is a significant risk factor for abuse and neglect, rose from a low of 16 percent in 2000 and 2001 to 21 percent in 2009.
- The wealth disparities that now characterize American society also affect children: The percentage of children living in families in extreme poverty (defined as 50 percent of $21,756) rose from 6 percent in 2000 to 9 percent in 2009, which is the highest estimate for related children since 1997.
- The percentage of children who lived in families with very high incomes (600 percent or more of the poverty threshold) remained unchanged between 2000 and 2009 (13 percent). The rising number of children living in poverty is particularly noteworthy among younger children. In 2009, 24 percent of related children ages 0 to 5 lived in poverty, compared with 18 percent of older related children.

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The reported decline in child maltreatment rates is part of a larger decline in other forms of violent crime, which began in the early 1990s and continues today (Blumstein and Wallman, 2006). In recent decades, however, dramatic shifts have occurred in the American economic arena as well as the racial and ethnic composition of America's children. According to data from the 2010 Census that is included in the *America's Children* report, 54 percent of U.S. children were white, non-Hispanic; 23 percent were Hispanic; 14 percent were Black; 4 percent were Asian; and 5 percent were in the category "all other races" (http://www.childstats.gov/americaschildren/demo.asp). Rapid increases have been recorded particularly among the percentage of children who are Hispanic, who made up only 9 percent of the child population in 1980 (http://www.childstats.gov/americaschildren/demo.asp).

In light of these economic trends and shifting demographics, it is important to consider at this time how the health and safety of children have changed over the past decade. A particular area of interest is research on child maltreatment, which focuses on the characteristics and needs of children and families who experience physical abuse, sexual abuse, emotional maltreatment, and neglect.

1993 Academy Study on Child Abuse and Neglect

Nearly two decades ago, the National Research Council (NRC) published the report *Understanding Child Abuse and Neglect* (NRC, 1993). The report was prepared by a panel of national experts, following a comprehensive study and critique of the existing research literature as well as discussions with hundreds of practitioners from the social services, healthcare, and legal systems that serve vulnerable children and their families. The NRC report embraced a developmental and ecological perspective in examining the various dimensions of the problem of child maltreatment, and the study panel offered a general conceptual **child-oriented framework** to guide new approaches to child and family services as well as to set priorities that could integrate a diverse, fragmented, and interdisciplinary research literature.

The 1993 report included 10 chapters that offered a synthesis of the key research studies under the designated topics:

1. Introduction
2. Identification and Definitions
3. Scope of the Problem
4. Etiology of Child Maltreatment

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5. Prevention
6. Consequences of Child Abuse and Neglect
7. Interventions and Treatment
8. Human Resources, Instrumentation, and Research Infrastructure
9. Ethical and Legal Issues in Child Maltreatment Research
10. Priorities for Child Maltreatment Research

Based on this review, the study panel highlighted 17 research priorities, organized within a research agenda that addressed four objectives:

1. Clarify the nature and scope of child maltreatment;
2. Provide an understanding of the origins and consequences of child maltreatment in order to improve the quality of future policy and program efforts;
3. Provide empirical information about the strengths and limitations of existing interventions as well as guiding the development of more effective ones; and
4. Develop a science policy for child maltreatment research that recognizes the importance of national leadership, human and financial resources, instrumentation, and appropriate institutional arrangements.

Since the publication of the 1993 report, the field of child maltreatment studies has continued to expand. While the Office on Child Abuse and Neglect (formerly the National Center for Child Abuse and Neglect) within the U.S. Department of Health and Human Services (HHS) continued to support a modest research portfolio, other federal sponsors invested in child maltreatment studies, including a national consortium on child neglect research organized by several institutes within the National Institutes of Health. In the intervening years, a national child abuse prevention initiative within the Doris Duke Charitable Foundation has also emerged. In addition, a wave of animal and human research studies focused on stress, trauma, and the regulation of adverse environmental influences (including threats and violence) has embraced the significance of child maltreatment as a major influence on health and well-being (see, e.g., papers produced by the Center on the Developing Child at Harvard University, http://developingchild.harvard.edu).

The expansion of research in the neurosciences, including the development of new tools that are capable of imaging brain structures and functions, has advanced our understanding of the intricate and complex

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processes associated with the regulation of adverse stimuli. Additional biological studies, focused on other systems such as the immune function and interactions between genetic structures and the social environment, are shaping the ways in which researchers view complex interactions among threats and protective factors in forming the pathways to and consequences of child maltreatment. Research that is focused on selected childhood injuries, such as head trauma, has also converged with studies of child maltreatment, especially in highlighting selected stages of development (e.g., infancy) or child behaviors (e.g., prolonged crying) that may be especially vulnerable to particular forms of abuse or trauma among young children.

Purpose and Scope of This Paper

This paper highlights some of the major research advances since the publication of the 1993 NRC report, with a particular emphasis on studies published in the past decade. The objective is to provide an initial guide to recent research that offers a significant guide for our understanding of a multifaceted and disturbing subject, in preparation for a January 2012 workshop on child abuse and neglect research convened by the Institute of Medicine (IOM) and the NRC. The paper is designed for a general audience that may not be acquainted with the full range of relevant studies in the social, behavioral, health, and biological sciences.

This paper cannot offer a comprehensive review of the literature concerned with child maltreatment or cover all the topics addressed in the initial 1993 study. Rather, it provides a brief overview of selected research within most of the nine categories that mirror the chapters of the original report (the topic of ethical and legal issues is not addressed in this paper, although there is a brief section on social policy that incorporates some of this discussion).

In keeping with the original NRC report, the paper has a child orientation rather than a broader review of perpetrator, family, neighborhood, or cultural characteristics associated with abuse and neglect, which deserve further attention in a more comprehensive analysis. Research studies focused on specific aspects of child welfare, such as the experience with alternative forms of foster care placements or disproportionality in the foster care population, are not addressed. Nor is attention directed toward topics such as the reliability of child testimony, or interventions in judicial settings for victims of child abuse and neglect. While these other areas are certainly suitable for a more comprehensive research re-

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view, they fell beyond the scope of what was feasible to address in the 3-month time period for this effort.

Research Methods

The research studies selected for inclusion in this paper were identified through a search of the bibliographic databases operated by the Web of Science and a comprehensive library search function of the National Academy of Sciences, which includes 13 separate databases (e.g., Academic Search Premier, SCOPUS, and Science Direct). The initial search focused on the identification of research review papers that received a significant number of citations in other articles and narrowed the list to 30 from the top-ranking 50 articles. The initial database review was then supplemented by searches of additional research sources, such as the National Criminal Justice Research Service, the Child Abuse and Neglect Digital Library maintained by Cornell University, and websites maintained by selected HHS agencies, including the Administration for Children and Families (ACF), Health Resources and Services Administration (HRSA), Centers for Disease Control and Prevention (CDC), National Institutes of Health, and Substance Abuse and Mental Health Services Administration (including the Catalog of Federal Domestic Assistance and other background materials that describe grants supported by these agencies). In some cases, reports not archived in the scientific bibliographic databases were identified through searches of websites of selected academic and professional organizations (e.g., the American Academy of Pediatrics, American Psychological Association, or Mt. Hope Family Center). Early drafts of the paper were reviewed by members and staff of the IOM-NRC planning committee for the January 2012 workshop as well as by workshop speakers and participants; their suggestions were particularly helpful in highlighting specific areas of emphasis and gaps in the literature review.

This paper strives to highlight areas of research that are characterized by multiple, theory-informed empirical studies with study populations that include children and families who have experienced abuse and neglect. Where possible, attention is directed toward those interventions that are the focus of comprehensive research reviews, striving to create a reliable evidence base to guide policy and practice. The author recognizes that multiple other studies exist that focus on common risk factors for abuse and neglect (e.g., depressed parents, domestic violence, or substance abuse). For the most part, these research areas are not included

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unless the study specifically addressed child maltreatment issues as a primary outcome of interest.

DEFINITIONS AND FRAMEWORKS

Child maltreatment studies are consistently challenged by variations in definitions that characterize the events, behaviors, and experiences under review. Coulton et al. (2007) highlight the importance of distinguishing among the definition, recognition, reporting, and agency administrative classifications of child maltreatment cases that are recorded by social services agencies, and the types of child maltreatment behaviors or experiences that are self-identified by victims or offenders. These differences are not just semantic; the datasets that support official reports of child maltreatment may differ in important ways from other types of administrative records or self-report data that are obtained through household or victimization surveys.

The 1993 NRC study described an array of research studies on definitions of child maltreatment and various principles that could guide efforts to achieve greater consistency in future research studies. Since then, additional efforts have been made to improve the quality of definitions of child maltreatment used in both clinical and general population studies. Most notably, public health agencies and clinicians have made efforts to identify uniform definitions and data elements, including International Classification of Disease (ICD) codes, that can be used to classify child maltreatment injury and related health data and to incorporate these data into national health information databases, surveillance efforts, and diagnostic procedures. For example:

- The *Child Abuse Prevention and Treatment Act* (CAPTA) (42 U.S.C.A. § 5106g), as amended by the *CAPTA Reauthorization Act of 2010*, defines child abuse and neglect as, at minimum: "Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation" or "An act or failure to act which presents an imminent risk of serious harm." This definition of child abuse and neglect refers specifically to parents and other caregivers. A "child" under this definition generally means a person who is younger than age 18 or who is not an emancipated minor. This legislative definition guides federal policy and programs, and sets minimum standards for states that accept

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CAPTA funding. However, each state provides its own definitions of maltreatment within civil and criminal statutes, resulting in significant variation in terms of the scope of actions (or inactions) that may constitute abuse or neglect (http://www.childwelfare.gov/can/defining/federal.cfm).

- The CDC website states that: "A consistent definition is needed to monitor the incidence of child maltreatment and examine trends over time. In addition, it helps determine the magnitude of child maltreatment and compare the problem across jurisdictions." (http://www.cdc.gov/violenceprevention/childmaltreatment/definitions.html).
- In January 2008, the CDC published the report *Child Maltreatment Surveillance: Uniform Definitions for Public Health and Recommended Data Elements, Version 1.0* (Leeb et al., 2008). The report includes recommendations "designed to promote consistent terminology and data collection related to child maltreatment" that were developed through an extensive expert consultation process. The 2008 CDC report notes that prior efforts by the research and legal communities to develop consistent and uniform definitions of child maltreatment were not adequate for use in public health surveillance because many of the data sources used by the research and legal communities are not available to state and local public health officials:

> Because no public health-based definitions for child maltreatment exist, public health officials continue to use terms related to child maltreatment in different ways and use different terms to describe the same acts. Not surprising, these inconsistencies have contributed to varied conclusions about the incidence and prevalence of child abuse and neglect. (Leeb et al., 2008, p. 12)

The CDC therefore developed uniform definitions and a set of recommended data elements to guide surveillance efforts by public health agencies. However, the report does not provide specific instruments for surveillance nor does it offer clinical information for identifying child maltreatment.

The uniform definition included in the CDC report is: "Child Maltreatment is any act or series of acts of commission or omission by a parent or other caregiver that results in harm, potential

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> for harm, or threat of harm to a child. Additional definitions are offered for each term in bold with specific examples."

The 2008 CDC report also describes the use of the ICD 9/10 codes for child maltreatment, which vary by hospital and region. The ICD codes provide a standard system for hospitals to code all discharge diagnoses and are used for reimbursement rates in the United States. These codes provide an alternative data source for monitoring the scope of child maltreatment, but it is important to note that many physicians may or may not use them. In addition to recording information about the nature, severity, and physiological location of injury, the ICD data include "E-codes" that provide information about the source or cause of the injury. In the case of child maltreatment, the E-code may identify several characteristics of the perpetrator, including the person's relationship to the child (Leeb et al., 2008). (See Box 3 for further details about the use of ICD codes in classifying child maltreatment injuries.)

In its first Report to Congress on *High Priority Evidence Gaps for Clinical Preventive Services*, the U.S. Preventive Services Task Force identified "Interventions in Primary Care to Prevent Child Abuse and Neglect" as one of the high-priority areas in "Behavioral Intervention Research Topics That Deserve Further Research."

> Approximately 1 million abused children are identified in the United States each year. Despite the dedication and hard work of people in many sectors, no one has discovered an effective role for the primary care system and primary care professionals in preventing child abuse and neglect. The Task Force recognizes that the solution to this issue will include many other efforts and hopes that needed research to find effective interventions initiated in primary care will be conducted. Early research suggests that clinician referrals to home visitation by nurses during pregnancy and early childhood may reduce child abuse and neglect in selected populations, but additional research is needed. Future research must examine both the potential benefits and the potential unintended harms of interventions aimed at preventing child abuse and neglect. (Moyer et al., 2011, p. 12; see http://www.uspreventiveservicestaskforce.org/annlrpt/tfannrpt2011.pdf)

Recent controlled studies have followed this lead and the field has begun to identify pediatric primary care-based prevention models that reduce maltreatment reports (Dubowitz et al., 2009).

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BOX 3
Use of ICD Codes for Child Maltreatment Injuries and Mortality Data

The World Health Organization prepares and publishes International Classification of Diseases (ICD) codes that guide cross-national comparisons of disease, injury, and mortality trends (WHO, 1999, 2003). At present, the U.S. health care system uses the ICD-9-CM (Clinical Modification) codes for hospital data and the ICD-10 codes for child death cases (CDC and NCHS, 2009; Leventhal et al., 2012). In 2013 the United States is changing to ICD-10-CM for hospital data; the ICD-10 codes are already in use by most countries.

- The ICD-9 codes for "child maltreatment syndrome" are 995.50, .54, .55, or .59, which include abuse, emotional/psychological abuse, nutritional neglect, sexual abuse, physical abuse, shaken infant syndrome, and other child abuse and neglect.
- The ICD codes that classify fatalities from child maltreatment are "external cause of death: homicide" (ICD-9 E960-969) and "assault" (ICD-10 X85-Y09). The E-code E967 in ICD-9 (or Y07 in ICD-10) includes "external cause of death: child battering" and identifies the perpetrator of the abuse. In the United States, the ICD-10 codes are currently used on death certificate data only.
- The ICD-9 code for child neglect is E968.4, "Assault by other and unspecified means–criminal neglect, which includes the abandonment of child, infant, or other helpless person with intent to injure or kill."
- Other ICD-9 codes for homicide and injury purposely inflicted by other persons can sometimes be used to identify cases of maltreatment if it is possible to describe the age of the child, the perpetrator is designated as a caregiver, and the assault occurs within a home.

Separate ICD-10 codes for child maltreatment have also been created, but are not yet in common use in the United States. These include the "Y-codes" for specific acts, such as sexual assault by bodily force; neglect and abandonment by parent, by acquaintance or friend, or by a specified or unspecified person. They also include "other maltreatment syndromes" by parent, by acquaintance or friend, by official authorities, or by other specified or unspecified person (WHO, 2003).

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- The IOM's 2002 report entitled *Confronting Chronic Neglect: The Education and Training of Health Professionals on Family Violence* called for health professional organizations to develop and provide guidance to their members, constituents, institutions, and stakeholders regarding violence and abuse education. Specifically, these recommendations emphasized the need for organizations to provide guidance in (1) competencies to be addressed in health professional curriculums, (2) effective teaching strategies, and (3) approaches to achieving sustained behavior changes among health professionals.
- The IOM further recommended that health professional organizations identify and disseminate information on approaches for overcoming barriers to training on family violence. Although some progress has been made, training and education about the health problems related to violence and abuse remain highly variable and often marginalized in the curriculums of most health profession schools as well as within the individual practices of physical and behavioral health professionals and the U.S. health delivery system. Even within directly related academic disciplines, such as social work and psychology, specific training or coursework focused on child maltreatment or child welfare may be sparse.
- Although the governing bodies in some health disciplines have recognized the need for core competencies appropriate to practitioners in their fields, the call for an overarching set of principles remains unmet. The Academy on Violence and Abuse was founded in 2005 to address these concerns and to support actions to achieve the IOM recommendations (http://www.avahealth.org). Increasingly, clinicians are exploring ways to distinguish pediatric trauma that is related to child maltreatment from other forms of injury experienced by children. One study of pediatric injuries drew on data from a 10-year period as recorded in the National Pediatric Trauma Registry (DiScala et al., 2000). The authors sought to highlight distinctive patterns in the nature, severity, survival, and functional outcomes of patients hospitalized for an acute injury in hospitals during the study period. They concluded that those injured by abuse "sustain more severe injuries, use more medical services, and have worse survival and functional outcome than children with unintentional injuries."

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In many cases, child maltreatment involves more than a single act of abuse or neglect. Multiple forms of abuse often co-occur. In some cases, maltreatment may be a routine part of a child's life rather than a few aberrant events. In other cases, maltreatment may be only one part of a broader social environment that involves other forms of violence (most notably, domestic violence), high interpersonal conflict, substance abuse, parental mental illness, inadequate housing, poverty, chaotic and unpredictable schedules, and bereavement. Significant variations also occur in the extent to which a perpetrator needs to be a parent or caregiver. This relationship is necessary in cases of physical abuse or neglect (because other forms of assault, e.g., peer or sibling violence or school bullying, do not fall within state-based definitions of child abuse). Yet, any form of child sexual abuse is considered within the scope of social service agencies, regardless of the relationships of the offender to the child.

Recognizing the inadequacies of using legal or public health definitions that are focused on the commission or omission of individual events or actions, some researchers have identified maltreatment through *child-oriented* studies by drawing on multiple fields of research. This approach is built on the assumption that child maltreatment is a set of behaviors and experiences rather than a specific disorder. As noted by Damashek and Chaffin (in press): "The phenomenon of child maltreatment is [composed] of two elements, maltreating behaviors and maltreatment experiences, that together constitute a socially defined problem with mental health relevance."

This interest in examining experiences, as well as behaviors, has stimulated research in the areas of *developmental psychopathology* (Cicchetti and Toth, 1995), *developmental traumatology* (De Bellis, 2001), and, more recently, building a public health surveillance system that can monitor the effects of *adverse childhood experiences* (Anda et al., 2010). These approaches, and others, are extending the research agenda to focus not only on *behaviors* and *experiences*, but also to consider the impact of the disruption of parent–child *relationships* on underlying biological systems that influence the regulation of stress and trauma. In addition, greater attention is being directed to the effects of trauma on children and their families and interventions that can work effectively within a family context.

- "Developmental psychopathology is an emerging discipline that seeks to unify, within a developmental, life-span framework, the many contributions to the study of the mood disorders emanating

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from multiple fields of inquiry, including psychology, psychoanalytic theory, psychiatry, the neurosciences, sociology, cultural anthropology, and epidemiology." (Cicchetti and Toth, 1995, p. 373)

- "Developmental psychopathology represents a movement toward comprehending the causes and determinants, course, sequelae, and treatment of the disorders through its synthesis of knowledge from multiple disciplines within a developmental framework." (Cicchetti and Toth, 1995, p. 373)
- "Developmental traumatology is the systemic investigation of the psychiatric and psychobiological impact of overwhelming and chronic interpersonal violence (child maltreatment) on the developing child. This is a relatively new area of study in child psychiatry that synthesizes knowledge from developmental psychopathology, developmental neuroscience, and stress and trauma research. . . . Active areas of research investigate the consequences of child maltreatment and related family and psychosocial stressors and their effects on the development and regulation of major biological stress response systems and their influence on childhood brain development and function" (De Bellis, 2001, pp. 539-540). The focus on trauma allows researchers to consider not only the act of maltreatment itself, but also the relationship of the victim to the offender (De Bellis, 2001, p. 540).
- A few surveys, such as the Adverse Childhood Experience Study, have incorporated the developmental approach by scoring respondents on the number and severity of traumatic events (including child maltreatment) occurring during childhood that may affect their adult health status (Anda et al., 2010). Evidence suggests that the aggregate burden of childhood adverse experiences rather than the specific type of adversity may best predict developmental sequelae, emphasizing the importance of viewing maltreatment within a context of associated adversities (Finkelhor, 2008).
- The National Child Traumatic Stress Network (NCTSN), established by Congress in 2000, is a government-funded network made up of health care providers, community service centers, academic researchers, and families to raise the standard of care for child traumatic experiences and to increase access for families. NCTSN is jointly coordinated by the University of Califor-

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nia, Los Angeles, and Duke University, governed by an advisory board (http://www.nctsn.org/), and divided according to three areas—National Center for Child Traumatic Stress, Treatment and Services Adaptation Centers, and Community Treatment and Services Centers. Sample activities include public awareness campaigns, community program development, educator toolkits, and workshops for foster parents (Lott, 2011).

In many cases, however, child neglect may be a chronic experience rather than an accumulation of discrete traumas. Nor is neglect frequently categorized as a type of interpersonal violence. In such cases, it may be the prolonged absence of parenting behaviors (affection, interaction) that lead to significant harm (Dubowitz et al., 2005). Early neglect may also result in intellectual delays due to a lack of appropriate stimulation (Strathearn et al., 2001).

IDENTIFICATION, REPORTING, AND DATA SOURCES

One of the key challenges associated with research on child abuse and neglect is determining the scope and severity of experiences with child maltreatment within the general population. Discrepancies between official reports of child abuse and neglect and other data sources (e.g., health records and household surveys) as well as other methodological challenges have raised basic questions about the scope of the problem, the types of families that are affected, trends over time, and outcomes associated with selected prevention and treatment interventions (Fallon et al., 2010). While government statistics are often based only on victims of substantiated or indicated cases, other administrative records are often available in many states that can provide additional insights into the types and characteristics of the much broader set of cases that are brought to the attention of child protection agencies.

Child Maltreatment 2010 is the most recent governmental report of the number and types of cases of child maltreatment reported to child protection (HHS, 2011). The report relies on official data provided by state agencies through the National Child Abuse and Neglect Data System (NCANDS), which is described below. Key findings from the *Child Maltreatment 2010* report include

- More than 3.6 million (duplicate) children were subjects of at least one report and received one or more dispositions in FY

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2010. The duplicate count includes a child each time he or she was included in a report of abuse or neglect during the year. The unique count of child victims counts a child only once regardless of the number of times he or she was found to be a victim during the reporting year. One-fifth of these children were found to be victims, with dispositions of substantiated (19.5 percent), indicated (1 percent), and alternative response victim (0.5 percent).

- Of the 1,793,724 reports that received an investigation, 436,321 were substantiated (the allegation of maltreatment or risk of maltreatment was supported or founded by state law or policy); 24,976 were found to be indicated (maltreatment could not be substantiated under state law or policy, but there was reason to suspect that at least one child may have been maltreated or was at risk of maltreatment); and 1,262,118 were found to be unsubstantiated (there was not sufficient evidence under state law to conclude or suspect that the child was maltreated or at risk of being maltreated).
- The most common form of reported victimization is child neglect (78.3 percent). Other forms include physical abuse (17.6 percent) and sexual abuse (9.2 percent).
- Per 1,000 children, 9.2 were reported to be "unique victims" of child abuse and neglect in the total population of U.S. children. The number of nationally estimated duplicate victims was 754,000 and the number of nationally estimated unique victims was 695,000.
- Victims in the age group of birth to 1 year had the highest rate of reported victimization at 20.6 per 1,000.
- About 1,560 children died from abuse and neglect, based on data from state reports.
- Eighty-eight percent of victims were composed of three races or ethnicities—African American (21.9 percent), Hispanic (21.4 percent), and White (44.8 percent).

The statistics derived from these data offer important insight into the ways in which different states handle reports of child abuse and neglect. Significant questions persist about the extent to which the frequency, severity, and other characteristics of the reported cases resemble those of cases of child maltreatment within the general child population that are not reported to child protection agencies. To reconcile questions about the quality of the data based on reported cases, some researchers have

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compared data based on administrative records with other data sources, such as those drawn from child health and injury records. For example, Gilbert et al. (2012) published a study in *Lancet* that compared indicators of child maltreatment in six developed countries and provinces (England [United Kingdom], Manitoba [Canada], New Zealand, Sweden, the United States, and Western Australia). They observed:

> Existing research on how child maltreatment is changing in developed countries is conflicting. Studies that rely on officially recorded or substantiated maltreatment measure only a small part of the bigger picture—for example, in some settings as few as one in 30 of the children who experience physical abuse every year have their abuse officially recognized. One reason is that most child maltreatment is hidden and not recognized by professionals dealing with children. Another reason is that health, education, and other community professionals in contact with children consistently report to child protection agencies only a proportion of children whom they recognize as being maltreated. Therefore, studies based on self-reported or parent-reported incidents of maltreatment come closest to measurement of the occurrence of maltreatment, although these studies might still underestimate the scale of the problem. However, many of the events identified in self-report studies might not be sufficiently severe to require intervention. (Gilbert et al., 2012, p. 2)[3]

The authors of the *Lancet* article highlight several concerns in conducting research on the identification, disclosure, and reporting of child abuse and neglect. First, government policies exert strong influence on the types of contacts and reports made to child protection agencies, which in turn affect the official records used to construct national databases of reports of abuse and neglect. Second, health records maintained by hospitals and other medical centers provide important sources of data about maltreatment-related injury or violent death for young children. Third, professionals who serve children and families who are at risk of

[3]It is useful to note that in the United States, mandatory child abuse reporting laws are required by federal law and limit the extent to which children and their parents can be directly surveyed about maltreatment behavior or experiences. Certificates of Confidentiality, issued by federal agencies to protect research participants from required disclosure of other types of sensitive research data, do not extend to disclosure of research data about identifiable maltreatment victims, and therefore self-report studies can involve exposing parents to jeopardy.

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maltreatment often are aware of many behaviors that may constitute abuse or neglect, but only a proportion of these behaviors (usually the most severe cases) are reported to child protective services (CPS) officials. Fourth, many instances of abuse or neglect may be known only by parents or children themselves. One of their key findings is: "Large differences between countries in the rate of contacts with child protection agencies contrasted with little variation in rates of maltreatment-related injury or violent death. . . . Overall, one or more child protection agency indicators (notification, investigation, officially recognized physical abuse or neglect, or out-of-home care) increased in five of six countries and states, particularly in infants, possibly as a result of early intervention policies" (Gilbert et al., 2012, p. 1). This finding suggests that child protection agencies are increasingly responsive to cases that involve lower levels of severity than in prior years.

The field continues to grapple with the difficulties of reconciling rates of child victimization from different data sources, including those that rely on voluntary state-based administrative data systems (e.g., reports generated by the NCANDS), those that involve nationally representative surveys (e.g., the NIS studies), and those that rely on health records that require some judgment in classifying selected injuries as child maltreatment cases (e.g., the Gilbert et al. [2012] study). It is useful, therefore, to consider the characteristics of different data sources used to estimate the scope and severity of child maltreatment. Each of the following sections highlights the key data sources used to develop indicators of child abuse and neglect. These data sources include official reports, health records, and research studies that include periodic household surveys as well as those that follow one population cohort over time.

Official Reports

Official sources of data on child maltreatment draw on reports from CPS and child welfare agencies (at both the county and state levels); interviews with personnel in human services agencies; "sentinel reports" from persons such as teachers, health care providers, and others who are in frequent contact with children and who may observe injuries or other signs of maltreatment; and vital statistics (which provide death records).

Several reports and information systems are based on official reports from state or county agencies. These include

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National Incidence Studies (NISs)*[4] The four NISs (NIS-1, -2, -3, and -4) are legislatively mandated and have been conducted since 1979 under contract to the ACF. The results of the most recent study (NIS-4) were reported to Congress in January 2010 and were authorized by Public Law 108-36 in 2003 (Sedlak et al., 2010b). Data for NIS-4 were collected over two 3-month periods in 2006 from two sources in a nationally representative sample of 122 counties in the United States: CPS and "sentinels" who include professionals working in the same counties in human services and health agencies as well as a variety of other settings, including education, public housing, law enforcement, judiciary, child care agencies, and shelters for runaway and homeless youth or victims of domestic violence.

National Child Abuse and Neglect Data System* NCANDS is a voluntary data reporting system, authorized by legislation (Public Law 93-247, as amended). NCANDS draws on data provided only by CPS and include two components: the Summary Data Component (SDC) and the Detailed Case Data Component (DCDC). SDC is a compilation of key aggregate child abuse and neglect statistics from *all* states, including data on reports, investigations, victims, and perpetrators. DCDC is a compilation of case-level information from child protective services agencies drawn from electronic child abuse and neglect records (all states, with the exception of Oregon, and the District of Columbia and Puerto Rico provided detailed case data in FY 2010; Oregon provided summary data). The DCDC consists of two data files that (1) collect information about the characteristics of all children included in a report of alleged maltreatment as well as characteristics such as the source and disposition of the report (known as the Child File), and (2) information about the type of maltreatment, the support services provided to the family, and any special problems that were identified for the child, caretaker, or family (known as the Agency File). Only children identified as substantiated or indicated victims are included in the Child and Agency Files. NCANDS does not collect data on the alleged perpetrators, and reports of child fatalities are excluded from both files. Data drawn from the state reports within NCANDS provided the basis for the annual *Child Maltreatment* reports prepared by the ACF (HHS, 2011).

[4]Data from studies marked with the asterisk (*) are archived at the National Data Archive on Child Abuse and Neglect at Cornell University (http://www.ndacan.cornell.edu/).

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Adoption and Foster Care Analysis and Reporting System (AFCARS)* AFCARS is a third legislatively mandated source of data collection. AFCARS is an automated information system that relies on semiannual reports by the states, which provide information on (1) all children in foster care for whom state child welfare agencies have responsibility for placement, care, or supervision; (2) children who are adopted under the auspices of the state's public child welfare agency; and (3) information on foster and adoptive parents. The Children's Bureau has developed an assessment review process for the purpose of more fully assessing and evaluating states' AFCARS. The AFCARS Assessment Review process is a "validation and verification" of the automated information system to ensure that it can provide valid and reliable data (see http://www.acf.hhs.gov/programs/cb/systems/afcars/about.htm for further information).

Statewide Automated Child Welfare Information Systems (SACWIS) Unlike the three data sources described above, SACWIS is a case management system that most states use as a tool and technical resource. SACWIS allows agencies to integrate multiple data sources and facilitate the delivery of child welfare support services, including family support and family preservation. Fifteen states (including California) do not yet have operational SACWIS information systems; a number of these states rely on non-SACWIS models to manage their child welfare information sources.

SACWIS allows the states to receive enhanced federal funding to develop and implement their case management files, and by law, a SACWIS is required to support the reporting of data to AFCARS and NCANDS. States are also encouraged to link their child welfare services case information with other federally supported programs, such as Title IV-A (Temporary Assistance for Needy Families), Title XIX (Medicaid), and Title IV-D (Child Support) systems, among others (see http://www.acf.hhs.gov/programs/cb/systems/sacwis/about.htm for further information). In a few states (most notably California, Missouri, and Washington), researchers have been able to draw on these types of administrative data sources to examine the service histories of children and families that come into contact with child protection agencies.

National Crime Victim Survey (NCVS) In addition to the data drawn from child protection and child welfare agencies, the U.S. Census Bureau conducts an annual crime victim survey on behalf of the U.S. Department of Justice. This household survey uses rigorous definitions and re-

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petitive interviews to ensure the validity of the information provided by the respondents and to avoid duplication of reports. NCVS is the nation's primary source of crime victim statistics. Interviews are conducted with a nationally representative sample of 76,000 households regarding the frequency, characteristics, and consequences of criminal victimization in the United States. The survey includes interviews with 10,000 youth ages 12 to 17, who report victimization experiences such as violence in school, neighborhood, or family settings, including bullying (see http://www.icpsr.umich.edu/icpsrweb/NACJD/NCVS/#About_NCVS for further information).

Sources Based on Health Records

Data about abuse and neglect may be drawn from surveys of health care providers and patients as well as health services records, such as hospital discharge information, clinical records, and insurance databases.

ICD codes for child injury and fatality data As noted in Box 3, the CDC collects data from hospital records that are coded according to ICD-9 and ICD-10. Several research studies have demonstrated difficulties with the data sources that are used to identify child fatalities and injuries that result from maltreatment.

For example, Crume et al. (2002) conducted a review of all cases involving the death of all children in Colorado (ages birth to 16 years, who died between January 1, 1990, and December 1, 1998) and identified those deaths that were a result of maltreatment, as defined by a statewide child fatality review team (CFRT). The authors concluded that the child deaths in Colorado that were coded for maltreatment (149 deaths) were nearly half of those fatalities that the CFRT classified as resulting from abuse and neglect (295 deaths) (Crume et al., 2002). They noted several difficulties:

> Problems with using death certificate data to estimate child maltreatment deaths stem in part from limitations in the ICD-9 and ICD-10 coding system. In our study, of the 295 maltreatment deaths, only 16 (5 percent) were coded with N995.5 and 42 (14 percent) were coded with E967. The concern with using these codes is that they are not specific for child maltreatment and include homicides that would not be considered maltreatment, e.g., gang violence between teens. (p. 5)

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Schnitzer et al. (2011) have noted other instances of state-level differences in the public health surveillance of fatal child maltreatment.

Healthcare Cost and Utilization Project Kids' Inpatient Database (KID) Gilbert et al. (2012) also sought to use health records to identify child deaths or serious injuries that resulted from violence by parents or other caregivers (physical abuse) as well as those that were perpetrated by other adults or children and, but not always, reflect inadequate supervision (neglect). Their study involved an analysis of coded data from a large dataset provided by 2,521-3,739 hospitals in 22-38 states derived from four 1-year periods (1997, 2000, 2003, and 2006, from KID) (AHRQ, 2011). The state-reported data are then compiled by the National Center for Health Statistics as part of a national dataset.

The analysis focused on younger children (ages 0 to 11 years) "because injuries related to physical assault or neglect in older children are more likely to be due to peer, sibling, or stranger violence, or to adverse environments, than to be related to parental or caregiver violence or poor supervision" (Gilbert et al., 2012, p. 761) and included coded data from four categories:

- "Maltreatment syndrome (i.e., [ICD] codes directly referring to abuse or neglect or a perpetrator of abuse);
- Assault;
- Injuries of undetermined cause; and
- Codes reflecting concern about adverse social circumstances that are indicators of neglect or broader welfare concerns (e.g., problems related to the social environment, family support, upbringing, or lifestyle)." (Gilbert et al., 2012, p. 762)

The analysis by Gilbert et al. (2012) suggests that the rates of violent deaths and maltreatment-related injury have remained stable in the United States and the other countries that were included in their analysis since the mid-1990s, although decreases in violent deaths coincided with decreases in admission related to maltreatment injury in both Sweden and Manitoba.

The use of KID offers an additional tool for building epidemiological data on child maltreatment. For example, hospitalizations due to serious injury can be further distilled to identify specific characteristics of physical abuse, assault, or child battery that can offer added insights for tracking child hospitalization trends and effects of prevention programs. Certain limitations exist, however, as the information derived from KID

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refers to hospitalizations per year, rather than per child, and physicians' use and accuracy of ICD-9 diagnostic codes for child abuse cannot be determined (Leventhal et al., 2012).

Longitudinal Studies and Household Surveys

Research studies frequently rely on individual interviews or responses to survey questionnaires, which in some cases may be part of an ongoing longitudinal study. Data regarding personal experiences with abuse and neglect are usually collected from parents or older children, or through retrospective reports from adults who may have experienced maltreatment when they were children. Retrospective reports are, of course, not equivalent to contemporaneous determinations, and may be particularly problematic for certain types of maltreatment, such as neglect during preschool years (which is perhaps the single most common form of maltreatment). Biological materials are collected in some studies, especially genetic and hormonal samples (e.g., cortisol) that are thought to be related to reactions to stress and trauma. Observational studies are virtually nonexistent as a data source in the child maltreatment literature.

Longitudinal Studies

Longitudinal Survey of Child Abuse and Neglect (LONGSCAN)*
LONGSCAN is a consortium of research studies that were initiated in 1990 with multiple federal grants. The consortium consists of five separate cohort studies conducted by satellite sites (Chicago, Baltimore, North Carolina, San Diego, and Seattle) that are coordinated through a center at the University of North Carolina. Each site conducts a separate and unique research project on the etiology and impact of child maltreatment using different child and family populations. For example, the Chicago study compares the life course of infants among three different types of families: (1) those who received comprehensive services after a report of child maltreatment; (2) those who received follow-up by the state welfare agency; and (3) a control group of matched infants. The San Diego study is a cohort study that initially followed maltreated children who were placed in foster care in the first 18 months of life and followed until age 4. This sample was recruited into LONGSCAN at age 4 to study outcomes of kinship versus nonfamily foster care, the consequences of reunification, and the use and impact of healthcare and mental health services. Papers currently in press that draw on LONGSCAN data

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are focusing on topics such as identifying children at high risk of child maltreatment; the influence of caregiver network support and caregiver psychopathology on child mental health need and service use; and suicidal ideation in adolescence (http://www.iprc.unc.edu/longscan/pages/publist/index.htm).

North Carolina Cohort within the LONGSCAN study The North Carolina cohort specifically focused on high-risk infants based on poor prenatal care, serious medical complications, low birthweight, or external influences, such as maternal substance abuse, maternal health and mental health, and household structure (i.e., single parenthood). Researchers compared interviews with mothers and reports to North Carolina's Registry of Child Abuse and Neglect to examine the reliability of predictive factors of first-year maltreatment reports and potential interventions to reduce the risk of second- and third-year maltreatment reports (Hunter and Knight, 1998; Kotch et al., 1997).

National Children's Study (NCS) The NCS was authorized by the *Children's Health Act of 2000* and is sponsored by a collaboration among four federal agencies: the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the National Institute of Environmental Health Sciences, the CDC, and the Environmental Protection Agency. The NICHD is the lead agency for the NCS. The study design involves a total of 36 study *centers* that include 105 study *locations* covering 79 metropolitan areas (urban, suburban, and small cities) and 26 rural communities (see http://www.nationalchildrensstudy.gov/studylocations/pages/overview.aspx).

The study objective is to recruit and follow a nationally representative sample of 100,000 children from before their birth until age 21 years, examining the effects of the physical, chemical, and social environments on the growth, development, and health of children across the United States. The study includes attention to family dynamics, community and cultural influences, and genetics. The goal of the study is to improve the health and well-being of children and contribute to understanding the role that various factors have on health and disease. The NCS has not yet published work on data related to child abuse or neglect, although planning efforts indicated that (1) investigation of the causes and consequences of child maltreatment was an appropriate scientific hypothesis to include in the study, and (2) the study of these issues justified the need for a large (100,000+) cohort and longitudinal design:

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> To document the "natural history" of child maltreatment and to understand how environmental, child, and parent characteristics influence occurrences of child maltreatment and subsequent child development, large-scale prospective longitudinal research, such as the NCS, is required. . . . The ability to identify early markers of problematic parent-child interactions and factors that contribute to the likelihood of child maltreatment across different stages in children's and families' lives will provide invaluable information for the timing and delivery of cost-effective services to prevent child maltreatment. . . . The NCS also can provide information about the timing, dosage, and content of interventions necessary to address the consequences of child maltreatment and facilitate healthy child development through the study of interventions occurring within the sample and through using the NCS cohort as a control group in prevention and intervention research involving independent samples (Lewin report, http://www.nationalchildrensstudy.gov/about/organization/advisorycommittee/2003Sep/Pages/Injury-document-1.pdf).

Dunedin study The Dunedin Multidisciplinary Health and Development Study ("Dunedin study") has followed an original cohort of 1,037 babies born in Dunedin, New Zealand, between April 1, 1972, and March 31, 1973, for nearly 40 years (Jaffee et al., 2007; Ouellet-Morin et al., 2011). The study is housed in the Department of Preventive and Social Medicine, Dunedin School of Medicine at the University of Otago and is funded primarily by the Health Research Council of New Zealand. The Dunedin study is notable for its capacity to capture both biological (including genetic) materials as well as social and environmental measures. As noted by AlEissa et al. (2009), the Dunedin study "provides a rich source of information on child abuse, the causes of antisocial behavior and resulting life course outcomes. Projects of particular interest from a child protection context will be research into the relationship between genetic and environmental factors, and how they interact to predispose people to conditions like hyperactivity, violence, and alcoholism" (p. 3). (See http://dunedinstudy.otago.ac.nz/index.html for further information.)

Widom study An older but continuing longitudinal study has been conducted by Cathy Spatz Widom and associates (Widom, 1999; Widom et al., 2007; Yanos et al., 2010). They identified a sample of 900 children who had been abused or neglected before age 11 and compared them with a sample matched on age, gender, race, and place of residence. A 20-year follow-up survey of the original cohort provided key findings

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regarding the impact of earlier maltreatment experience with juvenile violence as well as adverse health outcomes (Yanos et al., 2010). Farrington (2011) referred to the Widom survey as "the most famous study of child abuse and neglect" (p. 138).

Jonson-Reid study A more recent study with a service system perspective was designed by Jonson-Reid and associates with a sampling frame intentionally patterned after the Widom study (Jonson-Reid et al., 2012; Lanier et al., 2010). They identified a sample of children reported for abuse and neglect in 1993-1994 prior to the age of 12 in families receiving Aid to Families with Dependent Children and matched this to a sample of children in families by birth year and residential location with children in families with no histories of such reports. The study of more than 12,000 children uses administrative records from child welfare, income maintenance, special education, juvenile court and highway patrol, vital statistics, health, mental health, Census data, corrections, hospital records, and runaway shelters. Children were followed using dated records through 2009, when subjects were ages 15 to 27.

Minnesota Longitudinal Study of Parents and Children In 1975, the University of Minnesota's Institute of Child Development organized a study that observed 267 first-time mothers from their third trimester of pregnancy and followed the families through the children's early adulthood (age 28). The researchers conducted a wide variety of assessments, including behavioral, environmental, and social factors, to identify themes about the course of individual development (Stroufe et al., 2005). An in-depth analysis of high-risk children and their families traced the pathways between maltreatment and antisocial behavior, and concluded that alienation in early childhood—whether through neglect or abuse—was linked to impaired self-regulation of emotion (i.e., antisocial behavior) in later life (Egeland et al., 2002).

Romanian orphan studies Another body of research is often used to examine the short- and long-term effects of global deprivation and grossly inadequate institutional care on the health and development of young children (Bos et al., 2009; Nelson et al., 2007). The study population includes a group of infants and young children who resided in public orphanages in Bucharest, Romania, some of whom were subsequently placed in foster care homes in the same region or adopted by parents in the United Kingdom or the United States. Several studies have been conducted with selected samples of the Romanian orphan population, including the Bucharest Early Intervention Project in the United States (Zeanah

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et al., 2003, 2005) and the English and Romanian Adoptees Study in the United Kingdom (Colvert et al., 2008). These studies strive to identify areas of cognitive, emotional, and biological functioning and regulation that are especially susceptible to inadequate care during the child's early years of development, as well as highlighting those areas that are particularly resilient and respond positively to health and caregiving interventions.

Household Surveys

National Survey of Child and Adolescent Well-Being (NSCAW)* NSCAW is a national study of children who have come into contact with the child welfare system. Congress authorized the study in the *Personal Responsibility and Work Opportunities Reconciliation Act of 1996*, and NSCAW is supported by the ACF. The study sample is drawn from administrative records, which are used to identify families who are then invited to participate in household surveys. Firsthand reports are obtained from children, parents, and other caregivers; reports from caseworkers and teachers; and data from administrative records. NSCAW includes a longitudinal component that follows cases for several years and collects data on the types of abuse or neglect involved, agency contacts and services, and out-of-home placements. The study also includes child and family well-being outcomes in detail and explores the relationship between those outcomes and experience with the child welfare system, family characteristics, community environment, and other factors. Data have been collected in two waves, NSCAW I and II. NSCAW I involved data from 5,501 children (ages 0 to 14) from 97 child welfare agencies nationwide, who entered the child welfare system within a 15-month period (October 1999-December 2000); NSCAW II involved 5,873 children, from 83 counties nationwide, who ranged from birth to 17.5 years old at the time of sampling and who entered the child welfare system between February 2008 and April 2009. NSCAW I also included a supplemental sample of 727 children who have been in foster care for a longer period to support additional analyses. A series of 16 research briefs have been prepared that present findings based on NSCAW. The study is conducted through a collaborative effort among the Research Triangle Institute, Walter R. MacDonald Associates, and Caliber Associates (http://www.acf.hhs.gov/programs/opre/abuse_neglect/nscaw/reports/summary_nscaw/nscaw_research_brief_main_findings.pdf).

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Developmental Victimization Survey (DVS)* Finkelhor and colleagues at the University of New Hampshire (2005) conducted a household survey to estimate the range of victimization experiences (including physical and sexual abuse) by children and youth from ages 2 to 17. The survey is unique in that older youth are able to provide firsthand, confidential accounts of their own experiences. The sample population includes 2,020 children. Results indicate that "over half of all children experienced a physical assault in the course of the previous year, much of it by siblings and peers" (Finkelhor, 2007, p. 18). These findings present a stark contrast to the narrower and more rigorous results of the NCVS, which the authors attribute to the likelihood that the DVS may include incidents that "observers might dismiss as 'not real crimes,' such as sibling and peer assaults and disciplinary acts" (p. 18), including being beaten by a parent.

National Survey of Adolescents This survey was a household study conducted in 1995 by the National Crime Victims Research and Treatment Center at the Medical University of South Carolina, and funded through the National Institute of Justice and the CDC. American youth, ages 12-17 and living with a parent or guardian, were surveyed using Computer-Assisted Telephone Interviewing to test hypotheses regarding relationships among victimization experiences, mental health effects, substance abuse, and delinquent behavior in adolescents (Kilpatrick and Saunders, 1999, 2009). Findings from the survey point to nationwide correlations between child maltreatment and subsequent effects on mental health, rate of future victimization, and delinquent behaviors (Hanson et al., 2006; Kilpatrick et al., 2003; Knopf et al., 2008; Waldrop et al., 2007).

Measures and Methods

One of the research priorities recommended in the 1993 NRC report (NRC, 1993) highlighted the need for "reliable and valid clinical-diagnostic and research instruments for the measurement of child maltreatment" (p. 345). Nearly 20 years later, broad fragmentation persists in the scope and quality of measures that are routinely used in studies of child maltreatment.

For example, a recent (December 2011) search of the measures index organized by the National Data Archive on Child Abuse and Neglect (NDACAN) at Cornell University (http://www.ndacan.cornell.edu/abis/abisMeasuresIndex.cfm) identified 367 individual measures that

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have been used in the child maltreatment studies available within the Data Archive. Only 69 of these measures are commonly used (defined as used in five or more studies). Nearly half of the remainder are limited to one-time use (163 of 367 measures), and a third are dedicated solely to LONGSCAN and NSCAW measures (110 of 367 measures). For those measures that are used in five or more studies, half (38 of 69) are used only in the studies directed by the same research team. In particular, most of the datasets using LONGSCAN and NSCAW measures were intended for studies directly related to these measures, respectively.

Measures that are used in studies that are not archived in NDACAN have not been indexed (e.g., the Dunedin study or the studies of the Romanian orphans). The extent to which these longitudinal efforts rely on measures or sampling procedures that are common in other child maltreatment studies is not known. The author is not aware of how this analysis of measures used in child maltreatment studies compares with other social or behavioral studies that focus on child development or family processes and relationships. However, the broad and persistent fragmentation of measures across multiple studies inhibits comparative studies and presents a continuing challenge to investigators who wish to pool data across multiple samples in order to increase the power of statistical analyses.

CAUSES

Although initial studies focused on single risk factors for child maltreatment (e.g., parent's mental health, poverty, or parent's personal history of maltreatment), more recent work has drawn on developmental research that places the causes of abuse and neglect within a multilevel framework involving both environmental and individual factors. These studies draw on early ecological-developmental theory by Bronfenbrenner (1979), which Belsky (1980), Cicchetti and Rizley (1981), and others used to portray an etiological-transactional model for development that described interactive factors operating across multiple environmental, contextual, familial, and individual ecologies.

The etiological-transactional model has been further adapted to suggest that maltreatment emerges from a disordering of the balance between positive ("potentiating") and negative risk factors that may occur within and across each of the four levels of the model (Cicchetti and Valentino, 2006). The transient or enduring presence of these disruptions

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are thought to affect not only the selected ecological level, but may also influence processes in the surrounding levels as well. As stated by Cicchetti and Valentino (2006): "These dynamic transactions, which operate both horizontally and vertically throughout the levels of ecology, determine the amount of risk for maltreatment that an individual faces at any given time" (p. 134).

The complexity of these behaviors and experiences suggests that a broad set of causal and contributing factors is involved, including not only the presence of certain risk factors, but also the absence of protective or positive assets that can prevent the occurrence of abuse and neglect. Additional complexity results from the need to consider not only the individual risk and protective factors for the child as well as the parent or offending caregiver, but also to consider how these factors influence the *relationship* and interactions between the adult and child in multiple settings.

Research studies have also traditionally built on a framework that involves three general categories: the parent's contribution, the child's contribution, and social context (Belsky and Vondra, 1989). The parent's contribution might include the psychological state of the individual parent or caregiver (e.g., anger or depression) or behavioral disorders (e.g., substance abuse or domestic violence). The child's contribution includes factors such as age, temperament, or birthweight (e.g., infants, and low-birthweight infants in particular, are at greater risk of maltreatment than older children). Social context might include factors that stress or support parents in their caregiving experiences and interactions, such as poverty, unemployment, or inadequate housing.

Multiple waves of the NISs (Sedlak et al., 2010b) and a range of other studies (Coulton et al., 2007; Drake and Pandey, 1996) have demonstrated that poverty is among the strongest predictors of child maltreatment. However, the actual mechanisms by which poverty leads to maltreatment are still under study (Slack et al., 2004). In addition, the role of race in child maltreatment is not fully settled. Administrative data and the most recent wave of the NIS correspond with official report data (Sedlak, 2010a) showing that African Americans are reported at a higher rate than Whites, while Hispanics are not. The findings of higher risk among African Americans are consistent with the higher economic risks faced by that population (Sedlak et al., 2010a), while the lower rates experienced by Hispanics are consistent with the concept that certain cultural factors are protective for Hispanic children, known as the "Hispanic paradox" (Drake et al., 2011). Several regional studies focused on levels

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of social organization in poor neighborhoods have concluded that Black children are at greater risk than White children, even when controlling for the overrepresentation of Black children among poor families (Coulton and Korbin, 1995; Korbin et al., 1998; Wulczyn, 2009).

More recent attention has been directed toward situational factors that may affect family life (e.g., family disruptions or turmoil, social isolation, or movement of unrelated adults into a child's household) (Finkelhor, 2008). However, limited attention has been directed toward characterizing the presence or absence of positive and protective factors, such as highlighting the importance of a safe and stable relationship with an adult caregiver who can nurture and protect the child when a parent is unable to do so. The "bundling" of child maltreatment with other life adversities (Damashek and Chaffin, in press) consistently challenges studies of the underlying factors that contribute to abuse and neglect. Such adversities may include poverty, intimate partner violence, substance use, inadequate housing, unemployment, parental illness, mental health disorders, and family dysfunction. Certain psychological, psychiatric, or behavioral factors may precipitate some forms of maltreatment (e.g., the relationship between pedophilia and child sexual abuse or the link between parental depression or substance use and physical abuse). In other cases, such as child neglect, the overall cumulative burden of adversity, rather than one precipitating factor, may be the more significant contributor to the offending events.

Early studies suggested an intergenerational cycle was involved in abusive and neglectful behaviors, with children who were initially victims becoming offenders as they became responsible for the care of their own children (Egeland et al., 1988). Yet this finding is inconsistent, with later studies failing to support the intergenerational continuity of child physical abuse (Widom, 1989). A critique of these and other studies of international continuity has highlighted the methodological challenges associated with establishing such causal relationships, especially when intervening factors (e.g., sociodemographic characteristics during different times of abuse) are not addressed (Ertem et al., 2000).

More recent studies have given particular attention to the biological and psychological underpinnings that are associated with individual transactions between certain caregiving contexts and parenting behavior, suggesting that a caregiver's own early experience with abuse, deprivation, or trauma as a child may shape particular regulatory systems in the brain or other biological systems that either disrupt their capacity to nurture or soothe a child when under stress, or trigger abusive behaviors that

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they experienced during their own childhood. These "maladaptations," which may persist across generations, may consequently encourage behaviors and representations of self and caregiver practices, including unrealistic expectations of their children, that can contribute to future acts of maltreatment (Cicchetti and Toth, 2005).

Recognizing that children are victimized in numerous ways besides maltreatment (e.g., bullying or pornography), some researchers have proposed a new framework to support "a holistic approach to child victimization" (Finkelhor, 2008, p. 21). On this same page, Finkelhor has suggested the term "developmental victimology" to guide this holistic approach. His work gives particular attention to neighborhood and residential factors that contribute to victimization, including frequent moves; family loss, conflict, and turmoil (that might be associated with health problems or inadequate housing); greater exposure of children to unfamiliar, unrelated, and potentially predatory or aggressive people; and compromises in child supervision that result from these circumstances (Finkelhor, 2008). Some children may also exhibit emotional deficits and difficulties that make them more vulnerable to victimization, especially when such problems lead to "dependent, sexualized, or indiscriminately affiliative behavior" or "a sign of vulnerability that serves to attract offenders" (Finkelhor, 2008, p. 53).

Others have proposed a model, built on the disruption of basic regulatory processes associated with stress and adversity, that draws on research from the biological, behavioral, and social sciences. Several committees of the American Academy of Pediatrics (AAP), for example, have recently published a report that focuses on the "new morbidities" that affect the health and well-being of today's children—noninfectious and prevalent societal changes (e.g., the growing numbers of single parents and families with two working parents). The AAP report emphasizes that

> it is not adversity alone that predicts poor outcomes. It is the absence or insufficiency of protective relationships that reinforce healthy adaptations to stress, which, in the presence of significant adversity, leads to disruptive physiologic responses (i.e., toxic stress) that produce "biological memories" that increase the risk of health-threatening behaviors and frank disease later in life. (Garner et al., 2012, p. e225)

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Research on causes and contributing factors for abuse and neglect frequently draws on theoretical models to identify pathways and relationships among diverse processes as well as opportunities for preventive interventions that can discourage risk exposures and enhance opportunities for protective or buffering interactions. Early models drew heavily on the psychological and parent–child studies of Urie Bronfenbrenner (1979; Bronfenbrenner and Morris, 2006) and others that organize these relationships according to their proximity to the child. Other psychopathology models, such as Cicchetti's work (Cicchetti and Toth, 1995, 2005), focused on the individual's understanding of and exposure to a shifting balance between risk and "potentiating" factors that contribute to or diminish the probability of maltreatment. More recently, work by Finkelhor (2008) draws on and adapts other criminal research models, suggesting a dynamic multistage model that involves instigation processes, selection processes, and protection processes, organized on levels that separate individual victim characteristics from those of the surrounding social and physical environment.

Although each of these approaches contributes to our understanding of the causes of child maltreatment, no particular model fully explains the broad array of behaviors associated with different forms of abuse and neglect. Yet, studies of the newer versions of the etiological-transactional model suggest that there may be opportunities to identify the specific processes by which disruptions occur in the "average expectable environment for promoting normal development" and that a range of environmental conditions may occur by which it is possible to support "normative developmental processes" (Cicchetti and Valentino, 2006, p. 120).

CONSEQUENCES

Early studies of the consequences of child maltreatment focused on the acute, often severe, physical effects of abuse and neglect, such as fractures, head injuries, and death. The X-ray images of repetitive fractures resulted in an effort by Henry Kempe and his colleagues to describe the "battered child syndrome" as a specific area of concern in pediatric research and healthcare services (Kempe et al., 1962). This work most notably contributed to the initial passage of CAPTA and the creation of a federal program to support state-based child protection and child welfare services.

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While initial studies focused on the immediate and severe physical injuries associated with child abuse and neglect, more recent work has focused on long-term consequences of repetitive adverse experiences, particularly those associated with the stress and trauma of chronic maltreatment. Gunnar et al. (2006, p. 652, citing the work of Manly et al., 2001) has noted that hundreds of research studies have demonstrated "unequivocal evidence that childhood maltreatment increases the risk of psychological and behavioral disorders." Shenk et al. (2010) state that the developmental correlates of childhood maltreatment include increased aggression, emotion dysregulation, anxiety, depression, and posttraumatic stress disorder (PTSD) (Cicchetti and Rogosch, 2001; Kaufman et al., 1997; Paolucci et al. 2001; Shields and Cicchetti, 1998; Shipman and Zeman, 2001; Trickett et al., 1998).

While significant attention has been directed toward the mental health consequences of abuse and neglect, multiple studies have indicated that maltreated children—especially those placed in foster care—also experience a high level of physical health problems that are frequently untreated and that also involve developmental and educational challenges (for a review, see Horwitz et al., 2010). Specific examples of these physical and psychological health problems include growth failure, obesity, asthma, vision and dental problems, and a range of chronic medical diseases (Christian and Schwarz, 2011). Prospective studies have also found that maltreated children have higher rates of participation in special education than matched comparisons (Sullivan and Knutson, 2000). Research on child welfare populations indicates that many of these delays are evident in early childhood and go unserved (Stahmer et al., 2005).

Estimates of the range of mental health and behavioral problems for maltreated children and those in foster care range from 50 to 80 percent (Christian and Schwarz, 2011). For older adolescents, these rates are particularly high. One study suggests that older adolescents in the foster care system (many of whom have been placed there because of maltreatment histories) have "rates of major depression and posttraumatic stress disorder [that] are 2 to 3 times greater than in the general population" (Christian and Schwarz, 2011, citing McMillen et al., 2005). Yanos et al. (2010) and others have indicated that prior history of abuse or neglect is associated with greater use of mental health and social services in adulthood, and that such service use is frequently mediated by a psychiatric disorder, such as PTSD or depression.

In exploring the underlying causes of such disorders, researchers are examining the developmental and biological effects of maltreatment that

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may contribute to persistent and chronic disorders. These studies draw on new frameworks and imaging technology that illustrate the complexity of early human development, focusing on the array of positive and negative effects that occur through interactions among individual biology (including genetic makeup), social environments, caregiving experiences, and physiological and psychological processes. Brain imaging studies have demonstrated that maltreatment experiences may affect specific areas of functioning, particularly in domains such as cognition, social learning, memory, and threat perception. Researchers studying the origins of many adult diseases have focused on the importance of early experience in shaping the neurological and hormonal pathways through which individuals handle stress and physical and emotional threats. These studies conclude that "advances in a wide range of biological, behavioral, and social sciences are expanding our understanding of how early environmental influences (the ecology) and genetic predispositions (the biologic program) affect learning capacities, adaptive behaviors, lifelong physical and mental health, and adult productivity" (Garner et al., 2012, p. e224). In addition, researchers are studying processes associated with arousal, sleep patterns, and infection and immune functions that may be affected by maltreatment experiences.

As noted by Gunnar et al. (2006), two lenses initially dominated studies of the psychological and behavioral effects of maltreatment: the *developmental-organizational perspective* and the *social learning perspective*. The developmental-organizational perspective focused attention on stage-salient effects, such as disruption of attachment relationships, or the development of a disorganized/disoriented (Type D) attachment. Both could contribute to poor outcomes in childhood and beyond (Lyons-Ruth, 2003, cited in Gunnar et al., 2006).

The social learning perspective emphasized the ways in which specific internalizing or externalizing behaviors by the child that represent adaptive responses to abuse or neglect may interfere with future peer relationships or adult–child interactions (e.g., with teachers). Such adaptive "learned" behaviors can be disruptive and contribute to social isolation, and also present risks for future engagement with antisocial peer groups, externalizing behaviors, conduct problems, and substance abuse (Egeland et al., 2002, cited in Gunnar et al., 2006). This perspective is consistent with the observation that many children who experience early abuse or neglect are especially vulnerable to other problematic behaviors, such as conduct disorder or aggression. The concept of a "cycle of violence" has also emerged to describe the intergenerational effects of abuse

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and neglect, in which young people who experience maltreatment are at risk of using these same behaviors with their own children (Widom and Brzustowicz, 2006).

A third perspective, which has more recently emerged in the research literature, has called attention to the interactions among early experiences, the neurobiology of stress, and brain development. These studies rely largely on animal models (primarily rodents) that allow experimental manipulation of experiences with adversity in adult–juvenile interactions (including biological and "adoptive" mothers) during selected developmental stages, including prenatal and early infancy. These early experience studies have shown that "early parental care profoundly influences brain development, regulates gene expression, and shapes the neural systems that in humans are involved in vulnerability to affective disorders in response to later stressful life events" (Gunnar et al., 2006, p. 653).

Teicher et al. (2003) have described "a cascade of neurobiological events" produced by early severe stress and maltreatment, including the potential to cause enduring changes in brain development. "These changes occur on multiple levels, from neurohumoral (especially the hypothalamic-pituitary-adrenal [HPA] axis) to structural and functional. The major structural consequences of early stress include reduced size of the mid-portions of the corpus callosum and attenuated development of the left neocortex, hippocampus, and amygdala. Major functional consequences include increased electrical irritability in limbic structures and reduced functional activity of the cerebellar vermis. There are also gender differences in vulnerability and functional consequences" (p. 33). In summary, the neurobiological sequelae of early stress and maltreatment may contribute in significant ways to the emergence of psychiatric disorders during development.

The complex biological mechanisms associated with individual response to stress and trauma have prompted some researchers to suggest that an evolutionary process is involved, one that allows the brain to adapt to the early experience of severe stress and deprivation. Teicher et al. (2003), for example, state that "early stress signals the nascent brain to develop along an alternative pathway adapting itself to survive and reproduce in a malevolent stress-filled world" (p. 34). This adaptive, alternative process may involve specific areas of brain development, especially individual myelinated regions such as the corpus callosum, which are "potentially susceptible to the impacts of early exposure to high levels of stress hormones" (Teicher et al., 2003, p. 35). There are suggestions that exposure to corticosteroids is a crucial factor in early stages of

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infancy and childhood, organizing the brain to develop in this manner. Other studies (Seckl, 1998, cited in Teicher et al., 2003) have indicated that glucocorticoids may exert an organizing effect on development, contributing to low birthweights in infants as well as substantially increasing risks for the development of cardiovascular disease and type 2 diabetes during adulthood.

In addition to these studies of interactions among maltreatment, the neurobiology of stress, and caregiving experiences, some researchers have focused on selected genetic components that may influence the effects of maltreatment experiences. Caspi et al. (2002) conducted a longitudinal study that provides significant evidence of "inherited vulnerability," involving interactions between a specific candidate gene (*Monoamine Oxidase A* or *MAOA*) and the occurrence of child maltreatment that contribute to enduring patterns of antisocial behavior. Jonson-Reid et al. (2010) observed that more recent work has confirmed these interactions (Taylor and Kim-Cohen, 2007), suggesting that "the effect of environmental adversity may be conditional on an individual's genotype" (McCrory et al., 2010, p. 1079). Yet, additional studies have suggested that the presence or absence of numerous modifying factors such as gender, ethnicity, and the severity of adversity of life events can influence the magnitude of effect of inherited vulnerability (whether incurred by *MAOA* or other parameters of genetic risk) (Hicks et al., 2009; Weder et al., 2009; Widom and Brzustowicz, 2006). Other studies have begun to identify some of the complex ecological interactions among genotype, child behavior problems, parenting, and family stress, suggesting, for example, that genotype may be more likely to predict development of an escalating cycle of harsh parenting and child behavior problems only under certain conditions, such as when families are under stress (Riggins-Casper et al., 2003).

Studies of the effects of maltreatment on stress responses and other physiological reactions are not limited to young children. A prospective study by Shenk et al. (2010), for example, explored how a prior history of childhood sexual abuse might predict certain physiological responses to stress in late adolescence that also then predicted both higher levels of depression and antisocial behaviors in young adulthood. Their study was an empirical test of an interactive model developed by Bauer and others (2002) that is described as an "asymmetric response to stress": a response to stress is observed in one regulatory system (e.g., the HPA axis) and an understimulated or blunted response is observed in another (e.g., the central nervous system). The study by Shenk et al. (2010) suggests

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that "childhood sexual abuse may sensitize females to respond to moderate daily stressors in a manner that places them at higher risk for experiencing depressive symptoms and antisocial behaviors over time" (p. 752).

Yet, researchers who are focused on the biological pathways between child maltreatment and health outcomes consistently lament the difficulties of working with populations whose maltreatment histories are highly varied. As noted by McCrory et al. (2010, p. 1088):

> There is an increasing recognition of the need to improve the construct validity of measures that assess maltreatment type (Herrenkohl and Herrenkohl, 2009) as well as improve our accuracy in gauging maltreatment severity (Litrownik et al., 2005). Future studies need to meet the challenge of becoming more systematic in delineating maltreatment type, chronicity, frequency, and even perpetrator identity, if findings across studies are to be meaningfully compared. There are some notable exceptions where researchers are already working to address these challenges (e.g., Andersen et al., 2008; Cicchetti and Rogosch, 2001).

This challenge is complicated by the observation that some of the more salient dimensions of maltreatment may be subjective (including whether events are experienced as traumatic). The objective dimensions of maltreatment, as reflected in measures of maltreatment behavior or events, may not be adequate to represent such experiences.

Although maltreatment affects children of all ages, infants and young children (under age 5) experience higher rates of abuse and neglect, according to an analysis of NCANDS data (DeVooght et al., 2011). Young children are at particular risk of adverse consequences, including death—87 percent of all child maltreatment fatalities in FY 2009 involved children in this age group, and infants less than a year old comprise 46 percent of all child maltreatment fatalities for this same period (DeVooght et al., 2011). The extreme dependency on caregivers during critical periods of development creates particular vulnerabilities for this age group. A CDC analysis of NCANDS data also demonstrated a concentration of nonfatal maltreatment and neglect at age ≤1 week, including high risks of homicide (CDC, 2008).

Medical personnel were more frequently cited as the sources reporting child maltreatment among infants and children under age 5 in other NCANDS analyses, whereas older children were more likely to be re-

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ported by social services or educational sources (Palusci, 2011). Other characteristics for infants and younger children were different as well: They were more likely to have drug exposure and other medical problems, and their families were more likely to have alcohol and drug problems and as well as other medical problems and violence between caregivers (Palusci, 2011).

Other studies have not supported this finding, however. NCANDS data are not nationally representative, and datasets for many states are incomplete. The NIS-4 study, for example, reported, "In most cases, the 0- to 2-year-olds had significantly lower maltreatment rates than older children," especially in the category of physical abuse (Sedlak et al., 2010b, p. 8). The authors noted, however, that "It is possible that the lower rates at these younger ages reflect some undercoverage of these age groups."

PREVENTION EFFORTS

The 1993 NRC report *Understanding Child Abuse and Neglect* observed:

> In the field of child maltreatment, the goals of preventive interventions are to reduce risk factors associated with child abuse and neglect, to improve the outcomes of individuals or families exposed to such risk factors, and to enhance compensatory or protective factors that could mitigate or buffer the child from the effects of victimization. (p. 161)

Since the publication of the NRC report, new dimensions have evolved in the field of prevention studies. These efforts place greater emphasis on a strengths-based approach and the promotion of positive assets that can reduce not only the risks of child maltreatment, but also influence the risks of other social and health problems, such as substance abuse, violence within families, and mental health disorders (particularly depression). The promise of prevention, yet to be realized, is to create opportunities and resources that can strengthen parenting practices and family resiliency in multiple settings and prepare families to deal with stressful conditions. Prevention efforts also point to a hope that such investments will generate significant savings in treatment costs, particularly those associated with CPS investigations and foster care placement.

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In their introduction to the special 2009 issue of *The Future of Children* that focused on the prevention of child abuse and neglect, Paxson and Haskins (2009, p. 11) state:

> Most researchers and CPS workers believe that prevention holds the key to reducing child maltreatment in the United States and to bringing down its well-documented long-term costs, both human and financial.

Prevention services are frequently categorized by the characteristics of the populations served. At present, research is focusing on the array of factors associated with vulnerable populations of families who are most susceptible to maltreatment (i.e., children who are prior victims of abuse or neglect; children of parents with mental health or behavioral disorders, especially depression or substance abuse; first-time unmarried mothers; low-birthweight infants). Preventive interventions focus on enhancing protective factors for these families through services such as parenting education and support, therapeutic or treatment services for the parents that include a parenting component, or home visiting services that offer an array of health programs as well as referrals to community resources.

Universal prevention services (also known as primary prevention) are offered to a general population through community-based efforts that attempt to reach all families, regardless of their risk status. Such efforts may include media and social marketing campaigns (e.g., the "Don't Shake the Baby" efforts launched by pediatricians) or community-based programs housed in settings such as child care centers, hospitals (especially programs directed toward expectant or new parents), pediatric offices, or public health agencies.

Selective prevention interventions (also known as targeted or secondary prevention) focus on populations that exhibit certain risk characteristics generally associated with child maltreatment, such as poverty, first-time pregnancies, or unmarried mothers. Other selective interventions strive to add a prevention element to interventions focused on specific risk characteristics that frequently contribute to child abuse and neglect, such as parents with substance use disorders, mental health problems (usually depression), domestic violence, or child conduct disorders (Barth, 2009). Such efforts may include home visiting services that are offered to parents (usually mothers) who match one or more of these risk factors, parenting programs offered in treatment facilities that are focused on substance abuse or domestic violence, or components that are

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embedded in child care centers for children whose families fit one or more of these risk factors.

Indicated prevention interventions are also known as tertiary prevention services. They are designed to prevent the recurrence of abuse and neglect or to mitigate adverse consequences among children who have already experienced maltreatment. These services are often provided to families or children who are in contact with CPS or child welfare agencies.

Research on the status of evidence-based programs in each of these three areas is presented below.

Universal Prevention

Community-Based Prevention Programs

The 2009 special issue of *The Future of Children* included a review of community-based programs prepared by Daro and Dodge (2009). Their article explored how "attention is shifting toward creating environments that facilitate a parent's ability to do the right thing" (p. 67), drawing on research findings that offer insights into the ways in which neighborhoods influence child development and support parenting.

Daro and Dodge (2009) highlight five major initiatives that strive to reduce the incidence of child maltreatment, noting that these five examples are "representative of efforts underway in many states to reduce maltreatment risk or enhance child development" (p. 68). The five examples are:

1. Triple P-Positive Parenting Program (Sanders, 1999; Sanders et al., 2003)
2. Strengthening Families (Langford, 2007)
3. Durham Family Initiative (Dodge et al., 2009)
4. Strong Communities (Melton and Holaday, 2008)
5. Community Partnerships for Protecting Children (CSSP, 1996, 1997, 2001)

The authors review the evidence base and theoretical framework that supports each initiative, highlight common and unique elements, and explore the challenges associated with the evaluation of such widescale community-based efforts that may produce evolutionary change within a general population over an extended period of time. On this latter point, the authors observe that "traditional evaluation methods that use random assignment to treatment and control conditions and assume a 'fixed' intervention that adheres to a standardized protocol over time are of limited

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utility in determining an initiative's efficacy or in producing useful implementation lessons" (Daro and Dodge, 2009, p. 74). Though attractive in theory, few of these models, apart from the Triple P program, have demonstrated positive outcomes on child maltreatment rates in well-designed evaluation studies. It is useful to note that the Triple P model focuses on changing parenting practices within specific contexts, rather than attempting to shift social norms around parenting at the scale of an entire neighborhood or community. One additional observation may be informative in examining the research findings associated with these five initiatives. Daro and Dodge note that, historically, prevention efforts sought to focus attention on particular populations at risk of maltreatment and provide them with "knowledge, skill-building opportunities, and assistance to overcome their personal limitations" (p. 68).

This approach, thought to be a more efficient use of public resources, has had only limited success. More recently, some communities have changed their approaches by developing prevention strategies that focus on building family strengths within an entire community rather than targeting at-risk populations. First, some communities strive "to expand public services and resources available in a community by instituting new services, streamlining service delivery processes, or fostering greater collaboration among local service providers" (Daro and Dodge, 2009, p. 68). These efforts are designed to offer coordinated and integrated services that can help families when they experience stressful circumstances.

"Other strategies focus on altering the social norms that govern personal interactions among neighbors, parent-child relationships, and personal and collective responsibility for child protection" (Daro and Dodge, 2009, p. 68). This approach builds on the theoretical frameworks associated with interactions among social capital, social organization, and rates of child maltreatment in selected neighborhoods. "In each case, the goal is to build communities with a rich array of formal and informal resources and a normative cultural context that is capable of fostering positive child and youth development" (p. 68).

Abusive Head Trauma Prevention Efforts

In addition to the community-based prevention programs reviewed by Daro and Dodge, other primary, universal preventive efforts have been initiated in healthcare settings, including prenatal classes, hospital-based maternity wards, and pediatric offices. These efforts are focused on educating parents of newborns and infants about the risks of abusive head trauma (AHT), also known as shaken baby syndrome.

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The goals of interventions are to describe typical infant behaviors and developmental processes for new parents, to highlight important areas of infant safety, and to explain the specific risks associated with head trauma and shaking an infant. The parent education materials may consist of one or more of the following items: a brief leaflet (e.g., *Prevent Shaken Baby Syndrome* prepared by the AAP); longer booklets (e.g., *The Period of Purple Crying* material developed by the National Center on Shaken Infant Syndrome); wall posters displayed in health care settings (e.g., *Never, Never, Never, Never Shake an Infant* prepared by SBS Prevention Plus, Groveport, Ohio); videotapes (e.g., *Portrait of Promise: Preventing Shaken Baby Syndrome* produced by Midwest Children's Resource Center, St. Paul, Minnesota); and DVDs (e.g., excerpts from the child safety video produced by I Am Your Child Foundation) (Barr et al., 2009; Dias et al., 2005). The educational materials may be distributed in the healthcare setting by nurses in delivery wards, by office staff in other care settings, or by research assistants in study demonstration sites. In one study, both parents were also asked to indicate their receipt and understanding of the educational materials by signing a voluntary commitment statement (Dias et al., 2005).

In separate studies of *The Period of Purple Crying Intervention*, parents were given a time diary (*The Baby's Day Diary*) to record infant states (e.g., awake, alert, fussing, crying, unsoothable crying, sleeping, feeding) as well as caregiver behaviors (e.g., carrying, holding, walking away) to assess the impact of the intervention on parental and other caregiver behaviors when the infant was cared for at home (Barr et al., 2009).

Evaluations of the impact of the parental education materials are limited at this time and are focused primarily on assessment of parent knowledge and behaviors as a result of the intervention (Barr et al., 2009). A regional study by Dias et al. (2005) examined outcomes associated with abusive head trauma in western New York following an extensive intervention that included multiple parent educational materials (as well as the commitment statement). During the 5.5-year study period (which began in 1998), the incidence of abusive head injuries decreased by 47 percent, from 41.5 cases per 100,000 live births (during the 6-year control period that preceded the study) to 22.2 cases; an average of 3.8 cases per 100,000 live births per year during the study period, compared with 8.2 during the prior control period (Dias et al., 2005).

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Selective Prevention

In some cases, universal prevention programs with proven effectiveness have been adapted to serve families that exhibit particular risk factors for abuse and neglect. One example of this approach is the five levels of the Triple P system developed by Sanders (1999), Triple P was initially designed as a treatment intervention for children with oppositional defiant behavior problems, and was subsequently expanded into a five-level program that includes both primary prevention and maltreatment areas. In this model, it offers a comprehensive population-level system of parenting and family support, with interventions "of increasing intensity and narrowing population reach" (Prinz, 2009, p. 58). While level 1 consists largely of a media and communication strategy to reach all parents in a population, subsets of families receive more intensive and targeted sessions designed to enhance parental skills, prevent dysfunctional parenting practices, and promote teamwork between partners, thereby reducing those family risk factors commonly associated with child maltreatment.

The impact of the entire Triple P system was tested and evaluated through a population-wide sample that randomized 18 counties in a southern state, a study known as the U.S. Triple P System Population Trial (Prinz and Sanders, 2006, 2007). Three main indicators were measured to assess the impact of the intervention on child maltreatment–related events: (1) child out-of-home placements, (2) child injuries related to maltreatment (hospitalizations and emergency room visits), and (3) child maltreatment cases. As reported by Prinz et al. (2009), "significant prevention effects with large effect sizes" in all three population indicators were observed in the countries that received the Triple P intervention, following 2 continuous years of implementation.

Home visitation models are one of the best-known prevention strategies and have acquired extensive reviews in the research literature (Astuto and Allen, 2009; Daro, 2006; Isaacs, 2007; Olds et al., 1997, 1999; Paulsell et al., 2010). Originally developed as an intervention to foster healthy pregnancies and birth outcomes, early studies of the long-term outcomes of different home visitation programs in Hawaii and New York prompted the U.S. Advisory Board on Child Abuse and Neglect (1990) to recommend a universal system of home visitation for newborns and their parents, especially for first-time, low-income mothers. In response to the *2010 Affordable Care Act*, the Maternal and Child Health Bureau, in collaboration with HRSA and ACF within the U.S. Department of Health and Human Services (HHS), created the Maternal, Infant,

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and Early Childhood Home Visiting (MIECHV) Program. Under the MIECHV Program, HRSA awarded $91 million in FY 2010 grants to each of the 56 state and territorial entities. The grant recipients are now in the midst of developing state plans and evaluation strategies to determine their effectiveness in meeting the needs of high-risk families.

The MIECHV Program also contracted with Mathematica Policy Research (project known as "HomVEE") to determine evidence of effectiveness of selected home visiting models in promoting child well-being (Paulsell et al., 2010). After identifying an initial list of 300 home visiting program models from the research literature, the Mathematica team ranked models by the quality of rigorous research evaluation studies on their effectiveness, implementation, and impact. This process yield 22 "prioritized" models of home visiting services for use in the state grants. HomVEE subsequently reviewed 174 impact studies and 179 implementation studies for these 22 models (Paulsell et al., 2010, p. 5). This analysis yielded nine home visiting models that meet the HHS criteria for an evidence-based, early childhood home visiting service delivery model: (1) Child FIRST, (2) Early Head Start-Home Visiting, (3) Early Intervention Program for Adolescent Mothers, (4) Family Check-Up, (5) Healthy Families America, (6) Healthy Steps, (7) Home Instruction for Parents of Preschool Youngsters, (8) Nurse Family Partnership (NFP), and (9) Parents as Teachers.[5] "All of them have at least one high- or moderate-quality study with at least two favorable, statistically significant impacts in two different domains or two or more high- or moderate-quality studies using non-overlapping analytic study samples with one or more statistically significant, favorable impacts in the same domain" (Paulsell et al., 2011, p. 8).

The Mathematica HomVEE study also examined the extent to which each of the selected home visiting models measured primary outcomes in each of eight primary domains of interest to the Maternal and Child Health Bureau (MCHB) initiative. While most of the models had favorable impacts on primary measures of child development, school readiness, and positive parenting practices, only five models specifically measured the impact of the home visitation program on child maltreatment. Within this group, only three models (Child First, Healthy Families America [HFA], and NFP), demonstrated positive impacts on child maltreatment as a primary outcome measure, with NFP showing the highest number of

[5]Key references describing each of these models, along with their study ratings, are available on the HOMVEE/ACF website: http://homvee.acf.hhs.gov/studyratings.aspx?rid=1&sid=10&mid=6&oid=1#High.

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favorable impacts in this domain. NFP also had the greatest breadth of favorable primary findings, with favorable impacts on primary measures in six outcome domains. But measured reductions in downstream child maltreatment rates have sometimes been present in some variations and evaluations of the model, but absent in the majority of evaluations (HFA), or found in early studies but with uncertain replication in later studies (NFP). Other outcomes, apart from maltreatment prevention, have been found more consistently.

Efforts have now begun in selected regions to add services within the prioritized home visiting (HV) models that can address specific risk factors for abuse and neglect, such as maternal depression. One example of such interventions is a program that offers in-home cognitive behavioral therapy (CBT) for depressed mothers who are already receiving home visitation services (Ammerman et al., 2011). While this study does not measure child maltreatment reports as a primary outcome, the authors do report significant reductions in maternal depression, a primary risk factor for maltreatment. "There was a significantly greater reduction in depressive symptoms in the in home–cognitive behavioral therapy group relative to their counterparts who did not receive the treatment. Results from pre- and postcomparisons showed that treated mothers had decreased diagnosis of major depression, lower reported stress, increased coping and social support, and increased positive views of motherhood at posttreatment" (Ammerman et al., 2011, p. 1333).

One study has raised concern about the extent to which home visitation services are able to prevent the recidivism of physical abuse or neglect for families where maltreatment had already occurred (MacMillan et al., 2005). Other authors have noted that "to date, evaluations of whether home visitation services can alter the future life-course development in infants or children who have been maltreated have yet to be conducted" (Cicchetti and Toth, 2005).

Indicated Prevention

It is difficult to establish a clear boundary between preventive interventions and treatment services for families already in contact with child protective or child welfare agencies. In many cases, the interventions discussed in the Treatment Services section of this paper are designed to prevent the recurrence of maltreatment or to mitigate the adverse consequences of victimization. Other service delivery distinctions deserve attention; for example, families already in the child welfare system (indicated prevention) may be compelled by the courts to accept services,

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whereas primary prevention services are normally voluntary. There also may be important service research implications—for example, indicated services prioritize models with large effect sizes, whereas primary prevention may emphasize reach and penetration.

Community-Based Interventions

Few efforts have been made to examine the effects of community-based prevention interventions on child maltreatment outcomes for families that have already come to the attention of CPS. One study that has specifically examined the impact of preventive interventions on recidivism rates of child maltreatment is the Durham Family Initiative (DFI), which sought to "translate a science-based social-ecological model of how within-home child maltreatment develops, along with knowledge of public policy and practice, into a preventive system of care to reduce the population rate of child maltreatment" (Dodge et al., 2009, p. 68). DFI engaged multiple stakeholders (service providers, researchers, policy makers, and others) into a collaborative and coordinated effort that would achieve the following goals: "(1) identify families at risk for maltreatment. . . ; (2) make available evidence-based services that the community could deliver; and (3) connect families at risk with community services" (Dodge et al., 2009, p. 73). The evaluation study used a case-comparison design (not randomized) to assess the effects of the intervention in one county (Durham County, North Carolina) over time compared to five other counties that shared similar demographic characteristics with Durham County.

The maltreatment rate in Durham County declined by 49 percent as a result of the DFI, compared with a 22 percent decline for the average of the five comparison counties. The rate of decline was notable for children younger than 1 year of age (45 percent decline in Durham County compared to 12 percent average decrease in the five matched counties) (Dodge et al., 2009).

The DFI study also examined changes in recidivism rates, namely the rate at which those children who had been assessed for possible maltreatment by the Division of Social Services received a reassessment within 6 months. The results indicated that "the reassessment rate in Durham Country . . . decreased by 27 percent. . . . In contrast, the rate for the mean of the five . . . matched counties over the same period . . . decreased by 17 percent" (Dodge et al., 2009, p. 76).

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Improving Developmental Outcomes for Maltreating Families

Other interventions strive not only to reduce the recurrence of maltreatment, but also to improve the life-course outcomes of young children who have already experienced maltreatment. A study by Cicchetti et al. (2006) of 1-year-old infants and their mothers examined the relative effects of selected interventions for 137 families reported for maltreatment. Their approach compared the relative strengths of different interventions in terms of their capacity "to prevent the compromised developmental attainments that accompany maltreatment and that are precursors to later maladaptation and psychopathology" (p. 624). The Cicchetti et al. (2006) study focused specifically on alternative strategies to strengthen the maternal–child relationship, to alter disruptions in attachment organization (building from the work on attachment theory by Ainsworth et al., 1978), and to promote an adaptive developmental course for infants in families that have already experienced maltreatment. The maltreating families in their study were randomly assigned to one of three treatment groups: (1) psychotherapeutic intervention, termed infant–parent psychotherapy (IPP) (dyadic parent–child therapy sessions designed to improve the parent–child attachment relationship by altering the influence of negative maternal representational models on parent–child interaction); (2) psychoeducational parenting intervention (PPI) (providing mothers with didactic training in child development, parenting skills, coping strategies for managing stresses in the immediate environment, and assistance in developing social support networks); and (3) standard community service (CS) control. A fourth group of infants from 52 nonmaltreating families provided an additional low-income normative comparison (NC) group. Assessments of the infants and mothers when the infants were approximately 26 months of age (the conclusion of the interventions) showed "dramatic changes in attachment classification" (Cicchetti and Toth, 2006, p. 643): the rate of secure attachment increased in both treatment intervention groups to 60.7 percent (from 3.1 percent preintervention) for the IPP group and 54.5 percent (from 0.0 percent preintervention) for the PPI group. The rate of secure attachment in the CS group remained extremely low (termed "virtually nonexistent" at 1.9 percent postintervention compared to 0 percent preintervention), and the rate of secure attachment in the NC group (38.6 percent compared to 32.7 percent in the post- and preintervention groups) continued to surpass the CS group. Both the IPP and PPI intervention treatment groups showed substantial gains in establishing secure attachment organization, suggesting that both types of interventions could alter the pre-

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dominantly insecure attachment organizations of infants in maltreating families. The authors note that while they had initially hypothesized that "the IPP intervention would be more successful in improving attachment security than would the PPI intervention," future studies may detect differences of these interventions during the preschool period (Cicchetti et al., 2006).

Services Provided by Child Welfare Agencies

Interest in the possible moderating impact of services provided through child welfare on later child outcomes is relatively new. Perhaps the most developed literature in this area has looked at the potential moderating effect of foster care and out-of-home placement on later outcomes with findings varying by study (Berger et al., 2009; Jonson-Reid and Barth, 2000; Ryan and Testa, 2005). Relatively little is known about the impact of lower intensity, in-home services (O'Reilly et al., 2010). This is complicated by regional variations in services and the fact that outcomes may be influenced by services that are accessed after referral by child welfare.

TREATMENT INTERVENTIONS[6]

A broad array of treatment interventions are available to serve families that are in contact with CPS, child welfare agencies, or health providers as a result of reports of abuse and neglect. Beyond the reporting, investigation, and case assessment services described in a preceding section, these interventions may include medical treatment of initial injuries or health disorders (e.g., head trauma injury in infants or growth retardation in young children), referrals to counselors or therapists for individual or group therapy, parenting education, and family support programs (which may include in-home family preservation or family reunification services). In cases that involve extreme forms of maltreatment, the child may be placed in temporary or permanent out-of-home care.

[6]As noted in the Introduction, this paper does not review the literature on the effects of different law enforcement or judicial interventions on the prevention, recurrence, or outcomes associated with child maltreatment. Such interventions may include differences in arrest policies, court practices and sentencing decisions, deterrence practices, and other interventions offered in these settings.

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The scope, intensity, and duration of treatment services often depend on the initial characteristics of the reported abuse (including prior history of maltreatment), the age of the child, the complexity of family dysfunction (i.e., whether substance abuse or intimate partner violence is involved), the capacity of the health and human services agencies to provide effective treatment services, and the level of family engagement with the available services (which may be voluntary or mandatory).

A detailed description and evaluation of treatment models in each of these areas is beyond the scope of this paper. What follows is a brief description of the research base that includes selected treatment interventions, particularly those that have been shown to meet evidence-based standards in support of their effectiveness and widespread use.

Treatment of Abusive Head Trauma in Infants

In most cases, the treatment of injuries or health disorders that result from abuse and neglect follows general guidelines of the medical profession. However, particular attention has been directed toward the treatment of abusive head trauma in infants and young children, which is frequently associated with severe and sometimes fatal cerebral, spinal, and cranial injuries. In 2009, the American Academy of Pediatrics revised an earlier (2001) policy statement to clarify the terminology to be used in describing inflicted head trauma on infants and young children, often as a result of shaking and/or blunt impact (Christian et al., 2009). The term "abusive head trauma" was recommended as a replacement for "shaken baby syndrome," which is frequently used by physicians and the public to describe the types of injuries associated with this form of maltreatment. The new AAP policy statement clarifies that "advances in the understanding of the mechanisms and clinical spectrum of injury associated with abusive head trauma compel us to modify our terminology to keep pace with our understanding of pathologic mechanisms. . . . The use of broad terminology that is inclusive of all mechanisms of injury, including shaking, is required" (Christian et al., 2009, p. 1409).

The 2009 AAP report notes that pediatricians should be especially alert to signs of AHT because they carry a particular burden in recognizing and responding to this condition (Christian et al., 2009). At the same time, they need to recognize the possibility of alternative causes of the head injury. Consultation with key subspecialists, child abuse experts, and social services personnel is particularly recommended:

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> A medical diagnosis of AHT is made only after consideration of all the clinical data. On some occasions, the diagnosis is apparent early in the course of the evaluation, because some infants and children have injuries to multiple organ systems that could only be the result of inflicted trauma. On other occasions, the diagnosis is less certain, and restraint is required until the medical evaluation has been completed. However, as physicians, we have an obligation to make a working diagnosis, as we do with many other diagnoses, and take the legally mandated steps for further investigation when indicated. Pediatricians often find it helpful to consult a subspecialist in the field of child abuse pediatrics to ensure that the medical evaluation has been complete and the diagnosis is accurate. Subspecialists in radiology, ophthalmology, neurosurgery, neurology, and other fields should also be consulted when necessary to ensure a complete and accurate evaluation. (Christian et al., 2009, p. 1410)

Special studies are currently under way to broaden public and professional awareness of the risks associated with abusive head trauma in infants and young children. These prevention efforts are discussed under the Prevention Efforts section of this appendix.

Evidence-Based Reviews of Treatment Interventions

Multiple reviews of the research literature have consistently noted the lack of well-designed treatment trials for children who have experienced maltreatment (Chaffin and Friedrich, 2004; Stevenson, 1999). Horwitz et al. (2010) note that "studies on health services use in general and mental health services use in particular have lagged behind studies documenting need" (p. 280). They observe that since the early 1990s, studies have gradually emerged that document patterns and predictors of mental health services for children in the child welfare system. For the most part, the content, quality, and outcomes of existing mental health, counseling, parenting education, and family support services have not been evaluated.

Recent efforts have emerged, however, to develop systematic reviews that classify existing treatment interventions according to the quality of the evidence base that supports them. These review efforts are based on scientific criteria (e.g., the soundness of the theory base and strength of empirical support, including the availability of controlled and randomized studies) as well as clinical feasibility and acceptance of the intervention in child welfare settings (e.g., the extent to which the inter-

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vention is feasible to use in different clinical settings with families served by child welfare or child protection agencies). More recently, some rating groups have added a third criterion in the assessment of treatment interventions, namely, the extent to which they are consistent with family and child values. These three factors—best research evidence, best clinical experience, and consistency with patient values—support the definition of evidence-based practice as defined by the IOM (2001).

In 2004, two expert panels published reports that documented the extent to which evidence-based treatment interventions for child victims of abuse or neglect as well as the adult offenders were available to CPS and child welfare agencies. The first review was conducted by a group convened by the Office of Victims of Crime (OVC) in the U.S. Department of Justice (Saunders et al., 2004). This review was supplemented by a second review sponsored by the Kauffman Foundation to identify interventions that showed particular promise even if they did not yet achieve the highest standard of empirical support (Kauffman Best Practices Project, 2004). Chaffin and Friedrich (2004) subsequently summarized the OVC and Kauffman reviews within two categories of treatment interventions: (1) mental health services and (2) "other classes of services" (p. 1106) that include family preservation or reunification models as well as broad ecologically based interventions (e.g., parenting services or other in-home programs that address specific aspects of multiproblem families served by child welfare agencies).[7]

A third review effort was later initiated by an expert group convened by the state of California, which formed the California Evidence-Based Clearinghouse for Child Welfare (CEBC), an ongoing activity led by the California Department of Social Services (CDSS). CDSS selected the Chadwick Center for Children and Families-Rady Children's Hospital-San Diego, in cooperation with the Child and Adolescent Services Research Center, to create the CEBC, which provides guidance and Web-based rating tools on evidence-based child welfare practices to statewide agencies, counties, public and private organizations, and individuals.

The treatment interventions described below are those that have received the ratings in the top two categories used by these three groups, which are generally described as "well established" or "supported." In a few cases, additional attention is given to treatment models that do not

[7]The review by Chaffin and Friedrich (2004) also discussed prevention models, which were discussed in an earlier section of this paper.

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fall within these categories, but are viewed as especially significant in the treatment of child abuse and neglect. Sorting the interventions according to their review criteria is a challenging task, however, because there is not common agreement among the three groups in rating similar treatment models.

Mental Health Interventions for Child Victims of Abuse and Neglect

Expert review groups (including OVC, and, subsequently, a collaborative effort funded by the Kauffman Foundation of St. Louis) have identified three treatment models for child victims of abuse and neglect that meet selected standards of evidence (standards include criteria such as soundness of the theory base, extent of general clinical acceptance, and strength of empirical support, among others). The review groups scored existing treatment models based on these standards and highlighted those that deserve further uptake in routine practice settings (Kauffman Best Practices Project, 2004; Saunders et al., 2004). The models that met the highest standards of evidence according to these reviews include

- Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) (Cohen and Mannarino, 1997, 2008; Cohen et al., 2006; Deblinger et al., 1996);
- Abuse-Focused Cognitive-Behavioral Therapy (AF-CBT) (Kolko and Swenson, 2002); and
- Parent-Child Interaction Therapy (PCIT) (Chaffin and Friedrich, 2004; Hembree-Kigin and McNeil, 1995; Urquiza and McNeil, 1996).

A later review by CEBC also scored TF-CBT and PCIT at the highest level (“1 – well-established”). However, the CBEC assigned a lower score to AF-CBT (“3 – promising”), stating that although a random controlled trial reported that parents receiving AF-CBT showed positive changes on most risk and outcome indicators, “the changes were similar to those found with a less clearly defined family therapy study arm delivered in the laboratory setting, and both were superior to usual services. Interpretation of study comparisons is limited by the unknown effectiveness of the family therapy comparison and by the non-random allocation to usual services” (Damashek and Chaffin, in press, p. 961).

Each model uses a well-supported, empirically validated treatment protocol that addresses specific psychological symptoms or behavioral

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disorders. TF-CBT uses the principles of gradual exposure and cognitive restructuring to address the psychological impact and memory of abuse. PCIT involves a live-coached parent training program that focuses on early childhood behavioral problems.

The OVC and Kauffman review panels noted that a fourth treatment model—Multisystemic Therapy (MST) (Curtis et al., 2004)—also showed significant initial promise, and its use with adolescent sexual offenders is highlighted below.

Family and Parenting Support Services

The other class of interventions subjected to empirical tests involves family and parenting support services that focus on the recognition and change of specific behaviors that contribute to maltreatment. These interventions go beyond traditional parenting education classes and often involve in-home services that may include mental health components as well as role playing, coaching and mentoring, self-assessment questionnaires, and quasi-experimental studies to establish the empirical validity of specific components of selected programs.

The OVC and Kauffman reviews highlighted selected examples of such evidence-based service models. Later reviews by CEBC gave the highest rating ("1 – well-established") to two programs that are focused on the treatment of physical abuse (The Incredible Years and Triple P) and the second highest rating ("2 – supported") to the use of the Homebuilders treatment model for families reported for child neglect:

- The Incredible Years is a parenting and child behavior management skill training program initially designed as a treatment for child behavior disorders as well as a school-based behavior problem prevention program for high-risk populations. The program has been adapted for parents from high-risk contexts, such as Head Start, that sometimes have high rates of future child welfare involvement (Webster-Stratton, 1998; Webster-Stratton and Reid, 2003).
- Triple P is a program designed to promote positive parenting skills in managing child behavior problems. Parenting materials address specific developmental periods from infancy through adolescence, across five levels of intensity, with higher levels designed for progressively higher risk populations. Originally developed in Australia, Triple P has been tested as a prevention model in the United States to compare population-level child

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maltreatment outcomes among 18 counties (9 randomly assigned to receive multilevel Triple P versus 9 randomized to services as usual) (Prinz et al., 2009).
- Homebuilders was designed specifically as an intensive, short-term, home-based program to prevent out-of-home child placement or to help reunify children in the foster care system with their biological parents. This approach is different from the first two models, which modify services designed for general child problem behaviors with adaptations appropriate for families reported for or at risk of child maltreatment (Fraser et al., 1996).

Other programs highlighted by the earlier OVC and Kauffman reviews as efforts that were acquiring greater use within the child welfare system and showed promise of empirical support for initial controlled studies included the following:

- Project 12-Ways/Safe Care (Lutzker et al., 2001)
- Family Connections model (Thomas et al., 2003)
- Parent Management Training (Patterson et al., 2002)

SafeCare and Family Connections both received a "promising" (level 3) rating from CBEC as well. A recent large-scale (n = 2,175) statewide controlled trial of the SafeCare model (Chaffin et al., in press) has reported significantly reduced downstream child maltreatment outcomes among families in child welfare, which may improve the earlier ratings by the OVC and Kauffman reviews.

Adult Treatment of Child Sex Molesters

In addition to identifying TF-CBT as an evidence-based treatment intervention for victims of physical and sexual abuse, the OVC-convened expert panel gave a high rating to the adult treatment program for child sex molesters (Saunders et al., 2004). The program description indicates that the category of child sex molesters is a "heterogeneous group who may have a variety of psychological and behavioral problems or show no psychopathology beyond their sexual interest in a particular child" (p. 96). For those offenders who could be diagnosed as psychopathological, "there is currently no known effective treatment" (p. 96), and those who exhibit signs of sexual deviancy are at high risk of recidivism.

Despite these observations, the Association for the Treatment of Sexual Abusers (ATSA, 2001) has indicated that the sexual molestation of children is a treatable behavior problem. The OVC expert panel gave

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their second highest rating to a model for child molester treatment that uses cognitive behavioral and adjunctive therapies. The model aims to help child sexual offenders develop the motivation and skills to stop sexual offending by replacing harmful thinking and behaviors with healthy thoughts and the skills to make choices that will reduce risk.

Cognitive behavioral approaches are currently considered the most effective methods of treatment, with pharmacological, educational, skills-building, self-help, and other methods used as adjuncts to treatment (ATSA, 2001). Alexander's (1999) analysis of 79 sexual offender treatment studies, including Relapse Prevention and other CBT models, found that the cognitive behavioral interventions had recidivism rates of 8.1 percent, while other treatment approaches had a recidivism rate of 18.3 percent and untreated molesters showed a recidivism rate of 25.8 percent.

In a more recent report, CEBC assigned a high rating to the use of MST for adolescent sexual abusers in June 2011, awarding this model a provisional rating of "1" or "Established," which is the highest category used by the Clearinghouse (Damashek and Chaffin, in press). CEBC notes that MST has been recommended as a model program for general delinquency by two organizations: the Blueprints for Violence Prevention Project (Mihalic et al., 2001) and the U.S. Surgeon General's report on youth violence (USPHS, 2001). Three randomized trials have supported MST with adolescent sex offenders.

One area that bridges treatment of maltreatment victims and perpetrators is treatment of preadolescent children with aggressive sexual behavior problems, which can be both a sequelae of the child's own abuse and a behavior that often targets other children. Short-term, parent-involved programs have been developed and tested for these children, with good long-term results (Carpentier et al., 2006) and low rates of subsequent sexual offenses.

Social Service and Other Child Welfare Interventions

The treatment interventions described above are generally offered through contract services to state- or county-based human services agencies in responding to families reported for child maltreatment. The procedures used by these agencies to detect, report, investigate, and substantiate reports of abuse and neglect are discussed in a separate section of this appendix.

The following section of this appendix, Services and System-Level Issues, describes highlights from research in areas such as intake and

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referrals, investigations and risk assessment, alternative or differential responses to reports of child abuse and neglect, and case management practices.

SERVICES AND SYSTEMS-LEVEL ISSUES

Reviews of the quality and effectiveness of the individual service and decision-making components of CPS and child welfare agencies have identified several key themes that deserve research attention in the evaluation of overall system performance. These include the use of data and evidence-based approaches in the following areas:

- Intake and investigation
- Risk assessment decision making
- Referrals for services (including differential response)
- The impact of class-action litigation on child welfare policies and practices

Rigorous studies of the evidence base are limited and empirical research is lacking in most of these areas. However, the research base is expanding, as illustrated in the following sections.

Intake and Referrals

The traditional practice of CPS agencies is to respond to reports of abuse and neglect, to identify actions or circumstances that may be harmful to the child, and to provide services and resources that can ensure child safety and well-being. The intake process is the "front end" of the CPS system: It involves the actions associated with the initial receipt of and response to a complaint of child abuse and neglect, also called a "referral." The referrals may involve one or more children, they may involve one or more types of abuse and neglect, they may be a single event or part of a recurring pattern of maltreatment, they may or may not fall within the statutory guidelines of the CPS agency, and the complaint may involve actions that require attention by other social service, health, or law enforcement agencies. Limited knowledge is available about the provision and acceptance of these referrals, in part because the linked data systems needed to track such information are largely nonexistent (Jonson-Reid and Drake, 2008). Most of the admittedly few studies that have focused explicitly on the intake process are concerned with the screening-in/screening-out decision making that occurs at this time, not-

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ing that such decisions can result in both the overinclusion of children who are not at significant risk of maltreatment as well as the underinclusion of children who require protection and support (Pecora et al., 2009; Waldfogel, 1998).

The HHS (2011) report *Child Maltreatment 2010*, based on NCANDS data from 45 states,[8] reported that the participating states received a total of 2.6 million referrals in 2010. From this total, 60.7 percent of the initial complaints were screened in (ranging from 25.2 to 98.7 percent among the individual states) and 39.3 percent were screened out (ranging from 1.3 to 74.8 percent among the states) (HHS, 2011, p. 5). When applied to the national population of all 50 states, the District of Columbia, and Puerto Rico, CPS agencies received an estimated 3.3 million referrals (including 5.9 million children) during FY 2010. This is estimated to be a national average rate of 43.8 referrals per 1,000 children.

Risk Assessment and Investigation

Traditionally, both research and state services systems relied heavily on system categories of "substantiation" or "indication" as classifications of risk. Yet several studies suggest that the practice of indication or substantiation as a means of identifying risk has little or no relationship to the actual future risk of harm (Fallon et al., 2010; Hussey et al., 2005; Kohl et al., 2009). "Substantiation" of abuse and neglect in law and common language implies a specificity or distinction that frequently does not appear to exist in fact or in practice. Studies have demonstrated that cases with unsubstantiated reports appear to be equally at risk and have problems equivalent to those with substantiated reports, including being equally at risk for future substantiated maltreatment (Drake et al., 2003; Kohl et al., 2009). The risk-level comparability between substantiated and unsubstantiated cases therefore raises concern about limiting maltreatment intervention or prevention services only to those cases classified as "substantiated."

As a result, substantial interest has emerged in developing effective risk assessment tools that can be tied to service provision. Several research studies have compared the merits of using different models of risk assessment in examining child maltreatment cases. The traditional model is a consensus-based protocol, which relies on a consensus judgment of

[8]States that did not provide referral data included Hawaii, Illinois, New Jersey, New York, North Carolina, and Pennsylvania.

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experts to identify and assess specific client characteristics. This assessment provides a basis for the caseworker's clinical judgment about the risk of future abuse and neglect (Baird et al., 1999). The second approach draws on an actuarial model, which uses data from longitudinal research and empirically validated instruments to estimate the probability of future maltreatment.

One rigorous analysis, which compared the strengths of two consensus-based models with one actuarial system, reported that "actuarial-based systems are more accurate than consensus-based or expert systems and, therefore, have the potential to improve CPS decision making" (Baird and Wagner, 2000, p. 868). The conclusion was based on differences in the rates of subsequent investigations, substantiations, and placements that were computed over an 18-month period for cases classified at low-, moderate-, and high-risk levels in each model.

In 2003 the Center for Child Welfare Policy in Columbus published the results of an extensive initiative to examine the use of risk assessment models in child welfare decision making (Rycus and Hughes, 2003). The report concluded that while most child welfare agencies had adopted some form of risk assessment to guide the resolution of case-specific and system-related practice problems, fundamental problems continued to challenge these efforts. They identified key themes that deserved attention:

- "There is a lack of agreement regarding the proper scope and purpose of risk assessment technology in child welfare assessment and case planning activities.
- Fundamental concepts, premises, terminology, and measures have not always been well defined or articulated, are often applied in an idiosyncratic manner, are highly inconsistent among risk models, and in some cases, are simply inaccurate. This creates ambiguity, confusion, and contradiction, and greatly increases the likelihood of error and bias in risk ratings and subsequent practice decisions.
- There are serious methodological problems in the design and development of many risk assessment technologies and models, and also in much of the research designed to evaluate and validate them. This not only impacts the reliability and validity of the models, but results in the communication of inaccurate information about their methodological soundness to the practice field.

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- A variety of systemic, bureaucratic, and individual barriers impede the large-scale implementation of formal risk assessment technologies by child welfare agencies.
- It is often expected that formal risk assessment activities should serve a variety of administrative, political, and systemic functions in child welfare organizations that have little to do with making accurate protective decisions for children.
- A number of ethical and legal issues related to risk assessment have not been fully addressed." (Rycus and Hughes, 2003, p. 7)

The 2003 report also noted that one of the major contributions of risk assessment models is to identify those families that have a high likelihood of continuing recurrence of child maltreatment. They are, in essence, "safety" assessment models. This type of risk assessment during the intake process allows the caseworkers to classify families into different categories of low, moderate, and severe risk and to determine what types of referrals or investigations are most appropriate for each set of family circumstances. Other risk assessment models are designed to provide an ongoing form of data collection and monitoring throughout the case, to prioritize the types of services that are appropriate for groups of families, and to best determine the workload for each case worker. The 2003 report observes that risk assessment has thus expanded to include not only a "point-in-time" evaluation tool, but also an overarching case management strategy that requires ongoing assessment of risk and family needs (Rycus and Hughes, 2003, p. 10)

Referrals for Services (Including Differential Response)

Once a referral is "screened in" by a CPS agency and the initial risk assessment has been completed, caseworkers decide whether the referral involves serious and immediate harm to the child, which warrants an investigatory process to substantiate the abuse or neglect and to invoke action against the perpetrator, or whether other types of risk are involved that could benefit from supportive interventions. In cases involving serious risk, CPS will conduct the investigation and prepare a report for further action by other agency or law enforcement personnel. The traditional CPS response to child maltreatment cases (sometimes referred to as a forensic response) is appropriate for those circumstances that present desperate situations or immediate threats to safety or injury to a child, such as sexual abuse, imminent harm, or abuse by caregivers in a state or county residential facility.

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However, intake efforts in child protective services have identified many families that do not exhibit severe forms of maltreatment that threaten child health or safety, but still constitute endangerment and require support and services to help parents and other family members care for their children during difficult times, such as circumstances that involve substance abuse or domestic violence. In other circumstances, insufficient evidence of harm may be present, yet the family may be willing on a voluntary basis to cooperate with child protective services personnel in order to improve the well-being of their children.

As a result, multiple states have developed legislative reforms and flexible service strategies that provide opportunities to offer a "differential response" to CPS investigations of accepted reports of child abuse and neglect allegations (this approach may also be termed an alternative response, family assessment response, dual track, or multiple track). The differential response allows agencies to focus on the whole family unit as opposed to restricting their intervention to the child who was the subject of the initial complaint (Flynn et al., 2011).

The 2010 *Child Maltreatment* report (HHS, 2011) noted the increasing number of children served by differential or alternative response programs between 2006 and 2010. Nearly 10 percent of children (of the initial 3 million who were the subject of initial referrals) received an alternative response in 2010, nearly twice the number who received such a disposition in 2006.

The differential response approach considers numerous factors, "such as the type and severity of the maltreatment, number and sources of previous reports, and willingness of the family to participate in services" (NQIC, 2009, p. 1). In some cases, county agencies will further distinguish between a differential response for cases involving domestic violence (which require specialized referrals), and those that involve a family assessment process that identifies other areas of child safety, stability, or well-being that require attention. A report of one county agency in Minnesota, for example, noted that about 62 percent of families receiving services via CPS during the period 1999-2004 were served by the differential response, and about one-third of these families involved services for domestic violence (Sawyer and Lohrbach, 2005).

In launching a differential response approach, several states have supported demonstration and evaluation efforts to determine the feasibility, outcomes, and effectiveness this alternative to traditional investigations and services. The National Quality Improvement Center (NQIC) indicated that Illinois, Minnesota, Missouri, North Carolina, Ohio, Ten-

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nessee, and Virginia have supported "pilot projects with specified time frames and demonstration sites; statewide expansion is/has been dependent upon results from the demonstrations" (NQIC, 2010, p. 4). A recent three-state study of the use of the differential response system (DRS) in Minnesota, Nevada, and North Carolina reported that

> the core of [a] Differential Response System is a framework based on the values of family strengths, collaboration, respect, and community connections. Within this framework, DRS provides flexibility for states to shape the model to fit their own population, culture, and government structure. This system is not a "one-size-fits-all" model for families, or for states. (Flynn et al., 2011, p. 105)

Recognizing the multiple dimensions of the differential response model, the HHS Children's Bureau has launched a cooperative agreement with the NQIC on Differential Response in Child Protective Services to develop a 5-year project to expand the knowledge base on differential response. The project consists of two studies that include a national needs assessment (Phase 1) and the implementation of the differential response in three demonstration sites—Colorado, Illinois, and Ohio—and dissertation research (HHS, 2011).

Case Management Practices

Significant efforts and investments have included directed family meetings as a standard CPS response. These include models such as Family Groups Conferencing, Family 2 Family, Wrap Around, Family Team Decision-Making, and others. The time and resources associated with family meetings may be quite expensive in terms of family, social services, and community professionals.

Few rigorous studies have been conducted to compare the outcomes associated with different types of family meeting strategies. One study, requested by the Washington State Legislature, examined the effects of Family Team Decision-Making (FTDM) on child placement outcomes, using a pre/postadoption method as the study design (Miller, 2011). The authors concluded that the implementation of FTDM "had no overall significant impact on rates of placement following CPS referrals, time to permanency, or new accepted CPS referrals after an exit to a permanent placement" (p. 8). However, some differential impacts were observed on some outcomes, depending on race.

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The Impact of Class-Action Litigation on Child Welfare Policies and Practices

The desire to introduce more flexibility into the responses of CPS and child welfare agencies to reports of child maltreatment has also emerged in judicial treatment of various class-action suits that strive to establish standards and procedures that would foster greater accountability of the agencies to the children and families they serve. Noonan et al. (2009) provide an overview of the historical practices that have guided judicial oversight in such cases, noting that such lawsuits have successfully challenged the child welfare system in about two thirds of the states, involving "demonstrations or concessions of massive noncompliance with federal requirements—failure to take action in response to indications of abuse and neglect; arbitrary removal of children without reasonable reunification efforts; and placement of children in inappropriate, often dangerous, settings without substantial consideration or review" (Noonan et al., 2009, p. 530).

The Noonan et al. (2009) overview highlights how courts in Alabama and Utah have sought to navigate between the historic extremes of governing bureaucratic agencies by explicit rules or rigorous standards, setting a new course of injunctive relief that supports "a collaborative process for specifying norms through analysis of cases," as well as "a form of norm elaboration through peer review that engages all levels of the system, as well as outside experts" (p. 545). The monitoring procedure adopted by the courts as the central measure of compliance in decisions to terminate court supervision in these two examples relies on a distinctive and innovative diagnostic monitoring process called the Quality Service Review (QSR), which complements and strengthens the customizing and collaborative features of traditional social work practice. "The QSR preserves the traditional social work commitment to forms of supervision that respect the complex contextuality of frontline decisions and encourage workers to respond to clients as concrete individuals" (Noonan et al., 2009, p. 542).

The authors note that rather than imposing a uniform set of standards on decision-making procedures that involve changing circumstances and different contexts for each case, the courts sought to develop remedies that would allow caseworkers to "do the right thing" in response to the cases presented to them. They further observed:

> Although it is useful to speak of the Alabama and Utah reforms in terms of a single model, the model does not have a canonical defini-

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> tion. Many participants see the core of the reform as the reconception of frontline case work as contextual and collaborative judgment, sometimes called in Utah and Alabama "the Practice Model" (and elsewhere, the "problem-solving model") (Huntington, 2006, pp. 674-687). Others put greater weight on central facilitation of diagnostic monitoring, especially through the QSR. Despite these differences, there is a consensus that both elements are crucial. What we call the Alabama-Utah model is a heuristic that explains how the integration of collaborative casework with diagnostic monitoring makes it possible for administration to learn from local practice while correcting its mistakes. (Noonan et al., 2009, p. 538)

The QSR was initially developed in Alabama, and has also been applied to child welfare programs in 11 other states, including Utah.

SOCIAL POLICY

A detailed review of the key social policy issues associated with the identification, assessment, treatment, and prevention of child abuse and neglect is far beyond the scope of this paper. However, it is useful to highlight some of the major themes that have emerged since the publication of the 1993 NRC report to frame the types of questions that could inform future studies and discussion. These include

- policy objectives in protecting children and deterring perpetrators;
- purpose and scope of risk assessment for maltreating families;
- developing trauma-informed treatment interventions for children and families;
- strengthening families and neighborhoods under adverse conditions to prevent abuse and neglect;
- interactions of abuse and neglect with other health, regulatory, and cognitive functions;
- integration of data sources and measures—ethical and legal issues; and
- moving research into policy and practice.

Each of these topics, and others, has generated significant discourse in research and policy settings. Brief summaries are offered below as a first step in framing these issues for future discussion.

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Policy Objectives in Protecting Children and Deterring Perpetrators

Given the complexity of the nature, scope, and consequences of child abuse and neglect, public agencies and legislators must consistently balance multiple objectives that may at times conflict with each other. These include (1) safeguarding and protecting children, (2) preserving and strengthening families, (3) protecting confidential and private information, and (4) making efficient use of public resources. Unilateral efforts to advance one objective (e.g., the early efforts focused on family preservation for children victimized by abuse and neglect) often raise substantial questions about their impact on other social policy goals.

The lack of progress in developing effective policy responses to achieve these multiple goals is not unique to the United States. For example, researchers in Northern Ireland have termed child abuse as a "wicked problem" and called the current conceptualization of child abuse "flawed" (Devaney and Spratt, 2009). In considering policy developments in the United Kingdom relating to children and families experiencing multiple adversities, they argue that

> in adopting a rational technical approach to the management of child abuse, there is a tendency to focus on shorter term outcomes for the child, such as immediate safety, that primarily reflect the outputs of the child protection system. However, by viewing child abuse as a wicked problem, that is complex and less amenable to being solved, then child welfare professionals can be supported to focus on achieving longer term outcomes for children that are more likely to meet their needs. The authors argue for an earlier identification of and intervention with children who are experiencing multiple adversity, such as those living with parents misusing substances and exposed to intimate partner violence. (p. 1)

At the same time, multiple policy initiatives are under way to accelerate aggressive responses that can protect children from sexual abuse and other fatal injuries. Such initiatives include various legislative initiatives that require the public identification and notice of sexual offenders as well as the prosecution of institutional officials who fail to report information about child abuse and neglect.

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Purpose and Scope of Risk Assessment for Maltreating Families

As noted in a prior section of this appendix, risk assessment initiatives have increasingly relied on standardized protocols to guide caseworker decision making. However, there continues to be ambiguity as to whether risk assessment should be viewed as a one-time effort to determine child safety needs, or whether it should be part of an ongoing examination of the needs and circumstances of families that experience difficult circumstances (which may include inadequate housing, substance abuse, and intimate partner violence) (Rycus and Hughes, 2003). The report from the Center for Child Welfare Policy captures much of the uncertainty facing administrators and caseworkers in this area:

> Since large-scale change has historically been so difficult for many organizations, it may ultimately be easier to support ineffective, even potentially harmful, technologies rather than change them, both because of the financial investment already made, and because an overburdened workforce cannot sustain another large-scale change. Unfortunately, perhaps because of the many other seemingly intractable problems facing the child welfare field, we appear to have a collective vulnerability to the promises of untested and unproven risk assessment models and technology. (Rycus and Hughes, 2003, p. 30)

Development of Trauma-Informed Treatment Services for Children and Families

Advances in research on the effects of stress and trauma on diverse biological and psychological systems have sparked interest in developing methods to incorporate these findings into treatment interventions for children who have been maltreated as well as those who have witnessed severe violence (Harris et al., 2004; Shenk et al., 2010). Efforts to build evidence-based interventions in medical and judicial settings as well as other centers that serve high-risk populations of children and their families may yield important insights into the ways in which children of varying ages may respond to the effects of different forms of trauma, including maltreatment.

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Strengthening Families and Neighborhoods Under Adverse Conditions to Prevent Abuse and Neglect

The nature of categorical funding for federal programs and the hodgepodge of national and state legislation that addresses child and family needs create significant barriers to collaborative or innovative efforts among programs that frequently serve the same families. In many cases, families reported for maltreatment experience multiple other problems, such as substance abuse, intimate partner violence, mental health disorders, poverty, inadequate housing, poor schools, violent neighborhoods, among others. While major initiatives exist throughout the federal government to address each of these problems, the efforts are splintered across multiple authorization bills, cabinet departments and agencies, and programmatic budgets. This compartmentalization affects the research endeavor as well, as one agency may launch a major initiative for prevention studies that has the potential to examine the impact of their initiative on child maltreatment, but financial resources (or authority) are lacking to add this specific topic to the primary outcomes of interest.

One example highlights this difficulty. The Obama Administration has launched the Promise Neighborhoods initiative, a nationwide effort that will help 20 high-poverty neighborhoods in implementing comprehensive preventive interventions. In a collaborative effort, the National Institute on Drug Abuse is also supporting a Promise Neighborhood Research Consortium (PNRC) (http://promiseneighborhoods.org/about/) to provide the technical expertise, measurement, and data collection resources that will be necessary to support an extensive evaluation of the impact of the Promise Neighborhoods initiative. The consortium has multiple goals, including identifying evidence-based prevention and treatment interventions (strategies, practices, programs, and policies) that communities can adopt and implement; assisting local communities in implementing measures of well-being and of risk and protective factors in order to assess whether prevention and treatment interventions are achieving their intended benefits; and building a series of community-based research initiatives that can examine the impact of evidence-based policies, programs, and practices when implemented in high-poverty communities.

The model developed by the PNRC identifies a series of major influences on child and youth outcomes, including family and neighborhood poverty, social isolation, and access to health care, which are equally relevant to risk factors for child maltreatment. Attention to issues related to child maltreatment and family violence are absent from the consorti-

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um's materials, although emphasis is placed on peer violence and bullying, which are relevant to educational settings.

It is certainly understandable that each major federal initiative to support vulnerable families and neighborhoods cannot address all dimensions of the problems that affect their lives. But opportunities may exist to raise the significance of the problem of child maltreatment, in terms of its impact on the health and well-being of so many children, and to support multiagency collaborative efforts as part of these comprehensive prevention initiatives.

Interactions of Abuse and Neglect with Other Health, Regulatory, and Cognitive Functions

In a similar vein, studies of the precursors to many adult health disorders are now striving to understand the fundamental mechanisms and influences that disrupt multiple physiological systems that regulate health and well-being. These studies have focused attention on diverse influences and mechanisms related to stress and trauma, such as allostatic load (McEwen, 2000), toxic stress (Shonkoff et al., 2012), and the role of telomere length in the aging process (Drury et al., 2011). These and other studies also examine how adverse experiences (e.g., abuse and neglect) may influence certain perceptual and decision-making systems related to executive function, memory, and pattern recognition, among other areas.

The ability to image brain structures and functioning in infants, children, and youth is still in its early stages of development, and normative standards and processes are not yet reliable for the general or special populations. But this field offers an opportunity to integrate studies of abuse and neglect with other forms of stress and trauma in order to discern the relative contribution of key variables that are poorly understood. Secure attachment, for example, remains an important construct for both animal and human studies, and requires rigorous studies to examine the ways in which the timing, severity, and duration of disruptions in the parent–child relationship status may influence later health and behavioral outcomes.

In some cases, studies of early neglect and deprivation with animal models may be available that offer opportunities to demonstrate key interactions that inform our understanding of the causes and consequences of child maltreatment, including transgenerational processes that affect behavior (Champagne et al., 2003; Kaufman et al., 2000; Suomi, 1997). In other cases, longitudinal research studies of non-U.S. populations such as the Romanian orphan or Dunedin studies can yield important findings

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about the interactions among social stressors, physiological disruptions, and brain function (Chugani et al., 2001). All too often, however, studies are conducted with small populations of samples drawn from clinical settings and involve families or children who are struggling with multiple adversities, only some of which may include maltreatment. These barriers challenge research scientists and the agencies that support them to identify innovative ways to combine efforts, collaborate in the development of common theory building, measure development, and build consortium efforts that can yield productive interdisciplinary approaches to major research questions.

Integration of Data Sources and Measures—Ethical and Legal Issues

While the desire for collaborative and interdisciplinary studies provides opportunity for creative endeavors, these initiatives require attention to the particular ethical and legal issues associated with the conduct of research on child maltreatment. Efforts to identify the scope and experience with child maltreatment within the general population are especially sensitive because many individuals may be reluctant to disclose their own circumstances or may not be able to recall the timing, duration, or severity of specific events. While efforts to document adverse experiences may be appropriate as part of a clinical intervention, soliciting such information in the absence of therapeutic services raises basic issues of fairness and invasion of privacy. Establishing valid and reliable sources for self-reports requires privileged access to confidential social service and health records.

Many researchers have developed appropriate ways to protect sensitive information, including the removal of identifiers in survey samples and longitudinal studies. More challenging issues are emerging on the horizon, however, with the advent of electronic health systems and efforts to document experience with stress and adversity as part of personal health records.

Moving Research into Policy and Practice

Researchers in the field of child abuse and neglect are consistently pressed to translate their findings into clinical applications as well as recommendations for policy and practice. At present, the infrastructure to support the dissemination and translation of basic research findings into practice and policy is limited. Notable exceptions include the new na-

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tional home visiting initiative recently launched by HRSA and the child fatality review teams that are now common in many states and localities.

Several research centers are striving to promote interdisciplinary exchanges among diverse research investigators and scholars through the use of consortium meetings and special training programs. Examples include efforts by the Translational Research on Child Neglect Consortium (http://trcnconsortium.com/index.htm) and the National Data Archive on Child Abuse and Neglect (http://www.ndacan.cornell.edu/). Numerous clearinghouse efforts and national centers have been created to address specific topics in the field of child maltreatment studies and to distribute knowledge through online websites, publications, training efforts, and technical assistance.

What is lacking, however, is the creation of dedicated and ongoing efforts that could accomplish multiple goals: (1) identify key priority areas of policy and programmatic needs in the field of child abuse and neglect, (2) synthesize major research findings into white papers and other working materials that address those priority areas, (3) offer opportunities for practitioners and researchers to discuss and critique the strengths and limitations of the current research base in meeting priority needs, and (4) develop research initiatives to address those shortcomings in research studies. A striking example of an effort to address the first three objectives is the 2003 white paper on issues of risk assessment in child protective services, produced by the North American Resource Center for Child Welfare (Rycus and Hughes, 2003).

Key systems-level factors to consider in improving the implementation and study of evidence-based practices include workforce education and training issues, as well as the need for cost-effective and collaborative mechanisms that can strengthen and extend existing information-sharing and technical assistance efforts (i.e., clearinghouse approaches).

CONCLUSION

Since the publication of the 1993 NRC report *Understanding Child Abuse and Neglect*, significant advances have occurred in multiple areas of research interest in this field. These advances are yielding new insights into the types of methods, measures, and data sources that are likely to provide significant improvements in the prevention and treatment of child maltreatment in the coming years. At the same time, research advances are highlighting the tremendous complexity of the problem of

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child maltreatment. As the knowledge base grows, multiple theoretical frameworks and approaches have emerged that each provide some significant insights. Yet an integrated and robust explanation of the causes and consequences of abuse and neglect remains elusive.

One major and persistent challenge within the field is the need to identify those types of abuse and neglect that present immediate threats to the child and thus require a swift and legalistic approach to ensure the protection and safety of the child. At the same time, many social services agencies recognize that the bulk of the cases referred to their attention require more family-oriented approaches in which fostering child health and well-being may be best achieved by meeting the multiple needs of several family members. Many agencies believe they lack the resources to provide effective and sustainable remedies that can foster family stability and support parents in their efforts to care for their children, especially during times of hardship and difficult circumstances.

Insights into the long-term adverse effects of even minor but chronic forms of abuse and neglect point to the need for collaborative efforts that can raise the visibility of this topic in areas such as public health, early learning, neighborhood development, and crime prevention. Future syntheses and critiques of research advances in selected fields such as those sketched briefly in this paper can inform these efforts and provide the basis for evidence-based practices. Such critiques can also help to shape future partnerships as well as guidelines for policy and practice in social services, health care systems, population health efforts, and law enforcement.

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