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## Child Abuse & Neglect



Practical strategies

# Understanding risk and protective factors for child maltreatment: The value of integrated, population-based data

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### ABSTRACT

In this article, we argue for expanded efforts to integrate administrative data systems as a “practical strategy” for developing a richer understanding of child abuse and neglect. Although the study of child maltreatment is often critiqued for being atheoretical, we believe that a more pressing concern is the absence of population-based and prospective epidemiological data that can be used to better understand the distribution and interacting nature of risk and protective factors for maltreatment. We begin by briefly addressing the relevance of empirical observations to etiological theories of child maltreatment. Although the latter is widely cited as critical to the development of effective prevention and intervention responses, less attention has been paid to the role of population-based data in the development of theories relevant to highly applied research questions such as those pertaining to child abuse and neglect. We then discuss how child protection data, in isolation, translates into a relatively narrow range of questions that can be asked and answered, with an inherently pathology-focused construction of risks and little attention paid to strengths or protective factors. We next turn to examples of recent findings—spanning multiple countries—emerging from information integrated across data systems, concluding by calling for expanded administrative data linkages in an effort to better understand and prevent child maltreatment.

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### Introduction

Child maltreatment has been a largely atheoretical area of inquiry, reflecting its applied orientation and fairly recent origins as a recognized problem of significant scope and consequence (Felitti et al., 1998; Kempe, Silverman, Steele, DroegemueLLer, & Silver, 1962; Sedlak, 1987). Although “unitary theories” have been applied to the study of child abuse and neglect (e.g., psychoanalytic theories of parental pathology; social learning theories of intergenerational family violence; environmental theories of poverty, stressful life events, and social isolation), none has emerged as dominant because each explains only a small part of what amounts to a highly complex phenomenon (Belsky, 1978; Newberger, Newberger, & Hampton, 1983). Interactive or ecological frameworks—those that explore child maltreatment as a manifestation of dysfunction in a broader ecosystem—have also been applied and provide a conceptual method for organizing empirical findings (Belsky, 1980). Yet, these frameworks fail to offer a causal understanding of individual, group, or environmental dynamics as they relate to child maltreatment. As such, these interactive models tend to do little more than highlight what practitioners

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and researchers have long known—that child maltreatment is a dynamic and multifaceted event, subject to influences from a variety of sources operating via a number of pathways.

For decades, the lack of a dominant theoretical orientation and the insufficient attention paid to the construction of theory has been cited as a major impediment to the development of successful child abuse and neglect prevention and intervention programs (Berridge, 2007; Newberger et al., 1983; Panel on Research on Child Abuse & Neglect, 1993). Yet, given that “observation and theory develop together” (Vågerö, 2006, p. 574), should the blame be placed on an inadequate theoretical foundation or an inadequate empirical base? Do we really have the information necessary to develop and then test theory-driven strategies for the reduction of child maltreatment? The fact is that the field of child abuse and neglect has been dominated by studies based on data that are: (1) retrospective and limited in scope, providing an examination of only those children already involved with child protective services (CPS) without reference to similarly situated children who are not; (2) missing key variables, including important confounders related to socioeconomic status, family-level traits, and community influences; and (3) focused on a narrow set of short-term and system-related indicators (e.g., substantiation, subsequent referral for maltreatment) with little attention paid to broader and longer-term health and well-being outcomes that may serve as important indicators of system successes (and failures) in maltreatment surveillance and service efforts. Although these empirical limitations constrain theory development and testing, a more immediate concern is that they also prevent the development of pragmatic programs and policies that address the most salient risk factors, while promoting protective advantages. This need not be the case. The data we need may not sit within one easily accessed system, but we have much more relevant information than we currently use.

### Record linkages

Historically, administrative data were maintained as paper records and their utility for research and evaluation was limited. Paper records were burdensome to compile, expensive to share, and frequently fraught with clerical errors (Brady, Grand, Powell, & Schink, 2002). Technological advances in computing, however, have made administrative records an increasingly valuable source of data for research (Hotz, Goerge, Balzekas, & Margolin, 1998), including the study of child maltreatment (Drake & Jonson-Reid, 1999). The strengths of administrative data are numerous. Administrative data offer complete coverage of a given population not subject to the uncertainty of sampling errors; records can often be configured longitudinally, allowing events such as client service engagement to be tracked over time; and in a time of budget shortfalls, the cost of analyzing these data is relatively little compared with the resources required to collect survey data (Coalition for Evidence-Based Policy, 2012). Yet, an inherent limitation of administrative data is the scope of the information contained in any one system. Because administrative data are collected during the normal course of agency operations, with recorded information typically limited to items of direct relevance to a particular agency's administration of programs and services, key variables of interest to researchers are frequently missing.

Fortunately, just as computers have streamlined the once onerous process of compiling and managing administrative records, they have also largely eliminated the labor-intensive process of record linkage and the low match rates between databases (Herzog, Scheuren, & Winkler, 2007). Information captured for individuals in one database can be extended (linked) with information captured for those same individuals in other databases. Record linkage entails “the bringing together of information from two records that are believed to relate to the same entity” (Herzog et al., 2007, p. 81). The entity may be an individual (or some other unit) appearing across multiple files or an individual who appears multiple times within a given file. When person-level data are involved and individuals are correctly linked across data sources, the quantity of data is literally multiplied. As the US Government Accountability Office noted, linkage projects “have many potential benefits, such as informing policy debates, tracking program outcomes, helping local government or business planning, or contributing knowledge that, in some cases, might benefit millions of people” (2001, p. 1). In the context of studying child maltreatment, linked administrative data have the potential to provide relatively low-cost, longitudinal (as well as prospective) information concerning interactions between dynamic risk and protective factors that might be fruitfully applied to the development of maltreatment prevention and intervention programs.

### Applications

So what information has been (and can be) generated from administrative CPS data linked to population-based sources? In the United States, CPS records have been linked to vital birth records in such states as Alaska, California, and Florida (Needell & Barth, 1998; Parrish, Young, Perham-Hester, & Gessner, 2011; Putnam-Hornstein & Needell, 2011; Wu et al., 2004). Although risk factors that emerge from birth data support long-known and well-established correlates of child maltreatment (e.g., young maternal age, low socioeconomic status), the population-based nature of these data reveal the distinct risk profile of maltreated children and their families. While tertiary services provided through the current CPS system are critical, and will always be a necessary component of our effort to address child maltreatment, these reactive services have proven wholly inadequate in isolation. Population-based data linkages indicate that there is no reason we cannot move strategically upstream in our prevention efforts, offering services and supports that are tailored and targeted specifically to those families at greatest risk of maltreatment.

In several states, population-based hospitalization and emergency department records have been linked to CPS records to explore the epidemiology of nonfatal child maltreatment (Gessner, Moore, Hamilton, & Muth, 2004; Schnitzer, Slusher, & Van

Tuinen, 2004; Spivey, Schnitzer, Kruse, Slusher, & Jaffe, 2009), while death record linkages have been utilized to prospectively explore fatality risks among children with and without a history of CPS involvement (Jonson-Reid, Chance, & Drake, 2007; Putnam-Hornstein, 2011; Sabotta & Davis, 1992). Findings from the hospitalization and emergency department records confirm that the prevalence of child maltreatment is much greater than official statistics based on CPS records alone would suggest, highlighting the potential impact of broader, population-based strategies for the prevention of child maltreatment (Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009). Fatality analyses indicate that although on an absolute basis few children reported to CPS die, children with histories of alleged maltreatment face a significantly heightened risk of preventable death relative to sociodemographically similar peers. These data demonstrate that while the CPS surveillance system may be imperfect in its coverage of maltreated children, those children who are involved with the system face threats to well-being far greater than poverty alone.

In New Zealand, researchers are currently engaged in predictive risk modeling, utilizing population-based administrative data linked to child care and protection records to develop an algorithm for identifying and targeting children at high risk of maltreatment victimization (Vaithianathan, Maloney, Putnam-Hornstein, & Jiang, 2012). Western Australia maintains linked health and child protection databases for all live births occurring over a 25-year period, generating prospective information concerning connections between child maltreatment and health risks over time (O'Donnell et al., 2009, 2010). Sweden is known for its ongoing population-based registry, which has produced national cohort studies on long-term mortality and mental health outcomes among children formerly involved in its child welfare system, informing a richer understanding of the manifestations of childhood trauma and the impact of maltreatment as an adverse childhood experience (Hjern, Vinnerljung, & Lindblad, 2004; Vinnerljung, Hjern, & Lindblad, 2006).

Meanwhile, in Canada, there is a growing interest in and appreciation of the capabilities of linking population-based administrative records from child welfare to other sectors (e.g., health, youth justice, and education) to examine ways to prevent maltreatment, its recurrence, and related deleterious outcomes. In the field of mental health, some recent examples of successful linkages of child welfare data with hospital-based records in the provinces of Ontario and Manitoba highlight the ways in which such data can be generate new knowledge. Using linked, longitudinal, administrative data, investigators have been able to demonstrate a higher risk of self-injurious behaviors (both non-fatal and fatal) in the child welfare population relative to population-based peers, solidifying connections between maltreatment and suicide (the second leading cause of death among youth in Canada), and suggesting the potential long-term health and well-being investment returns of effective child maltreatment prevention and intervention services (Katz et al., 2011; Rhodes et al., 2012).

## Summary

Administrative CPS records provide information concerning the characteristics and risk factors observed among those children reported for maltreatment, but tell us little about how these children fit within the broader population of children who may have a similar risk profile yet were not reported. Studies confined to isolated analyses of CPS records are typically missing information on etiological risk factors that predate a first CPS contact, or subsequent outcomes that could be used to assess child risk decision-making. In the absence of any broader, population-based context, it is exceptionally difficult to determine whether children with a particular combination of risk factors might have been identified and targeted before maltreatment occurred. Likewise, the protective factors that promote resilience among children and families, despite profound adversities, remain unknown. Although people may be correct to lament the absence of etiological theories of child maltreatment, let us also lament and attend to the fact that most child protection data sit in “silos”, falling far short of their potential for the generation and subsequent application of new empirical understandings (and etiological theories) of child maltreatment.

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