

CHAPTER NINE

## **Learning from Data: The Beginning of Error Reduction in Illinois Child Welfare**

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This chapter describes a newly legislated initiative in Illinois meant to identify common patterns of case decision error and to develop a systemic response to improve the state's ability to protect children in families where there have been allegations of abuse or neglect. These efforts were born out of a deep interest in making the best use of evidence to support good practice and improve child welfare outcomes. We begin by describing a framework for understanding human error in an organizational context and then apply the framework to examples in child protection uncovered during investigations conducted by the Illinois Department of Children and Family Services' Office of the Inspector General. Drawing on evidence from both the social science knowledge base and data collected by the inspector general's office on child protection practices, a model of error reduction was designed that is currently in the beginning stages of development and implementation. We offer examples of incremental changes that are being attempted, along with plans for their evaluation. It is hoped that a series of such changes

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can be built into practice statewide to improve the safety of children and create a work environment for child protection staff that supports sound practice and encourages learning from mistakes.

### A Framework for Understanding Error in Case Decision Making

It is widely understood that child protection decision making typically occurs in highly stressful, complex environments. Many barriers to sound case decision making exist, including time constraints, limited and uncertain information regarding case events, the need to accommodate other systems (such as the courts, police, and other service providers), lack of adequate supervision, and policies and procedures that do not provide clear guidelines for practice. Together, these factors produce organizational pressures that may encourage child protection workers to circumvent some procedural mandates in the interest of closing cases in a timely manner. Mistakes in judgment leading to inaccurate assessments of risk are inevitable under such difficult circumstances. Decisions about risk and removal involve difficult appraisals of family functioning; a key question is what degree of poor parenting is better than the trauma of foster care. An excellent risk assessment may conclude that there is a low probability of harm, but low probability events do happen.

Unfortunately, errors<sup>1</sup> occasionally result in tragic case outcomes, such as the serious injury or death of a child. While individual caseworkers may suffer the blame for poor decision making, it is increasingly recognized that mistakes are likely to result as much from problems with organizational processes as from individual misjudgments. Although such events occur infrequently, a child's death in a family known to child protective services is a tragedy for the family and community. After a death the agency may experience collateral consequences, including loss of public trust, loss of credibility, and negative media attention resulting in reputational damage. Given the high cost of error, child welfare belongs in a special set of organizations that must be highly reliable. Theories and practices that have been developed in the context of organizations that have shown a high degree of reliability (that is, minimal error) in high-risk environments have powerful application to child welfare.

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<sup>1</sup> For the purposes of this chapter and on the basis of the work of James Reason (J. Reason, 1990), errors include mistakes in gathering or assessing available information, mistakes in planning, unintended failures of execution, and rule violations. Actions of sabotage—that is, violations with malicious intent—are excluded from our definition.

In the last thirty years social scientists have made great strides in studying errors in the context of organizational processes, developing ways of predicting their occurrence, and creating strategies for preventing similar errors in the future. Moving away from individual psychology and a strictly human-factors approach, a systems perspective has been adopted for understanding human error. The systems perspective assumes that errors occur in a dynamic rather than static organizational environment and takes into account the contributions of individual behavior, interaction and communication patterns, organizational culture, and administrative and policy factors. In this model, decision error is the result of the increasing complexity of a system that isn't flexible enough to adapt to changing conditions. Multiple weaknesses in organizational processes occasionally line up to create a tragic outcome. While it is recognized that occasional accidents can't be avoided, a systems perspective makes it possible to introduce a systematic and comprehensive approach to investigation and prevention efforts with the goal of decreasing their occurrence (Dekker, 2002; Rasmussen, 1990b; Reason, 1990, 1997).

A systems perspective, based on the theoretical advances of Charles Perrow (Perrow, 1984), Jens Rasmussen (Rasmussen, 1990b), James Reason (Reason, 1990), and others was first introduced as an approach for examining industrial and engineering accidents that had catastrophic outcomes including loss of life. The nuclear power plant accidents at Three Mile Island (1979) and Chernobyl (1986), Union Carbide's chemical plant tragedy at Bhopal (1984), the space shuttle Challenger disaster (1986), and major airline crashes have all set the stage for the development and refinement of methods to uncover contributing factors. Scholars investigating these events concluded that human error is rarely a sufficient explanation for negative outcomes.

For example, Shrivastava's investigation of the Bhopal accident determined that the catastrophe resulted from a combination of "HOT" factors. HOT factors call to attention the unique roles played by human failings (H), inadequate organizational processes (O), and technological problems (T) that can result in decision errors and the need to examine all three domains in searching for causes (Shrivastava, 1987). A parallel can be drawn in the field of child welfare, where practice is adapted to conform to insufficient worker skill and experience, staff shortages, time limits prescribed by state mandates, caseload size, imperfect software programs that don't provide staff with timely information, and other factors that impinge upon job performance.

Reason (Reason, 1997) further refined the systems perspective on organizational failure (errors and accidents) when he introduced the related concepts of active failure and latent failure to express the multi-level nature of incident causation. He maintained that active failure is

usually associated with the errors and rule violations of frontline operators (in child welfare, child protection investigators or direct-service staff) and has an immediate impact upon the system. Latent failure is most often generated by individuals more distant from the incident, at the upper levels of the system (policy makers, program designers, or managers) and may lie dormant indefinitely. Examples of latent failure in child welfare might include errors that occur as a result of chronic staff shortages and when there is pressure to complete child protection investigations within thirty days. Most active failures are not sufficient in and of themselves to cause an accident; other conditions are necessary to set the stage.

Reason created the "Swiss cheese" model to describe how organizations are built with layers of defense against active failures, but with holes at each level representing weaknesses and gaps (latent failures). The layers are in constant flux, but holes occasionally line up perfectly, allowing an accident to occur (for example, when a child is severely injured while an abuse investigation is underway). This model offers insights into system dynamics that can produce a tragic outcome in a child protection case. Understanding potential sources of error provides a foundation upon which to build better organizational processes that will reduce the likelihood of similar mistakes occurring in the future.

### A Strategy for Uncovering Error

Establishing detailed procedures and frequent training for the operational level (child protection investigators and direct-service staff) are two ways management typically attempts to reduce the occurrence of serious errors. In child protection we have seen a proliferation of detailed procedural guidelines, forms, assessment tools, and related training, all of which are intended to limit worker autonomy and enhance accountability, reliability, and good decision making (Munro, 1999). Despite these strategies, underestimations of the level of risk to a child continues to occur, suggesting perhaps that a culture of compliance is not effectively meeting the needs of the family or the organizational goal of child protection.

A number of explanations are consistent with the Swiss cheese model. Perhaps in-service training lacks support for generalizing new skills to the specific job. Policies, written procedures, or incentives may discourage sound practice and encourage staff to engage in task shortcuts that then become routinized within their work units. There may be a lack of support for exploring alternative explanations and hypotheses. Faulty processes such as these illustrate the "dynamic interrelationship

between organizational structure, environmental contingency, and practitioner experience” (Dekker & Suparamanian, 2005, p. 2).

Practitioners can establish preventive actions by first understanding the elements of failure. However, merely classifying error is not the same as taking effective corrective action. It is also important to understand common patterns of failure across cases, including contextual factors that create hospitable conditions for error. Finally, identification of organizational processes likely to produce a more effective and supportive work environment provide the final step leading to the selection of effective actions.

In an effort to understand problems with the Illinois child protection risk assessment protocol, we applied root cause analysis. Our goal was to collect and analyze data on a sample of cases to guide efforts aimed at improving the child protection investigation system and increasing the safety of children.

A structured investigative and analytic tool, root cause analysis grew out of the theory and accident investigations in high-risk industries referenced earlier. The central aim of root cause analysis is to find points in a system where improvements are feasible that will reduce the likelihood of a similar incident or negative event in the future. As a general approach to the investigation of error, root cause analysis follows the principles of logic.

Root cause analysis is the systematic examination of multiple systems and causes that may contribute to an adverse event. The safety of a child who comes into contact with a public child welfare organization is a product of the interaction of multiple players and a complex system of supports and constraints, each of which has a role in promoting child well-being. Root cause analysis moves beyond assignment of individual culpability to the identification of organizational or system problems that lead to individual errors. It prompts examination of larger system failures, some of which may result from organizational culture and seeks solutions that may prevent future incidents. At each step, the analyst considers events and contextual factors in a systematic way.

The problem to be analyzed begins with the negative outcome or sentinel event—in this case, the fatality of a child during or soon after involvement by the child welfare system. The immediate cause is identified as an action (for example, the father stuffed baby wipes in the child’s mouth) which itself is the result of another action or set of conditions (the father was responsible for child care; the child was crying). For each event in the chain, the investigator asks, “What led to this event? What allowed it to happen?” This process is repeated a number of times in a single investigation, resulting in the creation of a complex event tree with many branches and multiple root causes.

This approach reduces the influence of hindsight bias by requiring careful consideration of the information that was available and known at specific points in time, rather than assuming that what was known at the end of the case was also known early on and disregarded. In this way, the analyst attempts to step back in time to accurately understand the full context in which staff actions were or were not taken.

Due to the complexity of human service organizations and their operations, identifying contributing factors and root causes of a tragic outcome, such as the fatality of a child, can take a great deal of time and much digging for facts. The results, however, are only as good as the data available from the fatality investigation. It was essential to make every effort to obtain corroborating information on the facts of the case and to be mindful of the dangers of cognitive biases and assumptions. We next turn to an example of how root cause analysis was used to uncover risk assessment errors in child protection cases and to provide a direction for a statewide initiative to improve child maltreatment investigations.

### The Illinois Investigation

In Illinois, the Department of Children and Family Services' (DCFS) Office of the Inspector General (OIG) was created by the Illinois General Assembly in 1993 to investigate complaints against the department and private child welfare agencies in cases where children were seriously injured or died within a year of child welfare involvement. A key goal was to identify areas in the child welfare system that are in need of improvement and to recommend change.

A special project<sup>2</sup> was developed in 2005 to uncover common patterns of error across cases and to provide to the state director of DCFS additional data to inform recommendations for the improvement of child protection investigations and agency practice. The OIG had previously noted concerns with implementation of the Child Endangerment and Risk Analysis Protocol (CERAP) by DCFS investigators in their examination of child deaths. The goal of this special project was to identify common factors that led to inaccurate assessments of risk and to ineffective safety plans during child maltreatment investigations. For this examination, we considered not only child protection investigator behavior, but also the broader context in which safety and risk assessment decisions are made. Our effort to find a method for sorting out the multiple and specific causes of CERAP errors led to the selection of

<sup>2</sup> The description of this project is adapted from Office of the Inspector General, Illinois Department of Children and Family Services, 2007.

an analytic approach based on root cause analysis. This permitted us both to highlight problems and their context and to identify ways the CERAP process and tool might be improved.

## METHODS

The root cause analysis method was adapted to examine CERAP errors in cases of death or serious injury of a child whose family had been known to DCFS through child protection investigations or services within the previous year. Although the sample of cases was not representative of cases served by DCFS, subsequent data collection focusing on a sample of cases that did not involve near-lethal child injury or death confirmed that such errors were widespread and, under certain conditions, could have had tragic outcomes.

Below we present a brief description of the data collection and analytic strategies applied to each of several samples obtained from the OIG. We examined overlapping samples of cases by applying three case review strategies: a software tool for examining individual cases using root cause analysis (DECISION Systems, Inc., 2003a) and two additional analyses using the logic of root cause analysis but not the software: one an analysis of cases using data from OIG investigations and the other an analysis of original case material. The team's primary interest in root cause analysis was its potential for offering a framework that would help ensure that all avenues of an investigation were exhausted in comprehensive case reviews. We reviewed ten cases with at least one of the methods and subjected some of the cases to multiple reviews (see table 1). The use of overlapping samples and multiple data sources and analyses permitted us to compare results and increased our confidence in the findings.

### *OIG Examination of Cases*

A team of OIG staff worked together to analyze four cases of child death. The cases that were selected had been involved with DCFS within the previous year, were currently under investigation by the OIG, and had provoked questions about the quality of case decision making pertaining to allegations of child maltreatment. Each case was analyzed separately. The analysis began with the creation of a timeline of events leading to the child's death or injury, and this timeline served as a general guide for the rest of the analysis. Key elements of the root cause analysis method included creating a causal tree that incorporated the following: 1) a statement of the sentinel event or adverse outcome; 2) a backward chaining of events, conditions, and inactions; 3) identification of causal sets; 4) logic testing for accuracy of each causal set; 5)

TABLE 1 Root Cause Analysis Sample

Case Number	OIG Investigation Type	REASON®	Analytic Method	
			OIG investigation reviewed	Original case material reviewed
1	Death of medically complex child		X	
2	Inadequate services to substance-exposed infant		X	
3	Child death in an open family case with serious home safety hazards		X	X
4	Death of a teen ward's infant due to physical abuse		X	
5	Serious physical injury to medically complex child after unnecessary protective custody taken		X	X
6	Child death by physical abuse in family with open case	X		
7	Serious injury to child during pending child protection investigation	X	X	
8	Child death due to lack of parental supervision following child protection investigation		X	
9	Death of substance-exposed infant in family with open case	X	X	X
10	Death of child from physical abuse during pending child protection investigation	X		



termination of cause-effect chains; and 6) identification of prevention principles (DECISION Systems, Inc., 2003b; Rzepnicki & Johnson, 2005).

Analysis of the four cases benefited from the multiple perspectives generated through the team's group process. The combination of group discussion and introduction of multiple perspectives may have helped the team to monitor and control biases, especially hindsight bias, which is the most common. Backward tracking of case events by a group was aimed at preventing the use of information that became available only during the death investigation and was not known to child welfare staff while the family was being investigated by protective services. The group process also aided in modeling an accurate sequence of events because reconstructing a chronology typically becomes increasingly difficult as the analysis moves back in time. Multiple perspectives represented by practitioners, lawyers, administrators, and child welfare experts provided a safeguard against groupthink.

Although the root cause analysis facilitated judgments about what was important and what was not, it was still possible to overlook factors that had contributed to faulty decision making regarding a child's level of safety and risk of harm. Intimate knowledge of the organizational environment permitted the group to expose factors that may have reduced the effectiveness of child protection efforts. This knowledge facilitated the identification of latent errors, such as hidden disincentives for following agency protocol regarding the CERAP. Despite the safeguards against bias, however, it was still possible that team members' personal biases may have influenced the selection of some factors.

### *Case Analyses Using OIG Investigation Reports*

Eight cases were selected for analysis using completed OIG investigation reports. From a pool of twenty-three cases in which it had been noted that at least one element of the CERAP protocol had not been followed, a range of cases was selected to ensure a wide variety of circumstances, complexities, and case variables. The goal was to have a diverse pool of cases to analyze and then to generalize basic thematic findings.

Using the logic, philosophy, and key principles of root cause analysis, this analysis aggregated the causes of CERAP failures on different levels to increase the power of the findings from individual cases. For each case, we examined CERAP-related actions on the part of staff; conditions or contextual factors that set the occasion for particular actions to occur; and inactions—actions that didn't happen, but should have—at the policy, supervisory, and individual worker levels (adapted from DECISION Systems, Inc., 2003a). Cases were coded in this way to obtain

a multifaceted understanding of organizational processes and individual worker behavior that led to errors in safety and risk assessment. Each case was then reviewed with the OIG staff responsible for the original investigation of the child's death or serious injury, to evaluate the results of the analysis for accuracy and completeness, to reduce the likelihood of introducing hindsight bias, and to discuss potential implications of the findings.

### *Case Analyses Using Original Case Material*

Three cases were selected randomly from the sample subjected to the case analysis of OIG investigations and project staff analyzed them thoroughly using a data collection instrument that surveyed the most relevant factors in child protection investigations, as informed by the literature on risk assessment and decision making.<sup>3</sup> The analysis of contributing factors covered a limited period of time, from the hotline call to the completion of the initial safety and risk assessment. This time frame was selected because it would provide a realistic sense of what information and resources were available to the child protection investigator at that particular time. This reduced the opportunity for hindsight bias to influence the analysis.

### MAJOR FINDINGS

The analysis uncovered decision-making errors and contextual conditions that made such errors more likely.

#### *Level 1 Qualitative Findings: Decision-Making Errors*

Child maltreatment investigations frequently require complex decision making under uncertain conditions. The child protection investigator is expected to seek out and make use of all relevant sources of information, but our analysis revealed several problems with data collection. These included a failure to seek information from multiple sources or to access available information, failure to recognize cumulative risk, and failure to develop and monitor a safety plan. Although these problems represent weaknesses in investigation practices, the context in which they occur offers opportunities for potential remedies at other levels within the agency.

**Failure to Use Multiple Sources of Information or to Access Available Information.** This was one of the most frequent errors identified in our

<sup>3</sup> Individual Case Review Form available from first author.

individual case analyses, occurring in 80 percent of the cases examined. Collateral contacts who should have been consulted, but were not, included treatment providers (doctors, nurses, therapists, residential staff, homemakers, foster parents, social workers, and so on), the police, the other parent, teachers, neighbors, friends and relatives, and the person who made the report.

Gathering information from multiple sources increases the probability of an accurate assessment of the family situation. First, interviewing multiple sources allows the investigator to get a clear and complete picture of the problem. Second, it is important to corroborate information provided by the parent, other caregivers, family members, and service providers. Contradictory reports must be pursued until the child protection investigator is confident that complete and accurate information has been obtained.

Collecting data on persons in the home who have a criminal background, on alleged perpetrators who have access to the child, and on other adults with access to the child who have histories of violence or substance abuse must be part of the risk assessment and safety plan. Although a parent may profess that the alleged perpetrator no longer has access to the child, corroborating that information with professionals and family members is essential, and obtaining a protective order could provide more confidence in the parent's compliance.

**Failure to Recognize Cumulative Risk.** During an investigation of a specific allegation, the investigator may learn of contextual or other factors that create additional risk of harm. In our sample child protection investigators frequently failed to recognize cumulative risks posed by a combination of historical and current circumstances, such as previous injuries, substance abuse, domestic violence, and mental health problems that posed additional danger to the child.

In half of the cases examined, substance abuse was a significant problem that went unrecognized when it was not the allegation that was reported to the child abuse hotline. For example, in a case of alleged medical neglect of an infant, the mother suffered from polysubstance dependence and had tested positive for cocaine at a previous birth, but she was investigated only on the allegation of medical neglect. The investigator did not recognize the presence of substance abuse as an additional risk, despite knowing that the mother was addicted to drugs and had moved in with another addict. A change of circumstances, such as the return home of an abusive partner in a violent relationship, the cessation of medication in a parent with a psychiatric diagnosis, or entrustment of the care of a previously abused infant to a parent who has a long history of alcohol abuse, are other examples

of situations that should have been, but frequently were not assessed for cumulative risk.

**Failure to Develop and Monitor a Realistic Safety Plan.** The development and monitoring of a safety plan is the most critical part of a safety assessment because it occurs in the context of an existing, identified safety concern. Our analysis found that investigators sometimes developed plans that lacked clarity and clear consequences. Mitigating factors that permitted children to remain in the home despite safety concerns were not verified to ensure that the underlying assumptions were correct, nor were contingency plans developed for situations in which circumstances in the home deteriorated; all of which suggest that child protection staff may not have planned details of implementation or anticipated obstacles to completion. For example, children might have been considered safe because the alleged perpetrator was incarcerated at the time of the investigation, but the plan did not provide for the contingency of the alleged perpetrator's release or the consequences of contact with him or her. Our examination of staff performance determined that there was inadequate guidance for child protection staff on how to develop realistic and effective safety plans that could be monitored and targeted to the identified safety concern. Directions on how to address specific components of the safety plan, such as violence, were also lacking.

When a safety concern has been identified, consideration of involving family resources is critical. When family members present as viable support and show concern about the child's well-being, their inclusion in the safety plan may mean the difference between protection and harm. If violence is the presenting issue, as it is in all physical abuse cases, a safety plan should include specific components that will increase surveillance and opportunities to better protect the child. Strategies might include daily observation of the child by an individual outside the immediate family whom the child trusts and who has demonstrated concern for the child. In addition, persons outside the immediate family such as daycare providers or extended family members can be included in the safety plan and can agree to notify the child protection agency if circumstances change.

### *Level 2 Qualitative Findings: Contextual Factors*

The project team also took account of contextual factors that could have contributed to case-decision errors.

**Supervisory Responsibility.** It is the responsibility of the supervisor to monitor the investigation and the completion of the CERAP protocol

before the sixty-day time limit has been reached. The case studies indicated problems with supervisory monitoring in three major areas: approving the assessment without all needed information, poor judgment and decision making, and failure to ensure that the child protection investigator conducted an adequate risk assessment, completing all required steps.

The supervisory function in identifying safety concerns and developing safety plans is critical to the agency's ability to effectively protect children. It is the responsibility of the supervisor to identify areas of inconsistency and of inadequate fact finding and corroboration; to ensure that all sources of available information, such as child abuse records and criminal history have been obtained; and to ensure monitoring of safety plans once they have been established. The supervisor is responsible for oversight that ensures that the investigator verifies medical information through interviews with medical professionals and contacts the person reporting the abuse, police investigators, and child care professionals and other service providers. Prompts or checklists to ensure that all available critical information was accessed and a requirement that the investigator document sources for a particular safety factor would enable supervisors to perform a meaningful review of the safety assessment.

**Other Systemic Factors.** The review of cases and OIG recommendations revealed problems with the translation of policy into practice. The analyses revealed that some child maltreatment investigation policies did not clearly designate to whom, where, and when they should apply; were not clearly communicated; and were inadequately monitored at the staff and supervisory levels. The development of policies regarding caseload coverage and case management seem particularly critical. In one-half of the case studies, problems were evident due to inadequate staffing practices. Failures to fill open positions within the child protection team and failures to develop adequate plans for covering unstaffed caseloads resulted in insufficient supervisory support in understaffed teams and offices. Problems that originate at this level are best addressed by improvement in the communication of policies to staff and by marshaling of means to improve practice, such as additional training, staff, materials, or other resources, particularly with respect to problems in investigative practices. Problem-solving actions to address these workplace factors are important for maintaining sound practice in a less than ideal work environment.

Our efforts to identify common patterns of error pointed to a number of weaknesses in practice stemming from a lack of critical thinking, a stressful work environment that included staff shortages and informal

incentives for practice and supervisory shortcuts, and an organizational culture that did not make use of mistakes as opportunities for learning.

### *Corroboration of Qualitative Findings*

In conducting the qualitative analyses, we noted that the homicides of a number of children were preceded by a child protection investigation for cuts, welts, and bruises. In an effort to corroborate our findings and to learn how to best target remedial actions relevant to specific types of cases, we reviewed a new sample of 300 recent child protection investigations involving allegations of cuts, welts, and bruises to children. The stratified random sample of cases included those in which there were no serious injuries and an oversampling of cases involving infants five months of age or younger ( $N = 100$ ), due to their overrepresentation in homicides. Recurrent errors and system weaknesses identified for this category of cases included an overall lack of critical thinking, inadequate knowledge of normal childhood bruising, failure to involve medical professionals in diagnosis and prevention, the lack of a requirement that investigators interview child-centered collaterals, problems in developing effective safety plans, and lack of management support. Each of these issues was consistent with the general problems found in the earlier analyses. A curriculum to address risk assessment and safety planning principles was developed, and training was initiated.

### INITIAL STRATEGIES TO REDUCE ERROR

One of the results of this work was the promulgation of legislation ( 20 ILCS 505/35.7) that requires the OIG to remedy patterns of errors or problematic practices that compromise or threaten the safety of children, as those patterns are identified in the inspector general's death and serious injury investigations and by child death review teams.<sup>4</sup> Although the findings from our analyses suggested that intervention was required at multiple levels in the organization, incremental change was viewed as having the greatest chance of success. As a first step, the inspector general developed a training curriculum related to cuts, welts, and bruises, and completed the first round of comprehensive trainings of all child protection workers and supervisors by the end of 2009.

### *Critical Thinking*

The basic principle of the cuts, welts, and bruises error-reduction training included the application of critical thinking skills to investigations

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<sup>4</sup> Discussion of content areas is largely adapted from Office of the Inspector General, Illinois Department of Children and Family Services, 2009.

to counteract the tendency to oversimplify and overlook relevant information, and to inform decisions regarding safety and imminent risk of harm. Critical thinking, the ability to consider all available information and actively seek disconfirming evidence, should underpin all important case decisions.

Common errors included investigators' overreliance on self-report and failure to objectively weigh the credibility of informants. The CERAP analyses found that when some child protection investigators encountered cases involving cuts, welts, and bruises, they did not contact multiple sources or seek corroboration of information provided by collaterals and other informants. At times, investigators became prematurely anchored to their initial impressions and rejected evidence that contradicted their first impressions, particularly when they did not perceive initial injuries to the child as serious. Others operated under a "Rule of Optimism," misinterpreting and overlooking harmful behaviors and discrediting facts that contradicted their optimism (Dingwall, Eekelaar, & Murray, 1983; Gambrell, 2006). For example, in one case the investigator relied on the mother's self-report that she was responsible for injuring her child despite contradictory information given by another family member that her boyfriend had abused the child. To reduce the effect of these biases and to lower the reliance on self-report, investigators must gather enough information to provide a fair and accurate account of the events leading to the child's injuries.

The training curriculum was designed to review key components of investigations, which include conducting a scene investigation and a mock reenactment of the incident, creating a timeline of events, and identifying key informants. Our analysis of cases pointed to other important areas warranting attention as well, all of which would enhance the investigator's ability to think critically about a cuts, welts, and bruises investigation.

**Knowledge of Normal Childhood Bruising.** A review of the literature on childhood bruising revealed that children who do not cruise do not bruise. It is rare for infants to suffer a bruise before they are crawling or walking. Those who do cruise tend to suffer accidental bruises on bony areas, such as the forehead and shins. Bruises on soft-tissue areas, such as cheeks, ears, the stomach, and buttocks, should cause concern (Carpenter, 1998; Sugar, Taylor, & Feldman, 1999). Because there were many cases in which child protection investigators ignored signs of mild bruising on young infants and on soft-tissue areas of older children, as well as failing to recognize the problem of multiple episodes of bruising, especially when the individual incidents were not perceived as serious, the research articles were shared with staff, reviewed, and discussed during the training.

**Collaboration with Medical Professionals.** The cuts, welts, and bruises sample showed that in 65 percent of the investigations, child protection investigators did not record a professional exchange of information with medical providers. Vital information was not shared with the pediatrician or family physicians. For example, in 31 percent of investigations of bruising in children two years old or younger, the parents or caretakers had a history of domestic violence, but this information was never shared with the doctors (Office of the Inspector General, Illinois Department of Children and Family Services, 2009).

Medical professionals are in a unique position to prevent child maltreatment because they can monitor children's well-being during doctor visits after child protection services conclude their investigations, but pediatricians are rarely provided information vital to children's follow-up care, even in substantiated cases of abuse, and tend to exist on the periphery of the child protection system.<sup>5</sup> Child protection needs the expertise of physicians to lower risk of harm to infants and children, and knowing that a child has had prior injuries may cause the physician to pay closer attention to later injuries. Also, the physician needs to know whether to provide guidance to the family if the family has domestic violence or substance abuse problems.

Investigators were trained on how to talk with a doctor and to exchange relevant facts so the physician can render an opinion of whether the injury is more likely to be the result of abuse than an accident (this is the standard of evidence for upholding an indicated finding of abuse or neglect on administrative appeal). Relevant case information includes, but is not limited to, the caretaker's explanation for the injury, a description of the scene, and whether there are domestic violence or substance abuse problems in the home.

Many investigators operated under the misconception that investigators could not exchange information with a doctor because it biased the doctor's opinion or violated confidentiality. To help dissipate this misconception, a DCFS attorney attended each of the trainings to clarify that the law allows investigators to obtain medical information from the physician and that when requesting a medical opinion, the investigator can share relevant information with the physician. A form was developed to guide workers in conducting a more systematic assessment and to assist in the documentation of risks as seen by the investigator and as seen by the physician. Data are being collected to determine the efficacy of this new protocol.

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<sup>5</sup> Testimony of Kent Hymel, MD, FAAP, on behalf of the American Academy of Pediatrics, House Ways and Means Subcommittee on Human Resources Hearing: Improving Child Protection Services, May 23, 2006.



**Identification of Child-Centered Collaterals.** Although investigators are required to interview persons identified by the parent, they previously were not specifically required to talk to other persons whom the child identifies as trustworthy and who may have important information based on frequent opportunities to observe and interact with the child. The analysis of cuts, welts, and bruises cases found that relatives or professionals invested in the child's well-being often were not interviewed and that sometimes investigators minimized the importance of these collaterals. On the basis of these findings, several procedural changes for child protection investigators have been initiated. One of the key changes was the addition of child-centered collateral contacts, including fathers. The goal is to ascertain who in the family network has demonstrated concern for the child's well-being. Older children are asked "Who do you feel safe with?" For nonverbal children, investigators were trained to ask older siblings, if available, to identify those to whom the baby is special. Once identified, child-centered collaterals can be an important resource for safety planning and monitoring.

**Safety Planning.** The foundation of an effective safety plan is a solid investigation. Our review of CERAP cases revealed that there was often a failure to develop or monitor a realistic safety plan and a failure to recognize cumulative risks (Office of the Inspector General, Illinois Department of Children and Family Services, 2007). In the course of an investigation around a specific allegation, an investigator may learn of contextual factors that compound the risk of harm. As was found in the CERAP cases, risks posed by a combination of historical and current circumstances may increase the potential for future harm. The error reduction training emphasized the concern that when there is physical abuse to infants and young children, the future of safety in the household is unpredictable. These dangerous situations call for a safety plan, with an alternate caregiver, orders of protection, or protective custody. Full information must be shared with the alternate caregiver regarding the need for a safety plan, the parameters of the safety plan, and an agreement to contact the worker if critical identified circumstances change.

### *Establishing the Support of Managers and Supervisors*

One of the biggest challenges of a successful error reduction plan is to involve administrators at multiple levels to ensure that allegations are properly investigated. Strategies to establish trust and improve morale so frontline staff can do their best work are essential to these efforts. In Illinois, actions are being planned to improve the communication and problem-solving skills of managers, to encourage flexibility when cases

require it due to their complexity, to find creative ways to reward good performance, and to enhance team building. As with the frontline staff, initial efforts have been aimed at improving managers' and supervisors' critical thinking skills. Additional steps will be taken to create an environment in which managers and supervisors are better able to help their staff learn from mistakes and improve case outcomes. Although the effort has been slow to get under way due to personnel shortages and uncertainty regarding the state budget, these strategies are currently being developed.

### *Follow-Up*

As staff from the Office of the Inspector General and Quality Assurance collect and analyze data on child abuse investigation practices, performance results provide feedback for ongoing practice improvement efforts. Additional rounds of training are based not only on performance data on investigative tasks, but also on needs expressed by the regional managers, as well as data on other job tasks found to be problematic. Following all trainings, child protection personnel are invited to submit comments and questions, and a newsletter that includes responses to frequently asked questions is emailed to all participants.

With training that addresses specific problems that are found to contribute to errors in the field at multiple levels of the organization, it is hoped that incremental improvements will be made and that the work environment will become more conducive to sound practice and improved child safety. Good supervision and ongoing collection and use of relevant data to provide performance feedback are keys to success.

### **Conclusion**

The use of a systems perspective and root cause analysis in organizations that must manage high-risk situations has allowed for development of programs to reduce errors, especially errors that may result in tragic outcomes. Child welfare agencies, with their duty to ensure protection of children, are organizations where development of efforts toward error reduction is essential.

The Illinois initiative to identify and address failures in the state's child protection system is aimed at building better organizational processes and reducing the incidence of child injury and death. Although the initial focus was on case decision making, it was recognized that errors are frequently the result of multiple contributing factors in a complex system. Methods of remedial training, limitations on practice,

and disciplinary actions will not be sufficient to improve practice. Changes will need to be made at multiple levels of the organization to create a work environment that can cope with complexity. Nevertheless, a starting point had to be chosen. The starting point of this change initiative was selected on the basis of a set of case analyses that highlighted specific patterns of error and opportunities to intervene.

Using data from multiple sources, the OIG identified practice errors in child protection investigations, including departures from the protocol guidelines and uninformed decision making. Because the work environment contains competing demands, pressures, and uncertainties, it is not surprising that practice does not always conform to formal expectations or agency policy. It was important to understand informal incentives for practice deviations and to develop supports that reinforce good practice. This meant developing practice aids and training staff to improve reasoning skills.

Applying an incremental approach to the development of a safety culture conducive to reducing errors, the OIG developed a training curriculum focused on critical thinking, the use of multiple sources of data, and analysis of alternative hypotheses as tools for decisions. A further step will be to work with supervisors to help them provide substantive supervision rather than focusing only on management of their workers, and to make use of critical reflection and discussion to improve staff performance. Efforts will also be made to establish a work environment where mistakes are viewed as opportunities for learning. Without a climate that supports open discussion and team building, it is unlikely that substantial improvements can be made in practice.

A learning culture supports flexible practice that adapts to uncertainty. The creation of a learning environment involves training and teambuilding for a common goal and enhanced communication across levels of the organization. It incorporates an incentive system that encourages open discussion of operations, errors of judgment, and near misses (instances in which serious mistakes in judgment either don't lead to a bad outcome or lead to a minor injury rather than a major injury). The use of incident reviews to examine close calls and data to provide continuous evaluation and feedback help ensure that valued processes are leading to valued outcomes.

One of the difficulties of establishing a culture of learning is that there is an inherent conflict between establishing a blame-free environment and responding to the legitimate need for accountability. Until we can better address that inherent conflict, creating a work environment in which staff feel supported in revealing major mistakes will continue to be a major challenge. Furthermore, how staff members are held accountable for case decisions is likely to influence the quality of decision making (Woods, 2005). Staff will be reluctant to discuss issues in

their practice if they believe they will be punished. Near misses may not be revealed, and opportunities to identify potential paths to failure before serious injuries occur can be lost. Some actions require disciplinary action, however until definitions of nonpunishable errors are established, it is unlikely that workers will report them. On the other hand, it can be difficult to make a strong case that specific staff decisions or behaviors are directly linked to specific child outcomes, good or bad (Munro, 2008).

Administrative investment in reducing errors provides the leadership support critical to organizational change. Time and resources are essential for creating programs that incorporate feedback based on data regarding common practices that may represent system failures or weaknesses. Training supervisors to openly discuss errors and staff misperceptions without blame is essential to create an atmosphere of trust. Group supervision provides opportunities for collaborative cross-checking, where individuals can examine each others' assumptions and actions (Patterson, Woods, Cook, & Render, 2007). It can also provide opportunities for sharing successful problem-solving techniques, offering expertise and support to colleagues, and anticipating and planning to address new obstacles to effectiveness in the face of ongoing performance pressures and change. Such practices build a climate of shared vision, commitment, flexibility, and resilience as teams work together to solve problems with the goal of increased safety for children (Weick & Sutcliffe, 2007).

Developing strategies to identify and correct patterns of error is only a starting point. Research on organizations that engage in high-risk operations has demonstrated that reducing errors alone is not related to success (Rasmussen 1990a, 1990b; Rochlin, 1997). What is equally important is the anticipation of pathways to new errors before injuries occur. It is crucial to remain constantly aware of the potential for new failures and to take steps to prevent them.

The need to anticipate future issues is why the development of new protocols or procedural rules can go only so far in creating system improvements. Although protocols and rules can serve as rough guides to practice, new and novel situations arise, including new pressures, constraints, and informal incentives that fall outside the guidelines. Supervisors and staff must be prepared to think critically and to examine their assumptions, knowledge, and case data to plan and implement their work effectively.

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