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A New Application of Root Cause Analysis**

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On the evening of July 14th, paramedics were called to the Ware residence because one-year-old Jessie was not breathing¹. After attempting unsuccessfully to resuscitate her, they determined she died of asphyxiation. The infant's distraught father, Steve, admitted that he was responsible, stating that he had stuffed baby wipes in her mouth to stop her crying. When he noticed her struggling for breath, he discovered that they were too firmly lodged in her throat to remove. Jessie's mother, Susan Ware, was attending a parent training class at the time.

The incident followed two prior reports to the hotline in the previous two months because of suspected abuse. The first report was made by a nurse after Jessie was brought to the hospital by the maternal grandmother because of bruises on the infant's buttocks. Initially, Susan Ware stated the bruises were inflicted by her husband, Steve, but she later claimed they were the result of her striking the infant out of frustration. Jessie was temporarily placed with the maternal grandmother until a worker who had served as Ms. Ware's private therapist in the past requested that she be assigned to the case. The caseworker argued that her previous relationship with Ms. Ware would enhance work with the family. Jessie was subsequently returned to her parents for follow-up services.

¹ Case example is based on a redacted report provided for educational purposes by the Office of the Inspector General, Illinois Department of Children and Family Services. (Office of the Inspector General, *Report to the Governor and General Assembly*, January, 2002) Names and some facts have been changed to preserve confidentiality.

After a second report for unexplained injuries, the caseworker suggested that the maternal grandmother was deliberately staging these crises in order to have Jessie returned to her home. She suggested that they avoid using the maternal grandmother as a caretaker for Jessie. Child protection investigators deferred to the caseworker in decisions regarding future risk to Jessie rather than conducting a comprehensive and independent assessment of the family.

The Problem:

Child fatalities resulting from maltreatment number around 1200 a year nationally (United States Department of Health and Human Services, 2002). While every child fatality is a tragedy, this tragedy is exacerbated when the system that has been charged with protecting children fails to ensure their safety and well-being. Child fatalities, particularly in families already known to the child welfare system, point to critical problems in the child maltreatment investigation and services system and underscore the urgent need for better practices and policies to safeguard our children.

In the interest of reducing the numbers of child fatalities, both accidental deaths and deaths that result from child abuse and neglect, 49 states have developed Child Fatality Review Teams (CFRTs) both locally and statewide (Morris, 2003). CFRTs may be internal bodies incorporated into the child welfare agency, or may be external bodies representing a mix of organizations and disciplines (e.g., Office of the Inspector General, Ombudsman, Quality Assurance). They investigate fatality cases to identify causal factors and to determine if any action on the part of the child welfare system could have prevented the deaths. An investigation might include review of related documents and computer databases, interviews with relevant individuals, and

analyses of systemic and case specific factors that may have contributed to the death.

Major objectives of the internal or external investigation might be to recommend changes in policy and procedures and may include staff discipline. The intent of these investigations is to promote better practice and fewer child fatalities for families involved with the state child welfare system.

The pilot project described in this article emerged from an interest in exploring ways to ensure that all avenues of investigation are exhausted when case decision errors are examined, to uncover common patterns of error, and to increase the power of recommendations for change in the child welfare system. We introduce root cause analysis (RCA), a structured investigative and analytic tool originally designed to reveal factors contributing to adverse outcomes in other high risk enterprises (e.g., chemical factory explosions, airline crashes, failed military operations). After examining a variety of strategies, RCA was selected because it offers the best opportunity to uncover multi-level factors contributing to the negative outcome of interest, in this case, child fatalities. It facilitates the examination of case decision errors by emphasizing the identification of faulty organizational processes that might lead to management and individual decision errors. Solutions that may prevent similar errors in the future by other workers may also become evident.

A systems approach to understanding how breakdowns can occur and how to better support good practice is especially useful in the context of human services generally and child protection, in particular. The context of protective service investigations presents many barriers to good decision making, including time constraints, limited and uncertain information regarding case events, the need to accommodate other

systems (such as the court, police, and other service providers), policies and procedures that do not provide sufficient guidelines for practice, and an organizational culture that may encourage practice shortcuts. In other words, poor case outcomes are likely due to multiple causes, even though the most immediate cause may be the error of an individual caseworker. We turn next to conceptual frameworks that informed our understanding of case decision errors and pointed to suitable analytic methods.

Theory Foundation

Organizational operations

Organizational theories incorporate a systemic approach to understanding staff behavior in the workplace. Theories of organization describe the relationships between the organization's goals, core activities, and the context in which activities are conducted. A basic tenet is that organizations construct their internal environment to accommodate the social mandate they serve, while simultaneously minimizing threats to their survival coming from the external environment (Manning, 1982). For example, public sympathy for abused and neglected children increases after the fatality or serious injury of a child. Media attention directed at the tragic circumstances and possible negligence of the state typically results in public outrage. This is accompanied by increased scrutiny of families investigated for child maltreatment, resulting in more substantiated reports and more children placed in substitute care. The organization's response reduces the risk of future catastrophic events and minimizes challenges to the organization's core activities.

Systemic goals, rules and procedures, values, and outcomes define an organization's boundaries and protect its core activities. Faced with complex problems and an indeterminate technology, child protection agencies adopt rules and procedures

that limit worker discretion, with dual objectives of minimizing uncertainty and preventing deleterious outcomes to ensure both child safety and agency survival. (Selznick, 1948; Thompson, 1967; Hazenfeld, 1987). The daily operation of the organization, however, depends on the discretion of its members in negotiating conflicting goals, interpreting rules that do not address specific problems, managing tension between organizational and individual values, and effecting desired outcomes. Over time, routine practices become established that can be defined as the “culture” of the organization.

Organizational culture is shaped by management style, the level of autonomy and expectations of the employees, and institutional function. Given the stressful nature of social work, particularly work in child protection, human service organizations may exhibit a “culture of stress.” (Thompson et al., 1996) Individuals respond to stress by avoiding anxiety through behavior that is risk averse; agencies respond to stress by reducing uncertainty through the application of rules and procedures that regulate behavior. The results of limiting individual worker style, creativity, and decision-making autonomy has also been described as a “culture of compliance” (as compared to a “culture of commitment”) (Thompson, et al., 1996). A culture characterized by compliance perpetuates practices designed to minimize anxiety at the expense of performance (Sandfort, 1999; Smith, 2003). For example, a culture of compliance in child welfare may place some children at greater risk when workers are required to conform to rules and procedures rather than attend to the families’ unique characteristics and needs. In order to understand the culture of an organization, it is necessary to be knowledgeable about the policies and procedures, supports, constraints and incentive

structure that drive implementation at the street-level (Gambrill and Shlonsky, 2001). It also requires an intimate understanding of routine accommodation by management and staff to these factors.

Organizational accidents

Our search for a useful analytic framework also led to the literature examining the causes of catastrophes, such as 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), as well as major airline crashes. Scholars investigating these events concluded that human error is rarely sufficient explanation for negative outcomes. Charles Jones (1983, 1993), in articulating a general theory of unifying dynamic organizational self-regulation, presents one of the earliest frameworks for understanding the relationship among multilevel factors and system processes, including principles of organizational survival and failure. As suggested above, it is elements of the systems in which individuals are embedded that make significant contributions to organizational accidents (see Jones, 1983, 1993; Woods, 2003). Shrivastava (1987), for example, examined the Bhopal accident and determined that the catastrophe resulted from a combination of "HOT" factors. The "HOT" factors call our attention to the unique roles played by human failings, inadequate organizational processes, and technological problems that can result in decision errors and the need to examine all three domains in searching for causes. The corollary in child welfare organizations are rules and procedures that mandate certain practices guiding the investigation of abuse and neglect and provide computer tracking to monitor case progress. However, practice is adapted to conform to worker training and experience,

staff shortages, caseload size, imperfect software programs that don't provide staff with timely information, and other factors that impinge upon job performance.

A systems perspective on organizational failure (errors and accidents) has been further developed by James Reason (1990, 1997) who 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 'front-line' operators (in child welfare, this translates to 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, managers) and may lie dormant indefinitely. Examples of latent failure in child welfare might include pressure to complete child protection investigations within 30 days and chronic staff shortages. Active failures are neither necessary nor sufficient in and of themselves to cause an accident. Reason created the "Swiss cheese" model to describe how organizations are built with layers of defense against error (active failures), but with holes at each level representing weaknesses and gaps (latent failures). The holes are in constant flux, but occasionally line up perfectly, allowing an accident to occur (i.e., a child is severely injured while an abuse investigation is underway.)

Establishing detailed procedures for the operational level and frequent training are two ways management attempts to reduce accidents. In child protection, for example, we have seen a proliferation of detailed procedural guidelines, forms, assessment tools and related training, all of which are intended to limit worker autonomy, enhance accountability, reliability, and better decision making (Munro, 1999). Decision errors

resulting in child fatality or injury at the hand of a parent while the family is involved with the child welfare system continue 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. Other explanations consistent with the “Swiss cheese” model may include one or more of the following elements: in-service training without support for generalizing new skills to the job; policies, written procedures, or incentives that discourage sound practice and encourage staff to engage in task short-cuts that become routinized within their work units.

Root cause theory

Our desire to find a method for sorting out the multiple and specific system causes that might be present in a single case led to the exploration of a systematic decision tool that would focus on the examination of error on multiple levels.

In 1983, Charles Jones laid out the conceptual framework for root cause analysis in his principles of organizational functioning. He suggested that by understanding the basic principles and correctly applying them, organizational processes can be designed that will control and prevent adverse events (Jones, 1983, 1993). He outlined elements essential to root cause analytic methods including the rationale and basic strategies of event modeling, as described below, that allows one to establish multilevel root causes of negative outcomes.

Jens Rasmussen’s (1990) work also played an important role in the development of root cause analytic methods. Like Jones, he described how an accident or “sentinel event” (e.g., child fatality resulting from abuse) results from several levels of causal factors arranged in a hierarchy to create a causal tree. Factors immediately preceding the

incident are seen as ‘proximal’, whereas those further removed from the incident are seen as ‘distal causal factors.’ Causal paths are uncovered that include successively earlier events and actions, each with their own branching paths of causality. The branches are also tracked backwards until all events are explained.

The final causal explanation is determined by the purpose of the analysis. If the analyst is interested in finding an individual to blame, the search for causes will stop when an individual is linked to the final negative outcome, the sentinel event. If the analyst is interested in finding a technological explanation, the search will stop when a problem in technology is uncovered, and if the analyst is interested in identifying possible system improvements, the tracing of causes will stop when organizational procedures related to policy and management are identified. The adoption of rules for when to stop searching for causes becomes most important to the analyst and the parties who will be most directly affected by the results, such as child welfare administrators, supervisors, and line staff. Although there are no safeguards against assigning individual blame, the construction of a causal tree encourages inquiry into causes at multiple levels, thus limiting the analyst’s inclination to stop at obvious or easy explanations. Rasmussen found that stop rules are not usually explicit, but are implemented at points where stopping seems to be most practical: 1) when the investigation can not progress beyond an accepted cause because of missing information, 2) when causes are not pursued beyond a certain point because a solution is readily available, 3) when “a familiar, abnormal event is found to be a reasonable explanation” (Rasmussen, p. 452).

The last two stop points described above lend themselves most to an individual blame perspective. When searching for key causes of case decision error, child

protection workers and other child welfare staff are sometimes found to have neglected one or some of their job responsibilities. Examples include not visiting the child's family as required, failing to notice dangerous conditions in the home, not corroborating a parent's story, or not examining the child as required by agency policy. Relying solely on individual blame typically does not lead to larger system change, unless the case becomes highly publicized in the media. Even then, changes to policy and procedures may not address larger system flaws, conditions lying in wait (latent errors) likely to lead to other similar accidents.

Root Cause Analytic Methods

The central aim of root cause analysis is to find points in a system where improvements are feasible that will reduce the likelihood of another similar accident/negative event in the future (such as a child's fatality from abuse even while under surveillance by the child protection agency). As a general approach to the investigation of organizational accidents, root cause analysis follows the principles of logic. References to it can be found in the literature since at least the 1960's. Over time root cause analysis has become increasingly refined with a number of discrete strategies available today. There are certain features the various strategies share: the problem to be analyzed begins with the negative outcome or sentinel event, in our 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 (for example, 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 complex event trees with many branches and multiple root causes (See Figure 1).

One feature of 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.

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 digging for facts. At each step, the analyst considers events and contextual factors in a systematic way. The results, however, are only as good as data available from the fatality investigation. It is essential to make every effort to obtain corroborating information on the facts of the case and be mindful of the dangers of cognitive biases and assumptions.

In the sections that follow, we discuss our experience with the application of RCA using REASON® software and illustrate its use. Key elements of the REASON® process include: 1) creating a problem statement, 2) backwards chaining of events, 3) identification of causal sets, 4) logic testing for accuracy of each causal set, 5) termination of cause-effect chain, and 6) identification of prevention principles. Below

we present a discussion of each component (adapted from Decision Systems, Inc. 2003) using the case example of Jessie Ware introduced earlier.

Problem statement. Our analysis begins with a statement regarding the sentinel event that precipitated the fatality investigation. In this case, the problem is that Jessie died from asphyxiation after an object was forcibly lodged in her throat, following two child abuse investigations of her family.

Backwards chaining. We then work our way backwards in time, identifying the sequence of steps that led to her fatality. In the process we create causal sets.

Causal sets. At each step the analyst/investigator must determine what combination of changes, conditions, and inactions occurred at that particular point in time that set the stage for a later event in the causal chain. Once a combination of factors has been identified for that point in time, a “causal set” has been created and the analyst can move down a level (back in time) to create the next causal set. To illustrate, Figure 2 is a segment of the event tree from the Jessie Ware case. This segment shows a “causal set” that includes an action: “mother confessed to causing Jessie’s bruises”, an existing condition at the time: “Child protection investigator (CPI) practice was to accept self-report as true”, and an inaction: “Caseworker did not believe extended family’s allegations that father was responsible for abuse,” both of which were factors that contributed at a particular point in time to the CPI’s decision to assess the parenting skills of only the mother. To further elaborate:

1. Changes are behaviors or events that trigger, motivate, or induce an event that follows it. We started with the event/change factor that led most immediately to her fatality, then identified other events/change factors that preceded it, for example: 1)

Jessie's father stuffed baby wipes in her mouth, 2) her father became frustrated and angry, 3) her father tried unsuccessfully to stop Jessie's crying. Changes are frequently accompanied by important contextual factors, known as conditions.

2. Conditions are causes already existing when a change occurs. They set the occasion for the change and describe important elements of the context that help explain the relationship between two event/change factors that occur sequentially. For example, a condition, "The child welfare agency was monitoring the case," was a contextual factor present during the second event in the tree, "Jessie's father stuffed baby wipes in her mouth." Conditions allow us to identify important latent failures, such as pressure on workers to attend to crises, thereby neglecting relatively "quiet" cases and inadvertently increasing the risk of harm to some children. Other examples might be management's failure to properly staff uncovered caseloads while protective service investigators are absent and incentives for closing protective service investigations in a short period of time.

3. Inactions represent behaviors that did not happen, but could have and would have prevented a change event. Examples of inactions include, "The CPI did not assess the father's parenting skills" and "The supervisor did not recognize the caseworker's favorable bias toward the mother based on a previous therapeutic relationship."

Once a causal set has been created that describes all relevant actions, conditions, and inactions present at a particular point in time, the program prompts the user to conduct a logic test before moving on to create a new set that represents the next step back in time on the causal event tree.

Logic test. When a causal set has been completed, it is subjected to a set of questions to determine if all the factors are necessary and the entire group sufficient to explain the outcome at that level. A good causal set includes only the factors required to explain that particular step in the event tree. For example, in looking at the causal set in Figure 2, the analyst answers a series of questions regarding the relationships of factors to each other and the event that they purport to explain as shown in Figure 3.

Responses to the logic questions may lead to the removal of some elements from the set with those that remain deemed necessary and sufficient to explain why, in this case, only the mother's parenting skills were evaluated and not the father's. Sufficiency is tested by responding to the query, "Are there any other events, conditions, or inactions necessary to explain why the CPI assessed the parenting skills of only the mother?"

Further building of the event tree would follow similar steps, allowing the analyst to explain each factor of the causal set (for example, why CPI practice was to accept self-report as true), thus creating new causal sets that must also be explained.

Termination of causal chain. The stop rules direct the analyst to terminate each causal chain when one of three points is reached:

1. A root cause (RC) is defined as "the first point in a chain of events that can be eliminated by applying policy, practice, or procedure at the policy/management, supervisory, or individual level." (Stephanie Voelker, personal communication, May 14, 2003) Examples include, "The state child welfare agency does not have a policy for mandatory review of clinical conflicts of interest at the regional level," or "The state child welfare agency did not establish a policy to require verification of self reports in an investigation," "The supervisor did not see the value in examining the mental health

records” and “The CPI did not comply with state policy to interview all reporters and relevant collaterals.”

2. Sometimes a causal chain is terminated when it is determined that the situation is non-correctable (NC). The investigator may choose not to continue searching for causes in a chain if the line of inquiry is not likely to lead to organizational factors at any level. For example, the fact that “the child was crying” is not likely to lead to changes over which the child welfare organization has any control.

3. Sometimes a causal chain is terminated when there is insufficient data (ID) to continue with the analysis. In this situation, the analyst may choose to pursue further data collection along this path of inquiry. There may be some instances when it is not possible to obtain complete information or there remains uncertainty about events that can not be corroborated. In these instances, the ID terminator permits the analyst to close off an unfruitful path.

Identification of prevention principles. The identification of root causes within agency operations makes the specification of corrective actions straightforward. For each root cause, solution alternatives are offered that can be tailored to the organization’s specific needs, regardless of causal level (policy, management/supervisory, or individual). For example, the supervisor in the Jessie Ware case did not question the caseworker’s prior relationship with the mother. In fact, she thought it might be advantageous to their current working relationship. Corrective actions might be to develop policy and procedures for more effective detection of conflicts of interest including specific training for supervisors in their identification and resolution, the establishment of ethics review panels, and tracking systems that alert the supervisor to important case activities that have

not been completed in a timely way (e.g., parenting skills assessment of all family members responsible for child care.)

Additional features of the software. REASON® will allow us to examine the proportion of outcome explained by each root cause, so that solutions can be selected that will have the greatest impact overall. Second, we will be able to calculate a reliability value that tells us the percentage of cause that remains unanswered by our model due to insufficient data. The more paths left incomplete because of missing information, the lower the reliability score. Third, we may be able to identify common error patterns across cases that permit the setting of recommendation priorities likely to affect the largest number of cases and have the greatest system impact.

What We've Learned

Systematic investigation and analysis

Root cause analysis offers a disciplined format for guiding the investigation and asking questions of the data. The questioning process provides uniformity in the manner in which events are identified and analyzed, potentially contributing to the reliability of the investigation. The structured format also offers avenues of inquiry that may not have been evident to the child fatality investigator, leading to the exploration of new paths of questioning. Because RCA guides the investigation logically to conclusion, the fatality investigator may discover missing data and make an informed decision of the need to retrieve it, based on the weight of its contribution to the ultimate outcome.

Factual events, corroborated through police reports, medical exams, and other collateral material drive the analysis. They are less likely than other types of information to be influenced by passage of time, cognitive constraints, conflicting accounts of the

incident, and bias. The focus on actions/events reduces the impulse to make assumptions that fill in missing information and assign causation.

While root cause analysis facilitates judgments about what's important and what's not, it is still possible to overlook factors that have contributed to the sentinel event. Furthermore, there is no reliable way of cataloging factors that are uncovered, that did not contribute to the sentinel event, but can't be ignored because they represent an accident waiting to happen to some other child or family. In the Jessie Ware case, intimate knowledge of the organizational environment permitted the analysts to expose critical factors that may present serious risks to other children. This knowledge facilitated the identification of problems that encourage practice shortcuts or offer hidden disincentives for following official policy. It is, however, still possible for personal biases to influence the selection of events, conditions, and inactions. As a next step, we would like to test the inter-observer reliability of this tool by comparing two investigators' analyses on a single case.

Finally, RCA was developed for industrial accidents for which it is easier to set clear boundaries for the investigation. Limits to the investigation are set by the physical plant (including materials and machinery), management, and employees. Child fatality investigations, on the other hand, may be more complex. They deal with multiple systems (e.g., police, schools, extended families, neighbors, courts, hospitals, etc.) which may make boundaries of the investigation ambiguous.

Group process

In exploring the utility and feasibility of RCA, a team of child welfare professionals worked together analyzing a small set of cases. They represented social

work and legal perspectives, had substantive expertise in conducting fatality investigations and intimate knowledge of the child welfare system. The team's primary interest in the RCA approach was as a framework that would help ensure that all avenues of investigation are exhausted in comprehensive case reviews. In addition to the intensive scrutiny provided by RCA experts who conducted a two-day training, the pilot investigations benefited from the multiple perspectives generated through the group process.

Participants commented that the combination of group discussion and introduction of multiple perspectives may have helped monitor and control cognitive biases, especially hindsight bias which is most likely to influence the investigation. Backward tracking of case events by a group helps prevent the use of information that becomes available only during the fatality investigation and was not known to child welfare staff while the family was being served. The group process also aided in modeling an accurate sequence of events, which becomes increasingly difficult to reconstruct as the analysis moves back in time.

Despite the advantages of conducting an analysis as a team, the group approach is not tenable. While it has been useful for sharpening analytic skills, has increased facility with the software, and has provided an opportunity to consider the utility of the analytic approach, the cost of committing significant staff time is simply not sustainable (e.g., in our pilot, an estimated 32 hours per month in total staff time). To preserve the benefits of multiple viewpoints in the investigation and event modeling process, we are beginning to consider alternatives, such as shifting to consulting pairs. Although working in a team

was a luxury, our experience suggests the importance of audit systems that provide more than one perspective on an investigation.

Effects of policy initiatives

With the examination of multiple systems, the impact of the organization's policies, rules and procedures on child welfare practice can be identified. Rules that are intended to assure a certain level of performance in service delivery must be viewed within the context of structural factors that affect performance (Rasmussen, 1990). For example, in the case of Jessie Ware, agency policy required a thorough risk assessment as part of each abuse investigation, but when a case is already open for service, the CPI may, in practice, defer to the caseworker's judgment in determining the level of risk. Since the function of supervision is to monitor investigations to ensure that errors are avoided, it is incumbent upon the organization to assure adequate supervision of child protection cases or another means of auditing performance.

When a policy falls short of the intended results, the administrative response may be to develop more rules to deal with the problem in an effort to standardize practice (Munro, 1999). New policies and procedures are typically developed based on their predicted benefits to families and the child welfare organization. Equally important is consideration of potentially negative consequences. For example, additional risks to children may be incurred by the burden placed on staff when strict time limits are placed on investigations, when performance evaluations are driven by the extent to which these time limits are met, or when monitoring systems that are not feasible in light of other demands placed on supervisors. The simple addition of new rules and procedures, without removing old ones or fully considering their impact, is not likely to lead to

improved performance. Instead, it good practice may be compromised and a culture created that encourages rule violations. RCA may be an effective tool to uncover negative consequences of well-intentioned policies.

Conclusion

This article proposes a systematic and structured approach for examining the causes of decision errors that contribute to tragic outcomes for children and families served by the child welfare system. RCA, an investigative and analytic approach that has been used widely to uncover multi-level factors contributing to adverse events in other high risk organizations, may have applicability in child welfare organizations.

Our preliminary work with experienced professionals using RCA revealed valuable insights regarding the strengths and limits of this analytic approach to child fatality reviews and potentially to other social service domains. We are currently in the process of exploring whether RCA has routine utility in child welfare and for the kinds of investigations it is potentially most useful. We are also considering its utility as a training tool for child welfare agency administrators to shape the way they think about problem solving within their organizations when serious casework errors are discovered. A fruitful investigation of child fatality or other tragic outcome requires asking difficult questions that may reveal organizational mismanagement.

This effort represents one step toward better understanding of case decision error in a large public child welfare agency. Root cause analysis, to our knowledge, has not been applied to human service environments. We believe, however, that it will help child welfare organizations begin to identify error-producing conditions (including a culture that encourages short-cuts), track mistakes, accidents, and errors as suggested by

Gambrill and Shlonsky (2001). The problem is, of course, that their discovery occurs only after a child dies or is seriously injured. What is also needed is a more comprehensive risk management program that catches system failures before children are harmed. The ultimate goal is to design better organizational environments where doing it the right way is the most efficient way, and one that produces better decisions and outcomes for children.

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<http://www.apa.org/ppo/issues/shumfactors2.html> Retrieved 3/7/2003.

Figure 2. Enlarged segment of Jessie Ware event tree showing a causal set

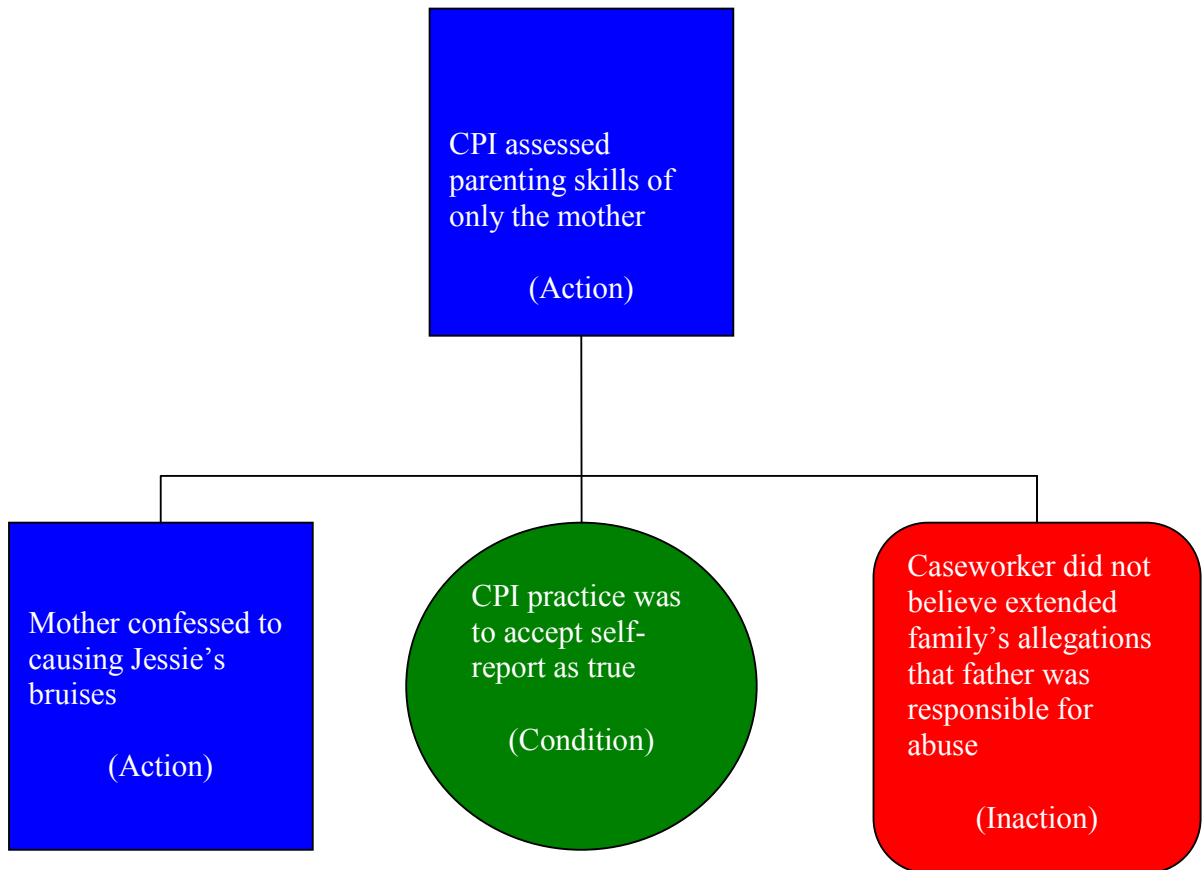


Figure 3. Logic Test Example

1. **IF** CPI practice was to accept self report as true **AND** the mother confessed to causing the child's bruises **AND** the CPI did not believe extended family's allegations against the father, **THEN** was it the case that the CPI assessed parenting skills of only the mother?
2. **IF** CPI practice was to accept self report as true **AND** the mother confessed to causing the child's bruises, **BUT** the CPI believed extended family's allegations against the father, **THEN** would it **STILL** be the case that the CPI assessed parenting skills of only the mother?
3. **IF** CPI practice was to accept self report as true **AND** the CPI did not believe extended family's allegations against the father, **BUT** the mother **DID NOT** confess to causing the child's bruises, **THEN** would it **STILL** be the case that the CPI assessed parenting skills of only the mother?
4. **IF** the mother confessed to causing the child's bruises **AND** the CPI did not believe extended family's allegations against the father, **BUT** CPI practice **WAS NOT** to accept self report as true, **THEN** would it **STILL** be the case that the CPI assessed parenting skills of only the mother?