

Systems Thinking in Maltreatment Investigations:
Evaluating the Use of an AcciMap Approach to
Assist Licensing Investigators

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**Systems Thinking in Maltreatment Investigations:
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Investigators**

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in Human Factors and System Safety.

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Abstract

To help protect the health, safety and well-being of vulnerable adults and children receiving care within licensed facilities and prevent future incidents of maltreatment, state human services licensing departments investigate allegations of maltreatment occurring within these facilities. Despite these efforts, maltreatment continues to occur and is increasing within licensed facilities across the United States. A systems approach to incident analysis is one of the dominant concepts within accident analysis research today (Underwood et al., 2013), especially in complex socio-technical systems, and has been shown to improve learning from critical incidents, and support systemic changes that better prevents future incidents (Leveson, 2010; Branford, 2011). However, no studies have been conducted within the domain of licensing investigations within human services departments that examine what a systemic approach can bring to this safety critical industry. This study sets out to address this gap in the literature by seeing how an AcciMap, as a tool for systems thinking, can both support investigators of maltreatment in facilities in achieving systemic learning and identify systemic influences that, if changed, could better prevent future incidents.

To achieve this, two AcciMap sessions were facilitated with licensing investigators from a large state agency. Qualitative analysis of the maps and focus group information showed that the AcciMap did contribute to systems thinking for the investigators and provided them with a systemic approach to incident analysis when applied to maltreatment related investigations within licensed care facilities. Specifically, the investigators indicated the use of the AcciMaps helped them move away from blame, see the 'big picture' behind the incident that emerged from interactions across multiple levels of the system, understand and communicate about multiple perspectives, including those on the frontline, and supported them in conducting key components of their investigative work. Finally, the use of a systems safety approach highlighted critical learnings (or systemic features) often missed through traditional linear models of investigation used within this field. These types of learnings may lend themselves to

support improvements to the system that would better prevent future maltreatment, as has been shown in other industries.

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Abstract

To help protect the health, safety and well-being of vulnerable adults and children receiving care within licensed facilities and prevent future incidents of maltreatment, state human services licensing departments investigate allegations of maltreatment occurring within these facilities. Despite these efforts, maltreatment continues to occur and is increasing within licensed facilities across the United States. A systems approach to incident analysis is one of the dominant concepts within accident analysis research today, especially in complex socio-technical systems, and has been shown to improve learning from critical incidents, and support systemic changes that better prevent future incidents. However, no studies have been conducted within the domain of licensing investigations within human services departments that examine what a systemic approach can bring to this safety critical industry. This study sets out to address this gap in the literature by seeing how an AcciMap, as a tool for systems thinking, can both support investigators of maltreatment in facilities in achieving systemic learning and identify systemic influences that, if changed, could better prevent future incidents. To achieve this, two AcciMap sessions were facilitated with licensing investigators from a large state agency. Qualitative analysis of the maps and focus group information showed that the AcciMap did contribute to systems thinking for the investigators and provided them with a systemic approach to incident analysis when applied to maltreatment related investigations within licensed care facilities. Specifically, the investigators indicated the use of the AcciMaps helped them move away from blame, see the big picture behind the incident that emerged from interactions across multiple levels of the system, understand and communicate about multiple perspectives, including those on the frontline, and supported them in conducting key components of their investigative work.

Finally, the use of a systems safety approach highlighted critical learnings (or systemic features) often missed through traditional linear models of investigation used within this field. These types of learnings may lend themselves to support improvements to the system that would better prevent future maltreatment, as has been shown in other industries.

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1. Introduction

According to a recent report released by the Department of Health and Human Service's Office of Inspector General, up to ninety nine percent of incidents, some of them critical, within group homes that serve developmentally disabled Americans go unreported by states as required by federal regulations (HHS OIG, 2022). This is a frightening statistic regarding the work to protect the safety and welfare for some of the most vulnerable populations in society. This paper examines and brings to light how systems thinking, when applied to maltreatment investigations, may be an improvement over current investigative goals and linear processes that focus on 'people as the problem' with respect to learning and improvement. The application of systems thinking to investigations of maltreatment in licensed facilities serves as a mechanism that enhances the learning process through a non-punitive lens that recognizes the complexity of systems which allows for greater learning and improvement opportunities. Moving away from individual blame to system accountability increases the entire systems' trust in both the reporting and overall learning process.

To help protect the health, safety and well-being of vulnerable adults and children receiving care within licensed facilities, state human services licensing departments receive and investigate allegations of maltreatment occurring within these facilities. This includes, but is not limited to, residential care facilities, group homes, assisted living homes, and childcare centers.

Investigators from this domain of work are responsible for protecting the welfare and safety of adults and children within licensed facilities. As such, this field is considered a safety critical industry.

The field of human factors and systems safety continues to pave the way forward for progressive thinking when it comes to incident prevention. Throughout the last few decades, incident analysis methods and practices have started to change in acknowledgement of the increasing complexity and growing number of safety critical systems (Branford, 2011; Branford, et al., 2009). However, human service systems such as licensing, child welfare, and disability services have been slow to follow suit, despite their daily work to ensure the safety and welfare of vulnerable adults and children. It could be argued that human service systems are some of the most complex social systems that exist, given the number of system components, and interactions that occur between humans, their biology, and the increasingly complex socio-technical environments that they work within. Yet, these systems tend to use antiquated and simplistic models of learning from incidents and adverse outcomes that occur within these systems to prevent future incidents and the occurrence of maltreatment.

1.1 Limits to a Linear Approach to Maltreatment Investigations

Similar to the dominate approach to incident investigations within health care services across the United States (Vincent, 2004), the predominate models for investigation analysis within health and human services are linear, cause and effect methodologies, such as root cause analysis (RCA), with a focus on the human contribution to maltreatment. Licensing in particular, is often governed by statutory requirements to conduct incident investigations in this way, with a goal of determining if maltreatment occurred. Specifically, these statutes typically require investigators to make their determinations based upon a preponderance of evidence gathered though the investigation process that lends itself to determine if either staff, the facility or both within the system was the cause of the maltreatment. Stemm and colleagues (2020) found in their study that

often the focus of investigations and examination is on regulatory violations and that regulators commonly investigate with a legalistic ideology.

Lundberg et al. (2009) found that investigation manuals often relied on laborious, linear methodologies that focused on the events and factors leading to the event, with a lack of attention paid to the system as a whole, and a focus on isolated and individual components of the system, most often the human contribution. An example of this, found within the statutory requirements of human service agencies, is that each investigation must answer several questions, such as: what actually happened; did the event meet a statutory definition of maltreatment; if maltreatment occurred, was an individual or the facility responsible; is action necessary to reduce the chance that maltreatment will recur. An additional example of policy manuals examined from state human service's licensing agencies across the United States directs the investigative process with an underlying assumption that incidents are caused by chains of directly related events (HHS OIG, 2018; IL, 2021; MN, 2016; MN, 2022; NV (DCFS), 2021; NV (DPBH) 2021; VA, 2015).

While there are no studies related to the efficacy of incident models and practices within the domain of licensing agencies, the discipline closest to human services in which comparisons to this study can be drawn is health care. The existing literature on incident models within health care (Canham et al., 2018), and extensive literature from safety critical industries more broadly (Dodshon et al., 2017) have found that linear approaches, such as RCA, are problematic for a multitude of reasons. First, the term 'root cause' can be misleading; it implies that for an incident occurring within a complex environment, a single root cause or even a small number of causes can be identified (Peerally et al., 2016), leading to a reductionist approach to accidents. Second,

according to Leveson (2010), the problem with chain of event methods are that they oversimplify causality, only focusing on what was most proximal to the incident which ignores many of the systemic features, including the indirect factors and interactions that contribute to the incident. Additionally, this directs investigators to predominantly focus on isolated components of the system, including staff. As such, these models too often result in a linear account that can only focus on a limited number of ‘broken’ components, and most often on human error. This replaces more complex, and systemic explanations of the multiple and interacting contributions to how events really take place in complex socio-technical systems (Dekker et al., 2011; Woods et al., 2010).

Despite the goals of models like RCA and other linear approaches that claim to focus on the blunt end of the system (i.e., executives, polices, content of protocols, etc.) during the investigative process, such approaches still end up on some form of human error at the conclusion of the investigation (Heraghty, et al., 2018). In fact, Peerally and colleagues (2016) further discuss that although investigations into incidents using methods such as RCA are designed to identify both the latent and active factors that contribute to the outcome, current incident or investigative models typically end up conforming to the What-You-Look-For-Is-What-You Find (WYLFIFY) principle (Hollnagel, 2008) instead. By looking directly at those actions, the investigation most often results in findings that do not include an understanding of the features deeper within the system that influence adverse outcomes, often referred to as the “second story” (Woods & Cook, 2002). They also miss the interactions and influencing effects that people and partners outside the control of the facility or agency may have as these industries can frequently interface with other system partners and organizations.

Consequently, this reductionist approach lends itself to missing both the underlying features deeper within the system (HHS OIG, 2018; Philipsen, 2011) and interactions between components of the system and system partners. In doing so, the approach often directs responsibility to the sharp end of the system, most frequently direct care staff or human error of some sort (Heraghty, et al., 2018; Kellogg, et al., 2017). This focus on the most proximal factors that is implied in the WYFIWYF principle, leads to the What-You-Find-Is-What-You-Fix principle (Hollnagel, 2008). The combination of these two principles results in the uncovering of primary factors through the investigation process that focus on fixing the staff's decisions and actions which were most proximal to the incident (Dekker, 2014), rather than the similar underlying systemic factors that are commonly seen within incidents (Lundberg et al., 2009; Leveson, 2010). Caution should also be exercised by agencies that draw from linear models like RCA, as there have been no studies in the peer reviewed literature in reducing risk or improving future safety when using these approaches (Wu et al., 2008).

In fact, this focus on the sharp end of the system can bring about negative effects such as the criminalization of errors (Philipsen, 2011) or arbitrary disciplinary actions such as the firing of staff (Balfour & Neff, 1993; Heraghty et al., 2018). This type of punitive response to errors has actually been shown to create barriers to safety in systems that serve vulnerable populations (Philipsen, 2011). Approaches that blame and use punishment to handle risks or error, diminish an organization's ability to learn as staff are much less likely to report incidents, mistakes, and errors for fear of retribution (Dekker, 2001; Dekker, 2002; Dekker, 2014; Heraghty, et al., 2018). In fact, if healthcare staff believe that making an error or mistake will have a negative impact on their career, they will not report it (Dekker, 2011; Wolvaardt, 2019). Finally, this approach can

be ineffective in supporting learning, especially when most of those found responsible and reprimanded generally occupy the lowest level of the organizations and are not capable of impacting any substantive changes (Svenson et al., 1999).

Not only has this approach been shown to limit the information gained during investigations to support organizational learning and improvement, but it also impacts workforce staffing and retention within direct service staff that are at the sharp end of the system. Nationally, the workforce shortage for direct service staff has increased and continues to be a problem across the United States (Friedman, 2018; ANCOR, 2021). When licensed facilities that provide critical care and services to vulnerable children and adults experience workforce shortages, outcomes for those that are served are worsened (Friedman, 2018; Brannon et al., 2007; Brown et al., 2018).

Ultimately, the consequence of the traditional investigative approaches used within health and human service agencies are that what gets uncovered and then fixed are the incorrect things and not the underlying similar systemic features. This is not unlike what other industries across the globe are experiencing (Leveson, 2010). In fact, Leveson highlights that within various safety critical industries, significant incidents that appear preventable continue to happen, often with the same underlying systemic factors. She suggests that many current investigative methods, that can be traced back decades and show little refinement over time, are not working well for today's complex socio-technical systems because they do not uncover and address the underlying features that contribute to incidents (Leveson, 2010).

Not surprisingly then, facilities licensed by health and human services departments commonly experience recurrent maltreatment, despite numerous investigations on maltreatment-related incidents annually. In fact, national data indicates that reportable incidents, such as maltreatment

within licensed facilities, have continued to rise over the last year (ANCOR, 2021). Furthermore, national data has also seen this trend persist over the last several years. (HHS OIG, 2017; HHS OIG, 2018; Yon et al., 2019). This pattern of increasing reoccurrence of maltreatment-related incidents suggests the current investigative processes are not providing the type of information needed to support organizational learning and the prevention of future occurrences to better protect some of the most vulnerable populations in society.

According to Dekker and Conklin (2022), when things continue to happen and go wrong in systems, it is necessary to rethink how investigations are conducted. Investigations are important learning opportunities and improvement will not happen without learning. Moreover, investigative methods and responses must not invoke fear within the participants in the process, as it can harm opportunities to learn through the course of the investigation (Dekker, 2019). Investigative approaches that avoid fear and emphasize learning related to safety and risk concerns for vulnerable populations could better reduce risk and improve safety of vulnerable people that receive care within licensed care facilities.

1.2 A Systems Approach to Maltreatment Investigations

The complexity of socio-technical systems within safety critical industries, including human services, are such that non-linear approaches to incident analysis are necessary to understand the various factors and interrelationships that shape system performance (Salmon et al., 2014). In contrast to linear approaches, a systems safety approach or the application of systems thinking to incident analysis within complex socio-technical systems views safety, or the compromise of safety, as an emergent property resulting from unpredictable non-linear connections and interactions between various system components throughout the entire system (Leveson, 2004).

Licensed facilities within human services are complex social institutions as they typically manage numerous individuals with multiple behavioral and emotional health needs in combination with other diagnoses such as intellectual disabilities. The combination of clients with multiple needs, a system that is both highly regulated and constrained for resources and interacts frequently with multiple systems of care to safely serve vulnerable populations results in intricate interactions between various factors that impact everyday decision making and performance within this system (Dekker et al., 2011).

A systems safety approach to understanding performance recognizes that decision making and behaviors within these complex systems is always shaped by the local and global environment in which work is carried out (Leveson, 2010). In order to understand decision making and actions, an analysis of environmental features that play a role in shaping the decision making and actions of staff within these systems must be examined (Leveson, 2010). Additionally, systems thinking assumes that the correct interventions for system improvement can be found in the relationships between the components of the system that are notable and not the individual elements themselves (Salmon et al., 2014). As a result, incidents within systems occur from a complex process that involves the entire system including governmental or regulatory bodies, local organizational operations, technology/tools, front line staff, and the individual people served. Contrary to linear analysis methods, systems thinking when applied to incident analysis tells us that to best understand and learn from incidents such as maltreatment within licensed facilities, the examination of the system as a whole is necessary to examine the emergent properties of the system such as safety (Leveson, 2010).

While systems thinking has become a leading concept for understanding how incidents occur within complex systems, approaches and methodologies that incorporate this theory and related concepts, while growing, have not been widely studied within any health and human services type system, including healthcare (Igene et al., 2021). Underwood and Waterson (2013) identify this as the “research-practice gap,” because the thinking of systems safety is not being practically applied within investigative models. As a result, Igene and colleagues (2021) introduced the AcciMap to investigators within a healthcare setting and saw favorable results, demonstrating that this approach can be both intuitive and an applicable toolkit for investigators.

The AcciMap, created by Jens Rasmussen (1997) and Svendung and Rasmussen (2002) is an approach to understanding incidents through systems thinking (Underwood & Waterson, 2014). Rasmussen was both a thought leader within the field of safety science and a major author in the late 1900’s and early 2000’s (Le Coze, 2015). Rasmussen and his colleagues recognized and specified the role played by organizational and broader environmental influences, including organizational, governmental, and political factors in accident causation, necessitating a systems-orientation approach to accident investigations (Rasmussen, 1997; Svendung & Rasmussen, 2002; Waterson et al., 2017). As a result, the AcciMap was developed to uncover such environmental factors through incident analysis (Waterson et al. 2017). Since its development Rasmussen’s AcciMap has been adapted and applied to a variety of industries and accidents across the globe and represented within dozens of studies (Waterson et al. 2017). As such, there is a long tradition within the safety science literature of both researching and publishing on the application of Rasmussen’s AcciMap over the last two decades. In fact, it can be argued that the AcciMap may be the most popular incident analysis method within the peer reviewed literature

(Hulme et al., 2019; Salmon et al., 2019; Salmon et al., 2020; Waterson et al., 2017). As such, it has become an academically endorsed tool that applies a systems approach to accident analysis across various work domains.

The AcciMap establishes a mechanism to understand complexity from a systems perspective by analyzing a series of decision-making processes and interacting levels within complex socio-technical systems that can give rise to incidents within system operations (Branford et al., 2009). The AcciMap is a safety science tool that promotes a systems (safety) view and understanding of unwanted outcomes or incidents within system operations (Branford et al., 2009), such as those seen within maltreatment-related incidents within licensed facilities that are responsible for protecting vulnerable adults and children.

The AcciMap is designed to construct and understand how various systemic components, interactions, and factors at all levels of the system impact an incident within the system (Branford; 2011; Hengelbrok et al., 2019; Rasmussen, 1997; Salmon et al., 2012; Waterson et al., 2017). A systems approach to incident investigation and analysis does not isolate system components or events, but rather focuses on the entire system as a whole. To understand why an incident has occurred, the entire process and system needs to be studied and explored, not just those events such as the immediate decisions and actions of operators most proximal to the event (Leveson, 2010).

The AcciMap is a visual representation of the various levels of the system (See Figure 1) that focuses on influences into incidents spread across several levels: conditions, processes, and actor activities (the individual level); facility operations, county and state operations, and external

entities (the organizational level) and, government and regulatory bodies (the regulatory level). Specifically, the AcciMap involves the construction of a multi-layered map in which causes of adverse events are situated on the map according to their causal distance to the incident being studied. (Branford et al., 2009; Branford, 2011; Hengelbrok et al., 2019; Lane et al., 2019; Salmon et al., 2020).

Figure 1. AcciMap Levels

Government & regulatory Bodies	Regulatory features highest within the system that impact policies, budgets, etc. Including: Federal/State Statutes and Regulations, State and Federal Funding, etc.
External Factors	External entities or influencers on County, State, or Facility/Provider operations such as medical providers, courts, etc.
County/State Factors	State and/or County operations, policies, budgets, initiatives directives that maybe impacting local facility/provider operations (policies, practices, staffing, initiatives, etc.)
Provider/ Facility Factors	Facility/Provider organizational operations, practices, norms, and constraints (such as staffing, facility policies, etc.) that impact the conditions in which staff operate
Conditions, Processes & Actor Activities	Individual level or Local environment in which work is carried out – decisions and actions most proximal to the allegations/incident (workload, prioritization of tasks, policy/plan interpretation, focus of attention)

The bottom of the AcciMap represents the more localized influences specific to the incident being studied. Higher levels of the AcciMap represent decisions, processes, resources, and practices that eventually influence outcomes at the local and individual level (Branford et al., 2009; Svedung & Rasmussen, 2002). Each of the causal factors placed within their respective map levels is then connected to its effects in a way that explains how that factor influenced other factors and ultimately contributed to the outcome being analyzed. The finalized AcciMap then

becomes a visual depiction of the factors and conditions that interacted for the incident studied to occur (Branford et al., 2009, Branford, 2011).

Despite growing research within other safety critical industries regarding the application of methodologies based in systems thinking to learn and improve (rather than blame front end operators), nothing has been studied yet regarding how systems thinking can be applied to incident investigation techniques specifically within licensing departments within human service agencies. The limitations and consequences of traditional linear analysis currently used and indicated above highlight the need for human service agencies and regulating bodies that govern licensing investigation requirements to reexamine their current approaches to maltreatment-related investigations, particularly given the present investment, both human and capital on current approaches.

To assist in closing this practice gap, as well as contribute to the lack of literature that exists on applying systemic approaches to maltreatment-related incidents in facilities licensed by human services, this research seeks to examine what a systems approach to incident investigations, through the utilization of Rasmussen's AcciMap as a proxy for systems thinking, can bring to investigators and their investigative process.

2. Methods

2.1 Methodological Approach

My research was conducted from a social constructionist epistemological stance, recognizing that there is not one truth but rather varying accounts and perspectives that people offer based

upon their own derived meanings and their collectively shared meanings from the world around them (Crotty, 2015). To help answer my research question, I took an ethnographically inspired approach that utilized qualitative methods that moved participants through facilitated AcciMap sessions, followed by focus groups. This approach facilitates understanding the participants' perspectives, within their working culture as investigators and regulators, on what an AcciMap can bring to their domain of work when conducting investigations of maltreatment within licensed facilities.

2.2 Engagement and Participants

Outreach was done to a state human services licensing division to see if they were interested in participating in this study as this agency had previously expressed interest in identifying ways in which safety science could be integrated into their work as regulators. Following initial contact by the researcher with management in the licensing division in the human services agency to explain the study, an information session was offered to demonstrate how the Rasmussen AcciMap is typically used in accident investigations. The leadership accepted the invitation and the researcher and her thesis supervisor at Lund University, Dr. Roel van Winsen, who has experience applying Rasmussen's AcciMap in accident investigations, met with them for the information session. Following that meeting, the leadership agreed to contact staff to invite them to participate in the study.

A total of twelve staff from the licensing investigations department agreed to participate in the study. Three of the staff participating represented licensing management and nine staff participating represented front-line operations as licensing investigators. All participants in the

study are currently involved in the investigative process for maltreatment related incidents within licensed facilities for vulnerable populations using traditional investigative processes.

The investigators came from one state agency and department. The range of experience that the investigators had was a minimum of five years to a maximum of 32 years of experience in investigations. Seven out of the twelve participants had over ten years of experience conducting traditional investigations in licensed facilities. While some of the participants within the study have been exposed to ideas of systems thinking in safety, this exposure was varied within this group and not everyone in this study had been exposed to this specific type of safety thinking. None of the participants involved in this study have utilized an AcciMap within their current investigative processes for allegations of maltreatment.

Guidance and structures vary for agencies around how to conduct investigations in licensed facilities. This organization, like many others, have derived their investigative guidelines and protocols from various domains and methodologies, to answer the statutorily mandated questions of what happened, did the event meet the definition of maltreatment, who was responsible, and is action needed to reduce future occurrences of maltreatment. This information is reflected in the example investigative case summary document in Appendix A.

2.3 Setting and Prototypical Case Study

This study is centered on a typical case that is frequently investigated by this human service agency's licensing division: the maltreatment allegation of neglect, specifically vulnerable adults (VA) left unsupervised in licensed facilities. Investigators were given an investigative case summary report to review on a case that had a completed investigation that dealt with the alleged

lack of supervision of a vulnerable adult by staff within a licensed facility. This case was provided by the human service agency's licensing division as both a typical and common case that is regularly investigated by their licensing department, especially as the case included three separate incidents which indicated a pattern of neglect. This specific report and the subsequent investigation was also selected because having three separate incidents within the single report meant it provided more detail about the circumstances surrounding the case, making it a good case example for this research.

Given the fact that incidents like this one are common occurrences within licensed facilities and are routinely investigated, investigators were asked to not only draw upon information from the completed investigative case summary report conducted through their traditional investigative analysis but also their own experiences investigating similar cases. This knowledge and experience, combined with the investigative case summary report, formed the basis for the application of the AcciMap approach to studying incidents of maltreatment in licensed facilities such as this one.

Protected or confidential data was not disclosed, and individual investigations beyond what was available to the public were not analyzed or discussed, and so there was no need for a formal IRB approval and a data sharing agreement was not required in this study. Attorneys at the agency involved were consulted on both matters and believed that neither an IRB nor a data sharing agreement were needed given the aforementioned information. Informed consents outlining any potential risks of the study and that the research was voluntary were signed and collected from all participants before the sessions began. See Appendix B for the informed consent form.

2.4 AcciMap as a proxy for systems thinking

The AcciMap was selected given its high degree of both usability and adaptability (Igene, et al., 2021; Underwood and Waterson, 2014), and because the AcciMap is a tool intended to model the context of the specific socio-technical system being studied (Rasmussen, 1997). It has been commonly used to understand accidents across various socio-technical systems, in part because the AcciMap levels can easily be adapted and categorically labeled to represent the hierarchy of the system studied (Good et al., 2017; Hengelbrok et al., 2019; Lane et al., 2019; Salmon et al., 2012; Salmon et al., 2020). As such it was a good tool to bring to this group of investigators in their work with maltreatment investigations. To make the AcciMap levels represent the social technical system of the incident studied within facility investigations, the AcciMap levels in this study were categorically labeled as such: the first level represented the conditions, processes, and actor activities; the second level represented the provider/facility factors; the third level represented the county/state factors; the fourth level represented the external factors; and the fifth level represented the government and regulatory bodies of the systems. See Appendix C for a copy of the blank AcciMap used in this study.

2.5 Session Structure and Data Collection

Participants were randomly assigned to the two separate groups to participate in the AcciMap sessions and subsequent focus groups. Management was divided into both groups to try and ensure that equal representation of different staff roles within the sessions so as to not create barriers to building of the AcciMap or to influence the answers gathered during the focus groups sessions. Due to COVID restrictions, the sessions were held online via Zoom. Each session was

three hours in length and consisted of three parts: 1. Introduction, 2. AcciMap creation, and 3. Focus Group.

2.5.1 Part One - Introduction

The first part of each session (approximately 45 minutes in length) was designated to introducing participants to systems thinking, the AcciMap methodology, and its role in supporting a systemic approach to investigations. The sessions also outlined how this researcher would be facilitating building the map with the participants from the investigative case summary report (see section 2.3) and their prior experiences in conducting similar investigations. Lastly, confidentiality and data recordings were discussed, and all participants agreed to confidentiality in addition to having the sessions recorded.

2.5.2 Part Two - AcciMap Creation

The second part of the session (approximately 1 hour and 15 minutes in length) provided participants with an intervention; the building of the AcciMap that may support them thinking differently about how they investigate cases of maltreatment. The investigative case summary was again provided to the investigators to review. The investigators in each session also received the case ahead of time to familiarize themselves with the case prior to the mapping session. This part of the session was designed to move the participants through building the AcciMap. To support the groups' consistent understanding of the AcciMap, the same researcher facilitated both sessions through the process of building the AcciMaps.

This researcher drew upon the field of safety science (Branford et al., 2009; Dekker, 2002; Dekker, 2014; Hengelbrok, et al., 2019; Igene et al., 2021; Leveson, 2010; Shorrock et al., 2014)

in asking questions that would elicit human factors information and the corresponding conditions and factors higher within the system that an influencing effect on staff decision making most closely related to the maltreatment incident being studied. The questions asked also drew upon the field of forensic interviewing. Specifically, the questions were asked in an open ended and free narrative manner to enhance dialogue with participants as well as ensure that reliable and useful information was accessed related to system operations within each map level (Bull et al., 2009; Lamb et al., 2009).

Specific examples of questions used to draw out information related to the various influences and their subsequent interactions on and between the AcciMap levels included, but are not limited, to those in Tables 1, 2, 3 and 4.

Table 1. *Questions that were used to understand human factors/staff decision making*

Tell me about factors that are typically influencing staff’s decisions when a vulnerable adult is left unsupervised? Talk to me about what might be staff’s focus of attention during incidents like this that you have seen or from what was documented in the report?
Talk to me about what staff in this situation and similar situations may be trying to manage and accomplish when this occurs?
What other things may have been happening in the working environment that impacted staff to prioritize one decision/task over another? For example, staff noted that he/she prioritized person-centered practices, what may have been impacting this prioritization?
What may have influenced staff’s focus of attention at the time or the knowledge they had about the plan of supervision for this VA or others? Specifically, what may have been

happening when the 3am check was missed? From your experience what environmental features contribute to middle of the night checks missed in facilities such as this?

As human factors related to staff's decisions most proximal to incidents were placed on the map, this researcher continued to facilitate the discussion with the investigators to build upon those factors to elicit other features within the system that influenced staff's decision making in incidents. This began with the staff's local working environment and how it may have impacted staff's decision making and/or created the conditions in which staff operate and make decisions related to incidents (see Table 2).

Table 2. *Questions that were asked to explore systemic features within the facility, county, and/or state operations level*

Help me understand from your experience in conducting investigations and from what was in the report some of the environmental features that created the conditions at the facility that may have impacted staff's focus of attention or what are they are trying to manage in situations like this?

What are some of the environmental features at the facility that may have impacted staff's decision making in this incident or in incidents like this?

What are some of the conditions that supported this being the best decision for staff at the time? For example, leaving the VA unsupervised to get cough medicine?

What other things may have been happening in the facility work environment that impacted staff to prioritize one decision/task over another? For example, staff noted that he/she prioritized person-centered practices, what may have been impacting this prioritization?

What may have influenced staff’s focus of attention at the time or the knowledge they had about the plan of supervision? Specifically, what may have been happening when the 3am checked was missed? From your experience what environmental features contribute to middle of the night checks missed in facilities such as this?

This researcher continued to facilitate the discussion to elicit additional levels of influence so as to build the map up and out to the highest level of systemic features that have had influence into the lower-level features on the map and thus ultimately impact the allegations being studied (see Table 3).

Table 3. *Questions that were asked to draw out the factors deepest within the system that impacted operations*

What external factors influence state, county, and/or facility/provider operations?
Tell me about statutes, regulations, and funding sources that may have an influence and/or regulate County, State, and/or Facility/Provider operations and functioning?
What factors at the state/federal level manage, regulate, or place pressure on county and/or facility operations and functions?
What organizational factors (statutes, policies, guidance, funding, initiatives, etc.) at the county, state, or federal level impact the working environment at this facility or other facilities like the one in this case?

To conclude the building of the AcciMap, participants were asked if they believed that most relevant influences were captured and were connected to one another based upon the appropriate

directional influence. Once everyone agreed that the map accurately reflected the sessions and that they did not have anything further to add, the building of the AcciMap was concluded. To check whether this researcher accurately depicted what the participants said on the finalized maps, after the online sessions, each map was sent to its corresponding group members for review and edits; Except for a typo, no edits were sent back related to the content of the maps. See Figure 2 and Figure 3 for the completed AcciMap from groups one and two, respectively.

2.5.3 Part Three - Focus Group

At the conclusion of building the AcciMap with the participants, the third and final part of the session transitioned into a focus group. The focus group during each session was approximately an hour in length. The goal of the focus group was to elicit perspectives from the participants on what the AcciMap process could bring to them in their work. To achieve this, questions were asked to the investigators that would help provide insights into answering the specific thesis question. To support participation by everyone, participants were asked to write down their answers to each of the questions for a minute or two before sharing for each specific question. Participants then answered questions in a round robin format for each of the questions listed below. The sessions were concluded when all of the focus group questions had been asked and subsequently answered by the participants. Both groups were able to answer all seven questions during their session. This researcher recorded and transcribed the sessions to collect each participant's answers to the questions in addition to other comments shared by the participants during the focus group discussions.

Table 4. *Questions used during focus groups*

What did you learn from the AcciMap process?
How could the AcciMap process change your investigations such as the questions you ask, and the information gathered during the investigative process?
Does this process change how you may think about future recommendations/actions at the conclusion of your investigations? If so, how?
Did this process help you in taking a more systemic approach to understanding maltreatment related incidents in licensed facilities? If so, how?
In what ways do you believe the AcciMap could be helpful for DHS?
In what ways do you believe the AcciMap could be helpful for facilities?
How could this process assist you in investigations that are inconclusive?

2.6 Data Analysis

This researcher took an abductive approach to analyzing the qualitative data from the focus groups to begin to identify themes that would assist in answering the thesis question. Analysis of the qualitative information gained from the focus groups was done by first listening to the recorded focus groups, and then transcribing participants' answers to begin to identify common themes within the data. Once transcription was completed, the data was reviewed again for common themes that emerged. Upon the identification and categorization of common themes, participants comments were coded into the specific themes to reflect the relative number of

participants to which each theme applied. As typical for the abductive approach, a query and review of the scientific literature was then conducted to support the themes found within the data that occurred most frequently.

2.7 Ethical Considerations

One ethical consideration is that this researcher is an employee of Collaborative Safety which is contracted by this specific Human Services Department to support the integration of safety science into other Division areas. However, Collaborative Safety is not currently and has not previously been contracted specifically by the Licensing Division within this Department of Human Services. While Collaborative Safety has supported this state as well as other jurisdictions across the United States using an AcciMap as a part of its critical incident review process, it has not utilized and supported jurisdictions with the AcciMap in maltreatment investigations.

While this research shares similar goals with Collaborative Safety's work, this did not undermine the academic rigor of my analysis but rather strengthened it due to my familiarity and experience with the AcciMap methodology. Additionally, the study of the AcciMap as a standalone tool for systemic accident analysis has not been utilized by Collaborative Safety with regulated licensing investigators. This is specific to my research agenda and as such it does not directly benefit today's business activities of Collaborative Safety.

Finally, one last ethical consideration has to do with my former employment within the Child Welfare Division of this Human Services Department prior to joining Collaborative Safety. This position, my experience, and pre-existing relationships working within this state supported

discussions related to my thesis, the thesis work itself and the identification of participants to engage in this research project.

3. Results

3.1 Session Reflections: A move towards Systems Thinking

To shift the participants away from their traditional linear methodology of investigations and see what an AcciMap as a proxy for systems thinking could bring them, two separate AcciMap sessions to see if this approach would move the investigators towards systems thinking when investigating incidents of maltreatment in licensed facilities.

Both sessions were well received by the participants. Despite the sessions being held online, both groups actively engaged throughout the building of the AcciMaps and the subsequent focus groups. Participants in each group offered valuable information from their individual experiences in other investigations as well as from the specific incident studied to contribute to the building of the AcciMaps. Although participants initially wondered how they would be able to provide enough information to fill an entire hour of building an AcciMap, most were surprised how quickly the time went and the amount of rich information that was shared.

Participant five said, *“I was not sure we could do an hour AcciMap on one topic but we could have gone on a lot longer so that was really neat to see.”* Participant six followed with, *“We could have gone on for a few more hours to get information.”*

The participants offered their various perspectives given their wealth of knowledge and experience conducting maltreatment investigations within licensed facilities related to the allegation of “neglect – VA left unsupervised” to create the finalized AcciMaps (See Figure 2 and Figure 3).

As can be seen in Figure 2 and Figure 3, the AcciMap approach worked well to uncover features higher within the system that were having an influencing effect on the incident: both maps displayed five features at the governmental level and showed respectively three and six features at the County/State level. Both maps displayed one external feature, which is not uncommon for a highly regulated systems in which statutes, guidelines, and constraints are contained within the system. Additionally, both maps highlighted over a dozen features at the Provider/Facility level that were contributing to staff’s decision making and actions related to the maltreatment allegation studied.

Given that both maps showed features at all levels and an abundance of interactions between these features, it was evident that the AcciMap process triggered systems thinking within both groups. Specifically, both groups did not linger on the decisions and actions of staff, but rather focused on features higher within the system, such as the environmental factors within the facility, the state and county regulations, and federal and state statutes and made connections from these various levels to the decisions and actions of the direct care staff most proximal to the incident.

Participants commented on how, in their typical (linear) approach, they are not paying attention to such features deeper within the system such as polices and statutes that impact work.

Participant nine noted that *“when I am doing investigations, I am not thinking about how statutes, or the interpretation of statutes are impacting the facility and how that carries down to the training of the staff and all of that.”*

Participant two also said, *“it was amazing to show – like going all the way up to funding.”*

Not only were features deeper within the system seen on both maps, similarities and differences between the maps surfaced. Of interest are that similarities found within the maps are reflected at higher regions of the system and differences within the maps can be seen much more at the local level. This, logically, can indicate that the same or similar features higher within the system may influence varying decisions and actions of the direct care staff that contribute to maltreatment-related incidents. This big-picture approach started to highlight for participants where corrective measures may be best directed, beyond individual staff, for improved systems wide change (Branford et al., 2011; Leveson, 2010).

For example, participant twelve noted, *“I think facilities would benefit in looking at this and seeing how some of their policies and training impact these things [maltreatment incidents]. It is easy for facilities to say to staff, “you were trained on supervision of vulnerable adults and you failed”, however, there are all these other parts of what they [the facility] are doing and how their business is run and how they may be able to better understand things and what they [as the facility] can do to help staff not be faced with these decisions.”*

While the process of building the maps themselves influenced participants to move beyond a more traditional linear approach to investigations and embrace a systemic approach to the maltreatment-related incident studied, this researcher was particularly interested in what could an AcciMap, as a proxy for system thinking, bring to this group of investigators within the licensing domain. To answer this question, the next section will outline the results of the subsequent focus groups at the conclusion of building the AcciMaps.

Figure 2. Session 1 AcciMap

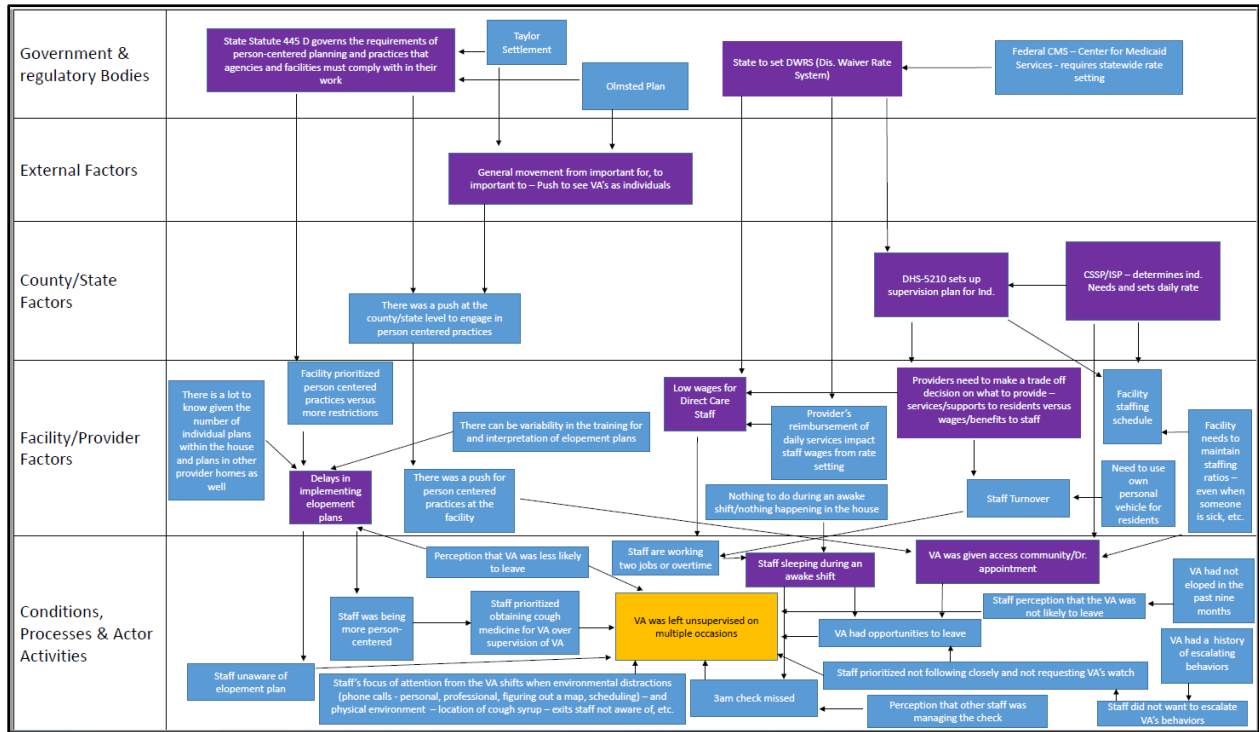
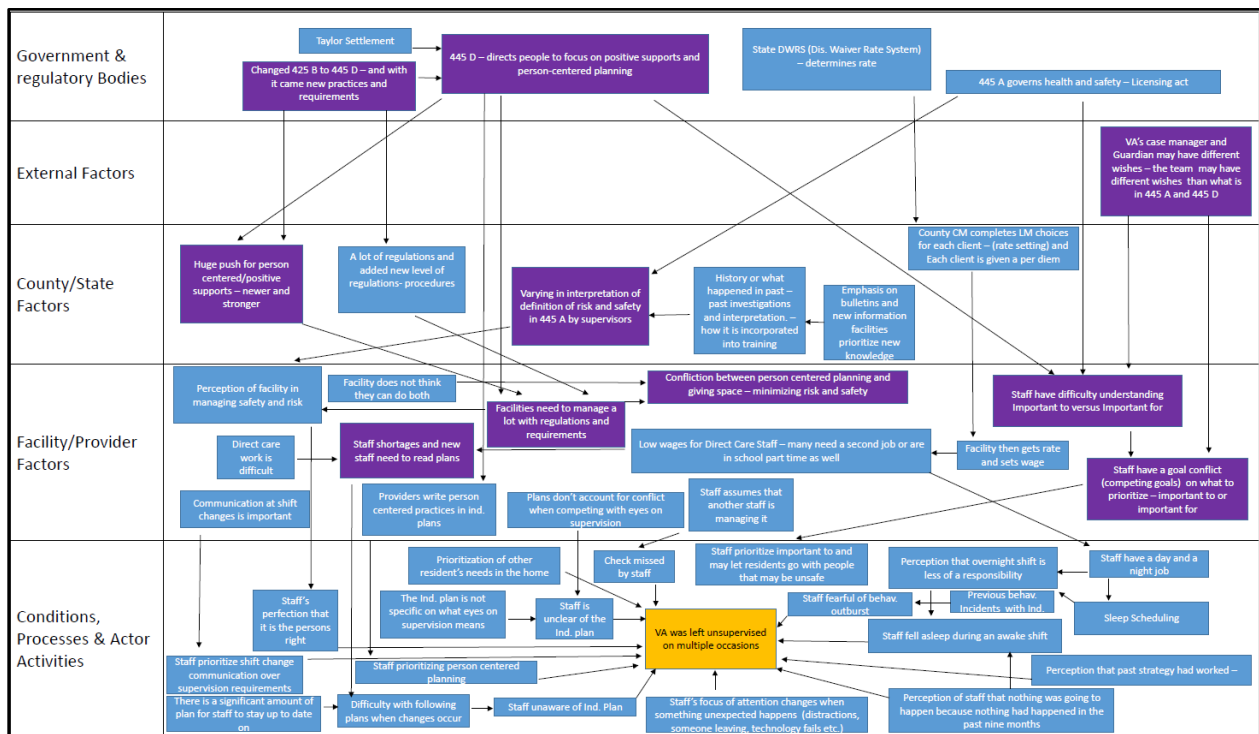


Figure 3. Session 2 AcciMap



Note. The yellow box indicates the incident studied (maltreatment allegation). The blue boxes are factors within the subsequent map levels that had an influencing effect on the incident and/or other features that contributed to the incident. The purple boxes are factors that had the most interactions within the map.

3.2 Emerging Themes out of the focus groups

To answer the thesis question - what a systems approach to incident investigations (through the utilization of an AcciMap) can bring to investigators and their investigative process – analysis was done of the data to identify common themes in terms of the benefits that investigators see in using an AcciMap in their investigations. There were five common themes that emerged throughout the data that are discussed below. These include: 1. Moving away from blaming the ‘sharp end’ of the system (direct care staff), 2. AcciMap provides the ‘Big Picture’ (through its visual representation), 3. Seeing incidents as emerging from various factors and interactions between system components, 4. Understanding the multiple perspectives of the various system actors, and 5. Supporting investigators in their investigative responsibilities.

3.2.1 Moving away from blaming the ‘sharp end’ of the system (direct care staff)

The first theme identified was that the AcciMap process promoted a movement beyond a focus on front line or direct care staff. The process helped participants explore and provide rich details about system operations at various levels of the system that assisted in shifting away from the attribution of blame toward direct care staff. As can be seen from Figure 2 and Figure 3, both maps moved away from the direct decisions and actions of staff most proximal to the incident to environmental features and broader systemic influences and their subsequent interactions that impacted the incident’s occurrence.

Nine participants noted throughout the focus groups that the use of an AcciMap could change the focus of investigations and responses to the investigations away from the staff most proximal to

the incident and shift the focus to addressing other things within the facility and system that may have contributed to the incident itself. This shift in focus, is not uncommon for safety critical industries that have applied such approaches to their incident responses. Underwood and Waterson (2014) indicate that methods of investigation that focus on humans at the sharp end of the system often inaccurately blame staff for an incident and limit opportunities for learning. The use of a systemic analysis, such as the AcciMap, avoids these limitations, as it did for nearly all of the participants in the study, and portrays other contributing features to learn from within the system that may aid in preventing incidents in the future (Underwood & Waterson, 2014).

This evidenced itself in what participant five highlighted, *“So many programs will just terminate a staff for a supervision issue when maybe there are so many other factors in place that, had the program looked at, they would have seen the bigger picture.”*

Participant twelve noted when discussing potential changes in how they think about future recommendations or actions at the conclusion of their interview, *“I think it could (change the participants’ thinking), by bringing back some recommendations to the facility – I don’t write a whole of recommendations but this [the AcciMap] may open it up to being useful to do so – forcing them (the facility) to look a little bit deeper at why it happened rather than just putting all the blame on the staff person. So, saying to the facility, hey, these are some of the things the facility could do better to alleviate this.”*

When learning stops at the ‘first story’ (i.e., human error or the simplified account of the how the incident occurred) (Woods et al, 2010), the opportunity for constructive learning and systems change is lost. Going beyond the first story, as reflected in the example above, allows for more

comprehensive understanding of the broader system, including the facility, on the incident and, consequently, move away from blaming individual front end staff.

Participant four went on to say, *“I think one possible thing this can change is our corrective action orders and really looking at the steps the facility took and what was done in the moment – or after the fact regarding training or if they properly addressed it – do we really need a corrective action order or not – based upon what actions the facility took and what did they do for the staff – if the staff are still there versus just firing them and even kind of looking at the higher levels on the map as well.”*

Participant five then said, *“it would be nice to open the programs eyes to this as well and if we could have a discussion and somehow say to them, terminating the staff is not the only option – we don’t really provide that guidance very much – but there have been so many times that I have seen that and think, oh gosh, you did not have to terminate them – but I can not tell them that so it would be nice if I could.”*

Participant nine reflected on her experience, and said *“my response years ago was, it is not rocket science you literally open your eyes and keep them [the VA’s] in your sight – like it should not be this hard – and to break it down in the map and say everything is not that simple and you even think of your own kids or your dog and think, crap, I was not paying attention that one time and this horrible thing happened – so it really opened my eyes to not be so judgmental and not be so quick; to be like, well, it’s not that hard because I did not ask any question yet. It has given me permission to pause, ask more questions, and take in more information.”*

Leveson and colleagues (2009) suggest that, instead of focusing on decisions and actions in the direct or most proximal environment, a key characteristic of systems thinking is taking into account influences that come from higher up within the organization and flow downward since behaviors emerge as a property of the system. This aspect of systems thinking takes investigations away from blaming the sharp end or direct care staff for (overly simplified) accusations of human error, negligence or other allegations of maltreatment to a richer understanding of the context and complexity surrounding the people/staff closest to the incident. Specifically, this approach brings people to an understanding of people being ‘embedded in the system’ and impacted by features far beyond their decisions and actions (Dekker, 2014; Woods et al., 2010).

As reflected in the experiences of the participants demonstrated in the above illustrative examples, the AcciMap approach highlights the context that the events took place in which gave rise to the incident studied, helping to better understand how and why it occurred. This additional detail that provides context to the events helps to move away from blaming direct care staff as it provides the background of why these decisions and actions occurred that impacted the incident taking place.

3.2.2 AcciMap provides the ‘Big Picture’ (through its visual representation)

The second theme that was seen in the data was that the AcciMap process and AcciMap itself provided a visual representation for the investigators that highlighted the ‘bigger picture’ of what happens within the maltreatment allegation studied. Nine out of the twelve participants indicated that the AcciMap and AcciMap process provided them with the ‘bigger picture’ of the maltreatment related incident studied. A core property of systems thinking that Leveson and

colleagues (2009) describe is that the system and the interactions between the organizational, social, and technical features of the system must be understood as a whole and not in isolation of one another. Underwood and Waterson (2017) argue described that the visual output of an investigation affects the ability of an individual or team of investigators to effectively conduct an analysis. A visual product such as the AcciMap has been shown to be useful for investigators in their investigations. For example, it can be easier to see the interactions between system elements. The visual representation can assist investigators in determining where there may be gaps within their investigations that need additional focus in order to get the full picture of the incident and the surrounding context (Igene et al., 2021).

This can be seen when participant nine noted when referencing the incident within the case study that had vague information contained within it, *“I think this is where the map comes into play as this cues you to gather more information where you don’t have it – to answer those questions even if you don’t have them - someone else might have them or its logical that they would.”*

Participant twelve also indicated that *“nothing is as simple as it first appears – we have all gotten investigations and say this will be an easy one and get into it and say, oh boy, there is a lot going on here. So, this map gives a visual representation how this investigation can go once you start digging into it more and finding out all the influencing factors that are there.”*

Stemn and colleagues (2020) also demonstrated the AcciMap’s capacity to provide a systemic view within a distinct visual diagram of incident causation that uncovers a number of features

throughout the socio-technical systems that reach far beyond individuals and specific organizational boundaries. Additionally, the AcciMap can be beneficial as it can bring together the multiple factors (and analytic understandings) that contributed to an incident within a connecting illustration that demonstrates how they all interacted to produce that outcome (Branford, 2011). Furthermore, Waterson and colleagues (2017) highlight that studies utilizing the AcciMap approach have been shown to demonstrate its capacity to utilize a ‘big picture’ and ‘holistic’ perspective when looking at incidents. The majority of the participants’ experiences aligned with what they have found.

Participant two indicated that *“instead of taking the incident we have and moving on we could do this with our investigations and take a little bit longer to figure out what the whole process was.”*

Participant four followed up with, *“you can really see what else was happening at the time of the incident – and trying to look at the bigger picture.”*

Participant six then noted, *“Then once they [the facility] look at it [the AcciMap], they won’t go to that ‘we will just fire them’ and they will stop and say maybe we need to do things like training and like more staff meetings. We have not done staff meetings in six months so maybe we need to start them up again, so really that may help in their corrective action being more appropriate than just terminating.”*

Participant seven said, *“nothing is as simple as it sounds in an investigation - when you see it all laid out like that in an AcciMap.”*

Branford (2011) discusses that to analyze events that happen in complex systems, a ‘big picture’ approach is needed to assist in drawing out features both from within the various parts of the socio-technical system and from interactions between them that give rise to incidents. This ‘big picture’ approach that can be seen through the utilization of the AcciMap can be useful for determining where corrections should be directed within the system (Branford, 2011). Branford and colleagues (2009) discuss that the AcciMap approach enables investigators to recognize features deeper within the systems such as internal, organizational, and governmental practices that can be addressed to make long-term improvements to system safety.

This was evidenced in multiple participants responses to questions during the focus group related to how the AcciMap process may change investigations.

For instance, participant three said, *“I think the process does show that there should be this systemic approach to understanding it [maltreatment] and not just the face value – we really do need to know what else happened and looking at it more broadly – it is the right thing to do.”*

Participant five indicated, *“it would help me understand what else was happening at the time of the incident and trying to look at the bigger picture- which I think we do but it is hard trying to balance all of the rules and statutes we also have to follow.”*

When asked how the AcciMap process and the AcciMap may be helpful to the Department of Human Services, participant ten stated, *“I think anyone that has seen a map or has been part of a mapping – just the whole scene at once and seeing the visualization helps see the complexities of the work – I envision using it on training for*

investigations – on how to do an investigation – just the visual representation of the spaghetti lines mapping everywhere and all over the place, you are like, wow there is a lot going on here and everyone I have shown a map to has been like, wow and it visually impactful - so I think having the map can help in training investigators on how we interview, why we ask the questions like we do, why it is important and where should we go, I can see some of that being helpful in that way.”

The visual nature of the AcciMap allows investigators to see the ‘bigger picture’ of the incident by distilling the complexity of the event into a single understandable diagram that illuminates the broader socio-technical system in which the incident occurred. Being able to see events like the maltreatment-related incident in this study using a ‘big picture’ approach has been shown to be advantageous in other safety critical industries when accidents occur (Branford, 2011). The ‘big picture’ supports the identification of the various contributing features both from within different parts of the socio-technical systems and from their subsequent interactions that give rise to events. This particular impact of seeing the bigger picture was also demonstrated by these research participants; see, in particular, the next section.

3.2.3 Seeing incidents as emerging from various factors and interactions between system components

A third theme that emerged was that the participants recognized the interactions that were taking place between the various individual system actors and levels of the map, frequently pointing out how other factors were involved within the incident or the other things that were connected to the incident in various ways that they had not previously thought of in their investigations.

Significantly, this theme could be seen in the responses of eleven out of the twelve participants throughout the focus groups.

Underwood and Waterson (2013) point out that two key elements to systemic approaches to accident or incident analysis, such as an AcciMap, are the identification of ‘component interactions’ and analyzing the ‘system as a whole.’

When asked what was learned from the AcciMap session, participant seven noted, *“It makes sense to see why something happened and to see all the connections between things.”*

Participant four also said, *“It was interesting to me how many different arrows and links there are between all of the different factors as well.”*

Participant nine indicated *“it was nice to look at technically an incident but look at all of the complicating variables that we do not have time to dig into as investigators – that was interesting.”*

This is not unlike what Leveson (2002) suggests, which is that outcomes such as the one studied here (or incidents and accidents in complex socio-technical systems in general) emerge from a complex network of casual interactions within a system, not from one component of the system. Linear methods of investigations cannot describe how a number of different components and processes act together when exposed to various different influences at the same time to produce an outcome. Alternatively, a systemic approach allows the incident to be understood as a result of the interactions between components that are not contained within individual components (Dekker, 2011). This concept of ‘emergence’ means that simple features because of their

interactions, adaptations, and changes can produce far more complex outcomes collectively than they would do alone (Woods et al., 2010). Such results are not possible to capture with linear models of investigations; however, they can be studied through systemic analysis approaches, such as the AcciMap, that can trace the various features that contribute to the ‘emergence’ of a particular outcome.

This was evidenced by participant one saying, *“it makes sense to see why something happened, to see all of the connections between things.”*

Participant two also indicated, *“A lot more factors are involved than just the obvious – that are involved – that staff did not do their job – a lot of other things consider.”*

Participant six noted, *“it was really cool to actually break it (the maltreatment incident) down and go, “wow,” yeah, this happened but look at all of the things that contributed to it.”*

Participant twelve stated *“there are reasons for things that happen – it can be a little thing that happens in a facility and there can be things way outside that come into bear on that, bringing it out to things all the way up to statute – things that are way away from the facility but still had a bearing on this client getting to leave on his own without someone following him [the maltreatment related incident studied].”*

Participant eleven then noted. *“I was thinking as we were putting it all together and connecting everything it reminds me of that game or movie ‘six degrees of Kevin Bacon’ where everything is related to everything and that is just what it is – all of it.”*

The participants' perspectives and experiences of the identifying systemic features, and the interconnection and relationship between such features, aligns with the research on emergence (Dekker, 2011; Salmon et al., 2014; Woods et al., 2010). More specifically, incidents occur as a result of the interactions and connections between the multiple socio-technical levels displayed within the map (Waterson et al., 2017; Dekker, 2011). This can be seen by the large number of interactions that both groups of participants drew on their maps. Respectively, there were forty-nine and fifty-one interactions between influencing factors within the maps that contributed to the allegation being studied (see Figures 2 and 3).

Furthermore, Woods and colleagues (2010) point out that organizational factors at the blunt end of the system, or as represented within the higher level(s) of the AcciMap, often surface in the direct care staff's ability to practice and handle complexity with organizations. A clear representation of this is seen on both maps by the statutes that govern person centered planning and practices at the highest level of the map within government and regulatory bodies. This feature had a direct impact on the prioritization and implementation of such policies and practices at the facility level which included facilities prioritizing person-centered practices over more restrictive practices and thus creating a localized push for these specific practices to be enacted on the front lines by direct care staff. Subsequently, these policies and the following pressure to adhere to them placed staff in positions to prioritize person-centered planning (allowing the VA choice and consequently a period of time unsupervised) over more restrictive practices (less individual choice and more eyes-on supervision) influencing the decisions and actions to leave the VA unsupervised.

In this domain and demonstrated by both mapping sessions, as Rasmussen (1997) predicted, safety is then a property that emerges within a complex socio-technical system. It is dependent upon the decisions of all the system players, including managers, policy makers, and those responsible for the implementation of policy and guidelines, not just the direct care staff alone (Rasmussen, 1997). In conclusion, the participants' reported experiences support the idea that by applying a systemic accident analysis, such as an AcciMap, the actors in the licensing system were able to see how the incident emerged from a complex network of causal interactions and not a single factor.

3.2.4 Understanding the multiple perspectives of the various system actors

As a result of conducting the AcciMaps, ten of the twelve participants indicated that they were able to understand the perspectives of various system actors within the incident studied. This included being able to better understand the perspective of direct care staff and what may have been influencing direct care staff's decisions and actions in incidents like the one explored during the sessions.

When asked what participants learned from the AcciMap process and session, participant three said, *"I noted how complex decision making is in a stressful environment and doing this, the AcciMap, allows you the advantage of looking back and you don't always have that advantage when you are making that decision, so it is always really interesting to see how many things are firing or not firing in someone's head when they are making that decision."*

Leveson (2010) reminds us that the environment in which humans carry out work always has an influence on human behavior; therefore, having more effective incident models requires a shift away from human error as the cause of the incident to a focus on what factors and mechanisms shaped the behavior (Leveson, 2010). Furthermore, the Local Rationality Principle says that people make decisions that make sense to them at the time, based upon their knowledge, goals, and focus of attention (Woods et al, 2010). AcciMaps are designed to understand and portray (the local rationality of) decision making and actions of staff in complex systems (Igene et al., 2021). More specifically, they help individuals using them to understand why the decisions and actions made sense given the system in which the actors were present.

Incidents in complex systems are often the result of routine influences and factors that impact decision making in everyday work (Woods et al., 1994). Individual errors are closely tied to their environment, responsibilities, and tools (Dekker, 2002). When this is understood, it can provide insight as to what organizational pressures, constraints, norms, and policies at the time impact the decisions made related to the incident. Progress on improving safety happens from understanding and impacting these connections (Dekker, 2002). By describing the conditions and the direct and indirect influences created throughout the socio-technical system studied, the AcciMap highlights the context in which decisions and actions take place at the various system levels. This includes features within the system that impact staff's focus of attention, their goals, and their knowledge related to the incident being studied (Igene et al., 2021; Underwood & Waterson, 2014).

The AcciMap process highlighted the multiple influencing factors that can impact direct care staff's decision making within incidents (see section 3.2.3), such as the example used in this

study. As a result, participants were able to identify questions and strategies that would allow them to access the perspective or local rationality of staff involved in future incidents.

When asked how the AcciMap process could change their investigations, participant one stated, *“taking longer to ask [the question] what factors led to you to the decision to do x, y, and or z or whatever it was that happened.”*

Participant four followed with, *“since I have learned about this – one thing that prompts me to ask now that I did not ask staff persons before is to directly ask them what else was happening when this went on – is there anything that interfered with your ability to do x, y, or z. Tell me what else was going on when such and such thing happened.”*

Participants ten noted that the mapping process *“has taught me to ask what influenced your decision, how did you come that decision, or what was going on when you did this.”*

Participant nine indicated, *“I often ask if they were trained on a, b, and c and they say yes, and I move on – but maybe asking more questions on what their understanding on what they were trained on and where did this information come from – is it their perception or were they specifically told those things – I think that may open up some additional avenues to gather information from.”*

Furthermore, this process demonstrated that that AcciMap process can help investigators to get inside the ‘tunnel’ and better understand the unfolding mindset of the staff about what happened and explore the multiple contributing features that impacted decision making and that this then can help mitigate hindsight bias and judgement (Dekker, 2014).

Participant seven said that, *“When I do investigations, I tend to put myself in the staff’s place and think about what it might have been like for me if I was working here.”*

Additionally, more than half of the participants reported they were able to gain an improved understanding of the perspectives of others beyond direct care staff within the system, including their own work colleagues.

Participant six indicated that one thing she learned from the AcciMap session was *“just being able to look at it from a different perspective – we look at an outcome, who can we place blame, what is the consequence or not and then move onto the next one.”*

Participant six went on to note, *“It is interesting when you map these things out how much you realize how many things you aren’t an expert in and that could be influencing the incident.”*

Participant seven then said, *“I learn by doing – if you do a map yourself and participate in the completion of it [the AcciMap] – it can help understand something different about your work or someone else’s.”*

Participant eight also noted, *“ I think this [the AcciMap] is a good tool to use to bring all of the perspectives together into one visual.”*

Gathering and understanding multiple perspectives during incident analysis brings to the surface different aspects of the system, including the demands, pressures, resources and constraints that impact everyday work. This helps to uncover features of the system that with further learning, should be explored (Schorrock, et al., 2014).

The concept of improved perspective taking is a vital piece of systems thinking (Dekker et al., 2011). To account for the complexity within a system, a critical principle and practice is gaining the multiple perspectives of system components to both understand system functioning and identify opportunities for improvement. When varying descriptions of a complex systems are gathered, the system can be deconstructed in diverse ways and the ‘truth’ of an incident may lie in the diversity of the possible accounts and not found in any one account, no matter how seemingly authoritative (Dekker et al, 2011) .

Participant five commented, *“we can’t necessarily change everything but we are one piece of the puzzle to help maybe see another perspective, so I like that piece of the AcciMap and everything is so intertwined and there are so many big picture type of things that we might see one small piece and then having (participant three) pop in with describing where the funding comes from – I came from a group home background and never came from the funding perspective or did any of the funding stuff so it’s interesting to hear the different perspectives.”* She went on to say, *“Even for bigger picture things like staff shortages, I feel like that is such as issue and that needs to be addressed and so having all of the different perspectives and a tool to try and help figure that out, it’s nice to have that.”*

Investigations that apply systems thinking and accept complexity stop trying to identify singular causes of failure or success within the system (Dekker et al., 2011). Instead, these types of investigations gather the local rationality of direct care staff and work to obtain the various perspectives of other system actors from within the complex system which gives both differing and corresponding descriptions of how outcomes and incidents occur. In fact, applying a

complexity perspective to investigations, as done with the AcciMaps within this study, provides various perspectives and draws more voices into the discussion, giving credit to and honoring their contributions and diversity which enriches the organizational learning process.

3.2.5 Supporting investigators in their investigative responsibilities

A final theme in this study was that the AcciMap process could enhance the investigators' ability to fulfill their responsibilities within the investigative process. Specifically, two sub-themes were identified within this theme of assisting investigators in their work. First, the AcciMap helps investigators to gather information more effectively which helps investigators to feel more confident about both establishing whether maltreatment occurred and who was responsible if it did occur. The second sub-theme that was seen was that the AcciMap supports investigators by improving how they communicate their findings or 'tell the story' of what happened in the incident. Supporting investigators in fulfilling their investigative responsibilities was a theme that was seen in eleven of the twelve participants throughout the sessions.

The first sub-theme was that the AcciMap process encouraged investigators to gather more information to assist in their investigative conclusions which enhanced their confidence in their final determinations. More specifically, the process supported the investigators in asking questions and obtaining factors and information that would make their investigations stronger and assist them in feeling more confident in their maltreatment determinations, especially if the maltreatment determination was appealed in court.

Investigators, such as the participants in this study, have an enormous responsibility to gather a preponderance of evidence for maltreatment to be made against an individual or facility. Within

the investigative process, the participants are responsible for determining if the individual staff person is responsible for the maltreatment or if the facility is responsible for the maltreatment. These can be difficult decisions to make and, at times, incident reports end up being inconclusive, and it is not clear if maltreatment occurred and by whom. These reports can be time consuming and make it harder for investigative staff to complete their daily work. The map appeared to function as a catalyst to ensure more questions could be asked in the interview process so that investigators could access information that supported them in their determination decision.

Participant three said, *“it helps us ask the right questions and get enough information to make a fully informed decision not just “hey there was this policy and you did not follow it and now you are in trouble – instead why didn’t you follow the policy – what was happening and all of those things.”*

Participant ten commented, *“the more thorough of an investigation we do and the more questions we ask – even if it does not impact the determination, it helps us understand and know that we did weigh out those factors when making our decision.”*

Looking at the distribution of responsibility across the entire system for incidents, not assigning it to a single point, is also a strength of the AcciMap and this appeared to be a benefit for participants as well.

Participant two indicated, *“I think it, [the AcciMap], could change for me looking at more responsibility and maybe looking at the mitigating factors – so in this case if we determined maltreatment on the staff that would have been supervising the VA – we would step back to look at more responsibility – is there mitigating factors that make it so*

staff are not responsible – are there other factors that would fall into play -that are out of their control or that the facility could have provided additional supports for the staff.”

The AcciMap is designed to consider influencing factors across the entire work system, as well as the interactions and relationships between contributory factors (Salmon et al, 2020).

Furthermore, the AcciMap builds on the assumption, that within complex socio-technical systems safety, behavior, and incidents are emergent properties and that these properties are produced by the decisions and actions of all stakeholders within the system (Salmon et al., 2020).

Given this, the AcciMap can draw out features that highlight the distribution of responsibility, unlike a linear analysis approach that directs an investigator to solely focus on the individual.

This allows investigators to see features deeper within the system that influence the individual, such as the facility’s role in an incident when determining maltreatment. Participants commented on how the AcciMap supported them in being able to look at the allocation of responsibility related to the maltreatment incident and subsequently provided them with more information to determine whether maltreatment occurred and who was responsible, if anyone.

Participant three indicated that for her, “using these concepts and theories and process – it can help me explain it [inconclusive incidents] – get to and better explain my preponderance of evidence statement – this is why it happened, and these were all the things that were occurring and it was all of these things put together – it can help support/formulate our argument of inconclusive – it can help formulate that thought process better.”

The second sub-theme that emerged within this theme of supporting investigators was that the AcciMap process helped the investigators communicate their findings and ‘tell the story’ of the incident to all of the various stakeholders.

Participant ten then noted, *“I think we can get better at investigations like everyone pointed out and we can talk about the complexity more and we can have a better story – that in itself might change our determinations a little bit – just by having better information.”*

This participant also indicated that this process can, *“help us tell the story in a better way and maybe even helps the public when reading our reports to understand all of this a little better if we can put it in there [the final investigative report].”*

Participant seven discussed that, *“it [the AcciMap and AcciMap process] helps me understand as I imagine if I were reading this report – like if this were about my sister or if it was about my family member what might I want to know – I do think it helps tell the story and you don’t have to add a lot – I think it’s good and we don’t have to add a lot - let’s say someone looks at what you write and then if you have answered the questions than maybe they won’t appeal your decisions or maybe they won’t request a reconsideration – a little work on the front end may save you time down the road and if you answer their questions then maybe they wouldn’t disagree of file something to appeal your decisions.”*

Participant eight indicated that, *“even asking the question, what else was going on when a certain incident happened – if you put that information in your report and someone*

from the facility reads it that might let them think about something that they never thought before and it might spark a change there.”

Igene and colleagues’ (2021) evaluated the AcciMap for accident analysis in healthcare and also found that the graphical representation of the map, like seen in this study (see section 3.2.2), served as a useful mode of communication regarding the incident. Waterson and colleagues (2017) also discuss that the visual representations made by the AcciMaps make them very suitable for communicating with audiences from diverse backgrounds.

Leveson (2011) indicates that most incident reports are written through the lens of a linear, cause-and-effect framework in which the analysis typically ends too soon. Other studies support this finding by noting that additional learnings were gained using systemic analysis methods, when compared with the findings of original investigative reports (Jenkins et al., 2010; Johnson & de Almeida, 2008; Underwood & Waterson, 2013; Underwood & Waterson, 2014).

While participant three noted that she believed that they do a good job at investigating and trying to access the second story, she also thought that the AcciMap process could impact how the information is written up within their investigative reports. She said, *“it could help by just looking at how we portray our findings in a less punitive way and blaming type ways – just finding different ways to write.”* Notably, this insight seamlessly connects with theme 3.2.1.

Participant eight indicated, *“I think it [the AcciMap] really helps tell the story and the investigation report is how we write it up and the recommendations within in it are not only to educate the facility the maltreatment related incident is about but also to a lot of*

other facilities that read those and look at those and think about things that have happened within their facilities and all of the different aspects of what that happened.”

As seen in this study, the concept of how the story of an incident is portrayed (i.e., what perspective is taken; see section 3.2.4) can have implications for how others perceive the incident, as well as the actions that follow. According to Heraghty and colleagues (2018), the framing of stories can influence the reader’s interpretation of the incident and the subsequent actions taken. Their work, in fact, showed that when an incident is portrayed through the lens of systemic analysis, the recommendations and corrective actions were much less likely to be targeted towards staff within the system (Heraghty et al., 2018). This is also supported by the point from section 3.2.1 that the AcciMap process helps investigators move beyond individual blame.

In summary, participants discussed that the use of an Accimap supported both their ability to gain information that allowed them to be more confident of their findings in maltreatment investigations, and enabled them to better communicate about the incidents to relevant stakeholders. Giving the investigators a tool that allowed them to incorporate a systemic approach into their investigatory process assisted them within improving their day-to-day work responsibilities.

4. Discussion

4.1 Organizational Learning and Improved Safety – What are we missing?

Despite a growing acknowledgement that linear models and approaches to investigations limit organizational learning and improvement, few studies have been able to demonstrate how the application of systems thinking can be utilized by practitioners within investigations to improving organizational learning and prevent future occurrences of incidents (Dodshon & Hassall, 2017; Leveson, 2010; Salmon et al., 2020). Systems thinking when applied through the utilization of an AcciMap (see 3.1), such as done within in this study, begins to highlight critical systemic learnings from incidents that are often missed within traditional linear methodologies.

Specifically, the AcciMap approach in this research gave the investigators a tool that allowed them to move beyond both blame and a focus on what was most proximal to the incident: the decisions and actions of direct care staff (see 3.2.1). The AcciMap's graphical depiction of the incident occurring within the broader socio-technical system of human services provided an opportunity for the investigators to see systemic features and influences higher within the system that extend far beyond the direct care staff but still impact everyday decisions and actions and that have an effect on maltreatment-related incidents. The knowledge gained by the investigators through this study demonstrated a shift towards systemic thinking as the investigators were able to identify and recognize top-down influences within the map instead of focusing only on the immediate behavior of the staff person and the immediate environment in which the incident took place (Lane et al., 2019).

A key principle of systems thinking is being able to examine the system as a whole and the interactions that occur between various system components rather than viewing and studying the component parts in isolation from one another (Dekker et al., 2011; Leveson et al., 2009). This approach, as evidenced by the second theme discussed in section three, gave the investigators a visual depiction so they could see the ‘big picture’ of the system in which the incident took place through the AcciMap’s visual representation of the sociotechnical system in which the incident took place. The AcciMap in this research, as in several other studies (Branford, 2011; Igene et al., 2021; Underwood & Waterson, 2017), highlighted the system as a whole for investigators and the various interactions and connections deeper within the system that aided in studying and learning from incidents within a complex system.

Systems thinking also sees an outcome as an emergent property of the system that occurs between a network of casual interactions among various features within the system (Dekker et al., 2011; Lane et al., 2019; Woods et al., 2010). As can be seen in 3.2.3, the AcciMaps, as in other studies (Underwood & Waterson, 2013; Waterson et al., 2017) provided the investigators with the ability to see the outcome as emerging within the system from the interrelationships found within and between various component levels of the system. This allowed the investigators to better understand the features within the system that interacted to give rise to the maltreatment-related incident studied. As noted by the participants, such features and interactions deeper within the system are typically not visible to this group of investigators under their current investigative approach. This is consistent with other critiques of linear methodologies, which suggest that these types of incident analyses often have a direct focus on

what is most proximal to the incident, and therefore miss key features that impact the occurrence of incidents (Dodshon & Hassall, 2017; Underwood & Waterson, 2013).

Furthermore, the AcciMap's ability to draw out other systemic influences on staffs' decision making and actions related to the incident contributed to the investigators' ability to identify strategies and questions that would assist them in actively searching for the 'second story' during future investigations (Woods et al., 2010). Section 3.2.4 highlighted that the investigators not only saw the importance of accessing and understanding staff's perspective or their local rationality related to the incident, but they began to see the importance of gaining and understanding the multiple perspectives of others within the system, beyond their own, to better understand the complexity of the incident that occurred (Dekker et al., 2011).

In addition to supporting systems thinking, this research demonstrated the ability to support investigators within their investigative responsibilities (the theme discussed in 3.2.5).

Specifically, the AcciMap process provided a tool that prompted the investigators to ask more questions and seek more information that would both assist in their investigative conclusions and support their confidence in their final determination of whether and by whom maltreatment occurred. Furthermore, the AcciMap supported investigators in being able to more effectively communicate their investigative findings and improved how they tell 'the story' of how the incident occurred.

Wu and colleagues (2008) note, in organizations where the emphasis is placed on identifying the "most fundamental reason" for the incident occurring, learning and system improvements can fall short. According to Wu and colleagues (2008), incident-focused investigations can generate recommendations that may be aimed at the wrong level of the system; however, when

recommendations are made from aggregate investigations, they begin to target the broader system rather than individual facilities. This highlights a strength of this study which drew on lessons and information across multiple investigations and various investigators to study one type of maltreatment allegation commonly seen within licensed facilities. The AcciMap process as demonstrated in this study helps investigators move away from the seemingly ‘most fundamental reasons’ for the incident occurring and contributes to enhanced systemic learning which can better direct recommendations at the broader system for improved system safety.

Throughout the study, it was clear that the AcciMap approach supported systems thinking and applied a methodology that enabled the participants to enhance their systemic learning. This study helps fill a gap in the literature as a first study within the licensing field that demonstrated the value of a systems safety approach. It also contributes to a small, but growing body of literature that translates theory and research into practice (Underwood & Waterson, 2013). This is critically important because the maltreatment-related data shows that incidents like this continue and are actually increasing under the current system that uses linear approaches to investigations. The learnings from this research supports asking if the current approach to investigations within human services licensing agencies are maximizing learning that can prevent the reoccurrence of maltreatment-related incidents within licensed facilities.

4.2 What happened to the ‘Human’ in Human Service’s Licensing Investigations

While it was clear from the focus group discussions that the AcciMap approach supported systems thinking and applied a methodology that enabled the participants to enhance their systemic learning, many commented on feeling that integrating this approach and way of thinking into their work would be difficult given that they are heavily regulated and constrained

by statutory obligations. Despite participants' eagerness to utilize this approach, many expressed frustrations with and defeat over the lack of authority they had as investigators to apply this type of approach, given the constraints and limitations of their investigative responsibilities that are driven by statutes.

Furthermore, while the participants appreciated what the systemic approach of the AcciMap brought them and saw the benefits to utilizing it in their work, there was a sense that its promise might go unfulfilled given their caseloads, limited time, and lack of resources to support this approach in their work.

Participant five summed up this concern like this: *"It would be nice to do this on other common incidents besides supervision – it is hard to do this more often or as often as we would like due to our caseloads and the time constraints that we have – but maybe for more common reports that we have, this could help dictate legislature, and things that are in rules and statutes too."*

Departments of human services staff, such as the group of investigators in this study, work within public service agencies because they care deeply about the safety and welfare of those they serve and have an enormous responsibility to carry out this obligation. Furthermore, direct care and front-line staff also care deeply about the work they do and people they serve while providing critical care to some of the most vulnerable individuals within society. It seems that through the course of trying to implement ways to create safety for individuals within this domain by its investigative processes, the human services system may have diminished some of

the humanity in the work, both for those that conduct maltreatment investigations, but also for those that are on the receiving end of these investigations.

4.2.1 The Responsibility Authority Double Bind for Investigators

As human service agencies have evolved in complexity, the regulations and statutes that govern the investigative process within licensing has become more highly regulated, with little ability for the investigators to make the changes they see as necessary based on what they learn through investigations. Through participation in this study, the participants gained a better understanding of the systemic influences to decision-making of the staff responsible for the care of vulnerable adults and children, and yet felt unable to use that information to make needed changes because of statute and rules within the system. This is what Woods and colleagues (2010) referred to as the responsibility-authority double bind.

Despite indicating that the AcciMap made her realize how one system can influence another and has given her pause to think about whether there are other things that she should be asking during investigations, participant one said: *“I do not think it can change much given that we still have to follow the statutes and rules that dictate the end result to determine if maltreatment occurred or not and by whom.”*

Participant four then commented: *“I agree. When I look at the map – the highest level is pretty static – there is not much we [the investigators] can change there – but there is a lot of grey area below which would be interesting if we could take that into consideration and incorporate it into our work – I don’t think there is but if there were a magical way to do it, that would be awesome.”*

Participant six added: *“It’s nice to have this in the forefront and think about and be hopeful that long term there could be potential changes, and yes getting the ‘big picture.’ But still our focus is making sure that vulnerable children and adults are safe. Maybe if we have time we can look back and see how certain situations or events happened and how they could have been prevented and down the road if someone asks, we could give them all of our ideas – that might work – we will have an arsenal of data for them.”*

Finally, participant three said *“I have so many ideas and big plans for this, but everyone is right, the way our statute is written is pretty specific – so long-term goals would be needing some of this statutorily changed. I personally have some thoughts about the way the internal review language is written in statute. I feel that it pushes providers/facilities in a direction in which they believe the Department of Human Services (DHS) expects them to fire someone – that DHS requires the providers/facilities to take some corrective action and that does not always need to happen.”*

This feeling of being placed in a responsibility-authority double bind, is not uncommon for safety professionals such as what the investigators within this study have experienced. Rae and Provan (2020) noted that at best, this can lead to feelings of frustration, and, at worst, safety professionals can begin to experience depression and anxiety when faced with not being able to get work done to improve safety within the systems they serve. Furthermore, Rae and Provan (2020) indicate this could be a ‘recipe for burnout’ for investigators. When people such as investigators have a deep sense of care and responsibility and even accountability for protecting the safety and welfare of vulnerable populations, but lack authority and power to directly influence it, this can lead to constant frustration and burnout (Rae & Provan, 2020).

This is concerning and attention should be drawn to burnout as it has been linked to negative outcomes such as diminished psychological and physiological well-being of staff, high turnover, under performance, and decreased quality of work products (Bethea, 2020; Kelly et al., 2021; Lizano, 2015). This points to the need to ensure that organizations implementing systems thinking into their accident analysis also empower investigators to implement the changes they identified through learnings.

4.2.2 The moral conflict the system has created

These investigators have an incredibly difficult job. Not only do the statutory requirements limit their autonomy to conduct investigations in a more systemic way, they also can place investigators in a position to make a maltreatment determination on an individual staff when they are aware that there were contributory factors within the system that influenced the maltreatment occurring. This was demonstrated by the following quotes:

Participant ten noted: *“there are many times that I have had an internal conflict about an investigation as I know I need to substantiate this report and I hate it - and I hate that I need to substantiate this report as it feels terrible knowing that it was not intentional, there was a lot going on, and there were all these other factors here and you feel like – it creates an internal conflict which then I think that influences us to make bigger changes that do take legislative approval or policy changes or things like that internally – it just gets my wheels turning - okay, there is a better way to do this, I don’t know what that better way is yet or what it takes to get that better way but there are some of our own systemic changes that need to happen within our own system to do this differently.”*

Participant eleven then said, *“I wish the public knew that [the internal conflict that participant ten spoke about] as just recently I heard, ‘oh you work for the state -you are all out to get us’ and if they only knew the conflict we all have and the pride we take in the work that we do – and we do want better and not just for the VA’s and kids but recognizing the hard work that staff does.”*

Participant eleven also said, when indicating that their job as investigators is to determine “if” something happened and not “why” it happened per statute, *“this makes me think back to what makes a person goes to sleep [on an overnight awake shift] – because the person just worked straight through 36 hours and they are filling in for the person that did not show up for work but it is still an awake overnight position, so you need to be awake and you ‘the investigator’ feel bad but still ‘the direct care staff’ needs to provide that level of care- it’s hard, it’s really hard - especially right now with what is going on in the world of COVID.”*

This conflict experienced by participants can give rise to something damaging, sometimes referenced as moral injury. Moral injury is the psychological harm caused by the system when an individual is put in a position of representing polices and taking actions that conflict with their moral beliefs (Dean et al., 2019; Seymore, 2021). Implementing a systemic approach to accident investigation – such as the AcciMap - that moves away from individual blame and towards systemic accountability, when investigators have the ability and authority to use the information to implement systemic changes, could also prevent moral injury.

5. Conclusion

This thesis set out to explore what an AcciMap – as a proxy for systems thinking - could bring to licensing investigators when analyzing incidents of maltreatment within licensed facilities. This study shows that the AcciMap and AcciMap process did trigger systems thinking in the investigators that participated in the study and facilitated systemic thinking for the investigators when looking at incidents of maltreatment within licensed facilities.

Contrary to traditional linear approaches to investigating incidents, where opportunities for learning are often minimized as they do not support an understanding of the systemic influences within a complex socio-technical system, the investigators in this study demonstrated an understanding of the incident that aligned with key principles in systems thinking following a facilitated discussion of maltreatment-related incidents using an AcciMap (see 3.1). First, this process supported investigators in moving away from both blame and a focus on what is commonly most proximal to outcomes, direct care staff (see 3.2.1). This was further evidenced through the completed AcciMaps as both groups moved quickly away from the decisions and actions of staff and built the maps higher within the system's hierarchy, making connections from these various levels to the decisions and actions of the direct care staff most proximal to the incident. Both of the maps showed features at all levels and an abundance of interactions between these features.

Second, the use of the AcciMap supported the participants' understanding of the 'big picture' of maltreatment-related incidents through AcciMap's visual representations (see 3.2.2). Third, participants started seeing incidents as emerging out of various factors and interactions within

the system (3.2.3). Finally, the use of an AcciMap helped investigators in this study recognize the importance of gaining multiple perspectives of system actors to understand an incident (3.2.4) and provided a tool that supported the investigators with improving two of their primary responsibilities in investigations: determinations of maltreatment and communication about their findings (3.2.5).

The AcciMap utilized within this study may not only contribute to organizational learning support investigators to act with more autonomy, but it also has the potential to improve retention by a decreased focus on the sharp end of the system and more support for the work that is done by direct care staff. This is critical given that direct care staffing is at an all-time low and is a national crisis for facilities (ANCOR, 2017; Centers for Medicaid and Medicare Services, 2021; Friedman, 2018,). When the workforce feels more supported and is stable, outcomes improve for those served (Balfour & Neff, 1993; Brannon, et al., 2007; Castle, et al., 2007; Friedman, 2018). Creating safer systems through improved methodologies within investigations that take a systemic approach to incidents, with improved support and a decrease in punitive actions towards direct care staff, has the ability to fundamentally change care within licensed human services facilities.

As systems have evolved and become increasingly complex, it is possible that the very regulations put in place to support safety and learn from maltreatment investigations are actually hindering the ability for learning and improvement that could make systems safer for vulnerable individuals. This study provides some initial evidence that this is true. Furthermore, this highly regulated and constrained approach presently used appears to be creating distress to those who investigate incidents of maltreatment. The statutes intended to ensure safety and welfare have

utilized an approach to understanding incidents that has focused on the decisions and actions of those operating at the sharp end of our systems (i.e., front line and direct care staff). This focus on the front line staff results in the unnecessary blaming and firing of these staff, and misses critical features within the system that play a role in maltreatment-related incidents. This regulatory approach may be letting the system off the hook when it comes to assuring the safety and welfare of those serviced within licensed facilities.

This paper is a call to action, not only for further studies, but for the licensing system; specifically, to those responsible for the creation of the regulations which direct the investigations of maltreatment in facilities. Those responsible for the system must examine both the unintentional harm this approach to regulations and safety may be having on the people within the human services system, and its impact on learnings that perpetuates systematic safety concerns which remain uncovered and unaddressed through traditional linear methodologies of investigating.

5.1 Limitations and Recommendations for Future Research

Limitations in this study included a small sample size and that the sample was drawn from one agency. Additionally, follow up did not occur to determine if the benefits or possibilities the participants saw during the study were actually realized. Some of the benefits mentioned within this study, such as increased systems safety, and increased satisfaction and retention for direct care staff, as well as investigators, may only be known with confidence prospectively through longitudinal studies.

Further research should conduct in-depth analyses on common incidents that draw upon lessons and experiences of several investigators across multiple incidents which can inform higher level systemic recommendations for broader system-wide improvement. Given the number of incidents which have similar systemic causes, performing an in-depth analysis on just a few of them could help prevent other incidents from occurring in the future (Leveson, 2010). As such, future research may also help address the gap in literature related to organizational learning and the prevention of future accidents, as limited studies have been done that systemically evaluate and compare methods of investigation related to their efficacy in identifying measures that actually can avoid future incidents (Lindberg et al., 2010). Additionally, research on how the AcciMap process could be used to support and maximize learnings from common incidents may assist in making the AcciMap process more accessible for investigators in the future. Finally, additional studies within licensing investigations in other jurisdictions and with varied backgrounds of investigators are needed to explore the extent to which systemic analysis approaches, such as the use of an AcciMap, can enhance learnings across contexts and contribute to human service systems improvement from the investigative process.

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Appendix A – Investigative Case Summary

MALTREATMENT INVESTIGATION MEMORANDUM
Office of Inspector General, Licensing Division
Public Information

████████████████████ states, "The legislature declares that the public policy of this state is to protect adults who, because of physical or mental disability or dependency on institutional services, are particularly vulnerable to maltreatment."

Report Number: ██████████

Date Issued: December 4, 2020

Name and Address of Facility Investigated:

Disposition: Inconclusive

████████████████████
████████████████████
████████████████████
████████████████████

License Number and Program Type:

██████████ H_CRS (Home and Community-Based Services-Community Residential Setting)
██████████ HCBS (Home and Community-Based Services)

Investigator:

████████████████████
████████████████████
Office of Inspector General
Licensing Division
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████████████████████

Suspected Maltreatment Reported:

It was reported that a vulnerable adult (VA) required eyes on supervision. It was alleged that on three occasions the VA left without staff person supervision including once after an appointment, when the VA walked away from two staff persons (SP1 and SP2). While unsupervised, the VA used methamphetamines.

Date of Incident(s): September 9 to October 2, 2020

Nature of Alleged Maltreatment Pursuant to

paragraph (a):

The failure or omission by a caregiver to supply a vulnerable adult with care or services, including but not limited to food, clothing, shelter, health care, or supervision which is reasonable and necessary to obtain or maintain the vulnerable adult's physical or mental health or safety, considering the physical and mental capacity or dysfunction of the vulnerable adult and which is not the result of an accident or therapeutic conduct.

Summary of Findings:

Although an onsite visit is generally conducted as part of a DHS investigation, during emergency due to the COVID-19 pandemic, onsite visits were suspended unless otherwise necessary to protect the health and safety of all staff persons and persons who receive our services. Pertinent information for this investigation was obtained remotely, including documentation from the facility and medical records; and through 11 interviews conducted with SP1, SP2, a staff person (P4), a supervisory staff person (P1), the VA's guardian (G), the VA's two case managers (CM1 and CM2), the VA's family member (FM), and a nurse (N), an officer personnel (O), and a security personnel (S) from the office where the VA had his/her appointment. The VA was hospitalized for mental health concerns and the G believed that it was not in the VA's best interest to be interviewed so this investigator did not interview the VA.

The VA was diagnosed with several mental health disorders and a methamphetamine use disorder. According to the VA's *Coordinated Service and Support Plan Addendum*, s/he engaged in physical aggressions toward others, self-injurious behaviors, and leaving without supervision. Staff persons provided the VA with a staffing ratio of 1:1 during awake hours. During sleep hours, the VA was provided with a staffing ratio of 2:4 with 30 minutes checks. The VA's *Individual Abuse Prevention Plan (IAPP)* stated that s/he had an "extensive" abuse history and was susceptible to all forms of abuse due to his/her impaired judgement, impulsive behaviors, and history of putting him/herself in high risk situations. The VA began receiving services at the facility on January 7, 2020, and enjoyed playing cards, coloring, and watching movies.

Law enforcement (LE) was notified but they declined to investigate the allegations.

The G and CM1 each stated that the VA had a history of leaving without staff person knowledge or permission and of drug use. If unsupervised, the VA was at risk for drug use/overdose, "elopement," and putting him/herself in unsafe situations with unknown people. The facility tried their best to keep the VA safe.

The facility's personnel records showed that SP1, SP2, and P1-6 each received training on the Reporting of the Maltreatment of Vulnerable Adults Act and on the VA's plans.

Regarding the first time the VA left without supervision on September 9, 2020:

The VA's *Behavior Intervention Reporting Form (BIRF)*, *General Event Report (GER)*, and *Daily Log Notes* each stated that on September 9, 2020, between 2:30 and 3:20 a.m., the VA left the facility without supervision when two staff persons (P2 and P3) missed the VA's 3 a.m. check. P2 and P3 searched the facility and the facility grounds and when they could not find the VA, they contacted P1 and law enforcement. At 7:45 a.m., the FM called the facility saying that the VA was with the FM, but that the VA refused to return to the facility. The FM said that the VA could stay with the FM until the VA was ready to return to the facility.

The VA's medical records from September 11, 2020, stated that the FM took the VA to a hospital because the VA said that on September 9, 2020, when s/he "ran away" from the facility, s/he was picked up by 10 people, and "raped" by "at least" 10 people. The VA's exam showed "no bruising or swelling" of the VA's genitals. The VA was screened for sexually transmitted diseases, prescribed two antibiotics and an antiretroviral to prevent human immunodeficiency virus (HIV), and released. The VA declined to provide information about his/her assault to LE so LE did not conduct an investigation.

The facility's communication book notes provided the following information:

- On September 10, 2020, when the VA's returned to the facility, s/he "needed" to be "eyes on at all time!" (Emphasis in original.) Alarms for the VA's bedroom window and other windows in the basement were activated.
- On September 12, 2020, the VA returned to the facility.
- On September 14, 2020, the VA's interdisciplinary team (IDT) [including the VA, the FM, P1, the G, CM1, the VA's therapist (T), and the VA's behavior analyst (BA)] met and decided that at night when the VA was outside s/he required "eyes on" supervision and during sleeping hours when inside staff persons were to check on the VA every 30 minutes. "Stop signs" were created and hung on the inside of every exit door at the facility. The "stop sign" was a piece of paper that had a red stop sign on it that listed the telephone numbers for the FM, P1, the G, the BA, and an administrative staff person (P6) and also cued the VA to use his/her coping skills before leaving the facility without supervision.

Regarding the second time the VA left without supervision on September 26, 2020:

The facility was a modified multi-split home with stairs near at the entrance/front porch. The kitchen, dining, and living rooms were on the first level up from the front entrance. On the landing of the first level was a locked medication cabinet and the cordless telephone and base. The landing lead into the living room which overlooked the entrance/front porch.

P4 said that during the awake overnight shifts, staff persons from two facilities were scheduled to alternate calling each other every 30 minutes.

P4 and the VA's *BIRF*, *GER*, and the *Daily Log Notes* stated that on September 26, 2020, at 11:55 p.m., the VA requested cough medication. The VA said that s/he was going outside (front porch) to smoke a cigarette and to call the FM. P4 went outside with the VA and texted on-call to requested approval to give the VA cough medication. Once P4 received approval (and was told that approval was not needed), P4 told the VA that s/he would get the VA's medication. P4 went inside and went upstairs to the medication cabinet to prepare (unlock cabinet, find and measure medication, document, etc.) the VA's cough medication. While preparing the VA's cough medication, another staff person (P5) who was picking a client (C) up from work, called to say that they would be back at the facility within a few minutes. P4 watched the VA while on the telephone with P5. Right after speaking to P5, P4 received a call from another facility for the scheduled 30-minute check. While on the telephone, P4 heard the garage door open when P5 and the C returned to the facility. P4 finished preparing the VA's cough medication and while heading downstairs, P4 saw P5 and the C enter the facility and assuming that the VA would come in with P5 and the C, P4 asked where the VA was. P5 and the C each said that they had not seen the VA. P4 could see the VA from the living room window except when preparing the VA's cough medication which took two to three minutes. P4 and P5 searched the facility and the facility grounds and when they could

not find the VA, they contacted P1 and law enforcement. When asked why P4 did not have the VA go with to get the medication or why P4 did not wait until P5 returned to the facility, P4 said that s/he was trying to be "person centered" and do things on the VA's schedule. P4 added that asking the VA to do things that s/he did not want to do like go with P4 or wait, caused the VA to escalate which could result in the VA leaving the facility without supervision. P4 stated that s/he made the best decisions s/he thought s/he could. On September 29, 2020, the FM contacted the facility saying that the VA was with him/her, but that the VA did not want to return to the facility.

The facility's communication book note from September 30, 2020, stated that since the VA used his/her cell phone to communicate with others to assist him/her in leaving the facility without supervision, a rights restriction involving the VA not having his/her cell phone and tablet at "any time" was implemented. The VA could use the facility's telephone on speaker if/when s/he needed to make a call. The VA was "eyes on, this means that you are on [his/her] hip wherever [s/he] goes 24/7." Staff persons should be "prepared for the worse and be on high alert." If the VA was sleeping, staff persons were to be outside of the VA's bedroom door. The VA's *Rights Modification Support Plan* provided consistent information regarding the VA's cell phone and tablet.

The VA's *Elopement Protocol* implemented on September 30, 2020, stated that the VA was "always eyes on" and that wherever the VA went, staff persons were "right behind" him/her. If the VA left, staff persons were to contact P1 or "on call" for assistance and guidance, verbally redirect the VA, and keep eyes on the VA. One staff person was to follow the VA on foot, remain within a "safe" distance from the VA, keep the VA out of "harm's way," and intervene if needed and the other staff person was to follow in a vehicle. Staff persons were to search for the VA for one hour and if the VA was not located they were to call 9-1-1 to report the VA as a missing person.

The VA's *Daily Log Notes* stated that s/he returned to the facility on October 1, 2020. There was no information that the VA sustained injuries while s/he was unsupervised.

Regarding the third time the VA left without supervision on October 2, 2020:

On October 2, 2020, the VA had two appointments in the [REDACTED]. The VA's second appointment was on the second floor on an office building that housed other businesses. According to the S, the lobby of the office where the VA's second appointment was had a five foot long "corridor type" foyer at the entrance and the lobby was approximately 10 by 12 feet. In the lobby were two chairs that faced a loveseat. The entrance to the building was in the middle, there was a parking lot in the front (south), another office building and more parking to the east, and a city street to the west. In the back (north) of the building was a paved walking trail with trees and bushes, but no road for vehicles. There were air conditioning units and other mechanical equipment behind the building. According to google.com/maps/place, the front of the building was 247 feet/75 meters and the west side of the building was 80 feet/24 meters.

According to <https://streetdrugs.org/methamphetamine/>, methamphetamines were "extremely addictive" stimulants. Methamphetamines increased the amount of dopamine in the brain. Dopamine was involved in "reward, motivation, the experience of pleasure, and motor function."

The O, the S (who reviewed video footage of the lobby), and the N provided the following information:

- On October 2, 2020, SP1, SP2, and the VA arrived for the VA's appointments which included two parts at 10 a.m. After entering the lobby, SP1 and SP2 sat in the chairs and the VA sat on the loveseat. The O stated that the VA was on his/her smart watch "a lot" and SP1 and SP2 each had their cell phones out and

were on them the “majority” of the time. The S stated that the VA, SP1, and SP2 took out/put away their smart watch and cell phones “frequently.”

- SP1 and SP2 remained in the lobby from 10:30 to 10:45 a.m. while the VA went back for part one of his/her appointment. After part one, the VA returned to the lobby and waited with SP1 and SP2 for part two with the N. While waiting, the VA stood at the loveseat and used his/her smart watch while SP1 and SP2 were “periodically” on their cell phones.
- The S stated that according to the video footage, at 10:49 a.m. the VA walked toward the entrance, but did not exit. The VA opened the door and exited at 10:50:41 a.m. and SP1 and SP2 walked through the door at 10:50:50 a.m. The O, who could not see the lobby door while seated, stated that “all of the sudden,” SP2 said that the VA left and when the O stood up, s/he watched SP1 and SP2 “slowly follow” the VA out of the lobby at a “very casual” pace.
- The O told the N that SP1, SP2, and the VA went outside. The N went outside to talk to SP1 and SP2 to determine how to proceed with the appointment. SP2 was standing at the entrance and SP1 and the VA were about 20 feet away on the west side of the entrance. The VA was smoking a cigarette, pacing back and forth along the side walk, and talking on his/her smart watch. SP1 and SP2 were both on their cell phones “not paying attention” to or “engaging” with the VA.
- The N was outside for five minutes and when s/he turned to go back inside the building, s/he heard the VA say that s/he was leaving and observed the VA walk west, along the front of the building away from SP1 and SP2. SP2 told SP1 to follow the VA and SP2 “dart[ed]” to get the vehicle. SP1 who was 10 to 20 feet from the entrance, stayed on his/her cell phone and did not follow the VA until the VA rounded the west corner of the building and was “out of sight.” SP1 did not engage with the VA, try to redirect the VA, call out to the VA, or do anything to stop the VA. The VA told SP1 and SP2 that s/he was leaving so the VA did not “sneak off.” [According to Google Maps the front entrance of the building to the west corner of the building was approximately 100 feet long (approximately the width of 11 vehicles and the west side of the building was approximately 80 feet long.)

P1, SP1, and SP2 and the VA’s *BIRF*, *GER*, *Daily Log Notes*, medical records, and the facility’s *Internal Review* provided the following information:

- On October 2, 2020, at 6 a.m., SP1 and SP2 arrived at the facility to pick the VA up for two appointments in the [REDACTED]. SP1, SP2, and the VA left for the VA’s appointments in the facility vehicle.
- The VA met with the T from 8 to 9 a.m. while SP1 and SP2 waited outside the T’s office. After the first appointment, SP1, SP2, and the VA went outside so the VA could smoke a cigarette. While smoking, the VA talked on his/her smart watch with a person SP1 and SP2 believed to be the FM. The VA said, “I am in [REDACTED] right now...it would be the perfect time to run if I wanted to...This is my town, I know everything about this place if I wanna take off...But I’m not going to...They stole my stuff, shit that I paid for...Fucking [P1]...I’m not under any commitment, I can leave whenever I want.” SP1 and SP2 each stated that when they tried to interact or engage with the VA, the VA told them to “fuck off” and became more agitated so SP1 and SP2 chose to not continue to engage verbally with the VA. [Note: SP1, SP2, and P1 each stated that they did not know that the VA had a smart watch and that if they had known, the smart watch would also have been listed on the VA’s *Rights Modification Support Plan*. SP1, SP2, and P1 each felt that the

situation would turn physical if the VA was asked to turn his/her smart watch in so s/he was not asked to turn it in at that point.]

- Between 9 to 10 a.m., SP1, SP2, and the VA went through a McDonald's drive through, drove to the VA's second appointment, and remained in the vehicle while they ate their food in the parking lot. At 10 a.m., SP1, SP2, and the VA went into the VA's second appointment. In the lobby, SP1 and SP2 sat in chairs and the VA sat on the loveseat. At 10:30 a.m., the VA was called back for his/her appointment and SP1 and SP2 remained in the lobby. After the first part of the appointment, the VA returned to the lobby to wait for part two of the appointment.
- At 10:50 a.m., the VA left the lobby and SP1 and SP2 followed. Once outside, the VA smoked a cigarette near the entrance of the building and said that s/he wanted to go to the FM's house. SP1 called P1 who said that s/he needed to call the G and CM1 to see if the VA was approved for a visit. P1 called the G and CM1 and they decided that the VA could not go to the FM's. P1 called SP1 and told him/her that the VA could not go to the FM's house. Then when SP1 told the VA that s/he was not able to go to the FM's house, the VA said, "Fuck that, I'm going home," and turned and walked away from SP1 heading to the west corner of the building. SP2 ran to get the vehicle.
- At 11:05 a.m., the VA walked away (to the west side of the building) and headed toward the back (north side) of the building. When SP1 followed the VA and when s/he rounded the corner of the building the VA was out of sight. SP1 stated that s/he was less than the length of one and a half "minivans" behind the VA. SP1 searched the area, including behind the building and the walking trails. SP2 searched for the VA by driving through the parking lots and nearby streets. SP1 and SP2 searched for approximately one hour but did not find the VA. SP1 and SP2 then notified law enforcement, P1, and "on-call."
- On October 3, 2020, the VA contacted the FM and the FM picked him/her up in the [REDACTED]. The VA's medical records from October 5, 2020, stated that the FM took the VA to a hospital because the VA said that on October 2, 2020, while gone from the facility, someone "shot [him/her] up with meth" and s/he injured his/her right foot from walking around all night. The VA was seen for right foot pain and a possible infection at the "meth" injection site. The VA was told to continue to monitor his/her foot pain and was released with no prescriptions or further treatments.
- SP1 stated that s/he was only on his/her cell phone to communicate with P1 and did not use his/her cell phone at any other time. SP1 and SP2 did not engage "much" with the VA because when they tried, the VA "swore at them, ignored them, or provided only short answers." The only times the VA was out of SP1's sight was for the VA's appointments and after the VA rounded the corner of the building. When asked how s/he lost sight of the VA, SP1 said that s/he was giving the VA "space" and just "lost" sight of the VA after s/he rounded the corner.
- SP2 stated that s/he was only on his/her cell phone to communicate with P1 and to take notes (SP2 provided the notes that s/he took) on what happened during the VA's appointments, because s/he would need to document it after they returned to the facility. The only times the VA was out of SP2's sight was during the VA's appointments and when SP2 left to get the vehicle after the VA walked away from SP1 and SP2. SP2 added s/he followed the VA's *Elopement Protocol*. On the way to get the vehicle, SP2 turned to look back and could no longer see the VA and at that time SP1 was almost to the west corner of the building. SP2 did not know how quickly SP1 followed the VA or how far SP1 was behind the VA.

- P1 said that s/he felt comfortable with SP1 and SP2 taking the VA to these two appointments based on their "combined experience." P1 added that s/he contacted the G, CM1, and the BA about canceling the VA's appointments given that the VA had just returned to the facility one day prior from his/her most recent "elopement," but the G, CM1 and the BA did not want to cancel the VA's appointments as they felt the VA needed assistance in processing all that had happened in the last month.
- SP1 stated that the VA walked at a "fast" pace and SP2 and P1 each stated that the VA walked at a "normal" pace.
- The VA returned to the facility on October 14, 2020.

CM2 stated that s/he did not know how the VA could get away when s/he did not have the ability to run. CM2 had a hard time understanding how the VA "turned a corner and was gone" when SP1 was following him/her on foot.

The facility's policies and procedures provided the following information:

- The *Cell Phone Usage* policy stated that personal cell phones were to be locked away and that staff persons were not to be on their cell phone unless it was an emergency or they were on break. Approval to have your cell phone on your person must be obtained.
- The *Elopement Policy and Protocol* provided consistent information with what the VA's *Elopement Protocol* stated.

Conclusion:

Information obtained showed that on the VA had a history of leaving unsupervised. The VA moved into the facility on January 7, 2020, and left unsupervised on three occasions.

Regarding the first time the VA left without supervision on September 9, 2020:

On September 9, 2020, between 2:30 and 3:20 a.m., the VA left the facility without supervision after P2 and P3 missed the VA's 3 a.m. check.

Although P2 and P3 missed the VA's 3 a.m. check and the VA left the facility without supervision, given that at the previous check the VA was present, that for approximately nine month the VA had not left the facility without supervision, and that even had the 3 a.m. check been completed as scheduled it was possible that the VA would have been gone, there was not a preponderance of the evidence whether there was a failure to supply the VA with supervision that was reasonable and necessary to maintain his/her physical or mental health.

It was not determined whether neglect occurred (the failure or omission by a caregiver to supply a vulnerable adult with care or services, including but not limited to food, clothing, shelter, health care, or supervision which is reasonable and necessary to obtain or maintain the vulnerable adult's physical or mental health or safety, considering the physical and mental capacity or dysfunction of the vulnerable adult and which is not the result of an accident or therapeutic conduct).

Regarding the second time the VA left without supervision on September 26, 2020:

After the first incident, the VA supervision requirements were changed to include that s/he “needed” to be “eyes on at all time!” The IDT decided that at night when the VA was outside s/he required “eyes on” supervision and during sleeping hours when inside staff persons were to check on the VA every 30 minutes. “Stop signs” were created and hung on the inside of every exit door at the facility to cue the VA to use his/her coping skills.

On September 26, 2020, around 11:55 p.m., the VA left the facility without supervision after P4 went to get the VA cough medicine that the VA requested.

Although the VA required “eyes on” supervision when outside and left without supervision when P4 went inside to prepare the VA’s medication, given P4 was the only staff person at the facility, that P4 was engaged in therapeutic conduct by preparing VA’s cough medication, that P4 maintained eyes on supervision except for the two to three minutes it took to prepare the medication, there was not a preponderance of the evidence whether there was a failure to supply the VA with supervision that was reasonable and necessary to maintain his/her physical or mental health.

It was not determined whether neglect occurred (the failure or omission by a caregiver to supply a vulnerable adult with care or services, including but not limited to food, clothing, shelter, health care, or supervision which is reasonable and necessary to obtain or maintain the vulnerable adult’s physical or mental health or safety, considering the physical and mental capacity or dysfunction of the vulnerable adult and which is not the result of an accident or therapeutic conduct).

Regarding the third time the VA left without supervision on October 2, 2020:

After the second incident, it was determined that the VA would no longer have access to his/her cell phone or tablet. An *Elopement Protocol* was developed for the VA which outlined that the VA was “eyes on” and the steps involved if the VA were to leave without supervision.

Consistent information stated that on October 2, 2020, at 9 a.m., SP1 and SP2 heard the VA tell who they thought was the FM on his/her smart watch that s/he was in [REDACTED] and it be a “perfect time to run.” SP1, SP2, and P1 each stated that they did not know that the VA had a smart watch and that if they had known, the smart watch would also have been listed on the VA’s *Rights Modification Support Plan*. SP1, SP2, and P1 each felt that the situation would turn physical if the VA was asked to turn his/her smart watch in so s/he was not asked to turn it in at that point. At 10:50 a.m., the VA left the lobby of his/her second appointment and SP1 and SP2 followed him/her outside. Once outside, the VA walked away from SP1 and SP2 after being told that s/he could not to the FM’s house.

The N stated that when s/he walked outside and approached SP1 and SP2, s/he heard the VA say that s/he was leaving and observed the VA walk away from SP1 and SP2. While SP2 went to get the vehicle, SP1 stayed on his/her cell phone, did not engage or redirect the VA, and did not follow the VA.

SP1 and SP2 each stated that SP1 followed the VA but it was unknown how far the VA was ahead of SP1. The N provided information that SP1 was approximately 80 feet behind the VA while SP1 stated that s/he was less than the length of one and a half mini-vans. SP2 stated that s/he could not see the VA when s/he getting the van but at some point turned to look and s/he could no longer see the VA and that SP1 was almost to the corner of the

building. SP1 said that s/he was not immediately behind the VA because s/he was giving the VA “space” and just “lost” sight of the VA after the VA rounded the corner.

Although it’s concerning that SP1 and SP2 did not take action upon learning of the VA’s desire to run while between appointments, given that when SP1 and SP2 engaged with the VA it further escalated the VA and therefore was reasonable for them to disengage and supervise without interacting with the VA, that it was not able to be determined how far SP1 followed behind the VA and it was reasonable that SP1 might not be directly behind the VA, that even had the VA not turned the corner ahead of SP1 it would be possible that SP1 could have lost sight of the VA, there was not a preponderance of the evidence whether there was a failure to supply the VA with supervision that was reasonable and necessary to maintain his/her physical or mental health.

It was not determined whether neglect occurred (the failure or omission by a caregiver to supply a vulnerable adult with care or services, including but not limited to food, clothing, shelter, health care, or supervision which is reasonable and necessary to obtain or maintain the vulnerable adult’s physical or mental health or safety, considering the physical and mental capacity or dysfunction of the vulnerable adult and which is not the result of an accident or therapeutic conduct).

Action Taken by Facility:

The facility completed an Internal Review and determined that policies and procedures were followed, but were not adequate. After the October 2, 2020, incident, the facility implemented the VA’s PSTP and Rights Modification Support Plan. All staff persons were trained on the VA’s new plans.

Action Taken by Department of Human Services, Office of Inspector General:

No further action taken.

Appendix B- Informed Consent

Researcher: Kelly Knutson, Lund University, M.Sc. Candidate

Research Project: The research project will explore what systems safety, specifically the use of the AcciMap methodology can bring to the work of investigators within a State Agency Human Services Licensing Division.

Voluntary Participation:

This discussion is *voluntary* – you do not have to take part in it if you do not want to. Participating or not participating in this project, will have no effect on your employment with DHS. If any part of the AcciMap process or questions asked make you feel uncomfortable, you do not need to answer them, and you may leave the group at anytime for any reason.

Risks: There are no risks involved in taking part in this research project.

Privacy: Your privacy will be protected. Written analysis from the study will refer to participants as Investigator 1, Investigator 2, etc. and your name will not be used in any report that may be published.

The discussion will be kept confidential. While participants in the AcciMap session and discussion will be asked to keep what is discussed during the session confidential, this can not be guaranteed.

Recording:

Each AcciMap session will be recorded for further analysis. The recording will be done to ensure that this researcher can accurately depict participants' perspectives and their quotes related to the AcciMap session as well as in response to the follow up questions asked after the completion of the AcciMap. Once the data has been analyzed by this researcher, both recordings will be permanently deleted.

Please write your name below and check yes or no. If you want to participate, please print, and sign your name at the bottom.

____ **Yes**

____ **No**

I have been given the opportunity to ask and questions I would like regarding this research study and agree to participate.

Name: _____

Signature: _____

Appendix C- Blank AcciMap

Government & regulatory Bodies	
External Factors	
County/State Factors	
Facility/Provider Factors	
Conditions, Processes & Actor Activities	