Understanding the Requisite Content for Interprofessional Education on Sentinel Injuries, A Qualitative Study

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UNDERSTANDING THE REQUISITE CONTENT FOR INTERPROFESSIONAL EDUCATION ON SENTINEL INJURIES, A QUALITATIVE STUDY

by

Elizabeth A. Cleek, PhD(c), MS, RN, CPNP-PC

A Dissertation submitted to the Faculty of the Graduate School, Marquette University In Partial Fulfillment of the Requirements for The Degree of Doctor of Philosophy

Milwaukee, WI
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ABSTRACT
UNDERSTANDING THE REQUISITE CONTENT FOR INTERPROFESSIONAL EDUCATION ON SENTINEL INJURIES, A QUALITATIVE STUDY

Elizabeth A. Cleek, PhD(c), MS, RN, CPNP-PC

Marquette University, 2020

Child maltreatment is a public health concern in the United States. The consequences of child maltreatment pose both immediate and lifelong health threats to victimized children. Given the health consequences of child maltreatment, health care providers (HCPs) are legally required to report any reasonable suspicion of child maltreatment to child protective services (CPS).

Sentinel injuries (SIs) are some of the earliest and most readily identifiable red flags of child maltreatment. SIs are any unexpected bruising or intra-oral injuries in non-mobile infants. SIs are highly correlated with child maltreatment and may be the only sign of child maltreatment in an otherwise healthy appearing infant. However, not all HCPs are familiar with SIs as red flags of child maltreatment. When SIs are not identified and reported to CPS, infants are left at risk for continued harm.

While knowledge of SIs is important, child abuse researchers and behavioral theorists have identified that knowledge alone does not predict HCPs behaviors when identifying and reporting suspected child maltreatment. Other predictors may include implicit biases, and interpersonal and interprofessional relationships.

Interprofessional education (IPE) offers an ideal format for education on SIs as IPE proposes to improve interprofessional relationships, such as those needed in child maltreatment reporting and investigations. However, the content for an IPE intervention on SIs has not yet been identified.

The purpose of this study was to identify the needed content for an IPE intervention on SIs. This study used a qualitative description method. Twenty-seven individuals participated in semi-structured interviews, in both individual and group formats. Participants included HCPs, CPS, child protection team (CPT) members, law enforcement (LE), attorneys, and victim advocates.

Using thematic analysis, six themes were identified: (a) valuing interprofessional colleagues is shown through disagreeing respectfully, (b) professionals in different child welfare roles work under different laws, (c) interprofessional communication is intentional and potentially time intensive, (d) assumptions lead to failures in teamwork, (e) treating families ethically, and (f) barriers in identification and reporting of SIs.
Findings from the study can be used to develop an IPE intervention on SIs, with the aim to increase HCPs’ identification and reporting of SIs
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Elizabeth A. Cleek, PhD(c), MS, RN, CPNP-PC

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CHAPTER 1: INTRODUCTION

Background of the Study

Child maltreatment poses a serious health threat for children in the United States (Centers for Disease Control [CDC], 2020a). In 2018, 677,529 children in the United States, newborn through 17 years, were victims of child maltreatment (U.S. Department of Health and Human Services, 2020). This number includes 4,971 children in Wisconsin and 804 children in Milwaukee County (Wisconsin Child Abuse and Neglect Report, 2019). In addition to health risks posed to individual children, child maltreatment also poses a societal burden. Peterson et al. (2018) estimated that child maltreatment costs the United States $428 billion each year. Costs associated with child maltreatment include healthcare, child welfare, criminal justice, special education expenses, as well as a victimized child’s loss of productivity in adulthood. Consequently, child maltreatment can have devastating consequences for both victims and their communities.

Child maltreatment is a crime against children and is legally defined as:

Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act, which presents an imminent risk of serious harm (Child Abuse and Prevention Treatment Act [CAPTA], 2010, p. 6).

The CAPTA (2010) definition of child maltreatment addresses the immediate threats to victimized children, including death and serious harm. However, the risks to victimized children may escalate as the health consequences of child maltreatment may be lifelong, often presenting years after the maltreatment occurred (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016).
The Adverse Childhood Experience Study [ACEs] (Felitti et al., 1998) identified that health risks associated with child maltreatment are not only immediate, but lifelong. Maltreated children often have poorer health as adults. Negative health outcomes include increased high-risk behaviors, which may be evident as early as adolescence (Flaherty et al., 2013; Thompson et al., 2015). High risk behaviors may include smoking, illicit drug use, severe obesity, and physical inactivity (Felitti et al., 1998; Reuben et al., 2016). Adult mental health may also be negatively affected by child maltreatment, including increased depression and suicide attempts (Felitti et al., 1998). Additionally, chronic diseases such as heart disease, cancer, lung, and liver diseases are more common among adults who experienced more childhood adversity (Felitti et al., 1998). As the negative health consequences of child maltreatment may be both immediate and delayed, stopping child maltreatment may improve a child’s lifelong health trajectory.

Child maltreatment is often described as four types: neglect, physical abuse, sexual abuse, and psychological abuse (CDC, 2020b). It is not uncommon for maltreated children to be victims of two or more types of maltreatment. In 2018, 15.5% of maltreated children in the United States and 6.8% of maltreated children in Wisconsin were victims of two or more types of maltreatment (U.S. Department of Health and Human Services, 2020). Thus, identifying and stopping one type of maltreatment may protect a child from other types of maltreatment.

CAPTA (2010) legislation reflects that child maltreatment is recognized as a public health concern (CDC 2020a). This recognition came in 1962 with the defining study “The battered-child syndrome” (Kempe et al.). This study described child maltreatment as a medical condition with diagnosable symptoms and consequences. By
naming the syndrome and providing data, Kempe et al. (1962) assisted in highlighting the gravity of child maltreatment. This awareness led to state and national child maltreatment legislation and subsequent child maltreatment research (National Child Abuse and Neglect Training and Publications Project, 2014).

One area of child maltreatment research was to understand bruising as a red flag for physical abuse, particularly in infants too young to be independently mobile. The paucity of bruising in healthy infants was quantified in 1999 (Sugar et al.) and further substantiated in later studies (Harper et al., 2014; Letson et al., 2016; Pierce et al., 2017, Sheets et al., 2013). In contrast to healthy infants, bruising is common in physically abused infants (Feldman et al., 2020; Harper et al., 2014; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013). In addition to bruises, intra-oral injuries in young infants, including frenulum tears and sublingual bruising, have also been identified as associated with child physical abuse (Kudek & Knox, 2014; Sheets et al., 2013) and may present both alone or in conjunction with bruising as symptoms of physical abuse in young infants. While these injuries might appear clinically insignificant, they may be the earliest indicators of physical abuse in young infants.

Through language, Kempe et al. (1962) brought gravity and awareness to child maltreatment by naming “the battered-child syndrome.” Similarly, Sheets et al. (2013) sought to change language in order to bring awareness and gravity to bruises and intra-oral injuries in young infants as red flags of physical abuse.

**Sentinel Injuries (SIs)**

Within the context of child maltreatment, specifically physical abuse, sentinel injuries (SIs) are any unexpected bruising or intra-oral injury in non-mobile infants.
(Sheets et al., 2013). The term SIs was adopted to signify these injuries’ importance, as bruising and intra-oral injuries in non-mobile infants are never normal or expected and deserve further investigation. The word “sentinel” connotes military action as it speaks to the need for vigilance or standing guard (Merriam Webster Dictionary, 2020c). In fact, the term sentinel has previously been adopted into healthcare by the Joint Commission (TJC) (2020), which defines and monitors “sentinel events” as unanticipated events that result in patient death, permanent harm, or life-threatening temporary harm. Adding to the military definition, TJC clarified that these events are sentinel because “they signal the need for immediate investigation and response” (TJC, 2020, para 3).

Likewise, SIs signal a need for vigilance and urgent response. In addition to being temporary injuries, SIs may be the only symptom of maltreatment in an otherwise healthy-appearing infant (Petska & Sheets, 2014). Consequently, an infant with an SI should be screened for occult injuries of physical abuse and for underlying medical conditions that could predispose to the injury. Furthermore, as SIs portend prolonged and escalating physical abuse, detection and appropriate response can prevent further physical injury (Feldman et al., 2020; Jenny et al., 1999; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013). Thus, by identifying and reporting SIs, HCPs may protect infants from immediate and escalating physical abuse and mitigate the lifelong health consequences of child maltreatment (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016).

While child maltreatment experts understand SIs as indicators of physical abuse (Christian, 2015; Lindberg et al., 2015; Sheets et al., 2013), other HCPs often fail to recognize bruising and intra-oral injuries in non-mobile infants as SIs (Barrett et al., 2013).
2016; Eismann et al., 2018). Lack of recognition of SIs decreases the likelihood that these injuries will be reported to child protective services (CPS) as suspected physical abuse. One might anticipate that increasing SI knowledge alone would increase HCPs’ likelihood to identify and report SIs to CPS. However, multiple factors, in addition to knowledge, contribute to HCPs’ child maltreatment reporting behaviors (Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015).

**Child Maltreatment Reporting**

Identifying and reporting suspected child maltreatment is a complex process for HCPs (Christian, 2015). Several critical decisions must be addressed prior to an HCP identifying and reporting suspected child maltreatment. First, HCPs are only required to report any *reasonable suspicion* of child maltreatment (CAPTA, 2010; Wisconsin, 2020a). However, reasonable suspicion of child maltreatment has not been legally or clinically defined for HCPs, leaving this threshold of reporting ambiguous (Levi & Brown, 2005; Levi & Crowell, 2011; Levi & Portwood, 2011). Additionally, HCPs have voiced concerns related to lack of self-confidence in identifying child maltreatment, and concerns about consequences for, and reactions by, families (Flaherty et al., 2006; Herendeen et al., 2014; & Tiyyagura et al., 2015). Additionally, HCPs have voiced concerns that CPS would not intervene to protect the child (Cleek et al., 2019; Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015). Finally, HCPs’ child maltreatment reporting behaviors may be affected by implicit, or unconscious, biases (Laskey, 2014; McCormick & Hymel, 2019). While some studies found that HCPs may demonstrate implicit biases related to race/ethnicity when suspecting child maltreatment (Hymel et al., 2018; Wood et al., 2010), other studies do not find evidence of this implicit
bias (Laskey et al., 2012; Rojas et al., 2017). Additionally, studies suggest that socioeconomic status (Laskey et al., 2012; Wood et al., 2010) may also influence HCPs’ child maltreatment reporting behaviors. While barriers for HCPs identification and reporting of suspected maltreatment have been described, researchers have yet to identify which methods may most effectively address these barriers and improve HCPs’ reporting behaviors of child maltreatment, and specifically SIs of physical abuse.

**Statement of the Problem**

SIs are unexpected bruising or intra-oral injuries in non-mobile infants (Petska & Sheets, 2014; Sheets et al., 2013) and are under-recognized by HCPs as red flags of physical abuse (Barrett et al., 2016; Eismann et al., 2018). Lack of recognition and reporting of SIs is a lost opportunity for HCPs to protect children from immediate (Jenny et al., 1999; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013) and long-term harm ((Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016).

**Purpose of the Study**

The aim of this research study was to generate knowledge that can be used to decrease and prevent child maltreatment. This study built upon a previous study (Cleek et al., 2019) which identified that interprofessional education (IPE) might improve interprofessional collaboration (IPC) in child maltreatment investigations. IPC is proposed to improve outcomes for individuals (World Health Organization [WHO], 2010). Thus, within child maltreatment, improved IPC may lead to better outcomes for victimized children. The purpose of this current study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs.
Significance to Nursing

Nurses are legally and ethically obligated to identify and report suspected child maltreatment to CPS. Laws such as Wisconsin legislation (2020a) 48.981(2) require that all nurses in this state report any suspected child maltreatment to CPS and/or law enforcement. In addition to legal requirements, the American Nursing Association (ANA) (2020) code of ethics requires that the nurse “promotes, advocates for, and protects the rights, health, and safety of the patient” (p. v). When identifying suspected child maltreatment, the ANA code of ethics (2020) implies that nurses are inherently required to intervene, and report suspected child maltreatment. Choosing to not respond to suspected maltreatment would be a failure of protecting and advocating for children who cannot do so for themselves. Missing an opportunity to intervene on suspected physical abuse would violate a child’s right to health and safety. Thus, it is fundamental to the role of the nurse to act upon suspected child maltreatment by reporting concerns of maltreatment to CPS.

Definitions

Several key terms used within this study are defined below.

**Child Maltreatment:** Crimes against children by adults are referred to as child maltreatment (CAPTA, 2010). Child maltreatment includes both neglect and abuse. Types of abuse include physical, sexual, and emotional abuse (CDC, 2020).

**Child Protective Services (CPS):** CPS works within state and local social service agencies as the lead agency to investigate reports of suspected child maltreatment. Within
these investigations, CPS works alongside HCPs, legal professionals, and families to address suspected child maltreatment, prevent future prevent and mitigate the effects of child maltreatment (U.S Department of Health and Human Services, 2018).

**Healthcare Providers (HCPs):** Generally, HCPs may refer to all professionals who work within health-related fields, e.g. physicians, nurses, mental health providers, clinical social workers, and physical, occupational, and speech therapists. For this study, HCPs included pediatric nurse practitioners (PNPs) and pediatricians.

**Interprofessional Collaboration (IPC):** IPC occurs when HCPs from different professions work together and with patients, families, and communities to provide the best quality of care. IPC occurs within and across the spectrum of healthcare, from public health initiatives to acute clinical care (World Health Organizations [WHO], 2010).

**Interprofessional Education (IPE):** IPE occurs when students or professionals from two or more professions learn from, about, and with each other. The purpose of IPE is to develop a collaborative-ready workforce (WHO, 2010).

**Sentinel Injuries (SIs):** SIs are indicators of physical abuse. Within this study, SIs include any bruising and/or intra-oral injuries in a non-mobile infant (Sheets et al., 2013).
CHAPTER 2; REVIEW OF LITERATURE

Purpose and Scope of the Literature Review

The purpose of this literature review was to describe the philosophical and theoretical frameworks, and key concepts that supported this study. The philosophical framework for this study was pragmatism (James, 1978). The theoretical frameworks included Social Cognitive Theory (SCT) (Bandura, 1986), the Ecological Model for Health Promotion (EMHP) (McLeroy et al., 1988), and interprofessional education (IPE) (Institute of Medicine [IOM], 1972; World Health Organization [WHO], 2010). The key concepts included sentinel injuries (SIs), health care providers (HCPs)’ child maltreatment reporting practices, and child maltreatment education methodologies.

Philosophical Framework and Theoretical Underpinnings of the Study

Philosophy of Pragmatism

The philosophical framework supporting this study was pragmatism. This American philosophy was first articulated in the late nineteenth century by Charles Saunders Peirce and gained prominence through the writings of his successor, William James (Rescher, 2000). Within pragmatism, the truth of ideas and beliefs lie in their consequences, not inherently within the ideas and beliefs themselves (Rosen et al., 2015). James (1978) explained that truth has a ‘cash-value’ and therefore any truth must have practical implications and benefit society. Because truths are tied to their outcomes, pragmatism differs from some philosophies as truths may be situation and person-specific, rather than universal or transcendental (James, 1978). As truth within
pragmatism must benefit society, the philosophy of pragmatism has implications for HCPs’ behaviors surrounding reporting of SIs.

This study posited the truth that HCPs should report all SIs to child protective services (CPS) as suspected physical abuse. Within the philosophy of pragmatism, this statement is only true if reporting SIs to CPS benefits a victimized infant. However, some HCPs have expressed that children do not always benefit when suspected child maltreatment is reported to CPS; and, in fact, the outcome of reporting may be detrimental to the child (Flaherty et al., 2006; Herendeen et al., 2014). Therefore, within the philosophical framework of pragmatism, the posited truth of this study may not always be true. Thus, all HCPs may not accept that SIs should always be reported to CPS as suspected physical abuse. The beliefs and actions by HCPs when reporting SIs within the philosophy of pragmatism may be further understood through the theoretical models of SCT (Bandura, 1986) and the EMHP (McLeroy et al., 1988).

**Social Cognitive Theory**

The first theoretical framework supporting this study was Social Cognitive Theory (SCT) (Bandura, 1986). Articulated by the American psychologist Albert Bandura in the 1960’s, SCT was identified in response to the psychological schools of behaviorism and psychoanalytic theory, which described human behavior as driven by either external or internal forces (Bandura, 2011). In contrast, SCT describes human behavior as a dynamic process as people are not driven to act only by internal or by external forces. Rather, human behavior influences and is influenced by both internal and external forces, identified in SCT as “personal factors” and “environmental influences” (Bandura, 1986). Within SCT, the constructs of behavior, personal factors, and
environmental influences have a dynamic and bidirectional relationship with each other, both affecting and being affected by each other (Bandura, 1986). This relationship, known as triadic reciprocality, may be visualized through the following schema (see Figure 1) (Bandura, 1986).

**Figure 1: SCT Triadic Reciprocality Model**

[SCT Triadic Reciprocality Model schema]

*SCT Construct of Behavior*

Human behaviors are the actions of an individual. Within SCT, most human behavior is driven by goals and is therefore purposeful and future oriented (Bandura, 2011). Thus, as within the philosophy of pragmatism (James, 1978), SCT explains that human behavior is driven by its effects, which may include monetary costs, societal approval or disapproval, as well as self-satisfaction or self-disapproval (Bandura, 2011).

*SCT Construct of Environmental Influences*

Within SCT, environmental influences include the people, support systems, and cultures individuals live within. Additionally, within SCT, environmental influences include society’s reactions to behavior as society’s responses, both positive and negative, may affect behavior (Bandura, 2004).
While SCT identifies that human behavior occurs within social context (Bandura, 1986), ecological models of behavior may help further delineate and explain levels of environmental influence on human behavior (Glanz et al., 2015). Within this study, the Ecological Model for Health Promotion (EMHP) (McLeroy et al., 1988) was overlaid into SCT to better understand the environmental influences that affect HCPs’ behaviors in identifying and reporting suspected child maltreatment.

**Ecological Model for Health Promotion (EMHP).** The EMHP was developed to identify the environmental influences that affect individual’s behaviors surrounding health promoting behaviors. Five levels of influence are identified within the EMHP - one internal level and four external levels (McLeroy et al., 1988). Like SCT (Bandura, 1986), the EMHP describes personal factors that affect behavior, labeling them intrapersonal factors. Intrapersonal factors may include an individual’s unique characteristics, such as knowledge, education, attitudes, and specific skill sets.

Within EMHP, external environmental influences are separated into four levels: 1.) interpersonal processes and primary groups; 2.) institutional factors; 3.) community factors; and 5.) public policy (McLeroy et al., 1988). Interpersonal processes and primary groups include social networks, both formal and informal. These networks may include family, work groups, and friendships. Institutional factors describe how an individual interacts with societal organizations that have formal rules and regulations. Community factors describe the relationships between organizations and institutions within a community. Finally, public policy refers to laws and policies at the national, state, and local levels that influence behavior (McLeroy et al., 1988). The EMHP (McLeroy et al., 1988) may be better understood through the following scheme (see Figure 2).
**SCT Construct of Personal Factors.**

Within SCT, personal factors include physical traits such as gender, age, race, and appearance. Additionally, personal factors include cognitive factors such as education and knowledge (Bandura, 1986). While the previous personal factors are similar to those identified in EMHP (McLeroy et al., 1988), SCT also describes the personal factor of self-efficacy, which Bandura considered central to SCT (Bandura, 1986). Self-efficacy is an individual’s belief in his or her ability to effect change in a specific situation (Bandura, 1986). Self-efficacy may be the greatest determinant of behavior within SCT as it sets outcome expectations.

Understanding human behavior through SCT (Bandura, 1986) and EMHP (McLeroy et al., 1988) may help understand how HCPs might behave when identifying and reporting suspected child maltreatment, including SIs of physical abuse.
Sentinel Injuries (SIs) of Physical Abuse

The term SIs was first used within the context of physical abuse in 2013 by Lynn Sheets MD, Medical Director of Child Advocacy and Protection Services, Children's Wisconsin to describe unexpected bruising and intra-oral injuries in non-mobile infants (Sheets et al., 2013). The term SIs was adopted to describe the significance of these injuries as red flags of physical abuse and to change the way that HCPs think about them. SIs are readily visible and may be identified by HCPs, other mandatory reporters, and parents. However, as bruises and mouth injuries often do not require clinical intervention, these injuries in non-mobile infants may be trivialized as insignificant by HCPs and other mandatory reporters. Thus, the language around bruising and intra-oral injuries in non-mobile infants was changed to promote awareness that these injuries can be signs of physical abuse and to prompt both HCPs and other mandatory reporters to report the injuries to CPS as suspected physical abuse (L. Sheets, personal conversation, September 22, 2017). While the term SIs is new (Sheets, 2013), the correlation between bruising and physical abuse in young infants was noted over twenty years ago (Sugar et al., 1999).

The paucity of bruising in healthy infants was quantified in in the seminal study by Sugar et al. (1999). In a prospective study of 973 children aged 0-36 months, 20.9% (n=209) of all children had bruising. However, only 0.6% (2 of 366) infants < 6 months and 1.7% (8 of 473) infants < 9 months had any bruises. In contrast, 17.8% of cruising infants and 51.9% of walking children had bruising. As infants and children became more mobile, bruising became more common in healthy infants.

While bruising is rare in healthy infants (Sugar et al., 1999), it is common in physically abused infants. Bruising rates in infants evaluated for physical abuse ranged
from 11.7% (14 of 120) (Letson et al., 2016), 22% (44 of 200) (Sheets et al., 2013), 50% (73 of 146) (Harper et al., 2014) to 64.3% (9 of 14) (Pierce et al., 2017). While 11 – 64.3% is a broad range, all were significantly higher than the 0.6% and 1.7% identified in healthy infants (Sugar et al., 1999).

As bruising is rare in non-mobile infants, its presence should compel HCPs to identify a cause. After inflicted trauma, the most commonly proposed cause is an unintentional injury, or an underlying bleeding disorder. However, bleeding disorders are rarely identified as a cause for bruising in infants. In Harper et al. (2014), 70.5% (103 of 146) of infants presenting with isolated bruising were evaluated for bleeding disorders. However, no infants had an underlying bleeding disorder. Similarly, in Feldman et al. (2020), 69% (32 of 46) infants with unexplained bruising were evaluated for bleeding disorders. Again, no infants had underlying bleeding disorders that explained their bruising.

Intra-oral injuries (frenulum tears and sublingual bruising) are also SIs as they are usually inflicted when an object such as a bottle or pacifier is forcefully pushed in an infant’s mouth. In Sheets et al. (2013), 11% (22 of 200) of abused infants with sentinel injuries had intra-oral injuries, while 22% (44 of 200) in the same cohort had bruises (some infants presented with both). Few studies are specific to the identification and evaluation of intra-oral injuries as their significance is usually discussed in their relationship with bruising. However, unexpected intra-oral injuries in non-mobile infants, whether present with or without bruising, are SIs and should be referred to CPS as concerning for physical abuse.
Despite the newness of the term SIs, its definition has already been expanded in clinical and research scenarios. Subsequent to Sheets et al. (2013), the term SIs has been used more expansively and less specifically to include additional injuries correlated with physical abuse (Berger & Lindberg, 2018; Lindberg et al., 2015; Pierce, 2018). However, for the purposes of this research, the original definition posed by Sheets et al. (2013) was used – any unexpected bruising or intra-oral injury in a non-mobile infant.

**HCPs’ Knowledge of SIs**

While child maltreatment experts routinely use the language of SIs (Berger & Lindberg, 2018; Christian, 2015; Lindberg et al., 2015; Pierce, 2018; Sheets et al., 2013), other HCPs are less familiar with the definition of SIs and their significance for physical abuse. Two recent survey studies of HCPs, one in Canada (Barrett et al., 2016) and one in the United States (Eismann et al., 2018) demonstrated that HCPs who were not child maltreatment experts often failed to recognize SIs and their relationship to physical abuse. In both studies, participants were presented with vignettes of physical abuse cases that included SIs and asked to identify if the injuries were suspicious for physical abuse. Barrett et al. (2016), defined SIs as bruises and intra-oral injuries in non-mobile infants. In this study, which included general and pediatric subspecialists, only 378 of 582 (65%) participants identified SIs as red flags of physical abuse. Of the 65% of participants who did identify SIs, general pediatricians were more likely to recognize SIs than pediatric subspecialists ($aOR=0.57$, $95\% CI 0.37–0.88$, $P=.01$). Additionally, for all HCP participants, bruising was more commonly recognized (91.9%) than mouth injuries (67.2%) as SIs (Barrett et al., 2016).
Eismann et al. (2018) surveyed 565 pediatric HCPs in a collaboration of six children’s hospitals within one midwestern state. HCPs included attending physicians (n=199), medical trainees (n=69), nurses (n=203), nurse practitioners (n=35), and social workers (n=59). In addition to broadening the scope of HCPs surveyed, Eismann et al. (2018) used a broader definition of SIs to include fractures, intra-cranial hemorrhages, and eye hemorrhages (Berger & Lindberg, 2018). Despite including additional injuries and more health care disciplines, findings were similar to Barrett et al. (2016) as bruising, specifically genital bruising, was the most recognized SI (97%) and intra-oral injury was the least recognized SI (77%).

A knowledge gap of SIs existed among HCPs as they did not always recognize these injuries, particularly intra-oral injuries, as suspicious for physical abuse (Barrett et al, 2016; Eismann et al., 2018). Addressing this knowledge gap is critical to protect children from continued and potentially escalating physical abuse (Sheets et al., 2013). However, while increasing HCPs’ knowledge of SIs is important, both child maltreatment researchers (Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015) and behavioral theorists (Bandura, 1986; McLeroy et al., 1988) have identified that knowledge alone does not predict HCPs’ physical abuse reporting behaviors. Rather, HCPs’ reporting behaviors are related to intrapersonal and societal influence as explained within SCT (Bandura, 1986) and the EMHP (McLeroy et al., 1988).

**HCPs’ Child Maltreatment Reporting Behaviors Within SCT and EMHP**

Behavioral theories are used in research to explain and predict behavior. The following section describes how the behavioral theories of SCT (Bandura, 1986) and
EMHP (McLeroy et al., 1988) can explain HCPs’ physical abuse reporting behaviors (see Figures 3 and 4).

**Figure 3: HCPs’ Physical Abuse Reporting Behaviors as Explained by SCT**

**Figure 4: HCPs’ Physical Abuse Reporting Behaviors as Explained by EMHP**
SCT (Bandura, 1986) and EMHP (McLeroy et al., 1988) propose that behaviors occur in response to both environmental and personal factors.

**Environmental Influences on HCPs’ Child Maltreatment Reporting Behaviors**

The EMHP identifies five levels, one internal and four external, of environmental influence that affect peoples’ health related behaviors (McLeroy et al., 1988). Typically, ecological models are used to describe the behaviors of community members, such as environmental influences on an individual’s likelihood to exercise (King & Gonzalez, 2018). However, this current study sought to use an ecological model to understand the environmental influences on health professionals’ behaviors. A previous study also used an ecological model to describe professionals’ behaviors. Johnson et al. (2014) described behaviors of victim advocates in a rural delta region through the use of an ecological, which explained the societal institutions and cultures that influenced how advocates assisted their clients. Similarly, this current study utilized the EMHP (McLeroy et al., 1988) to explain environmental influences on HCPs’ behaviors, specifically in identifying and reporting suspected child maltreatment.

**Public Policy**

Public policies include laws and policies at the national, state, and local levels that influence behavior (McLeroy et al., 1988). For HCPs, there are national and state laws that affect their physical abuse reporting behaviors.

**Mandatory Reporting Laws.** HCPs are among multiple professionals who interact and engage with children during their routine workday. Given this relationship, HCPs are identified as mandatory reporters of suspected child maltreatment, which
means that they are professionals who are legally required to report any reasonable suspicion of physical abuse to CPS and/or law enforcement when they have reasonable cause to suspect that abuse has occurred (Physical abuse Prevention Treatment Act [CAPTA], 2010; Wisconsin, 2020a). Mandated reporters include, but are not exclusive to, HCPs, educators, and social services (U.S. Department of Health and Human Services, 2020; Wisconsin, 2020a). CAPTA was initially enacted in 1972 and led to a significant increase in reports of suspected child maltreatment. In 2018, over 4.3 million referrals were made to CPS, of which 678,000 were determined to be cases of maltreatment (U.S. Department of Health and Human Services, 2016). National data specific to HCPs’ reporting rates was not identified (U.S. Department of Health and Human Services, 2016). However, in Wisconsin, medical personnel reported 5.7% of all child maltreatment referrals in 2016, a rate below other mandatory reporters such as educators (18.9%), law enforcement (17.9%), and social services (13.2%), with the remaining cases reported by community members (Wisconsin, 2018b). While the number of suspected cases of child maltreatment is large, identifying signs and symptoms of abuse and deciding to report may be difficult and uncomfortable for HCPs (Christian, 2015).

While mandatory reporting laws exist to protect children, their emphasis on reasonable suspicion and judgment (CAPTA, 2010; Wisconsin, 2020a) may complicate HCPs’ decisions about when, and if, to report suspected abuse (Levi & Brown, 2005; Levi et al., 2012). In a survey of 1,249 Pennsylvania pediatricians, Levi & Brown (2005) asked what level of probability of child abuse (between 0 and 100%) constituted a reasonable suspicion of abuse. The probability of suspected abuse to constitute a
reasonable suspicion ranged from 10-35% (35% of pediatricians), 40-50% (25% of pediatricians), 60-70% (25% of pediatricians), to > 75% probability (15% of pediatricians) of abuse. Child abuse experts demonstrated similar disparities in what probability of concern constituted reasonable suspicion of abuse: 6-35% (roughly 25% of child abuse experts), 36-55% chance (32% of child abuse experts), 56-75% chance (24% of child abuse expert), to >75% (19% of child abuse experts) (Levi & Crowell, 2011). The level of reasonable cause for suspicion was intended to set the bar low for child abuse reporting (Brown & Portwood, 2011). However, the lack of definition for what constitutes reasonable suspicion for when to report suspected child abuse may increase HCPs’ discomfort in deciding when to report suspected child abuse.

**Community Factors.** Community factors describe how institutions work together (McLeroy et al., 1988). Within physical abuse investigations, this can be understood through how the organizations of CPS, physical abuse experts, law enforcement, and the court system work together. In Milwaukee County this relationship is described through the policy of the Milwaukee County Joint Protocol on a Collaborative Response to Child Maltreatment (2016). While community HCPs do not routinely engage within this collaborative relationship, the outcomes associated with their physical abuse reporting are related to how these organizations work together.

**Institutional Factors.** Institutional factors within EMHP refers to an individual’s relationships with formal organizations (McLeroy et al., 1988). Regarding physical abuse reporting, HCPs’ institutional factors include their relationships with CPS, physical abuse experts, law enforcement, and attorneys (Cleek et al., 2019). Previous experiences with these institutions may affect HCPs’ physical abuse reporting behavior (Flaherty et al.,
When HCPs suspect child maltreatment, they must report these concerns to CPS. Unfortunately, many HCPs viewed past experiences with CPS as negative (Flaherty et al., 2000; Flaherty & Sege, 2005; Flaherty et al., 2008; Herendeen et al., 2014; Tiyyagura et al., 2015). Concerns about CPS were related to being time intensive (Tiyyagura et al., 2015), doubting that the child and/or family benefitted from the CPS referral (Flaherty et al., 2000; Flaherty & Sege, 2005; Flaherty et al., 2008; Jones et al., 2008; Tiyyagura et al., 2015), and lack of follow-up from CPS (Flaherty et al., 2006; Herendeen et al., 2014; Cleek et al., 2019). It was not uncommon for HCPs to report that they intended to manage cases of suspected child maltreatment independently, bypassing CPS altogether (Flaherty et al., 2006; Flaherty et al., 2008; Herendeen et al., 2014).

Past experiences with CPS and concerns about having to engage in the court system have also shown to affect HCPs’ physical abuse reporting behaviors. Some HCPs were concerned that a CPS report would be upsetting for a child and family but may not improve the child’s and family’s situation (Flaherty et al., 2006; Herendeen et al., 2014). Some of these concerns were based upon HCPs’ previous experiences with CPS. HCPs were less likely to report concerns of physical abuse to CPS if they felt that CPS would dismiss and not investigate in spite of the HCPs’ concerns of abuse (Jones et al., 2008). In addition to concerns about CPS, one surveyed pediatrician stated that s/he did not report suspected maltreatment because he did not want to engage in the court system (Flaherty et al., 2006). HCPs’ reporting behaviors have been shown to not only be
affected by organizations such as CPS and the court system, but closer relationships also affect their reporting behaviors.

Both HCPs and CPS verbalized that communicating with each other was at times difficult and inefficient. Goad (2008) noted that some CPS personnel found working with HCPs as difficult, particularly when attempting to engage and communicate with HCPs. Cleek et al. (2019) identified that HCPs found reporting to CPS as time consuming and inefficient as HCPs were sometimes not sure of the reporting process and then found the subsequent reporting process with CPS time consuming due to CPS’ multiple questions. In the same study, CPS reported that while CPS needed to speak directly with the reporting provider, often other office staff called in to CPS and were unable to answer CPS’ questions. Thus, communication between HCPs and CPS was at times frustrating for both (Cleek et al., 2019).

**Interpersonal Factors.** Interpersonal factors speak to personal relationships, including those with families, friends, and work colleagues (McLeroy et al., 1988). Within physical abuse reporting, interpersonal factors that affect HCPs’ reporting behaviors are those relationships with patients and families, and with their professional peers.

In Flaherty et al., (2006), 14 (3%) of surveyed pediatricians admitted that they did not report all suspected abuse. Two of those pediatricians stated that they did not report suspected abuse because they had a personal relationship with the family. This relationship superseded any concerns the physicians had about the child’s wellbeing.

In addition to families, HCPs also looked to their professional peers when deciding whether or not to report. Before reporting to CPS, it is not uncommon for HCPs
to discuss with their peers if an injury should be reported as suspected physical abuse (Herendeen et al., 2014; Tiyyagura et al., 2015). Nurses appreciated having conversations with other nurse colleagues and nurse supervisors as a “run through” prior to reporting to CPS (Tiyyagura et al., 2015, p. 450). However, collaboration amongst HCPs did not always support a provider’s intent to report suspected physical abuse. Some pediatric nurse practitioners (PNPs) (Herendeen et al., 2014) were dissuaded from reporting by collaborating physicians (n=14 of 604). In these cases, the physicians either disagreed with the PNP’s concerns of abuse or agreed with the PNP but felt that reporting was inappropriate. However, as each HCP is a mandatory reporter, it may not be appropriate for a PNP to allow a fellow HCP to discredit their concerns of child maltreatment.

**Personal Factors Affecting HCPs’ Physical Abuse Reporting Behaviors**

The SCT posits that behavior is affected by an individual’s traits, which Bandura called personal factors (Bandura, 1986). Within the context of child maltreatment, several personal factors have been shown to affect HCPs’ physical abuse reporting behaviors including implicit biases, knowledge, and confidence.

**Implicit Biases**

Implicit biases are beliefs that an individual holds unconsciously and involuntarily (Laskey, 2014; McCormick & Hymel, 2019). Because they are unconscious, implicit biases may lead to cognitive errors as individuals do not realize that their biases may be affecting their attitudes and behaviors (Laskey, 2014). Within child maltreatment,
implicit biases suggested to affect HCPs’ behaviors may include socioeconomic status (SES) (Laskey et al., 2012) or race/ethnicity (Hymel et al., 2018). However, studies on implicit biases may conflict as not all studies found evidence of implicit biases by race/ethnicity (Laskey et al., 2012; Rojas et al., 2017). Understanding the potential for implicit biases is important as mandatory reporters are at risk for making errors such as over or under reporting suspected child maltreatment when they do not identify and acknowledge their own implicit biases (Laskey, 2014).

**Socioeconomic Status (SES).** HCPs may be more likely to identify injuries in children of lower SES as concerning for abuse than children of higher SES (Laskey et al., 2012). Surveyed pediatricians were assigned one of four fictional vignettes of an 18-month old with a femur fracture. The vignettes differed by race (white or black) and SES (low or high). Of 2109 responding pediatricians (n=4423, 47.7%), race did not affect whether the injury was perceived as accidental vs. abusive. However, abuse was found to be more likely in the children of low SES vs. higher SES (48% vs. 43%, overall \( P=.02 \)) (Laskey et al., 2012). While race did not alter HCPs’ decisions about abuse, some studies suggest that some HCPs may have implicit biases about the relationship between race and abuse.

**Race/Ethnicity.** Race and ethnicity may affect some HCPs’ child maltreatment reporting behaviors. Hymel et al. (2018) completed a secondary analysis of a pediatric traumatic head injury database. Eighteen hospitals had participated in the Pediatric Brain Injury Research Network (PediBIRN)’s implementation of an abusive head trauma (AHT) protocol to evaluate for head injuries as abusive vs. accidental. A secondary analysis was completed of 500 children admitted into the database. Within these patients,
children of race/ethnic minorities \(n=229\) were more frequently evaluated \(P<.001\), aOR 2.2) and reported \(P=.001\) to CPS as abuse. Additionally, these differences occurred almost exclusively in patients who were identified as low risk for abuse (Hymel, 2018). Importantly, as the authors further evaluated the data, these statistically significant differences were due to extreme disparities at two of the eighteen centers. Thus, these reporting disparities were not evident at the other 16 PediBIRN centers. No confounding variables were identified and the Hymel et al. (2018) concluded that these disparities in race/ethnicity were due to local providers’ implicit biases at the two centers. Thus, even when objective protocols are implemented to evaluate for physical abuse, the protocols may be implemented differently due to implicit biases.

Another study of pediatricians failed to identify implicit biases regarding race and child maltreatment. Within the study, 342 pediatricians were randomly assigned to two groups. Each group evaluated nine vignettes, but the race of the child was reversed in each vignette. Not supporting their hypothesis, the researchers did not find evidence of racial implicit biases amongst the pediatricians’ suspicions of child abuse (Rojas et al., 2017). With this finding, Rojas et al. (2017) suggest that further studies are needed to explore the complexities between HCPs’ knowledge and behaviors.

HCPs’ implicit biases within suspecting and reporting child maltreatment remains a complex study topic due to conflicting findings. Additionally, implicit biases may be difficult to address in HCPs as they are unconscious. Addressing implicit biases may require that HCPs be willing to both recognize and acknowledge them. However, with introspection, HCPs may be able to acknowledge and address their implicit biases.
Other personal factors that affect HCPs’ physical abuse reporting behaviors are more evident to HCPs.

**Physical Abuse Education and Self-Confidence.** HCPs’ decision making in reporting suspected physical abuse is often not a linear process (i.e. an HCP is confident in her identification of an SIs and makes a simple phone call to CPS). Rather, studies demonstrated two personal factors may affect an HCPs’ decisions on whether or not to report suspected abuse to CPS, specifically physical abuse education and self-confidence in identifying and reporting suspected physical abuse (Flaherty et al. 2006, Hcerendeen et al., 2014; & Tiyagura et al., 2015).

**Health Care Student Pre-Licensure Education.** It is expected that both medical and nursing students received education on physical abuse during their core curriculum. However, each medical and nursing school develops their own curriculum to address physical abuse education (Christian, 2008; AACN, 2018).

Physicians continue their formalized education through residencies in specialized fields of medicine. Narayan et al. (2006) evaluated the volume and type of child maltreatment education provided in pediatric medical residency programs. Chief residents at the 203 accredited pediatric residency programs were surveyed, with 145 (71%) responding. Types and quantity of education as well as resident preparedness to manage physical abuse were analyzed through descriptive, bivariable, and multivariable analyses. Findings included that most residency programs included didactics on physical abuse, which were typically taught by physical abuse experts. Of all residency programs, 41% had mandatory clinical rotations in physical abuse and neglect. Resident level of preparedness at graduation was related to number of patients seen clinically, and both
number and quality of didactic sessions. While elective clinical rotations were more comprehensive, few students enrolled in these elective rotations. Therefore, elective clinical rotations were not predictive of better preparedness at graduation. The study did not identify what constituted a quality didactic session. While clinical experience was significant in increasing pediatricians’ knowledge and comfort, didactic sessions also played a critical role. Notably, even with extensive training, only 12% of chief residents felt their graduates were very well informed, 54% well informed, 28% somewhat well and 6% not well informed in how to manage abused children.

Similar to medical schools, variances were identified amongst colleges of nursing. The American Association of Colleges of Nursing (AACN) (2018) requires, in broad terms, physical abuse education for undergraduate nursing students. Incorporated into domestic violence, the AACN (2018) requires that all baccalaureate nursing students have the opportunity to gain knowledge of the problem, assessment skills, interventions, and legal and ethical concerns of domestic violence for all victims. Similar to medical school requirements, curriculum development and implementation is at the discretion of the school of nursing. With these general guidelines, there are few studies on the implementation and evaluation of physical abuse education within nursing schools.

One recent child maltreatment course was evaluated for its effect on medical student knowledge of physical abuse and neglect. The Child Advocacies Studies Training (CAST) program (Pelletier & Knox, 2017) was implemented and evaluated with first year medical students in a midwestern medical school. The national CAST program is typically taught in a multi-disciplinary format with a comprehensive curriculum for university students intending to work in fields specific to child maltreatment (Gunderson
National Training Center, 2018). Through a quasi-experimental design, the CAST curriculum was associated with an increase in medical students’ knowledge about identification and reporting of child maltreatment, in comparison to a control cohort that did not receive the CAST education. While this initial study by Pelletier and Knox (2017) is an encouraging first step in physical abuse education research, there remains much to be learned about the most effective teaching methodology and hours of education needed to educate health care students about physical abuse. The CAST program is more comprehensive and intensive than most health care students would have opportunity to participate in. Additionally, while education and knowledge do play a role in these students’ roles as future HCPs, studies (Flaherty et al., 2006; Herendeen et al., 2014) suggest that knowledge alone may not predict these students’ future behaviors as mandatory reporters. Thus, while accrediting bodies suggest that medical and nursing students are receiving education about physical abuse, there are still opportunities to understand how this education is being implemented and what, if any, effect it has on their future child maltreatment reporting behaviors.

**HCPs Post-Licensure Education.** Both nurses and physicians continue their education beyond graduation. Under similar processes, these professionals earn continuing education hours to maintain credentialing and licensing. Additionally, both physicians and nurses may be required to have continuing education as part of a specific job. For example, job-specific education for nurses included physical abuse education for school nurses (Jordan et al., 2016) or for ED nurses (Jordan & Moore-Nadler, 2014). Additionally, a small number of states, including Iowa (2019) and Pennsylvania (2018), require physical abuse continuing education for both nurses and physicians as mandatory
Continuing education in physical abuse is important for two reasons. As Flaherty et al. (2006) and Herendeen et al. (2014) identified, it may be related to increased HCPs’ self-confidence and reporting practices around suspected child physical abuse. Additionally, some educational studies, such as Jordan et al. (2016) and Jordan & Moore-Nadler (2014) measure additional learner outcomes, such as self-efficacy, as described within SCT (Bandura, 1986). The presence of any continuing education in physical abuse was positively correlated with increased physical abuse reporting by HCPs. Flaherty et al. (2006) and Herendeen et al. (2014) surveyed HCPs about continuing education within their descriptive survey studies. Both studies found that the presence of continuing education in physical abuse was related with increased physical abuse reporting. Flaherty et al. (2000) posed similar questions to 85 HCPs, including pediatricians, nurse practitioners, and physician assistants. Forty-eight (56%) HCPs had reported suspected abuse in the previous year. Of the 48 who reported suspected physical abuse, only 41 reported all suspected cases of abuse. The 41 HCPs who reported all suspected cases of abuse were ten times more likely to have had formalized physical abuse education within the past five years (Flaherty et al., 2000).

While the presence of physical abuse education was positively correlated with HCPs’ reporting of suspected physical abuse, there are still gaps in understanding what kind of education and how much education is most likely to increase HCPs’ physical abuse reporting practices. In these three studies, education was only surveyed in its most basic terms as a binary variable, present or not present. The methodologies and formats of the education were not described (Flaherty et al., 2000; Flaherty et al., 2006; Herendeen et al., 2014). Notably, while increased education was identified as a predictor of
increased physical abuse reporting, 21% of PNPs (Herendeen et al., 2014) and 22% of pediatricians (Flaherty et al., 2006) reported inadequate training in physical abuse identification and reporting. Thus, while physical abuse education is valuable, many HCPs still report that the education they have received may be inadequate. Child maltreatment researchers still have yet to identify how much and what type of continuing education is most effective and sufficient for HCPs’ to perceive that they have been adequately trained in identifying and reporting suspected physical abuse.

**HCPs’ Self-confidence in Identifying and Reporting Suspected Physical Abuse**

The relationship between continuing education and physical abuse reporting practices may be an indirect relationship (Flaherty et al., 2006; Herendeen et al., 2014). Instead of increased physical abuse continuing education being directly related to reporting suspected abuse, continuing education may be directly related to HCPs’ self-confidence in identifying and reporting suspected abuse (Flaherty et al., 2006; Herendeen et al., 2014). Increased self-confidence in identifying and reporting suspected physical abuse was then predictive of increased physical abuse reporting (Flaherty et al., 2006; Herendeen et al., 2014).

Self-efficacy is an individual’s belief in his or her ability to effect change in a specific situation (Bandura, 1986). Self-efficacy, which includes self-confidence, has been used as an outcome measure in nursing physical abuse education, both in the United States (Jordan et al., 2017) and internationally (Fraser et al., 2018; Lee & Chou, 2017). In these three studies, significant changes in self-efficacy following an education intervention were measured quantitatively through self-report pre-post scales and identified that different educational interventions can be effective in changing nurses’
self-efficacy in identifying and reporting suspected physical abuse. These results of these studies support that nurses’ self-efficacy in physical abuse reporting, and potentially SIs reporting, may be changed by an educational intervention.

Not surprisingly, a lack of HCPs’ self-confidence in physical abuse identification and reporting was related to decreased physical abuse reporting (Flaherty et al., 2000; Flaherty et al., 2006). HCPs were hesitant to report suspected physical abuse if they were not certain of their concerns for abuse (Flaherty et al., 2000; Flaherty et al., 2006). While HCPs are legally required to report any reasonable suspicion of physical abuse (CAPTA, 2010; Wisconsin, 2020a), HCPs hesitated to report when they were not confident in their suspicion of physical abuse.

While the personal factor of self-efficacy has been assessed within physical abuse education, changes of environmental influences in physical abuse reporting have not been measured. Within physical abuse, environmental influences may relate to HCPs’ need for interprofessional collaboration to protect victimized children (Cleek et al., 2019; Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015). SCT predicts that changing HCPs’ abilities to collaborate will change their reporting behaviors of SIs and all physical abuse. Interprofessional education (IPE) may provide an educational format to address the need for HCPs’ to collaborate when identifying and reporting SIs. reporting. Interprofessional education (IPE) may provide an effective format for understanding and addressing environmental influences in reporting suspected physical abuse and SIs.
Interprofessional Education (IPE)

Definition and History of IPE

IPE occurs when students or professionals from two or more professions learn from, about, and with each other (World Health Organization [WHO], 2010). The purpose of IPE is to create a collaborative ready workforce. Improved collaboration amongst professionals is proposed to lead to improved patient outcomes (Interprofessional Educational Collaborative [IPEC], 2018a).

Within IPE, the four identified core competencies are: (a) values/ethics, (b) roles/responsibilities, (c) interprofessional communication, and (d) teams and teamwork. These four competencies then fall under the domain of interprofessional collaboration (IPEC, 2016). The core competency of values/ethics speaks to maintaining a climate of mutual respect as individuals work together. The core competency of roles/responsibilities requires that a health care student or professional understands his/her specific professional role as well as the roles of others. Working together, all roles fulfill a full complement when caring for patients. Interprofessional communication requires that HCPs communicate responsibly to promote a team approach to health care. Finally, teams and teamwork speak to the need of maintaining professional relationships to provide care that is safe, timely, efficient, effective, and equitable. These four competencies of IPE are the foundation of all IPE curricula so that both students and practicing professionals will be able to collaborate more effectively (IPEC, 2016).

While IPE is not a new concept in health care education (Institute of Medicine [IOM], 1972), it is gaining more attention to improve patient outcomes. In recent years, federal
and global health organizations such as the Agency for Health Research and Quality (AHRQ), IOM, and WHO have begun looking to measure IPE and its effects on improved multidisciplinary patient care.

Initially, health care professions included within IPE were narrow: primarily medicine, nursing, pharmacy, and dentistry (IPEC, 2018b). However, today’s professions engaging in IPE include fourteen additional professions, ranging from social work, nutrition/dietetics, occupational and physical therapy, to clinical psychology. Multiple disciplines, including both nursing and medicine, require that IPE be included in curricula to maintain respective educational accreditations (IPEC, 2018b).

When directed at prelicensure students, IPE is proposed to increase interprofessional collaboration (IPC), and subsequently improve patient outcomes (WHO, 2010). The WHO (2010) model of IPE definition suggests a linear relationship (see Figure 5).

**Figure 5: World Health Organization (2010) IPE Model**

While the four core competencies and the linear framework are common amongst IPE programs, the programs use different curricula and pedagogies to implement IPE. Bridges et al. (2011) explained that the necessary foundation for successful IPE programs include administrative support, programmatic infrastructure, committed faculty, and
student engagement. Successful IPE programs include opportunities for students to practice, experience, and share the traits of responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust (Bridges et al., 2011). The goals of improving collaboration and patient outcomes are bold and complex. However, bold goals are needed as health care becomes more complex and patients require multi-disciplinary teams to provide safe and effective care.

**IPE and Child Maltreatment Education**

A small number of studies have been completed to both describe and/or evaluate the role of IPE within physical abuse. Despite the paucity of studies, the history of IPE and physical abuse in the United States dates to the 1970’s.

**IPE in Pre-licensure Child Maltreatment Education**

IPE physical abuse programs in the United States were first implemented and described in 1977 (Venters & ten Bensel) and 1992 (Gallmeier & Bonner). Venters and ten Bensel (1977) described a single university program, while Gallmeier and Bonner (1992) provided a faculty review of physical abuse educational programs implemented in ten universities through funding received in 1987 by the National Center on Child Abuse and Neglect (NCCAN). The NCCAN funded programs were primarily graduate level and most required a clinical practicum. There was a significant time lapse until the next substantial IPE curriculum. The Child Advocacy Studies Training [CAST] (Johnson, 2015) was directed at teaching university students to work in child protection teams. Johnson (2015) described implementation of the CAST program at Kennesaw State University in Georgia. However, the program has been implemented in over 50
universities and institution of higher learning (Gunderson National Child Protection Training Center, 2018). Each program is a comprehensive, inter-disciplinary, and multi-dose program. As CAST is offered for college credit, participants self-select for this elective curriculum. Given the comprehensiveness of past and current IPE physical abuse curricula, these programs are most suitable for health care students intending to work in child protective teams. While comprehensive, the few previous and current IPE physical abuse education programs may not be practical to capture all future HCPs who will be mandatory reporters. Additionally, past and current IPE physical abuse curricula do not provide outcome measurements to identify the most effective format and dosing for global IPE physical abuse curricula.

**IPE in Post-Licensure Child Maltreatment Education**

Several IPE studies on child maltreatment were specific to practicing professionals. Six relevant studies were identified: two in the United States (Jackson, 2012; Johnson, 2013), and one each in Ireland (Horwath, 2007), Finland (Inkila et al., 2013), the United Kingdom (Hood, 2015), and Israel (Davidov et al., 2017). Even though these nations may have different reporting laws and cultural beliefs regarding child maltreatment, these studies were included in the literature review as they spoke to the universal need for interprofessional collaboration (IPC). One significant finding from these studies suggests that, for practicing professionals, the relationship between IPE, IPC, and patient outcomes may not reflect the relationship posed by the WHO (2010). The purpose and findings from these studies were largely job-specific and in reaction to inadequate teamwork and patient outcomes. Consequently, patient outcomes and a need for improved IPC directed the need for IPE (Inkila et al., 2013; Johnson, 2013). Thus, for
practicing physical abuse professionals, the relationship between IPE, IPC, and patient outcomes are not linear, but may be represented by a triangular model with inadequate IPC and suboptimal patient outcomes predicting a need for IPE. Once IPE was implemented, the intent was to improve both IPC and patient outcomes (See figure 6).

**Figure 6: IPE Relationship Model for Practicing Child Maltreatment Professionals**

Lack of IPC was the subject of most IPE studies pertaining to practicing child maltreatment professionals. Lack of collaboration occurred amongst multi-disciplinary teams in Virginia Child Advocacy Centers (Jackson, 2005), between social services and those who refer in Ireland (Horwath, 2007), amongst child welfare professionals in Israel (Inkila et al., 2013) and in the United Kingdom (Hood, 2015). One effort to increase collaboration in the United States was described through a web-based CPS case tracking system (Johnson, 2013). The findings of these post-licensure IPE programs support the findings of Flaherty et al. (2006) and Herendeen et al. (2014) in the United States. Within these studies, a lack of collaboration amongst child welfare professionals, particularly HCPs and CPS, impeded identifying and reported suspected physical abuse.
The post-licensure IPE studies also identified that different professions have different frameworks and perceptions of the concept of IPC. Inkila et al. (2013) clarified that different skill sets and frameworks affect how professionals identify and react to suspected physical abuse. For example, HCPs address physical abuse as a health problem, CPS as a social problem, and law enforcement identify the same concern of physical abuse as a crime. Thus, effective IPC requires that team members understand and respect each other’s professional frameworks and realize that their communication begins from different professional paradigms and languages.

The strength in IPC is its potential for synergy amongst professions. However, Horwath (2007) identified a potential threat of IPC – professionals accepting the group decision and not following their own beliefs and convictions. If members are not all heard, someone’s professional voice may be lost and lead to an illusion of collaboration. This finding was reflected in Herendeen et al. (2014) when several PNPs voiced that they did not report suspected abuse after conversing with their collaborating physicians. Within the context of SIs and physical abuse, IPE must empower all professions involved in the identification and reporting suspected child physical abuse. However, an HCP’s obligation as a mandatory reporter is not absolved even in the face of disagreement with other HCPs.

Both IPE and physical abuse education are required components of both medical (Christian, 2008) and nursing (AACN, 2018) education. As physical abuse reporting requires interprofessional collaboration, one might have anticipated more evidence of IPE and physical abuse education with health care students. However, other than the CAST program, there are few well described IPE programs specific to physical abuse.
Additionally, the most comprehensive evaluation of the CAST program was implemented in a single-discipline cohort of medical students (Pelletier & Knox, 2017). Outcome measures, while encouraging, were limited to changes in student knowledge. Thus, there are opportunities to understand the effectiveness of IPE as a methodology for child maltreatment education, specifically SIs, and its effects on HCPs’ child maltreatment reporting behaviors, specifically regarding SIs, and IPE’s effects on HCPs’ child maltreatment reporting behaviors.

Studies involving child maltreatment professionals did not appear to follow the linear relationship as proposed by the World Health Organization (2010) that IPE predicts IPC, which leads to improved patient outcomes. Rather, with practicing professionals, the model appears triadic as poor child outcomes and inadequate IPC identified a need for IPE.

Within IPE, multiple educational methodologies have been proven effective, including didactic lectures, community-based experiences, and interprofessional-simulation (Bridges et al., 2011). Despite the format, an IPE intervention must address the four core competencies of IPE: values/ethics, roles/responsibilities, interprofessional communication, and teams and teamwork (IPEC, 2016). Within the context of child maltreatment, the best IPE format has yet to be identified, both for pre-licensure students and practicing professionals. As many students do not receive extensive or standardized physical abuse education during their formal training, many practicing professionals may still need education on SIs.
**Gaps in the Science**

This literature review demonstrated that HCPs have a knowledge gap regarding SIs and their predictive relationship with physical abuse (Barrett et al., 2016; Eismann et al., 2018). However, this literature review did not identify any studies on SIs that implemented or evaluated educational interventions to change HCPs’ knowledge, collaborative practices, or reporting behaviors surrounding SIs. While no studies specific to SIs were identified, several studies regarding physical abuse and all child maltreatment were identified.

This literature review did not identify a specific theoretical framework for understanding and changing HCPs’ behaviors with SIs identification and reporting. However, SCT (Bandura, 1986) and EMHP (McLeroy et al., 1988) may offer a theoretical framework for both understanding and changing HCPs’ behaviors surrounding SIs. No current studies were identified that addressed SIs within these models from the viewpoint of HCPs.

Finally, while multiple educational programs have been implemented for physical abuse education (Fraser et al., 2018; Jordan et al., 2017; Lee & Chou, 2017; Pelletier & Knox, 2017), they have not identified the most effective content, methodology, or dose needed for physical abuse or SIs education.

These gaps in the science surrounding HCPs’ identification and reporting behaviors of SIs might be addressed through an IPE intervention on SIs. However, this literature review did not identify an IPE intervention on SIs, or on any physical abuse, that was directed at professionals practicing in the United States. Therefore, there does
not yet exist a template for the educational content needed for an IPE intervention on SIs for practicing professionals.

**Purpose of the Study**

The purpose of this study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of sentinel injuries.

**Assumptions of the Study**

This study contains four underlying assumptions.

1. **HCPs want to protect infants and children from child maltreatment.** Even when HCPs choose to not report SIs or suspected child maltreatment to CPS, they still have the best intentions for an at-risk infant or child.

2. **HCPs are human beings.** Therefore, their decision-making regarding when to report SIs may be influenced by both conscious and unconscious, or implicit, biases.

3. **Predictors of HCPs’ reporting behaviors of SIs will be similar to their behavior predictors of reporting all suspected child maltreatment.**

4. **Study participants will be truthful and engaged when sharing their insights and experiences in child maltreatment reporting.** However, participants may not always be forthright, either intentionally or unintentionally, when discussing their experiences in child maltreatment investigations.

**Research Questions**

Three research questions were investigated in this study.
(1) What content is needed for an educational intervention to increase HCPs’ awareness of optimal interprofessional collaboration in reporting of SIs?

(2) What facilitators will improve interprofessional communication between HCPs, CPS, and other child welfare personnel when identifying and reporting SIs?

(3) What content is needed for an educational intervention to promote behavior changes to increase HCPs’ reporting of SIs?
CHAPTER 3: METHODS

This study sought to identify the needed content for an interprofessional education (IPE) intervention to increase health care providers (HCPs)’ identification and reporting of sentinel injuries (SIs). Applying the tenets of IPE (IPEC, 2016), this study sought to identify the content needed to: increase HCPs’ awareness of optimal interprofessional collaboration in reporting of SIs; improve interprofessional communication between HCPs, CPS, and other child welfare personnel when identifying and reporting SIs; and, promote behavior changes to increase HCPs’ reporting of SIs.

Study Design

Qualitative Description

This study utilized a qualitative descriptive methodology. Qualitative descriptive approaches are often used when a researcher seeks an in-depth understanding of a unique phenomenon from the participant’s perspective (Sandelowski, 2010). A qualitative description methodology was appropriate for this study due to the study’s narrow focus: to understand the needed content for an IPE intervention on SIs. Additionally, the qualitative description methodology is often used within nursing research as the content from these studies is a means to develop nursing interventions (Bradshaw et al., 2017). This study had an intended outcome of generating knowledge of content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs, thus supporting the use of a qualitative description methodology..
Setting

This study was set within a midwestern urban county. This county is the most densely populated county within the state, with almost one million people (United States Census Bureau, 2020). The three largest race/ethnicity groups identified in the county included White (64.3%), Black or African American (27.2%), and Latino or Hispanic (15.4%). These were also the three largest race/ethnicity groups within the state. However, the state had a higher percentage White population (87.1%), and smaller percentage Black or African American (6.7%) and Latino or Hispanic (6.9%) populations (United States Census Bureau, 2020). Children under the age of five years comprised 6.9% of the county and 5.8% of the state populations (United States Census Bureau, 2020). Finally, the percent of people living in poverty within the county (19.1%) was higher than at the state level (11.0%). Therefore, the study was limited to this specific county given the county’s unique demographics related to population, diversity in race/ethnicity, and increased poverty rate.

This study was also limited to one county as it was anticipated that professional interactions amongst child welfare organizations might look different within this study setting. The county of study has ready access to child abuse (CA) experts within the county, while most counties in the state do not have CPT experts within their own county. Additionally, many child welfare personnel in this county have received formal SI education, which was not anticipated to be true for most of the state. Thus, this study setting was limited to this county as it was not assumed that participants’ experiences would parallel those of their colleagues in rural counties in the state.
Participants

Recruitment

Participants in this study were recruited through purposive and snowball sampling. A purposive sample was needed within the study as participants needed relevant experience to discuss the phenomenon of study (Bradshaw et al., 2017). Recruitment began with contacts known to the PI and research team members. A recruitment flyer was developed and approved by the appropriate university internal review board (see Appendix A). The flyer was emailed to known contacts, with a request that recipients forward the flyer to their colleagues. In addition to known contacts, participants were recruited through community partners. The largest community partner was a local social justice center with multiple co-located welfare agencies, including victim advocates, sensitive crimes law enforcement, mental health, and child advocacy agencies. Leadership within respective agencies assisted with recruitment of participants from these agencies.

Sample

The needed sample size within qualitative studies is often discussed and debated (Polit & Beck, 2017). Saturation has been identified as an endpoint for some qualitative studies, where no new data is being identified from additional participants (Bradshaw et al., 2017). Additionally, determining sample size is related to how common the phenomenon is. (Bradshaw et al., 2017). This study sought to understand a very specific phenomenon: what is the needed content for an IPE intervention on SIs of physical abuse. Given the specificity of this topic, it was anticipated that five participants from each
profession HCPs, child protection team (CPT), CPS, law enforcement (LE), and attorneys were needed in this study.

Study participants also included victim advocates (VAs) \( (n=6) \). This was not initially a profession sought out by the study PI. However, it was suggested to include VAs as they engage with children and families involved in child maltreatment cases. Therefore, they were included as participants in the study and added insights into the question of understanding the needed content for an IPE intervention on SIs.

**Inclusion Criteria**

Inclusion criteria stipulated that each participant had experience in identification and reporting suspected child maltreatment and/or in the subsequent assessment and possible investigation by CA, CPS, LE, and the district attorney’s office. This experience with child maltreatment cases had to be within the county of study and needed to include at least one case within the last five years. Participants were not required to have interacted with all groups along the continuum of identifying, reporting, and investigating suspected child maltreatment. At minimum, HCPs needed to have engaged with one profession in addition to CPT to meet inclusion criteria.

**Protection of Human Subjects**

Protection of human subjects approval was obtained through the Internal Review Board (IRB) of Marquette University, who deemed the study to be exempt (see Appendix B). All participants provided informed consent (see Appendix C). For in-person interviews, informed consent was obtained at the beginning of each interview. For phone
interviews, participants were emailed consents before the interview and participants returned signed consents to the PI via email prior to the phone interviews.

This study was deemed exempt by the university IRB. The study was felt to pose little emotional risk to participants as they discussed their routine work experiences. However, participants were requested to reach out to their employee assistance programs should they have any distress. Additionally, participants were provided with a list of free and low-cost mental health services within the county, should they not have access to an employee assistance program (see Appendix D).

All participants were offered a $10 coffee gift card as an incentive. Some participants declined the gift card, stating accepting incentives violated their professional rules.

All demographic data were aggregated by profession or organization. Participants’ identities remained confidential and names were removed from the final transcribed interviews. Finally, to protect confidentiality, all findings were aggregated by profession or organization.

**Data Collection**

**Demographic Form**

Participants’ demographics were collected to describe the study sample. A Demographic Form (see Appendix E) included gender, age, professional role/title, number of years’ experience, number of child abuse cases they were involved in during the last five years, awareness of SIs, and whether they had been involved in any cases involving SIs. In-person interview participants completed the demographic form prior to
the start of the interview. Participants of phone interviews were emailed the demographic form as a Word document prior to the interview and were able to complete and email the form back to the PI. All participants completed the demographic form. Responses were free text so that participants could be as general or as specific as they wanted, particularly when describing job roles, to protect confidentiality.

Twenty-seven individuals participated in this study (see Table 1). Participants included HCPs (n=3), CPS (n=2), CPT (n=6), LE (n=6), attorneys (n=5), and VAs (n=5). HCPs included one pediatrician, one primary care pediatric nurse practitioner (PNP) and one acute care PNP. CPS included one social worker and one CPS manager. Participants of the CPT team included one pediatrician, one HCP (not further specified), one PNP, and three social workers. LE included three detectives and three police officers. All attorneys in this study worked out of the county’s District Attorney (DA) office. Finally, VAs identified as one director, one social worker, one victim advocate, and two supervisors. The mean age of all participants was 42.5 (+9.6) years. Of all participants, 89% (24 of 27) were female. The mean number of years in role was 14.1 ± 7.2. The range for years of experience was 3 to 26. Participants were asked to identify the number of child maltreatment cases they had been involved in within the previous five years. This response was left as free text as a wide range of responses was anticipated. Many participants rounded off (e.g. “100’s”) while other participants provided a range (e.g. “15-20”). Consequently, calculations were not completed for this demographic question. However, as a group, HCPs had the lowest range (3,10,15-20). In contrast, in each of the other groups (CA, CPS, attorney, LE, and VAs) at least one group member cited 100 or
more cases. Ninety-three percent of participants (25 of 27) were aware of the term SIs, while 81.4% (22 of 27) had been involved in an SI investigation.

Participants’ race and ethnicity were intentionally not captured within this study to protect confidentiality. As all participants worked within one county, it was thought that providing race/ethnicity might identify some participants.

Table 1: Participant Demographics

<table>
<thead>
<tr>
<th></th>
<th>CA</th>
<th>CPS</th>
<th>ATTY</th>
<th>HCPs</th>
<th>LE</th>
<th>VA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>27</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean(SD)</td>
<td>42(12.6)</td>
<td>36(3)</td>
<td>42(7.2)</td>
<td>44.3(9)</td>
<td>50(5.5)</td>
<td>37.8(8.3)</td>
<td>42.5(9.6)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>24 (89%)</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3 (11%)</td>
</tr>
<tr>
<td><strong>Years in Role</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean(SD)</td>
<td>12.7(7.2)</td>
<td>7.5(4.5)</td>
<td>14.6(5.9)</td>
<td>15.7(7.8)</td>
<td>20.8(3.7)</td>
<td>9.2(4.2)</td>
<td>14.1(7.2)</td>
</tr>
<tr>
<td><strong>Aware of SIs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>25 (93%)</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2 (7%)</td>
</tr>
<tr>
<td><strong>Involved in SI Cases</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>22 (81.4%)</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3 (11.1%)</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2 (7.4%)</td>
</tr>
</tbody>
</table>
Semi-Structured Interviews

Data were collected via semi-structured individual and group interviews. An interview guide was developed in advance and used with each interview (see Appendix F). An initial draft of the interview guide was developed by the PI. Questions were written to follow the four competencies of IPE: values and ethics, roles and responsibilities, interprofessional communication, and teams and teamwork (IPEC, 2016). Additional questions posed to participants were related to interactions with families and related to understanding differences between SIs and other types of child maltreatment identification and reporting. Participants were also asked to discuss experiences with child maltreatment that were not captured through the interview questions. The interview guide was then modified after review and input from experts in qualitative research, child abuse, nursing education, and social welfare.

Semi-structured interviews were used in this study to understand the needed content for an IPE intervention on SIs. Semi-structured interviews are often used in qualitative description studies as they may assist in engaging but not limiting the information provided by participants (Sandelowski, 2000). This was relevant to this study as the principal investigator (PI) was a PNP interviewing child abuse experts from other professions, such as CPS, LE, VAs, attorneys, and CPT team. Thus, semi-structured interviews assisted the PI in engaging with study participants but not limiting responses to only those anticipated by the PI.

Six individual and five group interviews were completed (see Table 2). Group interviews included profession-specific, organization-specific, and interprofessional and interorganizational group interviews. Individual and group interview formats were
offered to accommodate participants’ schedules and preferences. Researchers desired to have one interprofessional and interorganizational interview, thus participants were recruited for that specific interview. The first eight interviews occurred in person; the last three interviews occurred by telephone due to public health social distancing requirements during a pandemic.
### Table 2: Interview Formats and Participants

<table>
<thead>
<tr>
<th>Interview</th>
<th>No. of Participants</th>
<th>Interview Format</th>
<th>Organization(s)</th>
<th>Profession(s) (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>Group, Profession Specific, Organization Specific</td>
<td>DA Office</td>
<td>Attorneys (4)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Individual</td>
<td>LE</td>
<td>Detective (1)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Individual</td>
<td>CPS</td>
<td>Social Work (1)</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Group, Interprofessional, Organization Specific</td>
<td>CA</td>
<td>HCP (1) PNP (1) Social Work (2)</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Group, Profession Specific, Organization Specific</td>
<td>LE</td>
<td>Detective (2) Police Officers (2)</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Individual</td>
<td>CPS</td>
<td>CPS Manager (1)</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>PNP (1)</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>Group, Profession Specific, Interorganizational</td>
<td>VA</td>
<td>Victim Advocates (6)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>PNP (1)</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>Pediatrician (1)</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>Group, Interprofessional, Interorganizational</td>
<td>CA, DA Office, LE</td>
<td>CA Pediatrician (1) Social Work (1) Attorney (1) Police Officer (1)</td>
</tr>
</tbody>
</table>

The first eight interviews were completed in-person, conducted at the participants’ places of employment in private conference rooms. One group interview was completed in person at a conference table in the manager’s office. The manager was present and able to hear staff (n=4) responses; however, the manager did not participate in the group interview. The PI was told that the table in the manager’s office was used as it was the only table large enough to facilitate the group interview. In March 2020, social
distancing practices were implemented in the state. Therefore, the remaining three interviews were completed by telephone to protect the health of both the interviewer and participants. Two individual phone interviews were done between the PI’s and participant’s private phones. The last phone group interview ($n=4$ participants and PI) was completed as a teleconference call.

All interviews were audio recorded with a portable recorder. The recordings were downloaded onto the PI’s password protected computer and erased from the portable audio recorder. The interviews were then uploaded and transcribed verbatim by a professional transcriptionist.

**Data Analysis**

Interviews were recorded and transcribed verbatim. Transcripts were then uploaded into QSR International's NVivo 12 software. Thematic analysis was used as it assists in understanding gathered data through identification of patterns within the data (Vaismoradi et al., 2013). Thematic analysis was completed using the six phases described by Braun and Clarke (2006): 1. Familiarizing oneself with the data; 2. Generating initial codes; 3. Searching for themes; 4. Reviewing themes; 5. Naming and defining the themes; and 6. Producing the report.

The study PI completed the data analysis using Braun and Clarke’s (2006) six phases of data analysis. Phase one involved familiarizing or immersing oneself into the data. The PI immersed in the data through reading, editing, and reviewing each transcript, which included confirming accuracy of the transcriptionist. Step two involved creating initial codes for the data. Initial codes were anticipated to align with interview guide questions, including the four competencies of IPE (IPEC, 2016). Additional codes were
aligned to interview questions pertaining to engaging with families when suspecting child maltreatment and differences in SI cases. Sub codes were then created under these preliminary six codes. Data analysis continued to evolve through phase three, searching for themes, and phase four, reviewing of themes. As themes were identified, they were named during phase five. Finally, the identified themes were listed and shared for further evaluation with the research team. Six themes resulted from this analysis including a theme each to describe participants’ experiences within the IPE competencies of values/ethics, roles and responsibilities, interprofessional communication, and teams and teamwork (IPEC, 2016). Two additional themes captured experiences apart from the IPE competencies and described interactions with families and potential barriers to reporting SIs.

Rigor

Rigor refers to exactness or precision (Merriam Webster, 2020b) and parallels validity and reliability within quantitative research (Morse, 2015). Within this study rigor was addressed and evaluated through methods provided by Morse (2015). First, researcher bias was limited. Most responses within the demographic sheet were left as free text, allowing participants to describe themselves and their roles within child maltreatment as they thought. Additionally, VAs were included as study participants at the recommendations of other participants, as the PI was unfamiliar with this professional role prior to the study. Member checks were done throughout the interviews by asking participants, “Am I understanding you to say…?” and allowing for clarification by participants. Thick description was used to describe identified themes, as well as participants. Triangulation was also used. The PI and an expert qualitative researcher
compared themes by separately coding an interview and with subsequent comparison of study themes.

Rigor was also operationalized through the criteria of trustworthiness as described by Lincoln and Guba (1985). Trustworthiness asks the question, “How can an inquirer persuade his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking account of?” (Lincoln & Guba, 1985, p. 289). Trustworthiness is assessed by evaluating the quality, authenticity, and truthfulness of findings (Cypress, 2017). Within this study, trustworthiness was maintained and evaluated using the four criteria of credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985).

**Credibility**

Credibility speaks to a study’s truthful and accurate presentation of participants’ experiences (Cypress, 2017). Credibility was addressed through triangulation, or cross-checking of the data (Cypress, 2017; Cope, 2014; Lincoln & Guba, 1985). Investigator triangulation was completed between the study PI and an expert qualitative researcher to minimize bias amongst researchers (Polit & Beck, 2017). The PI analyzed each of the eleven interviews and developed a list of themes. The expert qualitative researcher also analyzed an interview and themes were compared and discussed for consensus. Subsequently, themes from the study were discussed between the PI and expert qualitative researcher.

**Dependability and Confirmability**
Dependability is similar to the quantitative research criteria of reliability, or likelihood that similar findings would result if the study were replicated (Polit & Beck, 2017). Confirmability speaks to the need for the researcher’s objectivity and that the findings reflect the study participants’ data and not the researcher’s bias. These criteria were addressed through the PI’s field notes. In addition to ensuring rich data, field notes served as an audit trail (Cope, 2014). The field notes included observational, theoretical, methodological, and personal notes, and helped to ensure high quality data analysis (Polit & Beck, 2017).

Transferability

Finally, transferability speaks to the data’s likelihood to be applicable within other settings (Polit & Beck, 2017). Transferability was addressed through the use of purposive sampling and thick descriptive data. These were used so that other researchers may be able to decide about the fit or applicability of study findings to other settings.

Limitations

Within qualitative research, the rigor criterion of transferability is the likelihood that study findings would be applicable within other settings (Lincoln & Guba, 1985; Polit & Beck, 2017). This study took place in a midwestern urban county. It is questionable if the findings of this study would be replicated within rural counties of the same state or in counties with similar demographics but in other regions of the United States. This study site is unique in that it has ready access to CPT experts and that many professionals had received formal education on SIs.
This study used IPEC (2016)’s model of the four competencies of IPE as a foundation for understanding IPC within cases of child maltreatment and SIs. While themes were identified about IPC, it is possible that this model missed pertinent themes within child maltreatment and SI investigations. Researchers attempted to address this by asking participants if there were other aspects of IPC within child maltreatment that were not discussed during the interview.

Finally, children and families are at the center of all reports and investigations of suspected child maltreatment. This study did not capture the experiences of families who have been part of these investigations. Subsequent studies should seek to understand families’ experiences and perceptions of how child welfare professionals may work well with them during reporting and investigating suspected child maltreatment, and specifically SIs.
CHAPTER 4: MANUSCRIPT ONE

Introduction

Chapter four includes the results of this current study. The results are presented and discussed in the submitted manuscript *Identifying the needed content for an interprofessional education intervention on sentinel injuries.*
Identifying the Needed Content for an Interprofessional Education Intervention for

Sentinel Injuries of Physical Abuse

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Joshua P. Mersky, PhD\textsuperscript{3}
Joan P. Totka, PhD RN\textsuperscript{1,4}
Kristin A. Haglund, PhD RN\textsuperscript{1,4}

\textsuperscript{1}Marquette University College of Nursing
\textsuperscript{2}Medical College of Wisconsin
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\textsuperscript{4}Children’s Wisconsin
Child maltreatment is a serious health threat for children in the United States (Centers for Disease Control [CDC], 2020). In 2018, 677,529 children in the United States, newborn through 17 years, were victims of child maltreatment (U.S. Department of Health and Human Services, 2020). In addition to posing risks for children, child maltreatment poses a societal burden. Child maltreatment generates estimated costs in the United States of $428 billion each year in the United States (Peterson et al, 2018). These costs include expenses for healthcare, child welfare, criminal justice, special education, and victimized children’s loss of productivity in adulthood. Thus, child maltreatment can have negative consequences for both victims and communities.

Child maltreatment is a crime against children and includes any act, or failure to act, by an adult caretaker that results in serious harm, death, or exploitation of children (Child Abuse and Prevention Treatment Act [CAPTA], 2010). CAPTA (2010) addresses the immediate threats that child maltreatment poses to children. However, the threats to victimized children may escalate as the health consequences of child maltreatment can be lifelong, often presenting years after the maltreatment occurred (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016).

Today, child maltreatment is recognized as a public health problem (CDC 2020). This recognition came in 1962 when Kempe et al. described child maltreatment as a medical condition and named it “the battered-child syndrome.” The work of Kempe et al. (1962) led to child maltreatment legislation and research (National Child Abuse and Neglect Training and Publications Project, 2014).

One area of child maltreatment research is understanding unexpected bruising and intra-oral injuries in non-mobile infants. Sheets et al. (2013) brought awareness and
gravity to unexpected bruises and intra-oral injuries in non-mobile infants as red flags of child maltreatment by naming them *sentinel injuries (SIs)*. The word *sentinel* connotes a need for vigilance and urgent response. Vigilance and urgency are required as SIs are temporary and may be the only symptom of maltreatment in an otherwise healthy-appearing infant (Petska & Sheets, 2014). Furthermore, as SIs portend escalation of violence against an infant, detection and response may prevent further physical abuse (Feldman et al., 2020; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013), potentially mitigating the lifelong health consequences of child maltreatment (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016).

Health care providers (HCPs) often fail to recognize SIs as red flags of abuse (Barrett et al., 2016; Eismann et al., 2018). Increasing HCPs’ recognition of SIs is critical as it may be the first step in identifying and reporting suspected child maltreatment. However, increasing recognition alone may not be enough to increase HCPs’ reporting behaviors of SIs.

Identifying and reporting suspected child maltreatment is a complex decision process for HCPs (Christian, 2015). First, HCPs are legally required to report any *reasonable suspicion* of child maltreatment (CAPTA, 2010). However, *reasonable suspicion* has not been legally or clinically defined for HCPs, leaving this threshold of reporting ambiguous (Levi & Brown, 2005; Levi et al., 2012). HCPs have also voiced lack of self-confidence in identifying maltreatment, and concerns about consequences for and reactions by families (Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015). Additionally, HCPs have reported doubts that child protective services (CPS) would intervene to protect the child, despite reporting (Cleek et al., 2019; Flaherty et al.,
2006; Herendeen et al., 2014; Tiyyagura et al., 2015). Finally, some studies suggest that HCPs’ child maltreatment reporting behaviors may be affected by implicit biases. However, findings of implicit biases within child maltreatment investigations may be inconclusive as some studies found evidence of implicit biases regarding race. Studies have found implicit biases among HCPs towards families’ race/ethnicity (Hymel et al., 2018), while other studies did not identify these (Laskey et al., 2012; Rojas et al. 2017).

Interprofessional education (IPE) is an ideal format to improve HCPs’ identification and reporting of SIs. In addition to increasing knowledge, IPE can alter environmental influences that affect HCPs’ child maltreatment reporting behaviors (Interprofessional Education Collaborative [IPEC], 2016). Environmental influences may include HCPs’ interpersonal and interprofessional relationships with families, peers, and societal institutions such as child welfare agencies (McLeroy et al., 1988). IPE occurs when students or professionals from two or more professions learn from, about, and with each other (World Health Organization [WHO], 2010). The purpose of IPE is to improve interprofessional collaboration (IPC), which is proposed to improved patient outcomes (IPEC, 2016). Thus, IPE may improve IPC between HCPs, CPS, and other child welfare professionals in identifying and reporting suspected child maltreatment. This improved IPC may result in better outcomes for maltreated children.

SIs are under-recognized by HCPs as red flags of child maltreatment (Barrett et al., 2016; Eismann et al., 2018). Lack of recognition and reporting of SIs is a lost opportunity for HCPs to protect children from both immediate and long-term harm and leaves infants vulnerable to ongoing and potentially escalating abuse (Feldman et al., 2020; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013). The purpose of this
study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs.

Theoretical Frameworks of the Study

HCPs’ reporting behaviors of child maltreatment may be understood through the Ecological Model for Health Promotion (EMHP) (McLeroy et al., 1988). The EMHP delineates five levels of personal and environmental influences on an individual’s health related behaviors (McLeroy et al., 1988). The five levels include: intrapersonal (HCPs’ knowledge, self-confidence); interpersonal processes and primary groups factors (HCPs’ relationships with patients’ families, and with their peers); institutional factors (HCPs’ relationships with child abuse experts, CPS, law enforcement, attorneys, and victim advocates); community factors (relationships between CPS, child abuse experts, law enforcement, attorneys, and victim advocates); and public policy (child maltreatment reporting laws) (McLeroy et al., 1988).

Additionally, IPEC’s (2016) model of IPE was used as a foundation for understanding the needed content for IPE within child maltreatment, and specifically SIs. Within this model, the four core competencies of IPE are: (a) values/ethics, (b) roles and responsibilities, (c) interprofessional communication, and (d) teams and teamwork (IPEC, 2016).

Values/ethics speaks to maintaining a climate of mutual respect as individuals work together. Roles and responsibilities requires that professionals understand their own roles as well as the roles of others. Interprofessional communication requires that professionals communicate responsibly to promote a team approach to health care. Finally, teams and
teamwork speaks to the need of maintaining professional relationships to provide care that is safe, timely, efficient, effective, and equitable (IPEC, 2016).

**Methods**

This study utilized a qualitative descriptive methodology. Qualitative description may be used when researchers seek an in-depth understanding of a unique phenomenon from the perspective of the participants (Sandelowski, 2010).

**Study Participants and Recruitment**

Study participants were recruited from a midwestern urban county and represented a purposive sample. Participants were initially recruited through professional, academic, and community partners of the research team. Snowball technique ensued as participants recommended other participants.

**Inclusion Criteria**

Inclusion criteria stipulated that participants have experience in a minimum of one case of suspected child maltreatment during the previous five years in the county of study. Experience included participation in at least one aspect along the continuum of child maltreatment investigations: reporting to CPS, assessment and/or investigation by CPS, investigation by law enforcement, or court proceedings with attorneys.

**Demographic Characteristics**

Twenty-seven individuals participated in this study (see Table 1). Participants included HCPs (n=3), CPS (n=2), child protection team (CPT) (n=6), law enforcement (LE) (n=6), attorneys (n=5), and victim advocates (VAs) (n=6). HCPs included one
pediatrician, one primary care pediatric nurse practitioner (PNP) and one acute care PNP. CPS included one social worker and one CPS manager. Participants of the CPT team included one pediatrician, one HCP (not further specified), one PNP, and three social workers. LE included three detectives and three police officers. All attorneys in this study worked out of the county’s District Attorney (DA) office. Finally, VAs identified as one director, one social worker, one victim advocate, and two supervisors. The mean age of all participants was 42.5 (± 9.6) years. Of all participants, 89% (24 of 27) were female. The range for years of experience was 3 to 26. Participants were asked to provide the number of child maltreatment cases they had been involved in within the previous five years. This response was left as free text as a wide range of responses was anticipated. Many participants rounded off (e.g. “100’s”) while other participants provided a range (e.g. “15-20”). Consequently, calculations were not completed for this demographic question. However, as a group, HCPs had the lowest range (3,10,15-20). In contrast, in each of the other groups, at least one group member cited 100 or more cases. Ninety-three percent of participants (25 of 27) were aware of the term SIs, while 81.4% (22 of 27) had been involved in an SI investigation. Race and ethnicity were not captured within this study to protect confidentiality. As all participants worked within one county, it was thought that race/ethnicity might identify some participants.
Table 1: Participant Demographics

<table>
<thead>
<tr>
<th></th>
<th>CPT</th>
<th>CPS</th>
<th>Attorneys</th>
<th>HCPs</th>
<th>LE</th>
<th>VAs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>27</td>
</tr>
<tr>
<td>Age Mean(SD)</td>
<td>42(12.6)</td>
<td>36(3)</td>
<td>42(7.2)</td>
<td>44.3(9)</td>
<td>50(5.5)</td>
<td>37.8(8.3)</td>
<td>42.5(9.6)</td>
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<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>24(89%)</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3(11%)</td>
</tr>
<tr>
<td>Years in Role Mean(SD)</td>
<td>12.7(7.2)</td>
<td>7.5(4.5)</td>
<td>14.6(5.9)</td>
<td>15.7(7.8)</td>
<td>20.8(3.7)</td>
<td>9.2(4.2)</td>
<td>14.1(7.2)</td>
</tr>
<tr>
<td>Aware of SIs Yes</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>25(93%)</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2(7%)</td>
</tr>
<tr>
<td>Involved in SI Cases Yes</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3(11.1%)</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2(7.4%)</td>
</tr>
</tbody>
</table>

**Study Ethics**

Each study participant was offered a $10 coffee gift card. Several participants declined the gift card, stating it violated their professional rules. Human subjects approval was obtained from the appropriate university review boards. Informed written consent was obtained from all participants.
Data Collection

Data were collected through individual and group semi-structured interviews (see Table 2). Group interviews included profession-specific, organization-specific, and interprofessional and interorganizational group interviews. The first eight interviews occurred in person; the last three interviews occurred by telephone due to public health social distancing requirements. One researcher (EC) conducted all of the interviews.
Table 2: Interview Formats and Participants

<table>
<thead>
<tr>
<th>Interview No.</th>
<th>No. of Participants</th>
<th>Interview Format</th>
<th>Organization(s)</th>
<th>Profession(s) (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>Group, Profession Specific Organization Specific</td>
<td>DA Office</td>
<td>Attorneys (4)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Individual</td>
<td>LE</td>
<td>Detective (1)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Individual</td>
<td>CPS</td>
<td>Social Work (1)</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Group Interprofessional Organization Specific</td>
<td>CA</td>
<td>HCP (1) PNP (1) Social Work (2)</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Group Profession Specific, Organization Specific</td>
<td>LE</td>
<td>Detective (2) Police Officers (2)</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Individual</td>
<td>CPS</td>
<td>CPS Manager (1)</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>PNP (1)</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>Group Profession Specific Interorganizational</td>
<td>VA</td>
<td>Victim Advocates (6)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>PNP (1)</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Individual</td>
<td>HCP</td>
<td>Pediatrician (1)</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>Group Interprofessional Interorganizational</td>
<td>CA DA Office LE</td>
<td>CA Pediatrician (1) Social Work (1) Attorney (1) Police Officer (1)</td>
</tr>
</tbody>
</table>

Semi-structured interviews followed an interview guide. The interview guide included questions about the four core competencies of IPE (IPEC, 2016) and how the competencies of IPE might be understood within cases of suspected maltreatment. Additionally, participants were asked about engagement with families and differences between cases of SIs and other types of child maltreatment. Finally, recognizing that
IPEC (2016)’s model of IPE may not capture all areas needed for an IPE intervention on SIs, participants were asked to identify other interprofessional competencies needed but not captured by this model. Interviews were audio recorded and transcribed verbatim by a professional transcriptionist. Transcripts were uploaded into QSR International NVivo data analysis software.

**Data Analysis**

Thematic analysis was used for the study’s data analysis as it assists in understanding gathered data through identification of patterns within the data (Vaismoradi et al., 2013). The six phases of thematic analysis as described by Braun and Clarke (2006) were used: (a) familiarizing oneself with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing themes, (e) naming and defining the themes, and (f) producing the report.

The PI analyzed the interviews, following these six steps (Braun & Clarke, 2006). In phase one, the PI immersed in the data through reading, editing, and reviewing each transcript, which included confirming accuracy of the transcriptionist. Step two involved creating initial codes for the data. Initial codes were anticipated to align with interview guide questions. Additional codes were aligned to interview questions pertaining to engaging with families and differences in SI cases. Sub codes were then created under these preliminary six codes. Data analysis evolved through phase three, searching for themes, and phase four, reviewing of themes. As themes were identified, they were named during phase five. Finally, the identified themes were listed and shared for further evaluation with the research team. Six themes resulted from this analysis, including a theme each to describe participants’ experiences within the IPE competencies of
values/ethics, roles and responsibilities, interprofessional communication, and teams and teamwork. Two additional themes captured experiences with families and potential barriers to reporting SIs.

**Rigor**

Rigor refers to exactness or precision (Merriam Webster, 2020) and parallels validity and reliability within quantitative research (Morse, 2015). Rigor was operationalized through the criteria of credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985). Credibility was addressed through triangulation, or cross-checking of the data (Cypress, 2017; Cope, 2014; Lincoln & Guba, 1985). Triangulation occurred by including interdisciplinary participants in this study and by having interdisciplinary interviews. The research team was also interdisciplinary. The inclusion of a variety of professionals in the study and on the research team generated richer and more nuanced understanding of the data than would have been possible if only one or two disciplines were included.

Dependability is similar to the quantitative research criteria of reliability, or likelihood that similar findings would result if the study were replicated (Polit & Beck, 2017). These criteria were addressed through the PI’s field notes. In addition to ensuring rich data, field notes served as an audit trail (Cope, 2014). The field notes included observational, theoretical, methodological, and personal notes, and helped to ensure high quality data analysis (Polit & Beck, 2017). Confirmability speaks to the need for the researcher’s objectivity and that the findings reflect the study participants’ experiences and not the researcher’s bias. Several practices were enacted to limit bias. Most responses on the demographic sheet were left as free text, allowing participants to
describe themselves and their roles within their own words. The profession of victim advocates was added to this study at the recommendations of other participants. Member checks were done throughout the interviews by asking participants, “Am I understanding you to say…?” and allowing for clarification and further explanation by participants. The interdisciplinary research team planned the study, and collaborated on analysis, selection of themes, and presentation of results. Team discussions allowed for identification of bias and promoted credibility of the results. Finally, transferability speaks to the data’s likelihood to be applicable within other settings (Polit & Beck, 2017). Transferability was addressed through the use of purposive sampling and thick description of results. These were used so other researchers may be able to decide about the fit or applicability of study findings to other settings.

Results

Themes described participants’ experiences with values/ethics, roles and responsibilities, interprofessional communication, and teams and teamwork. Two additional themes described interactions with families and the differences between reporting SIs and other types of child maltreatment.

Themes

Valuing Interprofessional Colleagues is Shown Through Disagreeing Respectfully

Participants noted that sometimes, despite effective communication, professionals in child maltreatment cases do not always agree. Treating each other with value required that professionals “sometimes agree to disagree.” Participants in this study shared that professionals involved in child maltreatment investigations shared the goal of protecting
children. However, participants did not always agree on the best outcome for an investigation. Despite collaboration, these disagreements were not always resolved. As one attorney explained,

…we might agree to disagree. So really just clarifying so that I at least understand your position. It doesn't mean I am going to agree with it, but I want to make sure that I understand it and how you got to that position.

In situations where professionals respected each other, disagreement about a case could be understood without damaging working relationships.

However, when professionals did not disagree respectfully, relationships could be harmed. One CPS participant described unprofessional disagreements: “people sort of accusing each other of either not caring about families or not caring about children…that, to me, is the absolute no…because this is really hard work, and we are all doing our best.” Such experiences could be hard to forget and could interfere with interprofessional communication and collaboration. When forced to work together, conversations were kept to a minimum. Sometimes professionals would intentionally avoid working with specific individuals. This negatively affected investigations as people were hesitant to share information or engage with each other. An LE participant shared how one difficult experience with an HCP had a negative affect with other HCPs within the hospital:

I do have issues and it's always a certain person. It's like when people say the police are bad…There's 1500 of us…I guarantee you we’re not all bad. Like I'm saying with the hospitals, we have the doctor who's in a bad mood or just not a personable person. And that's your opinion of Children’s Hospital now.

In contrast, difficult conversations, when done well, sometimes led participants to change their views. An LE participant shared “it's great to get different perspectives of things… I might be thinking one track here, and then you talk to a doctor or you get the history of the family through CPS…and it makes you think differently.” However, collaboration
did not mean that participants always agreed, as a CPS participant shared, “it’s explaining your point of view, asking them for any additional information, saying thank you and then doing what you need to do.” Professional disagreements required that everyone had as much information as possible about the situation and were willing to hear others’ views. However, the need to “do what you need to do” described participants’ beliefs that collaboration did not override their own roles and responsibilities.

**Professionals in Different Child Welfare Roles Work Under Different Laws**

Participants discussed how professionals involved in child maltreatment reporting and investigations may practice under state laws that may not always align. For example, CPS shared that HCPs may report a concern of physical abuse due to a non-accidental injury in a child. However, CPS shared that they cannot intervene unless the physical injury rises to the severity as described in Wisconsin law. Under Wisconsin law (2020a), physical abuse is defined as “physical injury inflicted on a child by other than accidental means.” Wisconsin law then clarifies that physical injury “includes but is not limited to lacerations, fractured bones, burns, internal injuries, severe or frequent bruising or great bodily harm” (Wisconsin 2020b). Therefore, different professions’ roles and actions were guided by different parts of the law.

Misunderstandings resulted because professionals did not know the statutes that governed other practices as well as they knew the laws and rules of their own discipline. This perceived lack of action led to frustration, as one CPS participant explained:

we [CPS] have a very specific framework. If it [suspected child maltreatment] doesn't fit, we can't intervene, even if they [HCPs and CPT] don't like it, even if they don't think it [staying in the family home] is in the child's best interest or for their well-being. We're not saying we're not concerned. Yeah, but if it doesn't rise to the level of intervention, it doesn't rise to the level of intervention.
At times, HCPs felt unheard or misunderstood by the perceived lack of action of CPS in response to HCPs’ reports of suspected child maltreatment. In contrast, CPS reported feeling frustrated about needing to assess concerns of maltreatment that (to them) did not rise to their level of intervention. Participants shared that these situations left both sides frustrated and feeling unheard and unvalued.

**Interprofessional Communication is Intentional and Potentially Time Intensive**

Participants felt that effective communication is an intentional and conscious process. Interprofessional communication often required a lot of back and forth and prioritization by professionals to follow-up with each other. Participants in this study noted that effective communication is face-to-face, direct, timely, reciprocal and avoids profession specific jargon.

Despite being time-intensive, multiple participants shared that face-to-face communication is the most effective as people may be “forced” to be more professional:

> People are definitely friendlier when you're in person. I think on the phone, you do sometimes have hostile undertones… I'm guilty of it too, someone is on the other end of the line rolling their eyes at a comment that someone else makes. That doesn't happen as badly in person.

Participants recommended direct communication as it minimizes the risks that information is missed. Additionally, direct communication can help assure that “everyone’s on board” with an investigation. One LE shared the positive effect of discussing a case directly with a multidisciplinary team:

> I've been out at Children's Hospital for child abuse cases, where me and my partner sat down with the advocacy [CPT] doctor, the social worker, the ER doc, and we're all at the table just like this and we'll go through the case. And that's very helpful, to have everyone there at the same table, literally the same table…So when we have that and everyone's on board and together, it's great.
Timeliness of communication was important as it was needed for investigations. LE voiced frustration when they were consulted weeks after a referral because the time lapse meant that any potential evidence had been lost. Attorneys also voiced frustration when receiving information late when preparing for trial as it potentially made their court cases weaker. Thus, timely communication was needed to progress with investigations and court proceedings. CPT added that they collaborated more effectively with CPS when they discussed maltreatment findings immediately:

> I have found more success with bringing the worker [CPS] into the room to show them the injuries right away versus just looking at the photos…they'll see the extent of it firsthand versus just looking at photos. I think that that really gives them an a-ha moment.

Each of the three community HCPs in this study verbalized that they rarely, if at all, received any follow-up communication after reporting suspected child maltreatment to CPS. HCPs found this frustrating as they felt that they were not part of the team. Additionally, without feedback, they were left wondering if their reporting to CPS resulted in any change in the child’s situation. CPS shared in a separate interview that reporting HCPs should receive a form letter from CPS with general information about the outcome of a reported case. However, each HCP denied ever receiving such a form.

Reciprocal communication meant that professionals needed to expect to give and receive follow-up questions. Participants reported that communication can break down when professionals are resistant to others questioning their conclusions. An attorney shared a negative experience with an HCP:

> I don't think it helps relationships when they [HCPs] are clearly resistant or annoyed by the fact that I'm asking these questions. And I'm like, ‘I'm trying to understand and learn, and you should want to teach me because you called this in and you obviously want to keep this kid safe, and I'm the person trying to do that.’
Participants felt that follow-up questions should be seen as a desire to collaborate better, not as disrespectful or doubting another’s competence.

Because professionals with child maltreatment investigations have different educational and professional backgrounds, reciprocal questions and answers are needed to ensure understanding. Different professions may use profession-specific language, which can also result in communication failures. Participants noted that avoiding profession-specific technical language would improve communication and help to achieve more immediate understanding and decrease the need for extended back and forth communication. A CPS case worker shared,

…sometimes you have to ask them [attorneys] five questions to get the piece of information that you want because they're just thinking about things differently than you are. The miscommunication sometimes are just people not understanding what the question is, or not understanding the underlying issue

HCPs often use medical terminology, which is often not understood by other professions. CPT noted that CPS may not correctly assess a child maltreatment concern if they cannot understand the medical terminology used:

they [HCPs] might call and be like, ‘Okay, there's a subconjunctival hemorrhage,’ and the average person [CPS] probably doesn't have a really clear idea of what that means. Or they [HCPs]’ll say ‘a retinal hemorrhage’ …people just don't have a clear concept of it, because why would they?

Participants noted that the need to use a common language is also relevant as many professionals may be novices. One attorney suggested, “as simple as you [HCPs] can keep it when you're giving information over to them [LE] about why it's serious and what further needs to be done to investigate the situation.” Another attorney shared an example of communicating with a young CPS worker. It became evident that the CPS worker was not understanding the child maltreatment terminology being used,
specifically failure to thrive. The attorney stopped and provided education about failure to thrive and why that was concerning for child neglect so that the two could then work together to progress with court proceedings. Thus, in addition to minimizing profession-specific language, one should be comfortable asking and offering clarification as needed to assist new professionals in learning their roles.

Assumptions Lead to Failures in Teamwork

Participants shared that they did not always understand how other professionals arrived at their conclusions. This gap in understanding could lead professionals to make negative assumptions about the other professionals. CPS provided an example, “you will have an attorney who's emailing one of our staff wanting information and nobody is responding [to the attorney]. And the conclusion they [the attorneys] reach is, this person isn't doing their job.” CPS clarified that the reality was that the CPS worker was engaged in a different emergency and did respond to the attorney as soon as possible. CPT voiced that “everyone” assumes that CPT thinks “everything is abuse.” Both attorneys and CPT voiced hearing this, which led others to potentially not value CPT’s input. However, CPT clarified, “…almost half of our cases end up being low concern or indeterminate.”

Therefore, CPT providers do not refer as many cases to CPS as the other professionals may think. LE also shared that HCPs have been frustrated at the perception that LE is not moving fast enough:

[they’ll ask] “And so are you going to arrest somebody?” And well, slow down...We don't violate civil rights here. We have standards to fulfill before we can make those arrests. I understand they're not lawyers or LE professionals so therefore they don't understand that we have our process.

Many participants were aware of disparaging assumptions made about them or about their colleagues. However, all were quick to explain that the assumptions were incorrect.
Thus, professionals would have worked together better if they had assumed that each profession was competent and subsequently asked each other about their decision processes.

**Treating Families Ethically**

Participants noted several important aspects to work effectively with families and children including transparency, non-judgement, and empathy. Further, they noted that while treating families well is an ethical responsibility, treating families well is also pragmatic as it assists with investigations. Families are more apt to provide information when they feel that they are being treated with respect. HCPs shared that they usually told parents that they were reporting a family to CPS. This explanation, to be transparent, required the use of non-technical language. CPT qualified that while transparency was important, that did not include providing families with information that could provide an alibi, such as offering a mechanism of injury for possible physical abuse.

Participants recommended that all professionals within child maltreatment investigations treat families non-judgmentally and objectively. HCPs shared that when discussing reporting to CPS with families, they were quick to assure parents that they were not judging them personally but responding to objective findings and seeking assistance for families.

Multiple participants spoke to the need for recognizing and acknowledging one’s implicit biases in order to interact and collaborate with families in an ethical manner. LE discussed that many families they work with are part of marginalized communities and families are surprised when they are treated respectfully. If implicit biases are not
recognized and acknowledged, families may be treated unfairly—either judged too harshly or too leniently. A CPS participant explained:

    I'm a white woman from a middle-class family. If I go out and I work with a middle-class family, it might be easier for me to give them the benefit of the doubt because they look like me. They live like me. It's easier to make a connection. It's a natural thing. However, that's also a very dangerous route to take.

Participants strongly cautioned that not acknowledging one’s implicit biases could lead to making errors in child maltreatment cases.

    Despite the difficult situations that child maltreatment cases may bring, many participants were able to empathize with accused parents. They discussed a need to be thoughtful and kind, “I treat them how I’d want to be treated in that situation,” said an LE.

    Participants noted that the need for objectivity and empathy were balanced with a need to consider that families may not be truthful within child maltreatment investigations. For HCPs, this tension may contradict their approach to most interactions with families. Thus, participants recommended that, while empathizing with a family, one also needed to be objective and cautious, and consider that the family may not be telling the truth.

    While reporting suspected maltreatment to CPS may likely feel punitive to families, HCPs were quick to note that they did not seek CPS’ assistance as a punitive measure. Rather, they sought out CPS to provide families with resources to meet their children’s needs. As one HCP explained,

    I oftentimes tell them that I'm reporting. That I'm the advocate for the child and that's why they bring their child to me, is because they want me to do the best job I can in taking care of their child. So, part of that responsibility involves asking for help from outside organizations or from child welfare when I feel that their
child is either at risk for a health issue due to neglect, where the parent can't meet their health needs in a significant way, or when I'm concerned about maltreatment.

Finally, while all professionals engaged with both parents and children, participants verbalized that they prioritized the child over the parents if families could not protect children.

**Barriers to Identification and Reporting of SIs**

Each interview concluded with a discussion about differences between SIs reporting and investigations versus other types of child maltreatment. Most participants verbalized little or no discomfort about reporting or investigating SIs as red flags of physical abuse. LEs and attorneys noted that SIs may be more difficult to investigate and prosecute as these cases are circumstantial and not conclusive. Several participants noted that this made it even more critical that professionals collaborate effectively in SIs cases as they were not always easy to investigate.

Most participants had had formal education about SIs and were familiar with the term and definition. For some participants, upon deeper conversation, it was identified that they had not understood the definition of SIs as posed in this study (Sheets et al., 2013). Some LE thought of SIs as any injury suggesting physical abuse, such as fractures or head injuries. Additionally, comments suggested that some participants thought that the definition as posed by Sheets et al. (2013) “any unexpected bruising or intra-oral injuries in a non-mobile infant” implied that the bruising needed to be near the mouth. When these misunderstandings were noted, the PI clarified the definition of SIs, before continuing with the interview. Despite these few misunderstandings, most participants knew about SIs through formal education.
All professionals stated that overall SIs were valuable as signs of potential physical abuse. HCPs, CA, and attorneys verbalized strongly about the value of SIs, particularly because they had seen the consequences of missed SIs. In contrast, CPS verbalized questions about using SIs as a routine screening tool for physical abuse. One CPS participant wondered if a CPS referral for all SIs might be “heavy handed” and unnecessarily traumatizing for families because this CPS worker felt that most SIs were not found to be diagnostic for physical abuse. Most participants expressed that ongoing, readily accessible education, was needed. As new staff begin their roles in CPS, LE, HCPs, and as attorneys, they are not familiar with SIs and might miss them as red flags of physical abuse.

**Discussion**

The purpose of this study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs. Two theoretical frameworks were used to support this study. IPEC’s (2016) model proposes that there are four separate competencies within IPE: values/ethics, roles and responsibilities, interprofessional communication, and teams and teamwork. The results of this study did support that these four competencies exist within IPE and lead to improved interprofessional collaboration. However, the results did not support that these are four distinct competencies. Rather, all four competencies were inter-related. For example, participants felt valued by the way that others’ spoke with them and when others understood their unique role. However, understanding each other’s roles also affected how professionals communicated with each other. Additionally, several participants explained that teamwork was the result of the other three competencies: teamwork meant
treating each other with respect, valuing each other’s areas of expertise and input, and providing continued communication. These findings indicate that when applying IPE to management of child maltreatment, the four competencies should be presented as interrelated rather than focusing on each competency as a unique skill.

This study further revealed that within the four competencies, interprofessional communication skills are paramount within child maltreatment investigations. Communication was how participants demonstrated knowledge of others’ roles, and treated others with value. Additionally, effective communication skills were needed to resolve disagreements or to disagree respectfully. Finally, communication skills were needed to treat families ethically. Thus, none of the other competencies of IPE or themes identified in this study could be implemented without addressing the competency of interprofessional communication.

This study also demonstrated the logistical difficulties of bringing multiple professionals from different organizations together. Thus, pragmatically, a resulting IPE intervention would ideally be an asynchronous online IPE intervention. While asynchronous online education may appear to contradict the tenets of IPE, there are precedents. In one example, Fowler et al., (2018) used virtual avatars within small groups to practice communication within a root cause analysis. Additionally, Yeh et al. (2020) also used asynchronous online IPE for nursing students to practice critical incidence reporting skills. While these studies were not specific to child maltreatment, they demonstrate that IPE can be implemented in innovative formats.

This study also identified content needed regarding SI education. Similar to Barrett et al (2016) and Eismann et al. (2018), not all participants were familiar with the
definition of SIs provided by Sheets et al. (2013). This study was unique in identifying knowledge deficits in SIs amongst attorneys ($n=1$) and LE ($n=1$), but not amongst HCPs. The results also indicated that some participants, particularly CPS, remained ambivalent about the role of routine screening for SIs. Speaking specifically to bruises as SIs, one participant voiced concern that not all SIs rose to the level of “severe or frequent bruising” (Wisconsin, 2020b), which is needed for CPS to complete an assessment. However, given the paucity of bruising in healthy infants (Sugar et al., 1999) and the high frequency of bruising in physically abused infants (Feldman et al., 2020; Harper et al., 2014; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013), all SIs may inherently meet the threshold of “severe” bruising (Wisconsin 2020b). This voiced concern may warrant future study amongst child welfare professionals. Shared understanding and level of concern regarding SIs among child welfare professionals is important for the processes of reporting, investigating, and intervening to protect children. Professionals holding different views on the importance of SIs as predictors of child maltreatment may lead to poor collaboration and missed opportunities protect vulnerable infants.

**Limitations**

Within qualitative research, the rigor criterion of transferability is the likelihood that study findings would be applicable within other settings (Lincoln & Guba, 1985; Polit & Beck, 2017). This study took place in a midwestern urban county. It is unknown if the findings of this study would be replicated within rural counties of the same state or in counties with similar demographics but in other regions of the United States. This study site is unique in that it has ready access to CPT experts and that many professionals had received formal education on SIs.
This study used IPEC (2016)’s model of the four competencies of IPE as a foundation for understanding IPC within cases of child maltreatment and SIs. While themes were identified about IPC, it is possible that this model missed pertinent themes within child maltreatment and SI investigations. Researchers attempted to address this by asking participants if there were other aspects of IPC within child maltreatment that were not discussed during the interview.

Finally, children and families are at the center of all reports and investigations of suspected child maltreatment. This study did not capture the experiences of families who have been part of these investigations. Subsequent studies should seek to understand families’ experiences and perceptions of how child welfare professionals may work well with them during reporting and investigating suspected child maltreatment, and specifically SIs.

Conclusion

The purpose of this study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs. Within the theoretical framework of IPEC (2016) for IPE, four competencies of collaboration were identified within SI investigations, and additionally within all child maltreatment investigations. Additional content needs to be directed at competencies needed for interactions with families and factors specific to SIs investigations. This study also identified that the best format for this IPE may be through an asynchronous online education intervention on SIs. All participants in this study identified the need for all professionals within child maltreatment investigations to work together effectively within SIs and child maltreatment investigations to protect children and families. Findings from this study will
provide the needed content for the development of an educational intervention to assist HCPs in identifying and reporting SIs.
References


NVivo qualitative data analysis software; QSR International Pty Ltd. March 2020 release.


Conclusion

The purpose of this study was to identify the content needed for an IPE intervention to increase HCPs’ identification and reporting of SIs. Within the theoretical framework of IPEC (2016) for IPE, six themes were identified: (a) valuing interprofessional colleagues is shown through disagreeing respectfully, (b) professionals in different child welfare roles work under different laws, (c) interprofessional communication is intentional and potentially time intensive, (d) assumptions lead to failures in teamwork, (e) treating families ethically, and (f) barriers in identification and reporting of SIs. Findings from this study will provide the needed content for the development of an educational intervention to assist HCPs in identifying and reporting SIs, and potentially protecting vulnerable infants from maltreatment.
CHAPTER 5: MANUSCRIPT TWO

Introduction

Chapter five presents one method of implementation of this study’s results. Within manuscript form, this chapter provides nursing education in identifying and reporting sentinel injuries (SIs).
Helping Nurses Identify and Report Sentinel Injuries of Child Abuse

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Pediatric nurses can positively change children’s health trajectories by identifying and reporting suspected child abuse. In 2018, over 72,000 children, from 0 through 18 years, were victims of abuse in the United States, with 684 children dying from their injuries (U.S. Department of Health and Human Services, 2020). Child abuse occurs when an adult commits an act that results in serious physical harm or death of a child, or even when an act poses a threat of serious physical harm or death (Child Abuse and Prevention Treatment Act [CAPTA], 2010). The immediate health threats associated with child abuse include injuries such as extremity fractures, intracranial hemorrhages, rib fractures, abdominal injuries, and burns (Lindberg et al., 2015). However, the Adverse Childhood Experiences Study (ACEs) demonstrated that abuse can also negatively affect children’s health into adulthood, long after the abuse ended (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016). Negative health consequences associated with child abuse and other adverse childhood experiences are extensive and include increased smoking and drug use, obesity, depression, heart disease, and cancer (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016). Therefore, when pediatric nurses identify and report suspected child abuse to child protective services (CPS), they may protect children from both the immediate (Feldman et al., 2020; Pierce et al., 2017, Sheets et al., 2013) and lifelong (Felitti et al., 1998; Mersky et al., 2013; Reuben et al., 2016) health consequences of child abuse.

In order to identify and report suspected child abuse, nurses must first recognize symptoms, or red flags, of abuse. Sentinel injuries (SIs) may be the earliest and most easily identifiable red flags of child abuse for nurses to recognize and act upon (Sheets et al. 2013).
What are SIs?

The term SIs was first used within the context of child abuse in 2013 to describe unexpected bruising and intra-oral injuries in non-mobile infants (Sheets et al., 2013). Bruising and intra-oral injuries in non-mobile infants are rare because young infants’ lack of mobility prevents accidental self-inflicted injuries. However, bruises and mouth injuries often do not require clinical intervention. Therefore, they can be overlooked by health care providers (HCPs) as trivial injuries. Thus, the term SIs was adopted to describe the importance of these injuries as red flags of abuse and to change the way that nurses, other HCPs, other mandatory reporters, and parents think about them (L. Sheets, personal conversation, September 22, 2017).

The word sentinel suggests military action as it speaks to the need for vigilance or standing guard (Merriam Webster Dictionary, 2020). Within health care, the Joint Commission (TJC) defined sentinel events as unanticipated events that result in patient death, permanent harm, or life-threatening temporary harm (TJC, 2020). To protect patients, occurrence of a sentinel event signals the need for immediate investigation and response (TJC, 2020). Likewise, SIs of child abuse signal a need for vigilance and urgent response. In addition to being temporary injuries, SIs may be the only symptom of abuse in an otherwise healthy-appearing infant (Petska & Sheets, 2014). Consequently, an infant with an SI should be screened for occult, or not readily visible, injuries of abuse. Occult injuries of child abuse may include fractures, retinal hemorrhages, intracranial hemorrhages, and solid organ injuries (Lindberg et al., 2015). When SIs are not recognized and reported, infants are at risk for ongoing and potentially escalating abuse (Feldman et al., 2020; Letson et al., 2016; Pierce et al., 2017; Sheets et al., 2013).
While the term SIs is new (Sheets, 2013), the relationship between bruising and abuse in young infants was noted over twenty years ago. In a prospective study of 973 children ages 0-36 months, 20.9% (n=209) had bruising. However, when separating out young infants, only 0.6% (2 of 366) infants < 6 months and 1.7% (8 of 473) infants < 9 months had any bruises (Sugar et al., 1999). While bruising is rare in healthy infants (Sugar et al., 1999), it is common in abused infants. Bruising rates in infants evaluated for child abuse ranged from 11.7% (14 of 120) (Letson et al., 2016), 22% (44 of 200) (Sheets et al, 2013), 50% (73 of 146) (Harper et al., 2014) to 64.3% (9 of 14) (Pierce et al., 2017). While 11 – 64.3% is a broad range, all are significantly higher than the 0.6% and 1.7% identified in healthy infants (Sugar et al., 1999). As bruising is rare in non-mobile infants, nurses should recognize these findings as needing further evaluation.

After child abuse or unintentional injury, a differential diagnosis for bruising in young infants is an underlying bleeding disorder. While, bleeding disorders are possible, they are rarely identified as a cause for bruising in infants. In Harper et al.’s (2014) study, 70.5% (103 of 146) of infants presenting with isolated bruising were evaluated for bleeding disorders. In this study, none of the infants had an underlying bleeding disorder (Harper, 2014).

Intra-oral injuries (frenulum tears and sublingual bruising) are also SIs as they are often caused by an object such as a bottle or pacifier being forcefully pushed into an infant’s mouth. In Sheets et al. (2013), 11% (22 of 200) of abused infants with sentinel injuries had intra-oral injuries, while 22% (44 of 200) in the same cohort had bruises (some infants presented with both). Few studies are specific to the identification and evaluation of intra-oral injuries as their significance is usually discussed in their
relationship with bruising. However, unexpected intra-oral injuries in non-mobile infants, whether present with or without bruising, are SIs and should be referred to Child Protection Services (CPS) as concerning for suspected child abuse.

It is important for nurses to recognize SIs as red flags of abuse and to report these injuries to protect infants. Nurses are mandatory reporters and have legal and ethical requirements to report suspected child abuse to CPS. In the United States, all 50 states have mandatory reporting laws. Most states’ laws identify specific professions, including nursing, as legally required to report any suspected child abuse to CPS (U.S. Department of Health and Human Services, 2020). Several states do not identify specific professionals as mandatory reporters. Instead, these states require all adults be included as mandatory reporters of suspected child abuse (Child Welfare Information Gateway, 2019). In addition to legal requirements, the American Nursing Association (ANA) (2020) code of ethics requires that nurses promote, advocate for, and protect the rights, health, and safety of patients. The ANA code of ethics (2020) implies that nurses are inherently required to intervene, and report suspected child abuse as directed by their professional code of ethics. Choosing to not report suspected abuse would be a failure of protecting and advocating for children who cannot do so for themselves. Missing an opportunity to intervene on suspected abuse would violate a child’s right to health and safety. Thus, it is fundamental to the role of the nurse to act upon SIs and all suspected child abuse by reporting concerns of abuse to CPS.

**Nurses’ Knowledge of SIs**

While child abuse experts routinely use the language of SIs (Berger & Lindberg, 2018; Pierce, 2018; Sheets et al., 2013), nurses and other HCPs are less familiar with the
definition of SIs and their significance for abuse. Two recent survey studies of HCPs, one in Canada (Barrett et al., 2016) and one in the United States (Eismann et al., 2018), demonstrated that HCPs who were not child abuse experts often failed to recognize SIs and their relationship to abuse. In both studies, participants were presented with vignettes of abuse cases that included SIs and were asked to identify if the injuries were suspicious for abuse. Barrett et al. (2016), defined SIs as unexpected bruises and intra-oral injuries in non-mobile infants. In this study, which included general pediatric and pediatric subspecialist physicians, 378 of 582 (65%) participants identified SIs as red flags of abuse. Of the 65% who did identify SIs, general pediatricians were more likely to recognize SIs than pediatric subspecialists ($aOR=0.57$, $95\% CI 0.37–0.88$, $P=.01$).

Additionally, for all HCP participants, bruising was more commonly recognized (91.9%) than mouth injuries (67.2%) as SIs (Barrett et al., 2016).

Eismann et al. (2018) surveyed 565 pediatric HCPs in a collaboration of six children’s hospitals within one midwestern state. This study included nurses ($n=203$) and nurse practitioners ($n=35$), as well as attending physicians ($n=199$), medical trainees ($n=69$), and social workers ($n=59$). Eismann et al. (2018) used a broader definition of SIs to include fractures, intra-cranial hemorrhages, and eye hemorrhages in addition to bruising and intra-oral injuries. In this study, bruising was the most recognized SI (97%) and intra-oral injury was the least recognized SI (77%) (Eismann et al., 2018). Previous researchers identified a knowledge gap regarding SIs among nurses and other HCPs (Barrett et al, 2016; Eismann et al., 2018). Addressing this knowledge gap is critical to protect infants from continued and potentially escalating abuse (Sheets et al., 2013). However, while increasing nurses’ knowledge of SIs is important, both child
abuse researchers (Flaherty et al., 2006; Herendeen et al., 2014; Tiyyagura et al., 2015) and behavioral theorists (McLeroy et al., 1988) have identified that knowledge alone does not predict nurses’ child abuse reporting behaviors. Rather, nurses’ behaviors of reporting suspected abuse, including SIs, is likely related to both intrapersonal and environmental influences, as explained within the Ecological Model for Health Promotion (EMHP) (McLeroy et al, 1988).

Understanding Nurses’ Child Abuse Reporting Behaviors Within EMHP

Nurses’ decision to report or not report suspected child abuse represents the interplay between internal and external environmental influences. The EMHP (McLeroy et al., 1988) explains that human behaviors are related to both internal influences and external environmental influences (McLeroy et al., 1988). Within the EMHP, these influences are labeled as factors and processes (McLeroy et al., 1988), and are described by different levels, from the most to least personal (see Figure 1). This model can be used to understand nurses’ behaviors in identifying and reporting suspected child abuse. Reporting behaviors may reflect tensions between the levels of influence. For instance, nurses may feel conflict between their intrapersonal knowledge about SIs, their relationship with a family, and past experiences with CPS.
Intrapersonal Factors on Nurses’ Behaviors

Within the EMHP, *intrapersonal factors* refer to individuals’ unique characteristics and experiences such as gender, age, race, education, knowledge and past experiences (McLeroy et al., 1988). For nurses, intrapersonal factors that affect their child abuse reporting behaviors include their child abuse education and past experiences with reporting suspected abuse (Herendeen et al., 2014). Additionally, one important intrapersonal factor that may affect nurses’ abuse reporting behaviors are implicit biases.

Implicit biases are beliefs that individuals hold unconsciously and involuntarily (Laskey, 2014; McCormick & Hymel, 2019). Because they are unconscious, implicit biases may lead to cognitive errors as individuals do not realize that their biases may be affecting their attitudes and behaviors (Laskey, 2014). Within deciding when to report suspected child abuse, a nurse’s implicit biases may be as general as assuming that abuse did not occur because a child lives in a “good family” (Laskey, 2014) or as specific as believing that socioeconomic status (Laskey et al., 2012) and race/ethnicity (Hymel et al.,
are direct causes of child abuse. While research does not identify universal implicit biases within child abuse reporting, nurses should consider how their implicit biases may be affecting their identification and reporting behaviors of suspected child abuse.

**Interpersonal Processes and Primary Groups**

Within EMHP, *interpersonal processes and primary groups* refers to the influences of nurses’ personal relationships with families, friends, and work colleagues on their behaviors (McLeroy et al., 1988). Nurses often value their relationships with families and may not want to upset that relationship by reporting concerns of abuse to CPS. HCPs in previous studies were concerned that a CPS report would be upsetting for a child and family but may not improve the child’s and family’s situation (Flaherty et al., 2006; Herendeen et al., 2014). A survey of pediatric nurse practitioners (PNPs) voiced experiences with families changing providers after being reported to CPS (Herendeen et al., 2014).

Nurses also value their relationships with professional peers. Before reporting to CPS, it is not uncommon for nurses to discuss with their peers and colleagues if an injury should be reported as suspected child abuse (Herendeen et al., 2014; Tiyyagura et al., 2015). Nurses appreciated having conversations with nurse colleagues and supervisors as practice or run-through prior to reporting to CPS (Tiyyagura et al., 2015). However, in Herendeen et al. (2014), discussions with other HCPs did not always support a PNP’s intent to report suspected child abuse. Some PNPs were dissuaded from reporting by collaborating physicians (*n*=14 of 604). In these cases, the physicians either disagreed with the PNP’s concerns of abuse or agreed with the PNP but felt that reporting was inappropriate. This may be concerning because as each PNP is a mandatory reporter, it
may not be appropriate for PNPs to allow a fellow HCP to discredit their concerns of child abuse.

**Institutional Factors**

*Institutional factors* within EMHP refers to the influences of individuals’ relationships with formal organizations (McLeroy et al., 1988). Institutional factors that affect nurses’ child abuse reporting behaviors includes their relationships with CPS, child abuse experts, law enforcement, and attorneys (Cleek et al., 2019). Previous experiences with professionals from other institutions may affect HCPs’ child abuse reporting behaviors. For example, many HCPs, including nurses and PNPs, viewed past experiences with CPS as negative. Concerns about CPS were related to being time intensive and doubting that the child and/or family benefitted from the CPS referral (Tiyyagura et al., 2015), and lack of follow-up from CPS (Cleek et al., 2019; Tiyyagura et al., 2015). Consequently, some HCPs intended to manage cases of suspected child abuse independently, bypassing CPS altogether (Flaherty et al., 2006; Flaherty et al., 2008; Herendeen et al., 2014). HCPs have been found to be less likely to report concerns of child abuse if they felt that CPS would dismiss their concerns and not investigate the complaint (Jones et al., 2008). In addition to concerns about CPS, HCPs may choose to not report suspected maltreatment to avoid engaging in the court system (Flaherty et al., 2006).

**Community Factors**

*Community factors* describe how institutions work together (McLeroy et al., 1988). Within child abuse investigations, these institutions include CPS, child abuse
experts, law enforcement, and the court system. An example of these relationships can be identified within the Milwaukee County Joint Protocol on a Collaborative Response to Child Maltreatment (2016). This protocol documents how these professionals within Milwaukee County work together to effectively care for vulnerable and victimized children. While nurses do not routinely engage within this relationship, the outcomes associated with physical abuse reporting may be related to how these organizations work together.

**Public Policy**

*Public policies* include laws and policies at the national, state, and local levels that influence behavior (McLeroy et al., 1988). For nurses and other HCPs, there are national and state laws that guide and direct child abuse reporting behaviors. Nurses are among multiple professionals who interact and engage with children during their routine workday. Given this relationship, nurses are identified as mandatory reporters of abuse, meaning they are professionals who are legally required to report any suspicion of child abuse to CPS or law enforcement when they have reasonable cause to suspect that abuse has occurred (CAPTA, 2010).

While mandatory reporting laws exist to protect children, their emphasis on *reasonable* cause and judgment (CAPTA, 2010) may complicate nurses’ decisions on when, and if, to report suspected abuse. HCPs’ differ on identifying what level of concern about child abuse rose to the level of reasonable (Levi & Brown, 2005; Levi et al., 2012). In a survey of 1,249 Pennsylvania pediatricians, Levi & Brown (2005) asked what level of probability of child abuse (between 0 and 100%) constituted a reasonable suspicion of abuse. The probability of suspected abuse to constitute a reasonable suspicion ranged
from 10-35% (35% of pediatricians), 40-50% (25% of pediatricians), 60-70% (25% of pediatricians), to > 75% probability (15% of pediatricians) of abuse. Similarly, child abuse experts demonstrated similar disparities in what probability of concern constituted reasonable suspicion of abuse: 6-35% (roughly 25% of child abuse experts), 36-55% chance (32% of child abuse experts), 56-75% chance (24% of child abuse expert), to >75% (19% of child abuse experts) (Levi & Crowell, 2011). The level of reasonable cause for suspicion was intended to set the bar low for child abuse reporting (Brown & Portwood, 2011). However, the lack of definition for what constitutes reasonable suspicion for when to report suspected child abuse may increase HCPs’ discomfort in deciding when to report suspected child abuse. Nurses’ determination of reasonable suspicion may be affected by their knowledge of child abuse, and relationships at the primary and institutional levels.

**Recommendations for Nurses When Identifying and Reporting SIs**

Nurses have both a legal (CAPTA, 2010) and ethical (ANA, 2020) responsibility to protect children by reporting suspected child abuse. The presence of SIs, any unexpected bruising or intra-oral injury in a non-mobile infant, should compel nurses to report these injuries to CPS as concerning for child abuse (Sheets et al., 2013). Nurses can take several steps to help advocate for infants with SIs.

**Be Alert for SIs**

HCPs have missed recognizing SIs as red flags for abuse, at times with devastating consequences for the infant (Sheets et al., 2013). SIs are likely to be noted only as incidental findings as parents may not seek care for SIs. Nurses should be alert
for SIs as they may be incidental findings, seen on well-child visits or during visits for acute illnesses. Also, nurses should routinely ask parents if they have noted any bruising or intra-oral injuries in their non-mobile infants and teach parents that these injuries can be signs of abuse. Parents may mistakenly think that bruising and intra-oral injuries are common in young infants, as they are in older infants and children. Parents may overlook SIs as normal, trivial injuries and not recognize them as a warning sign that someone may have caused inflicted injuries to their infant when they were not present (Sheets et al., 2013). Alternatively, parents may be the perpetrator and therefore would not disclose the injuries to a nurse or bring the SIs to the nurse’s attention.

**Be Aware of Implicit Biases**

When identifying an SI, nurses must decide if the threshold of *reasonable suspicion* of abuse has been met (CAPTA, 2010). Objectively, nurses can determine this threshold by understanding the significance and relationship of SIs with child abuse (Feldman et al., 2020; Sheets et al., 2013). Additionally, nurses, and all HCPs, must recognize and acknowledge the potential for implicit biases (Laskey, 2014; McCormick & Hymel, 2019). It is prudent for nurses to acknowledge and consider if their threshold of “reasonable” is being swayed unsafely by implicit biases that may affect HCPs’ under and over reporting of suspected child abuse (Hymel et al., 2018; Laskey et al., 2012).

**Use Non-Medical Language When Speaking with Families and CPS**

Nurses may choose to tell families that they are reporting their concerns to CPS (Cleek et al., 2020). If nurses choose to discuss their concerns with families, they should do it using non-medical language. Nurses may ask families if they know how the bruise
or intra-oral injury occurred. When inquiring, nurses should use words like “bruise” and “an injury in the mouth,” not “contusions” or “intra-oral injury.” If nurses have concerns about a family’s history, they should not provide the family with a potential explanation for the injuries that the family might subsequently provide to CPS and/or law enforcement (Cleek et al., 2020).

Child abuse reporting laws may vary by state (U.S Department of Health and Human Services, 2020). Using Wisconsin as an example, nurses will report their concerns of child abuse in the county where the child resides (Wisconsin Department of Children and Family Services [DCFS], 2020). As with families, when nurses call in concerns to CPS, they should use non-medical terminology. CPS workers are not always familiar with medical terminology, including SIs. Therefore, nurses should use similar language to that used with families and explain why the SI is concerning for child abuse (Cleek et al., 2020). For instance, a nurse may call in stating, “I am calling with a concern for child abuse in a three-month-old infant. The baby has a torn frenulum – the skin under the baby’s tongue has been injured. I am concerned about abuse because these injures often occur when something is forcefully pushed into the baby’s mouth.” The nurse should then anticipate clarifying questions so that the nurse’s concerns are fully understood by CPS (Cleek et al., 2020).

Use Colleagues as Resources

Nurses may find reporting suspected child abuse uncomfortable. It is common for nurses to consult with their colleagues prior to reporting suspected abuse (Herendeen et al., 2014; Tiyyagura et al., 2015). However, nurses must recognize that it is not their responsibility to talk colleagues out of reporting (Herendeen et al., 2014). Each nurse is a
mandatory reporter of suspected abuse (Child Welfare Information Gateway, 2019).

Therefore, all nurses must report their concerns of suspected child abuse.

**Understand the Diagnostic Evaluation**

Once an SI is identified, a nurse should engage with the health care team to ensure that the appropriate medical evaluation is completed. First, nurses must ensure that their own documentation is thorough and accurate, documenting in non-judgmental language all SIs and any provided history for injuries. Further evaluations may be directed by child abuse experts when health care teams have access to these experts (Christian, 2015).

Additionally, the American Academy of Pediatrics recommends comprehensive laboratory and radiologic evaluations for infants presenting with SIs (Christian, 2015). Suggested laboratory work includes CBC, platelets, PT, INR, aPTT, VWF Antigen, VWF activity, factor VIII level, and factor IX levels (Christian, 2015). This blood work may assist in identifying an underlying bleeding disorder. Further, any non-mobile infant with SIs should receive a skeletal survey to evaluate for fractures, and brain imaging with any suspicious bruising. Subsequently, an infant with abnormal findings should then be referred to pediatric subspecialists as indicated (Christian, 2015). Nurses need to understand clinical evaluations needed in suspected child abuse so that they can work with the health care team and also so that they can help communicate with, and provide education for, families about this process.

**Understand the CPS Process**

States’ CPS processes may vary. The reporting process in Wisconsin may serve as an example (Wisconsin DCFS, 2020). Once a nurse decides to report concerns of child abuse
abuse, the call is made to the county CPS access center. This call will involve the nurse explaining the concerns to the intake worker. The intake worker will assess for child safety. If concerned about the child’s physical safety, CPS will respond to the child’s home within 24 hours. An Initial Assessment Period will occur over 60 days. After 60 days, CPS will decide whether or not to continue with services for the family (Wisconsin DCFS, 2020).

It is important that nurses understand that CPS may not always respond to reported concerns as nurses would like (Cleek et al., 2020). CPS has a threshold of safety that must occur prior to intervening and this threshold may not always align with nurses’ concerns for children’s well-being (Cleek et al., 2020). Nurses must recognize these perceived differences so that they respect CPS’ actions and maintain strong relationships with their CPS colleagues (Cleek et al., 2020). However, nurses can minimize these differences with CPS by ensuring that they explain their SI findings in plain language and by ensuring that CPS workers are also aware of the predictive relationship between SIs and child abuse.

Nurses have the responsibility to protect and promote the health of children. One way to protect children and to promote both their immediate and lifelong health is through identifying and reporting suspected child abuse. In particular, SIs offer nurses one of the earliest opportunities to identify and report suspected child abuse (Sheets et al., 2013). While reporting these injuries to CPS may be intimidating for nurses (Tiyyagura et al., 2015), this process can be made easier when nurses recognize SIs as concerning for abuse (Sheets et al., 2013) and communicate these concerns effectively with families, colleagues, and CPS (Cleek et al., 2020).
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maltreatment
Discussion

The purpose of this study was to identify the needed content for an IPE intervention to increase HCPs’ recognition and reporting of SIs. Using a qualitative descriptive study method and thematic analysis, six themes were identified. These themes included: (a) valuing interprofessional colleagues is shown through disagreeing respectfully, (b) professionals in different child welfare roles work under different laws, (c) interprofessional communication is intentional and potentially time intensive, (d) assumptions lead to failures in teamwork, (e) treating families ethically, and (f) barriers in identification and reporting of SIs.

These themes can be used within education to help HCPs better collaborate with other professionals in identifying and reporting SIs as suspected child maltreatment. This manuscript provided the first step in disseminating these findings to pediatric nurses. Once findings from this study are disseminated through an IPE intervention, next steps will require measurement and evaluation of HCPs’ behaviors in identification and reporting of SIs as suspected child maltreatment.
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Appendix A

Study Information Flyer

Participants Requested for a Study on Sentinel Injuries of Child Abuse

Hello! I am involved in a study to understand how professionals can work together when identifying and reporting sentinel injuries of child abuse. This study will seek to understand information from professionals who work with cases of suspected child abuse. Participants will include health care providers, social workers, child protective services, law enforcement and attorneys.

This study will include interviews, either individual or group interviews, that will last approximately one hour. All participants will receive a $10 coffee card as compensation for their time.

I appreciate your consideration of this valuable project. Please contact me to discuss further.

Elizabeth Cleek, MS RN CPNP
Marquette University
College of Nursing PhD Candidate
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323-313-9757
Appendix B

IRB Approval Form

Date: 11/15/19
HR-3511
Principal Investigator: Elizabeth Cleek
Faculty Advisor: Dr. Kristin Haglund
Department: Nursing
Study Title: Identifying the Needed Content for an Interprofessional Education Online Module on Sentinel Injuries of Child Abuse, a Qualitative Study

New Study Approval
☑ This protocol has been determined to be Exempt under category #2 as governed by 45 CFR 46.101(b) on [Date].
☐ This protocol has been approved as minimal risk under Expedited category # as governed by 45 CFR 46.110 on [date].
☐ This protocol has been reviewed by the Institutional Review Board on [date] and approved as:
  ☐ Minimal risk
  ☐ Greater than minimal risk

Consent
☑ Please use the final version of the exempt information sheet or consent form submitted to the IRB. Contact the IRB office if you have questions about which document you should be using.
☐ The IRB approved informed consent form is attached. Use the stamped copies of this form when enrolling research participants. Each research participant should receive a copy of the consent form.
☐ This study has been approved for waiver of documentation of consent under 45 CFR 46.117(c)(1) or (2) of (3). Please use the approved consent information sheet with your participants.
☐ This study has been approved for alteration or waiving of consent under 45 CFR 46.116(d).

Study specific notifications
☐ The IRB approved recruitment materials are enclosed with this letter. Use stamped copies of these documents for recruitment purposes.
☐ This study involves students collecting data through surveys- please review the MU Questionnaire/Survey Procedures: http://www.marquette.edu/osd/policies/survey_procedure.shtml
☐ This study involves recruitment emails for online surveys to be sent to 100 or more Marquette students, faculty or staff. Please review the website of the Online Survey Review Group: http://www.marquette.edu/onlinesurveys/
☐ This protocol involves the use of electrical or mechanical systems that require direct human contact. Electrical and mechanical safety inspections should be conducted per Marquette University Human Research Protection Equipment and Electrical Safety Testing Policy 98.106.
Appendix C

Study Consent Form

MARQUETTE UNIVERSITY
AGREEMENT OF CONSENT FOR RESEARCH PARTICIPANTS
Identifying the Needed Content for an Interprofessional Education Online Module on Sentinel Injuries of Child Abuse, a Qualitative Study
Elizabeth Cleek
College of Nursing

You have been invited to participate in this research study. Before you agree to participate, it is important that you read and understand the following information. Participation is completely voluntary. Please ask questions about anything you do not understand before deciding whether or not to participate.

PURPOSE:
• The purpose of this research study is to understand and identify the needed content for an interprofessional education intervention on sentinel injuries of child abuse.
• You will be one of approximately 40 participants in this research study.

PROCEDURES:
• You may be asked to participate in an individual or group interview. We will schedule an in-person interview based on at your convenience. You may choose the location for the in-person interview such as at your work site, or at Marquette University. Focus groups interviews will occur at a central location, in a private room. Both interviews and focus groups will be audio recorded with a handheld recorder.
• At the time of the interview or focus group, you will be asked to complete a demographic survey. I will ask you questions about your professional opinions, knowledge and experiences with sentinel injuries of child abuse including reporting these injuries. Other questions are about interprofessional values/ethics, roles/responsibilities, communication, and teamwork.
• You will be audio recorded during the interview portion of the study to ensure accuracy. Audio recordings (on handheld recorders) will be transferred to the PI’s password protected computer and removed from the local site. The recordings will be transcribed. The recordings will be deleted from the PI’s computer after 2 years beyond the completion of the study. For confidentiality purposes, your name will not be intentionally recorded. If it were to be inadvertently recorded, it will be removed during transcription.

DURATION:
• Your participation will consist of one interview session lasting approximately one hour.

RISKS:
• The risks associated with participation in this study are no greater than you would experience in everyday life.
• It is possible that participants will experience emotional distress when discussing child abuse cases. If this occurs, it is recommended that you reach out to your Employee Assistance Program (EAP), or to one of the free /low cost mental health services listed on the document provided to you at the end of the interview.

BENEFITS:
• There are no guaranteed direct benefits to you for participating in this study. You may benefit emotionally through being able to share your expertise. This research may benefit society by assisting healthcare providers to better identify and report sentinel injuries of child abuse to child protective services. Early identification and reporting of suspected child abuse to child protective services may protect victimized children from the negative health consequences of continued abuse.

CONFIDENTIALITY:
• Data collected in this study will be kept confidential.
• All your data will be assigned an arbitrary code number rather than using your name or other information that could identify you as an individual.
• Your signed consent form will be stored electronically in a password protected computer. There will be no paperwork linking your name to your study ID.
• All data related to this study will be secured in a password protected computer.
• The transcripts of your interview will be deidentified and maintained indefinitely for use in future research teaching or give to another investigator for future research without additional informed consent.
• Audio recordings will be stored in a password protected laptop. The audio recordings will be erased two years after the study has been completed.
• When the results of the study are published, you will not be identified by name.
• Direct quotes will be used in reports or publications
• De-identified transcripts will be kept indefinitely after completion of the study. Consent forms will be deleted two years after completion of the study.
• Everyone who participates in the focus group will be instructed to keep discussions confidential. However, the researchers cannot guarantee that all focus group participants will respect everyone’s confidentiality.
• Your research records may be inspected by the Marquette University Institutional Review Board or its designees,) and (as allowable by law) state and federal agencies.

COMPENSATION:
• Participants will receive a $10 Starbucks gift card as compensation for their participation in the study. Gift cards will be distributed immediately after the interview, either in-person or via email link.

VOLUNTARY NATURE OF PARTICIPATION:
Participating in this study is completely voluntary and you may withdraw from the study and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

If you withdraw during an individual interview, your data will not be used. If you withdraw during the course of a group interview, your data will be used as part of the group’s data.

You may skip any questions you do not wish to answer.

Your decision to participate or not will not impact your relationship with the investigators or Marquette University.

ALTERNATIVES TO PARTICIPATION:
- There are no known alternatives other than to not participate in this study.
- If you do not wish to participate in this study you can choose to withdraw from the interview at any time.

CONTACT INFORMATION:
- If you have any questions about this research project, you can contact Elizabeth Cleek at Elizabeth.cleek@marquette.edu or Kristin Haglund at Kristin.haglund@marquette.edu.
- If you have questions or concerns about your rights as a research participant, you can contact Marquette University’s Office of Research Compliance at (414) 288-7570.

I HAVE HAD THE OPPORTUNITY TO READ THIS CONSENT FORM, ASK QUESTIONS ABOUT THE RESEARCH PROJECT AND AM PREPARED TO PARTICIPATE IN THIS PROJECT.

____________________________________________  __________________________
(Printed Name of Participant)        Date

____________________________________________  __________________________
(Signature of Participant)        Date

____________________________________________  __________________________
(Printed Name of Individual Obtaining Consent)        Date

____________________________________________  __________________________
(Signature of Individual Obtaining Consent)        Date
Appendix D

Milwaukee County Free and Low Cost Mental Health Services

Free and low-cost mental health services in Milwaukee County
Direct Clinical Services

Marquette University Center for Psychological Services

Evaluations and treatment for children, adolescents, adults, couples, and families. This is a training and research facility where Marquette University Clinical Psychology Program students, supervised by faculty in the Department of Psychology, will work with the client. Sliding fee scale. M, Th, F, 8:00 a.m. – 4:30 p.m.; Tu, W, 8:00 a.m. – 7:00 p.m. By appointment.

604 N. 16 St., Cramer Hall, 307, Milwaukee, Wisconsin 53233 For appointments call (414) 288-3487

UWM's Psychology Clinic - clinic run by Dr. Shaun Cahill that is specific to PTSD treatment

The Clinic has two functions. The clinic is a training facility for graduate students in the clinical program as well as a research clinic. The Clinic is open five days a week, 52 weeks a year. It draws clients from the University community, including employees, students, and their families, and from the Milwaukee community. Individuals with both acute and long-term difficulties are accepted as clients. Clinic fees for assessment and therapy are based on a sliding fee scale. The UWM Psychology Clinic has psychologists, not physicians. They cannot prescribe medication. However, they can provide appropriate referrals.

2513 E. Hartford Ave., Pearse Hall 179, Milwaukee, WI 53211 For appointments call (414) 229-5521

Health Care for the Homeless Recovery Health Services Clinic (Walk-ins Welcome)

The Outpatient Mental Health Clinic provides psychiatric and psychotherapy services on a traditional outpatient basis. Services are provided through a variety of funding sources, Medicaid, Medicare, private insurance, HMO’s and on a Sliding Fee Scale for the uninsured. Appointments are recommended, however we do take patients on a walk-in basis. Hours: Monday, Tuesday, Wednesday and Friday– 8:00 am to 4:30 pm, Thursday – 8:00am to 7:00pm

210 W. Capitol Drive, Milwaukee, WI 53212 For appointments call (414) 727-6320
Milwaukee County Behavioral Health Division

Hospital and rehabilitation center. Full service psychiatric program for care and treatment of persons with chronic and acute mental illness or emotional problems. Crisis, inpatient, and outpatient treatment for all ages. Treatment for persons with developmental disabilities. All fees based on insurance and ability to pay, Medicare, Title 19.

9455 Watertown Plank Road, Wauwatosa 53226 Call 414-257-6995

Social Services

Research, prevention, intervention, and support services in the areas of family violence, homelessness, alcohol and drug abuse, mental health issues, poverty, and maternal and child health problems. The Behavioral Health Clinic provides individual, group, family, and couples counseling/therapy for domestic violence, sexual abuse, anger management, parenting issues, depression and anxiety, and a wide range of other issues. Wraparound services include support groups, home-based case management, protective payee services, and transitional housing.
Sliding fee scale, most major insurance programs, most HMOs, Titles 18 and 19. M-Th, 8:00 a.m. – 7:00 p.m.; F, 8:00 a.m. – 5:00 p.m. Evening hours vary, call for details.

5444 W. Fond du Lac Avenue, Milwaukee 53216 Call 414-466-1247

Sixteenth Street Community Health Center

Counseling and psychiatric services for children, adolescents, adults, couples, and families. Bilingual therapists and psychiatrist speak Spanish/English. Sliding fee scale, Title 19, all other insurances. M-F, 8:30 a.m. – 5:00 p.m.

1032 South Cesar E. Chavez Drive, Milwaukee 53204 Call 414-672-1353

Crisis Walk-In Center

Mental health assessment, emergency counseling, assistance with obtaining follow-up care for those with no insurance. Services provided on an urgent basis. Routine services to be obtained through community clinics. Fee based on ability to pay. M-F, 9:00 a.m. – 2:00 p.m. for new clients.

9455 Watertown Plank Road, Wauwatosa 53226 Call 414-257-7665

Geriatric Psychiatric Crisis Service

Crisis intervention service provided by phone and/or in home by registered psychiatric...
nurses to persons aged 60 and older. Assessment and referral for mental health issues complicated by a variety of medical and social problems of the aging person. M-F, 8:00 a.m. – 4:30 p.m.

Call 414-257-7440

Mobile Team

A mobile crisis team that responds on-site to persons in Milwaukee County experiencing a mental health emergency. Crisis stabilization, assessment, and linkage to appropriate follow-up care. M-F, 9:00 a.m. – 12:00 midnight. Sat., Sun., 9:00 a.m. – 8:00 p.m.

Call 414-257-7222

Support Groups and Services

National Alliance on Mental Illness (NAMI) Greater Milwaukee

NAMI Greater Milwaukee Office
3732 West Wisconsin Avenue, Milwaukee, WI 53208 Call (414) 344-0447
Email help@namigrm.org, peterh@namigrm.org (Peter Hoeffel, Executive Director)
http://www.namigrm.org

Office hours: 8:30 am - 5:00 pm Monday through Friday. Call the office before stopping by. Monthly Education Meeting Last Monday of every month. Call the NAMI Greater Milwaukee office for details.

NAMI Connection Recovery Support Group Meets Saturdays from 10:00 a.m. to 11:30 p.m. at the NAMI Greater Milwaukee offices, 3732 West Wisconsin Avenue. (Attendees should enter the building through the back entrance through the parking lot.)

Family-to-Family Class: Classes begin Tuesday, September 14, 2010 at the NAMI Milwaukee office, 3732 W. Wisconsin Ave. Class begins at 6:30 pm. For information or to pre-register contact Andrea Kurth at 414-344-0447.

NAMI Hope Family Support Group: 3rd Tuesday of every month, for family members. Meets at 6:30 pm at St Eugene Parish Library, 7600 N. Port Washington Rd.


NAMI Spouse and Family Support Group: 3rd Wednesday of the month, for spouses and other family members. Underwood Memorial Baptist Church, 1916 Wauwatosa Ave.
NAMI Family Support Group: 6:00 pm, 2nd and 4th Mondays of the month. Froedtert Hospital, 92nd & Watertown Plank Rd.

Depression and Bipolar Support Alliance Milwaukee Southside

Meetings: Second and fourth Mondays, 6:30-8:00pm, Saint Stevens Family Life Center, 5880 So. Howell St., Milwaukee (Near Mitchell International Airport and Bus Line 80). No required fees, but donations welcome.

Call (414) 964-2586 (Roseann), 414-570-9407 (Mary), 414-461-7068 (Nancy) Email schmidt9739@hotmail.com

The Healing Center

Offers advocacy and support to survivors and their loved ones as they struggle to heal from sexual abuse and assault. Provide a variety of support groups, individual advocacy and counseling, information and linkage to other community resources, and community education. Services are free of charge.

611 W. National Avenue, 4th floor, Milwaukee, WI 53204 Call 414-671-4325

Survivors of Suicide (SOS)

The organizations that sponsor these groups offer support and understanding to those left behind. The groups are open to anyone, are confidential and free of charge.

Milwaukee North Side Meetings: Meets first Thursday of the month from 7 - 9 pm at Tri-City National Bank, 4295 W. Bradley Road (SE Corner of 43rd (Sherman Blvd) and Bradley), Milwaukee.

Milwaukee South Side Meetings:
Meets second Tuesday of the month from 7 - 9 pm at St. Luke's Medical Center, Dining Room D, 2901 W. Kinnickinnic River Parkway, Milwaukee.

Call (414) 276-3122
http://www.mhawisconsin.org

Telephone services

Behavioral Health Division Crisis Line

Emergency telephone counseling, information and referral for personal, family, and
psychiatric crises. Assistance with obtaining appropriate follow-up care. No fee. 24-hour service.

Call (414) 257-7222

Warmline

Warmline is a non-crisis, supportive listening phone line for people with mental illness. All of our staff and volunteers are people with mental illness. Our volunteer staff are available to you from 7:00pm - 11:00pm Wednesday thru Monday. Call us, we've been there.

Call (414) 777-4729

211 Milwaukee

211 Milwaukee is a three-digit, 24-hour information and referral telephone service with information about family, health, and social services available in Milwaukee county and surrounding areas. Trained community resource specialists utilize a computer database to link callers to the local social service agency that can best respond to their needs. More than 4,500 programs are currently in the database. Dial 2-1-1
Appendix E

Demographic Form

Please respond to as many of the questions below that you are comfortable answering.

1. Gender:____

2. Age:____

3. Professional role and title. Please feel free to answer in general terms:_______________________________________

4. How many years have you worked in this role? ______

5. In the last five years, approximately how many child abuse investigations have you been involved in with your role?______ Have any of these cases involved sentinel injuries of child abuse (any bruising or mouth injuries in an infant who cannot yet crawl)? ______

6. Prior to today, were you aware of the term “sentinel injuries” and that they were symptoms of child abuse? Yes _____ No _____
Appendix F

Interview Guide

Thank you for agreeing to this interview. I will be audio recording our interview, so please tell me what you are comfortable with sharing. I have specific definitions for the concepts in this study and I will share those definitions with you as we move through the interview. Before we begin, do you have any questions?

The first question is related to Sentinel Injuries

So, we are all aware, sentinel injuries are any bruising or intra-oral injuries in a non-mobile infant. Non-mobile infants mean infants who cannot yet crawl, typically 6 months or younger. While bruising and mouth injuries can be common in older infants and children, they are very rare in young infants. And the most common cause for these injuries in infants who cannot yet crawl is child abuse. However, many professionals involved in child abuse reporting and investigations are not aware of sentinel injuries as concerning for child abuse.

So, my first question is:

What professional experiences, if any, have you had with sentinel injury cases? Can you give me some examples?

The second topic of discussion today is Interprofessional Education, (IPE) and its four competencies. The purpose of IPE is to improve interprofessional collaboration, or
professionals’ abilities to work together. Today, we want to learn how professionals work together within cases of child abuse, and specifically sentinel injuries.

So, to begin with, interprofessional education is defined as individuals from multiple professions engaging in education together to learn about, from, and with, each other. Within IPE, there are four core competencies and we will discuss these competencies and how they relate to child abuse and sentinel injury investigations.

IPE Core Competencies

The first concept within IPE is that of values/ethics. In IPE, this is defined as “work with individuals of other professions to maintain a climate of mutual respect and shared values.”

First, what does it mean to you to show a family that you value them in a child abuse investigation?

How do you show other professions, (e.g.……) that you value them in a child abuse investigation?

How do other professions show that they value your input in these cases?

Can you think of a time that you were not valued for your expertise?

What might have made this situation go better?

Can you think of shared values within child abuse investigations?
The second concept within IPE is that of roles/responsibilities. Within child abuse investigations, this means “using the knowledge of your own role and those of other professions to appropriately assess and to address the needs and promote the health of children in child abuse investigations”.

- Within child abuse investigations, what is unique about your role?
- What do other professions need to know about your role so that they can work more effectively with you?
- What do you need to know about families and other professions so that you can work better with them?

In IPE, the third concept is interprofessional communication. Within child abuse investigations, interprofessional communication occurs between patients, families, communities, and professionals in health and other fields in a responsive and responsible manner to support a team approach in child abuse investigations.”

Can you provide an instance where you communicated with other professionals in a child abuse investigation and the communication went well?
- Tell me about what made the communication go well?
- Can you provide an instance where you communicated with HCPs in a child abuse investigation and the communication did not go well?
- Tell me about what made the communication not go well.
- What might have been differently so that the communication between you and the HCP would have been better?
The final concept in IPE is that of team and teamwork. This is the application of relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate child abuse investigations and policies to ensure that they are safe, timely, efficient, effective, and equitable.

- What teamwork skills are needed in collaboration for child abuse investigations? Is this different for sentinel injury investigations?
- Have you felt like you’re part of a team in child abuse investigations?

As we wrap up,

- Tell me about the factors that support or inhibit others in your role to identify and report suspected child abuse to CPS?
- What could be done to make others in your role feel more comfortable and confident in their ability to identify and report sentinel injuries?
- Tell me about the factors that support or inhibit identification and reporting of sentinel injuries from a system perspective.
- Do you have ideas or recommendations for how to improve identification and reporting of sentinel injuries that we haven’t touched on yet?