Planning the Implementation of a Trauma-Informed Care Intervention at a Pediatric Hospital: An Integrated Knowledge Translation Approach

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It is not incumbent on you to complete the work, but neither are you free to desist from it.
Pirkei Avos 2:21

Preface: Contributions

I, Yehudis Stokes, am the primary investigator and author of this thesis. I led the conceptualization, design, and conduct of the studies, and drafted all manuscripts and chapters. Several individuals supported all or aspects of this thesis research, including my thesis supervisors, thesis advisory committee members, CHEO TIC Advisory Committee members, research assistants, and a library scientist. The following table presents the contributors that met authorship criteria of one or more of manuscripts contained within this thesis.

Contributions

Element	PhD Study 1: Scoping Review (Chapter 2)	PhD Study 2: Qualitative Exploration (Chapter 3)	PhD Study 3: Trainee's Experience (Chapter 4)
Conceptualization and design	YS, IDG, KBL, JDJ, EH, ACT, MDV, DA, PC, CL, AK, SG, MKW, MR, RS, DM, JB, SL, HG, MS	YS, IDG, KBL, JDJ, EH, ACT, MDV, DA, PC, CL, AK, SG, MKW, MR, RS, DM, JB, SL, HG	YS, IDG, KBL, JDJ, EH, ACT, MDV, DA, PC, CL, AK, SG, MKW, MR, RS, DM, JB, SL, HG
Data collection	YS, MDV, JG, IDG, KBL, EH	YS, PC, JG	YS
Data analysis and interpretation	YS, MDV, JG, IDG, KBL, EH, JDJ, ACT	YS, PC, IDG, KBL, JDJ, EH, ACT	YS, IDG, KBL, PC
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Thesis Abstract

Purpose. To facilitate the implementation planning process of a trauma-informed care (TIC) program at an acute care pediatric hospital, while observing aspects of the process in a naturalistic setting. My specific thesis objectives were to:

1. Examine current literature relating to TIC interventions used in pediatric mental health inpatient and residential settings, the intervention components, and the implementation goals and implementation strategies used.

2. Explore knowledge-user (youth, caregiver, and staff) perspectives on their vision of TIC, and identify potential implementation considerations.

3. Describe and reflect upon a trainee's experience using an integrated Knowledge Translation (IKT) approach to TIC implementation planning.

Methods. Three studies informed by tenets of critical realism and complexity theory, taking an IKT approach guided by Implementation Roadmap: a) a scoping review of TIC interventions and implementation strategies used; b) a qualitative exploration of youth, caregiver, and staff perspectives on their vision of TIC in the local context and implementation considerations; and c) a description of the IKT approach from my perspective as a trainee.

Findings. In Study 1, I identified 49 articles reporting on 21 distinct TIC interventions, which ranged in detail pertaining to intervention aims, ingredients, delivery, and related implementation goals and strategies used. These findings affirmed the complexity of TIC and of TIC interventions, and the importance of clearly identifying and reporting components. In Study 2, twenty-five individuals participated in individual or group interviews, which revealed five key domains to consider when implementing TIC: the centrality of relational engagement, TIC core program components, factors that may support or limit success in implementing TIC within the mental health unit and hospital-wide, and the importance of intersectoral collaboration. In Study

3, I reflected on the value of an IKT approach. Facilitating this process highlighted the value of an action-based implementation framework in guiding and structuring the implementation process, and the congruency between TIC principles and the application of an IKT approach. Furthermore, leadership support, knowledge-user empowerment, and organizational enthusiasm and perseverance were vital in advancing implementation.

Conclusions. The Implementation Roadmap was complementary to guiding IKT. TIC principles may help inform not only the delivery of TIC but also the complex process of implementing TIC.

Keywords*: trauma, trauma-informed care, integrated knowledge translation, Implementation Roadmap, critical realism, complexity, scoping review, qualitative, pediatric mental health care*

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Glossary of Terms

Glossary

Term	Definition
Complexity theory	A theory with foundations in critical realism, acknowledging the world as a layered, complex system containing an infinite number of dynamic and interrelating complex systems which makes linear predictions difficult, while encouraging post-hoc explanations and exploring longer-term tendencies.
Critical realism	A research paradigm or worldview that espouses the compatibility of three principles: a) 'ontological realism', that there is a truth and reality in the world, independent of our ability to describe and understand it, b) 'epistemological relativity', that personal beliefs and perspectives are relationally and contextually produced and changed, as well as fallible, and c) 'judgmental rationality', that within this framework, it is still possible to facilitate contexts and arguments in preference of some beliefs and theories of the world over others.
Implementation	"The carrying out of planned, intentional activities that aim to turn evidence and ideas into policies and practices that work for people in the real world. It is about putting a plan into action; the 'how' as well as the 'what'." (Centre for Effective Services, n.d.)
Implementation Science	Encompasses "the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care" (Eccles & Mittman, 2006, p.1) and "recognises that strong evidence alone is not sufficient to change practice" (Lynch et el., 2018, p.1)
Integrated Knowledge Translation	An approach where researchers partner with knowledge-users in the research process, with the aim of producing relevant and useful evidence (Canadian Institutes of Health Research, 2016).
Knowledge-user	An individual who is likely to influence, administer, or be an active user of healthcare systems (Jull et al., 2019)
Knowledge Translation	"A dynamic and iterative process that includes synthesis, dissemination, exchange, and ethically-sound application of knowledge to improve health, provide more effective health services and products and strengthen the health care system" that "takes place within a complex system of interactions between researchers and knowledge-users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge-user" (Canadian Institutes of Health Research, 2016)
Partner	Knowledge-user collaborator and decision-maker on the integrated knowledge translation research team.
Trauma	Trauma occurs when there is an *event*, a series of events, or a set of circumstances, which an individual *experiences* as threatening or harmful, and which causes lasting adverse *effects* on function and well-being.
Trauma-informed care	A philosophy that involves addressing the needs of individuals with histories of trauma, whether they are the ones seeking care, or providing care.

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List of Abbreviations

ACE	Adverse childhood experience
AIMD	Aims, Ingredients, Mechanism, Delivery
CHEO	Children's Hospital of Eastern Ontario
CIHR	Canadian Institutes of Health Research
DBT	Dialectical behaviour therapy
ERIC	Expert Recommendations for Implementing Change
IKT	Integrated knowledge translation
K2A	Knowledge to Action Framework
KU	Knowledge-user
PEIRS	Patient Engagement in Research Scale
SAMHSA	Substance Abuse and Mental Health Services Administration
TIC	Trauma-informed care
TIC AC	Trauma-informed care Advisory Committee
TICI	Trauma-informed care intervention
WHO	World Health Organization

Chapter 1 Introduction

1.1 Introduction

The purpose of this thesis was to facilitate the implementation planning process of a trauma-informed care (TIC) program at an acute care pediatric hospital, while observing aspects of the process in a naturalistic setting. I aimed to partner with the hospital in implementation planning in an evidence-informed manner, through facilitating the selection of a TIC intervention and exploring the context-specific adaptations and considerations for implementation. This first chapter orients the reader to the research problem, the research paradigm and theoretical approaches guiding this multi-methods research, the study objectives, and the structure of this manuscript-based thesis.

1.2 Research Problem

Over the past 30 years there has been increased recognition of the significance of psychological trauma and its impact on individuals, families, communities, healthcare providers, and society at large (e.g., Beck, 2011; Fallot & Harris, 2009; Felitti, 2009; Felitti, et al., 1998; Morrissey & Higgins, 2022). Ongoing research continues to further knowledge of psychological trauma and its pervasive biological, psychological, and social consequences (e.g., Anda et al., 2006; Fallot & Harris, 2009; Hughes et al., 2017; LeBouthillier et al., 2015; Zielinski, 2009). Despite growing interest in TIC, clarity about its scope, operationalization, and implementation processes remain in its infancy (e.g., Bargeman et al., 2022; Saunders et al., 2023; Stokes, 2016; Sweeney & Taggart, 2018; Wood et al., 2023).

1.2.1 Psychological Trauma

The term *trauma* originating from the Greek word for *wound*, refers to a physical or psychological injury (Jones & Cureton, 2014; Merriam-Webster, 2020). Psychological trauma has been broadly defined as an experience or condition that overwhelms one's capacity to cope

(e.g., Herman, 1992; Meszaros, 2010; Poole & Greaves, 2012). McCann and Pearlman (1990) offer an explicit definition for psychological trauma: An experience that a) is sudden, unexpected, or non-normative, b) exceeds the individual's perceived ability to meet its demands, and c) disrupts their frame of reference and other psychological needs. Trauma is therefore a distinct form of 'stress.' Stress that is intense, unpredictable, or chaotic tends to lead to functional deficits and vulnerability, while stress that is moderate, consistent, and controllable tends to lead to resilience (e.g., Vaid et al.,1997; Valee et al.,1997). Psychological trauma is also referred to as "an affliction of the powerless" where the victim is "rendered helpless by an overwhelming force", whether that be the force of nature, through disasters, or the force of other human beings, through atrocities (Herman, 1992, p. 33). Based on a review of existing definitions and expert panel discussions, the Substance Abuse and Mental Health Services Administration (SAMHSA, 2014) formulated a conceptual framework of trauma, summarized as the three 'E's: the event, the experience, and the effects. The SAMHSA framework recognizes that individual trauma stems from an event, a series of events, or a set of circumstances, but that the event alone does not cause trauma. It is the event in combination with the experience of those events by the individual as threatening or harmful, and the potential of lasting adverse effects (on functioning and mental, physical, social, emotional, and spiritual well-being) that culminate in trauma (SAMHSA, 2014).

Trauma, in essence, is never simple or straightforward, as demonstrated by its highly debated and variable definition and the diagnostic criteria for trauma-related disorders (Chu, 2011; Jones & Cureton, 2014; Kimberg & Wheeler, 2019). Trauma experts agree that no other diagnostic categories in the Diagnostic and Statistical Manual (DSM) have created more controversy about the boundaries of the condition, the symptom profile, and prevalence, than

post-traumatic stress disorder (PTSD) and dissociative identity disorder (DID; which is typically linked with trauma) (Brewin et al., 2009; Jones & Cureton, 2014). Moreover, trauma increases in conceptual complexity when we consider that it is not the gravity of the event that defines trauma, but the degrees of fear and helplessness that are experienced by the individual in association with the event (Levine, 2010). The nature of this experience will depend on varying individual circumstances, including genetic, epigenetic, biological, psychological, environmental, family, community, social, societal, and historical factors (Kimberg & Wheeler, 2019; Perry, 2001). When a harmful event results in enduring suffering and dysfunction, the event is considered traumatic (Kimberg & Wheeler, 2019; SAMHSA, 2014).

1.2.2 The Adverse Childhood Experiences Study

The landmark Adverse Childhood Experiences (ACE) study, which brought childhood trauma into the public eye, investigated the correlation between childhood adversity and long-term health and well-being (e.g., Anda et al., 2008; Felitti, 2009; Felitti & Anda, 2010; Felitti et al., 1998). Over 17,000 individuals undergoing medical exams at Kaiser Permanente (California, United States of America) participated in the study, completing surveys related to their childhood experiences and their current health status and behaviours (Center for Disease Control and Prevention [CDC], 2019; Felitti et al., 1998). The results revealed that for each additional type of childhood adverse life experience reported, the toll in later life damage (in terms of school, work, finances, lifetime income, mental health, addictions, physical health, sexual health, healthcare usage, and early death) increased (e.g., Anda et al., 2006; Felitti & Anda, 2010; Felitti et al., 1998). The number of categories of ACE showed a graded, dose-response correlation with the presence of later life physical diseases, affective disturbances, sleep disturbance, severe obesity, multiple somatic symptoms, workplace absenteeism, financial problems, lower lifetime income,

prostitution, early criminal behavior, and ultimately, early death (CDC, 2019; Felitti & Anda, 2010; Felitti et al., 1998). Since the reporting of the original ACE study, countless subsequent studies have continued to demonstrate the relationship between increased ACE exposure and long-term health consequences. In a recent systematic review, authors identified 96 articles that examined health outcomes associated with ACE (using specifically the CDC-Kaiser ACE scale), demonstrating a correlation between ACE scores and a breadth of outcomes, including most major causes of death in Unites States adults, and many psychosocial outcomes relating to mental illness and poor health (Petruccelli et al., 2019). Experts have suggested two processes that mediate the association between psychological trauma and biomedical disease: a) physiological changes such as neuroendocrine, inflammatory, and epigenetic changes; and b) behavioural adaptive coping devices (e.g., De Bellis, & Zisk, 2014; Dong, et al., 2004; Felitti, 2009; Lin et al., 2016; Machtinger et al., 2015; Matosin et al., 2017; Shonkoff & Garner, 2012).

1.2.3 The Neurobiology of Threat and Trauma

When an individual perceives a threat, their brain mediates a full brain and body mobilization response to adapt to the survival-related task or challenge (Levine, 2010; Perry, 1999; Perry, 2001; van der Kolk, 2014). This response incorporates cognitive, emotional, behavioural, social, and physiological functioning changes, which are heterogeneous and graded, depending on the nature, timing, and duration of the threat, as well on characteristics of the individual (Chu, 2011; Kimberg & Wheeler, 2019; Perry, 2001). Humans demonstrate two distinct but interactive stress response patterns, that of hyperarousal (‘fight or flight’, hyperactivation of stress response) and of dissociation (hypoarousal, disengaging from the external world and attending to one’s internal world) (Boon et al., 2011; Chu, 2011; Levine, 2010; Perry, 2001). Most individuals unconsciously apply various combinations of these two

response patterns during a given traumatic event (Perry, 2001). The activation of the adaptive neurobiological stress-response system, as seen during an acute stress, is usually rapid and reversible (Levine 2010; Perry, 1994; van der Kolk, 2014). When the event or experience is of sufficient intensity, duration, or frequency, however, lasting neurophysiological changes occur through a process of 'sensitization' (Perry, 1994). That is, the extensive neurochemical systems which mediate the stress response become more 'sensitive' to future stressful events (particularly evocative cues such as smells or images relating to previous threats), and their baseline state of arousal may elevate (i.e., maintaining a baseline state of alarm). This altered functioning and responsivity of the stress response system is related to the symptoms of hypervigilance, increased startle, affective lability, anxiety, sleep disturbances, and dysphoria observed in classic PTSD, as well as a range of dissociative symptoms such as excessive numbing, avoidance, daydreaming, derealization, somatization, fainting, and catatonia (Perry, 1994;1999;2001; van der Kolk, 2014).

The human stress response spans a continuum, ranging from a calm and relaxed state to one of complete terror. As the individual feels increasingly threatened, their brain and body will shift along the arousal continuum to attempt to ensure sufficient mental and physical resources are allocated to managing the threat (Levine, 2010; Perry, 2004). Individuals' functioning and ability to process information will vary relative to (i.e., be influenced by) their current state along the stress-arousal continuum (Perry, 1999; 2001). The fear response focuses resources on reacting reflexively to the threat, thereby reducing one's ability to engage in abstract thinking, problem solving, processing, and storing verbal information, with a focus instead on how to survive (Perry, 1999; van der Kolk, 2014). The physiological hyperreactivity related to trauma disorders is mediated by cue-evoked memories (Perry, 1999). Neural patterns of activation previously associated with threat become generalized to 'false signals' of non-threatening cues:

internal or external sensations that trigger a recall of trauma state memories (Levine 2010; Perry, 1999; van der Kolk, 2014). Furthermore, in the case of interpersonal trauma, the threat is specific to relational cues, leading all relationships to become potential evocative cues for a threat response (Badenoch, 2018; Chu, 2011; Ludy-Dobson & Perry, 2010). Moreover, the unique attributes of severe and prolonged (and often interpersonal) trauma, relative to a 'single-blow' event, have resulted in researchers and clinicians conceptualizing this type of trauma as distinct from others, demarcating it with the term 'complex trauma' (Chu, 2011; Courtois & Ford, 2009; Herman, 1992; Terr, 1991).

1.2.4 Trauma: Adaptation or Disease?

"Unlike other forms of psychological disorders, the core issue in trauma is reality" (van der Kolk et al., 1996, p. 6). Experts have suggested that the uniqueness of trauma-related sequelae is that in and of themselves they are rooted in being adaptive measures to support survival (e.g., Fisher, 2017; Porges, 2011; van der Kolk et al., 1996). Van der Kolk (2014, p. 38) highlights the risk of diminishing trauma to a 'brain-disease', that should be treated primarily from a pharmacological perspective. In doing so, he suggests that we ignore vital dimensions of humanity and of healing from trauma: a) primacy of relationships and community in restoring well-being, b) power of language in defining and articulating experiences, developing a common sense of meaning, c) human capacity to self-regulate (and co-regulate) through somatic activities, such as breathing, moving, and touching, and d) opportunity to alter social conditions to foster environments in which individuals can feel safe, empowered, and can thrive (van der Kolk, 2014). Thus, these are integral aspects to consider when caring for those with trauma histories.

1.2.5 Trauma-Informed Care (TIC)

'Trauma-informed care' (TIC) is a philosophy that involves addressing the needs of individuals with histories of trauma, whether they are the ones seeking care, or providing care (Fallot & Harris, 2009). TIC has been described in the literature as both an organizational model of care (e.g., Bendall et al., 2021; Huo et al., 2023; Morrissey & Higgins, 2022; Lewis et al., 2023; Reeves, 2015; Sweeney & Taggart 2018) and an individual provider's approach to care (e.g., Bendall et al., 2021; Boles, 2017; Morrissey & Higgins, 2022; Purvis et al., 2013) that acknowledges the individual within their historical, relational, and social systems (e.g., Becker-Blease, 2017). Although the term TIC has been reported commonly in the literature, authors have used the term TIC interchangeably in a few different ways:

1- Used the term(s) below interchangeably with the term TIC within their article(s).
2- Stated their understanding that one (or more) of the terms below is used interchangeably with TIC within the literature or practice settings.
3- Used one term as an umbrella term for TIC and TIC related term(s) below.

The terms include:

- Trauma-informed practices (e.g., Champine et al., 2019; Cooper et al, 2023; Heris et al., 2022; Hummer et al., 2010; Lee et al., 2021),
- Trauma-informed approaches (Bargeman et al., 2021; Champine et al., 2019; Emsley et al., 2022; Goddard et al., 2022; Han et al., 2021; Heris et al., 2022; Lee et al., 2021; Lewis et al., 2023; Lewis-O'Connor et al., 2023; Saunders et al., 2023),
- Trauma and violence informed care or approaches (Lee et al., 2021; Wathen et al., 2023),
- Trauma-informed services or programs (Bargeman et al., 2021; Elliott et al., 2005; Isobel et al., 2021; Keesler & Isham, 2017; Lee et al., 2021),

- Trauma-informed systems (Champine et al., 2019; Heris et al., 2022; Lee et al., 2021; Loomis et al., 2019),
- Trauma-sensitive (Bendall et al., 2021; Goddard et al., 2022; Griffing et al., 2020; Lang et al, 2016; Plumb et al., 2016; Wassink-de Stigter et al., 2022),
- Trauma-responsive (Thang et al., 2021; Wassink-de Stigter et al., 2022), and
- Trauma-integrated (Bendall et al., 2021; Heris et al, 2022).

Yet some authors have suggested particular nuances differentiating the above terms. For example, authors describing trauma and violence informed care (TVIC; Wathen et al., 2023, p. 261) assert the uniqueness of TVIC lies in accounting for "the intersecting impacts of systemic and interpersonal violence and structural inequities on a person's life, emphasizing both historical and ongoing violence and their traumatic impacts" and that TVIC concentrates an individual's past and current experiences of violence to contextualize problems in relation to both their psychological state and their social circumstances. TVIC emphasizes uniquely the element of 'violence', however, the principles of TVIC, as described by Purkey and colleagues (2020) and Wathen and colleagues (2023), appear to be very similar to the principles of TIC described by Purkey and colleagues (2018). In this doctoral thesis research, site knowledge-users (KUs) discussed these terms and felt that TIC encompassed the elements of TVIC and used TIC as their preferred term.

Interest in TIC continues to expand greatly, with attempts in Canada to integrate TIC into best practice guidelines (e.g., Registered Nurses' Association of Ontario, 2017), tool kits (e.g., Manitoba Trauma Information and Education Centre, 2013), practice guides (e.g., British Columbia Provincial Mental Health and Substance Use Planning Council, 2013; Child Advocacy Centres/Child & Youth Advocacy Centres across Canada, 2021; LaVallie & Seidlikoski Yurach,

2022), and policies (e.g., Lee et al., 2021) within various disciplines. While definitions of TIC vary, generally agreed upon assumptions include 4 'R's a) realizing the prevalence of trauma, b) recognizing manifestations of trauma, c) responding appropriately to trauma, and d) resisting re-traumatization, as well as the six inter-related principles of a) safety (including both physical and psychological safety), b) trustworthiness and transparency, c) peer support, d) collaboration and mutuality, e) empowerment, voice, and choice, and f) cultural, historical and gender considerations (e.g. Fallot & Harris, 2009; Hales et al., 2017; SAMHSA, 2014). Some authors reduce these principles to three common elements: a) safety, b) power, and c) self-worth (Yatchmenoff et al., 2017). For an organization to be trauma-informed, the culture of the organization must reflect the above principles in each interpersonal contact, setting, and relationship, as perceived by both staff and consumers (Fallot & Harris, 2009). Furthermore, it is important that services engage in a paradigm shift to interact sensitively with every patient and staff member as though they may have trauma histories, a philosophy known as 'universal precautions' (Elliott et al., 2005; Harris & Fallot, 2001).

While awareness of TIC has become more widespread, it is possible to suggest that the principles of TIC overlap with what should constitute standard quality care for the general population (e.g., Elliott et al., 2005; Saunders et al., 2023; Stokes et al., 2017). However, although there is general consensus that appropriate application of TIC principles could benefit all individuals, researchers argue that: a) these principles are essential for individuals with trauma histories who may not be able to participate in or benefit from care without them, and b) TIC informs basic care through current knowledge and expertise related to trauma and adversity (e.g., Elliott et al., 2005; Stokes et al, 2017). Some authors have expressed concern that emphasis remains focused on implementing TIC principles for the benefit of patients, without

acknowledging the relevance and value of these organizational principles for staff (e.g., Amateau et al., 2023; Wolf et al., 2014) and caregivers (Cooper et al., 2023). Furthermore, the theoretical and practical aspects of TIC remain somewhat ambiguous; lacking conceptual clarity and a consensus on how to operationalize, implement, and evaluate this goal in practice (e.g., Bargeman et al., 2022; Bendall et al., 2021; Donisch et al, 2016; Perry & Jackson, 2018; Saunders et al., 2023; Stokes, 2016; Walker et al., 2021). In other words, while the need for TIC is well discussed and understood, what exactly constitutes effective TIC is still unclear.

Recent reviews of TIC intervention implementation in various healthcare settings suggest that existing TIC interventions may improve staff attitudes and increase staff knowledge, patient engagement with services, provider and patient safety, and some patient health outcomes, however evidence is currently limited, inconsistent, and lacks methodological rigour (e.g., Han et al., 2021; Lewis et al., 2023; Lowenthal, 2020; Maguire & Taylor, 2019; Purtle 2020; Saunders et al., 2023). Furthermore, there was a notable lack of reporting on outcomes such as: adverse events/harms, cost-effectiveness, and staff health and well-being (Bendall et al., 2021; Brown et al., 2022; Lewis et al., 2023; Saunders et al., 2023). The lack of consensus and conceptual clarity about TIC and the methodological challenges inherent with evaluating complex organizational change interventions within complex health systems likely contribute to the evidence-gap (Bargeman et al., 2022; Lewis et al., 2023; Saunders et al., 2023). Across reports of TIC implementation, staff education and training is a common (and sometimes the only) implementation strategy used, the details relating to training (i.e., aims, content, delivery) is often limited, and there is evidence suggesting that standalone training interventions are insufficient to support implementation of TIC (e.g., Huo et al., 2023; Lewis et al., 2023; Lowenthal, 2020; Maguire & Taylor, 2019; Purtle, 2020; Saunders et al., 2023). Preliminary

findings suggest that TIC implementation requires a broad implementation approach including expertise of those with lived experience, senior leadership, ongoing staff support, and multi-disciplinary and intersectoral collaboration that carefully considers the characteristics of the TIC intervention and of the setting and context (e.g., Bargeman et al., 2022; Huo et al., 2023; Lewis et al., 2023; Lowenthal, 2020; O'Dwyer et al., 2021; Saunders, 2023; Wassink-de Stigter et al., 2022). At this time, more research is needed relating to implementation of TIC interventions, that explicitly clarifies elements of the TIC intervention (including aims, core ingredients, target audiences, and theoretical underpinnings) and its implementation (including implementation strategies, implementation process, and characteristics of actors, setting, and context).

1.2.6 TIC in Pediatric Mental Health Care Settings

Extensive evidence has linked childhood exposure to trauma, maltreatment, and neglect with higher rates of physical and mental disorders and healthcare usage (e.g., Cuijpers, et al., 2011; Felitti, 2009; Felitti, et al., 1998; Hughes et al., 2017; Huffhines, et al., 2016; Petruccellia et al., 2019). Youth with histories of trauma and adversity have been found to be at increased risk for a range of emotional, social, and cognitive difficulties, and associated inpatient psychiatric and residential care admissions (e.g., Briggs et al., 2012; Greeson et al., 2014; Keeshin et al., 2014; Perry, 2006). A chart review of psychiatric inpatient hospitalizations over a 10-month period (in the United States of America, n=1079) found that children and adolescents with a history of maltreatment were statistically significantly more likely to be diagnosed with multiple disorders than the youth without a trauma history (Keeshin et al., 2014). Physical and sexual abuse histories were also independently associated with increased length of stays (Keeshin et al., 2014). In another sample (n=397) of seriously emotionally troubled children and adolescents at a residential treatment facility (in the United States), a history of physical abuse was found to be

associated with a 12-fold statistically significant increase in the likelihood of being classified as reactively aggressive (after controlling for age, sex, ethnicity, and potential intellectual disability) (Ford et al., 2010). A further chart review of child and adolescent psychiatry admissions (at a hospital in Austria) over a five-year period (n=390) found that known ACE, and particularly a history of sexual abuse or being fostered or adopted, were statistically significantly higher in patients with repeat psychiatric admissions (Fellinger et al., 2022). Similarly, among a sample of young children with oppositional defiant disorder (in the United States, n=261), a diagnosis of PTSD was found to be statistically significantly associated with decreased time to readmission to partial hospital psychiatry treatment (Boekamp et al., 2018). Finally, several studies have found that despite the high prevalence rates of trauma related disorders (e.g., PTSD) among children and youth admitted to inpatient psychiatric settings, trauma exposure and trauma-related diagnoses are under-identified in clinical practice (e.g., Belivanaki, et al., 2017; Havens et al., 2012). This gap is particularly notable given that these patients tend to demonstrate more severe and complex presentations requiring longer and more frequent hospitalizations, and that under-identification of trauma disorders tends to result in misdiagnoses and higher rates of being prescribed antipsychotic and/or multiple psychotropic medications (Belivanaki, et al., 2017; Havens et al., 2012). The pervasiveness of trauma exposure among children and youth admitted to inpatient and residential care psychiatric units suggests that there is an urgent need to consider the application of TIC in these settings.

I identified six reviews focused on TIC interventions and their implementation in pediatric mental health care settings (Bailey et al., 2019; Bargeman et al., 2021; Bendall et al., 2021; Bryson et al., 2017; Kelly et al., 2023; Lowenthal, 2020), which are described in the following paragraphs. For each review, I completed the JBI critical appraisal checklist for

systematic reviews and research syntheses (Aromataris et al., 2015), presented in Appendix A. I applied a scoring system based on previously published reviews (e.g., Gifford et al., 2021; Wang et al., 2022) to obtain a total quality rating between 0 and 1, which I then categorized as weak (0–0.25), weak-moderate (0.26–0.50), moderate (0.51–0.75), or strong (0.76–1.0).

Bailey and colleagues (2019) performed a systematic review examining the empirical evidence for system-wide TIC interventions for children receiving out-of-home care (including foster care, kinship care, group homes, residential settings, excluding hospital settings). My assessment of this review using the JBI critical appraisal checklist is that it is of moderate quality. This review included seven studies published between 2002 and 2017, and the results comprised of three TIC models: a) Attachment Regulation and Competency framework (n=3) b) Children and Residential Experiences programme (n=1); and (c) The Sanctuary Model, (n=3) (Bailey et al., 2019). All included studies reported positive outcomes (including a statistically significant decrease in trauma symptoms and behaviours, and statistically significant decrease in caregiver distress). However, the review authors found the current evidence for clinical TIC interventions in these settings remains underdeveloped, with only seven empirical studies included in the review, and with only one study rated as moderate risk of bias, while all other studies were rated as having a high risk of bias (Bailey et al., 2019). These authors also observed difficulty in evaluating outcomes from TIC models, perhaps due to the complexity of implementing and evaluating TIC interventions (Bailey et al., 2019). However, Bailey and colleagues (2019) concluded that the overall results offer preliminary support for the efficacy of organisation-wide TIC interventions with this population of youth. The authors recommended that further research could aim to creatively establish rigorous study designs and to incorporate implementation science perspectives (Bailey et al., 2019).

Bargeman and co-authors (2021) led a critical review of the TIC literature to explore how TIC is conceptualized and implemented in child and youth-serving systems of care, and specifically how TIC conceptualization, implementation, and outcomes related to children and youth rights. My assessment of this review using the JBI critical appraisal checklist is that it is of weak-moderate quality. They included 49 documents published between 2006 and 2012, with seven documents specific to pediatric healthcare sectors. Authors summarized TIC within pediatric healthcare settings as attending to universal trauma screening and the potential for distress caused by the provision of clinical care (Bargeman et al., 2021). Studies of TIC in mental health inpatient settings were noted to measure outcomes including reductions in use of seclusion and restraint, and in the use of 'as needed' prescribed sedative medications (Bargeman et al., 2021). Overall, this review found that across sectors there was a lack of clarity regarding TIC and how to implement it, insufficient use of validated outcome measures, and an absence of a child rights perspective within TIC (Bargeman et al., 2021).

Bendall and colleagues (2021) reviewed the literature pertaining to TIC interventions used in outpatient and counseling health settings for youth aged 12-25 years. My assessment of this review using the JBI critical appraisal checklist is that it is of moderate quality. They identified 13 articles (published between 2006 and 2017), 11 of which included mental health settings. Authors distilled 100 individual TIC practices across the 13 studies, which they synthesized as 10 broad components of TIC. Of the 10 TIC components, seven were system level: a) interagency collaboration, b) service provider training, c) safety, d) leadership, governance, and agency processes e) youth and family/carer choice in care, f) cultural and gender sensitivity and g) youth and family/carer participation. The remaining three components were termed as 'trauma-specific clinical practices': h) screening and assessment, i)

psychoeducation and j) therapeutic interventions (Bendall et al., 2021). Most studies reported outcomes which related to either the service user, service provider, service itself, or agency/sector. However only two studies measured service user (patient/caregiver) outcomes. One reported 'effective reductions' in PTSD symptoms, while another described statistically significant improvements in mental health and functional problems. Both of these studies included small sample sizes (n=17; n=28) and contained major methodological limitations. The authors concluded that there is a need for further clarity and consensus concerning operationalizing TIC, and for further research on relevant outcomes for patients and caregivers (Bendall et al., 2021).

Bryson and colleagues (2017) conducted a realist review examining the literature on TIC in psychiatric inpatient and residential programs for youth (Bryson et al., 2017). The purpose of this review was to examine the implementation context of clinical TIC interventions: What is it about strategies to implement TIC interventions that works, for whom, in what circumstances, in what respects, and why? (Bryson et al., 2017). My assessment of this review using the JBI critical appraisal checklist is that it is of weak-moderate quality. This review included only system-wide implementations of TIC in youth inpatient or residential settings that reported evaluation data and that were published between 2000 and 2015. The authors developed a program theory, based on the crossover of the National Implementation Research Network active implementation cycles and a model for TIC known as the Six Core Strategies to Reduce Seclusion and Restraint (National Association of State Mental Health Program Directors, 2008). Within this review, they aimed to test and refine their original program theory which suggested a stepwise progression through the following steps: a) community inclusion, b) leadership commitment, c) model selection, d) workforce transformation, e) outcome orientation, and f)

shared maintenance. The authors included 13 articles, which contained, but were not limited to, five known TIC models (the Attachment, Self-Regulation, and Competency Framework; the Six Core Strategies; Collaborative Problem Solving; the Sanctuary Model; Risking Connection; and the Fairy Tale Model). The authors prioritized identifying common elements of "successful TIC implementation" (Bryson et al., 2017, p. 5) across contexts and patient groups, rather than intervention outcomes. Nevertheless, in summarizing study findings, interventions were noted to correlate with decreased use of seclusion and/or restraints, decreased patient aggression, decreased staff injuries, and a decrease in overall trauma symptoms among patients. After extracting and analyzing available implementation data, Bryson and colleagues (2017) revised their original program theory of stepwise TIC implementation in psychiatric inpatient and residential programs for youth as follows: a) senior leaders prioritize TIC, b) support staff through delivering advanced training, and providing ongoing supervision, coaching, and debriefing, c) listen to patients and families with regards to their experiences, needs, and priorities, d) assume an outcome orientation to foster continuous improvement, and e) align policy and practice, formal and informal, with the principles of TIC. The authors acknowledged that this review did not assess quality or risk of bias of the study designs, and they concluded that the state of science relating to TIC clinical interventions and implementation remains underdeveloped (Bryson et al., 2017).

Kelly and co-authors (2023) conducted a systematic review to synthesize evidence in relation to the effects of trauma-informed interventions on coercive practices in child and adolescent residential care settings. My assessment of this review using the JBI critical appraisal checklist is that it is of strong quality. They identified nine articles published between 2012 and 2020, all of which included inpatient or residential care settings, and all were conducted in the

United States. The TIC interventions included: a) The Six Core Strategies (n=4; all studies reported reductions in the use of seclusions and restraints), b) Trauma Systems Therapy (n=2; both reported reductions in restraint and seclusion), c) Traditional Treatment versus Trauma-Informed Treatment (n=1; increased incidence of restraint but decreased incidence of seclusion compared to control group; patient outcomes improved), d) Trauma-Informed Trauma Affect Regulation: Guide for Education and Therapy (TARGET, n=1; five-fold decrease in the use of restraint in a service-wide intervention group versus a control group), and e) Tailored TIC training based on sensory integration and TIC principles (n=1; statistically significant improvements in staff attitudes to seclusion and restraint following training). Of note, training was referenced but training content was not described in detail in any of the included studies, and is therefore not reproduceable (Kelly et al., 2023). Overall, eight of the nine included studies reported reductions in the use of restrictive practices. However, authors stated that the included TIC interventions were insufficiently described to draw strong conclusions (Kelly et al., 2023).

Finally, Lowenthal (2020) carried out a scoping review describing the characteristics of TIC implementation research in child and youth serving sectors. My assessment of this review using the JBI critical appraisal checklist is that it is of moderate quality. Consistent with the other reviews described above, Lowenthal (2020) included only articles that reported some form of results relating to the TIC implementation initiative. This review identified 54 articles published between 2004 and 2019, 17 of which were identified as psychiatric inpatient or residential treatment settings. Lowenthal (2020) classified implementation interventions as limited change initiatives (e.g., one-off training with little follow-up), moderate change initiatives (e.g., using a few different types of initiatives over a moderate period of time), and comprehensive change initiatives (e.g., using a multifaceted approach over longer periods of time to support changes in

the organizational culture, structure, and policies). The author reported that preliminary evidence suggests that TIC implementation can reduce violent practices and incidents and improve provider knowledge attitudes, behaviour, and practice. However, self-reports of provider-level improvements are often modest, not maintained, and do not lead to meaningful practice change (Lowenthal, 2020). Suggested TIC implementation facilitators included: a) a comprehensive TIC implementation approach, b) commitment from senior leadership, c) ongoing support, and d) collaboration within and between organizations and systems (Lowenthal, 2020). This review also highlighted the lack of details available in the included studies pertaining to the actual TIC interventions and their implementation strategies (Lowenthal, 2020).

These six reviews provided preliminary support for the implementation for TIC in pediatric mental health settings. Nonetheless, the theoretical and practical elements of TIC interventions remain unclear, particularly in relation how TIC interventions are operationalized and implemented in their respective settings. The quality appraisal ratings of these reviews raged from weak-moderate to strong. In some reviews, the inclusion criteria were unclear or inconsistent with the stated review question (e.g., Bargeman et al., 2021; Bryson et al., 2017; Lowenthal 2020). Only two reviews completed a quality appraisal of included studies, none of which were performed explicitly by two independent reviewers (Bailey et al., 2019; Kelly et al., 2023). Most did not demonstrate methods to minimize errors in data extraction, and the manner in which the studies were synthesized was unclear. None of the reviews assessed the likelihood of publication bias. Four of these six reviews limited their literature searches to articles which reported evaluative results (of the TIC intervention and/or the implementation strategies; Bailey et al., 2019; Bryson et al., 2017; Kelly et al., 2023; Lowenthal 2020), and none reported, in

detail, the components of each of the TIC interventions nor the implementation strategies used at each site. There is a lack of understanding on how to best implement TIC in pediatric contexts. This includes a lack of clarity relating to both what consists of the TIC intervention and to the implementation considerations and processes.

1.3 Research Paradigm and Guiding Theoretical Approaches

A research paradigm is a basic belief system, or worldview, that directs the researcher in selecting methods, but more critically, in establishing ontological and epistemological perspectives and assumptions (Guba & Lincoln, 1994). A research paradigm can 'bridge' the need for knowledge and the mechanisms for producing or seeking that knowledge (Weaver & Olsen, 2006). I conducted this doctoral research from my worldview of critical realism. Frameworks, models, and theories are cognitive tools that can structure and guide the process of empirical inquiry (Lynch et al., 2018; Partelow, 2023). Four theoretical approaches were integral in informing the development and conduct of this thesis research: a) complexity theory, b) integrated knowledge translation (IKT), c) Knowledge to Action (K2A) Framework, and d) Implementation Roadmap. In this section I describe in more detail the research paradigm and guiding theoretical frameworks that informed this thesis, specifically, how each of these theoretical approaches sensitized me and influenced the specific studies.

1.3.1 Critical Realism: Ontology and Epistemology

Critical realism is a philosophy originating in the social sciences, that postulates that there is a reality detached from our personal cognitions that we can study, while acknowledging the human fallibility of our observations and measures (Bhaskar, [1975] 2008; Hawke, 2015a; Norrie, 2012). This notion of the influence of sociological determinants on all of knowledge production was originally proposed by Kuhn and Hacking ([1962] 2012). Critical realism

espouses the compatibility of three principles: a) ‘ontological realism’, that there is a truth and reality in the world, independent of our ability to describe and understand it (e.g., individuals may be affected by trauma although they may not realize it), b) ‘epistemological relativity’, that personal beliefs and perspectives are relationally and contextually produced and changed , as well as fallible (e.g., trauma may influence our beliefs and perspectives), and c) ‘judgmental rationality’, that within this framework, it is still possible to facilitate contexts and arguments in preference of some beliefs and theories of the world over others (Collier & Cruickshank, 2003; Hawke, 2015a; Hedlund-de Witt, 2012). Judgmental rationality is mediated through careful consideration of the processes of logic, deliberation, and debate within the specific discipline, as well as cohesive research methods and design, and the use of personal introspection and reflexivity (Archer et al., 2004). It is these three principles that ground, but do not guarantee, research efforts to better understand the reality of the way things are (Norrie, 2010).

Within critical realism, ontology and epistemology are isolated and disambiguated, rendering epistemology, knowledge of the world in a specific domain, dependent upon and secondary to ontology, or the nature of the world (e.g., Alderson, 2013; Hedlund-de Witt, 2012; Norrie, 2012). A form of cancer, for example, may exist, independent from the knowledge of any clinicians, researchers, or patients. Bhaskar (1998; [1993] 2008;) identified three overlapping but distinct levels of ontology which have been described as: a) ’the real’, b) ‘the actual’, and c) ‘the empirical’ (Bhaskar, 2017; Hedlund-de Witt, 2012; Norrie, 2010). ‘The real’ refers to the causal mechanisms and structures that produce phenomena that we may or not know about, and may or may not sense (Bhaskar, 2017; Hawke, 2015b; Hedlund-de Witt, 2012; Norrie, 2010). ‘The actual’ refers to resulting events of these causal mechanisms that we experience (Bhaskar, 2017). Finally, ‘the empirical’ is the data that we sense and interpret based on the experience,

acknowledging that this information is but a small fraction of 'the real' (Bhaskar, 2017). These ontological levels informed my thesis research, whereby I acknowledged the reality (the 'real') of complex causal mechanisms underlying the phenomena of study (trauma, trauma-informed care, patients and caregivers, healthcare providers, and healthcare systems) which may or may not be observable. Equally important in studying these complex realities was 'the actual' events that we experienced and 'the empirical' data we sensed and interpreted. For example, in this thesis research, I collected 'empirical' data through asking individuals about their understanding and vision of TIC on the target unit (PhD Study 2, Chapter 3), and for their feedback on our partnership through the implementation planning process (PhD Study 3, Chapter 4). The 'actual' level may include the events that have caused these perspectives, or the events that occur when these perspectives and feedback are valued, considered, and attended to, or the contrary, when they are discounted and ignored. The relationship between the cause and effect of the actual would be explained by the 'real' where unseen causal mechanisms occur. Through these thesis chapters, I attempted to describe the empirical, and to the best of my ability the 'actual', while hypothesizing about the 'real'. This process was demonstrated in Chapter 5, where I synthesized the findings from my thesis studies in the context of the literature to propose a novel framework for trauma-informed TIC implementation planning.

1.3.2 Critical Realism: Methodology

Research through a critical realism perspective aims to uncover the domain of the real, the generating of causal mechanisms that manifest in demi-regularities ('demi', because patterns are never completely consistent) that we observe and experience (DeForge & Shaw, 2012). For example, in my thesis research, I observed demi-regularities within my IKT partnership, that is, patterns and shifts over time. These empirically observed patterns led me to espouse the value of

following an action-oriented implementation framework to guide the implementation process and the importance of KU (knowledge-user; those who are likely to use or be affected by the research) ownership and co-leadership throughout the process (PhD Study 3, Chapter 4). Various research methodologies are compatible in the pursuit of knowledge relating to the different levels of reality (Norrie, 2010). In other words, the appropriate route of knowledge development is dependent upon the research question and the current state of human knowledge on the topic (which, on its own, is not an approach unique to critical realism). The idea of 'causative mechanisms' is central to the critical realism worldview, which is understood not as a linear causation (A leads to B), but a generative causation, recognizing the interplay of complex conditions manifesting in the events that are observable (Clark et al., 2008; DeForge & Shaw, 2012). I describe this notion further in Chapters 4 and 5 as I reflect on the numerous components and sub-components influencing the implementation of TIC. In critical realism the goal is not to describe general scientific laws or rules, or to identify the lived experiences or beliefs of individuals; rather, it is to develop a further depth of explanation and understanding of the unobservable structures (Cruickshank, 2012; McEvoy & Richards, 2008). In the case of my thesis research, this goal translated into a motivation to gain increased understanding of: a) the elements and mechanisms underlying TIC and its implementation in various settings, and the elements that may be currently absent (PhD Study 1, Chapter 2), b) the elements and mechanisms that may be specific to influencing the implementation of TIC at the PhD study setting (PhD Study 2, Chapter 3), and c) the elements and mechanisms relating to the implementation planning process (PhD Study 3, Chapter 4).

While discussions around methodologies that are congruent with critical realism are currently limited (e.g., Angus & Clark, 2012; Haigh et al., 2019; Williams et al., 2017), authors

have suggested some methodological principles that align with critical realism (e.g., Fletcher, 2017). These include the non-linear steps of a) identification of demi-regularities; b) abduction (theoretical redescription); and c) retroduction (Fletcher, 2017). Demi-regularities are outcome tendencies identified in reality (Fletcher, 2017). Critical realism acknowledges the social world as consisting of complex open systems, in which an infinite number of events may co-occur and interact, and in which individuals can learn and change (Danermark et al., 2005; Fletcher, 2017). Therefore, critical realism searches for outcome tendencies or demi-regularities, rather than scientific laws (Danermark et al., 2005; Fletcher, 2017). Abduction, also known as theoretical redescription, involves interpretation and re-description of the empirical data through a theoretical lens, while recognizing that any selected theory is fallible (Fletcher, 2017). In PhD Studies 1 and 2 (Chapters 2 and 3) I sound out patterns or demi-regularities in the studies identified through my scoping review, and in the perspectives and experiences shared by study participants. I then sought to interpret these patterns through comparing the findings with the literature pertaining to trauma, TIC, and implementation. Retroduction focuses on identifying causal mechanisms and contextual conditions required for a specific mechanism to take effect and to result in the observed empirical tendencies (Fletcher, 2017). Based on my study findings, interpreted through the literature, I suggested causal mechanisms through proposing implications for future study, such as, the importance of clarifying and reporting TIC components (intervention aims, target audiences, ingredients, implementation goals and implementation strategies) (PhD Study 1, Chapter 2), as well as five key domains to consider in the implementation of TIC on a pediatric inpatient mental health unit (PhD Study 2, Chapter 3). I applied these steps to my thesis research, as I expanded my understanding of underlying mechanisms affecting organizational implementation of TIC and culminating in my proposal for

the development of novel framework of trauma-informed TIC implementation planning (Chapter 5). Moreover, some authors have advised that, given the layered nature of reality, multiple disciplines and methodological approaches may be required to generate understandings of multi-level relationships (Haigh et al., 2019). This was an integral factor to me as I formed both a multi-disciplinary thesis advisory committee, and a multi-disciplinary KU advisory committee, and developed my thesis protocol, incorporating multiple methodologies, congruent with the overall thesis aims and the specific study questions.

I conducted this doctoral research from a stance of critical realism, which acknowledges that a) there is a true reality that can be imperfectly observed, b) that our knowledge will be relative to our contexts and beliefs, and c) that through judgmental rationality we can observe demi-regularities and develop theories and arguments relating to causal mechanisms. In the following sections I describe the theoretical approaches that informed this thesis research.

1.3.3 Complexity Theory

Complexity theory offers valuable insights, congruent with the paradigm of critical realism, in re-framing the process of researching and evaluating complex systems and interventions within such systems (Caffrey et al., 2016; Callaghan, 2008). It provides a set of theoretical and conceptual tools that have been developed across a range of disciplines including both natural and social sciences (Caffrey et al., 2016; Walby, 2007). Complexity theory builds off of and challenges aspects of general systems theory (Bertalanffy, 1968), facilitating applications and insights to implementation and evaluation in social research (e.g., Callaghan, 2008; Caffrey et al., 2016). The theory has foundations in critical realism, acknowledging the world as a layered, complex system containing an infinite number of dynamic and interrelating complex systems which makes simple cause-and-effect predictions difficult, while encouraging

post-hoc explanations and exploring longer-term outcome tendencies (Callaghan, 2008). Complexity theory is being increasingly considered within healthcare implementation research (e.g., Brainard & Hunter, 2016; Braithwaite et al., 2021; Clark et al., 2012; Kitson et al., 2018). Researchers affirm that while a conceptualizing healthcare implementation within a complexity lens can be daunting and difficulty to manage, it is also necessary to appreciating the elaborate, intricate, and multi-faceted aspects of the implementation process (e.g., Braithwaite et al., 2021; Kitson et al., 2018).

Complex interventions are defined as being composed of 'components' that make the whole intervention and, either individually or interactively, can generate the power of the intervention (Clark, 2013). These 'components' are characteristics of the intervention, which are discrete from, but compose the whole of the intervention. Components can be material, human, theoretical, social, or procedural, and micro or macro in nature, and may themselves have sub-components (Clark, 2013). Components will co-exist and interact at various levels, while they are continuous flux and change, through learning and adaptation. This results in non-linear, but rather generative causation, with demi-regularities (patterning with many exceptions, as distinct from both chaos and from uniform patterning) (Clark, 2013). In researching complex interventions, we run the risk of ignoring or downplaying the importance of critical components of the intervention and focusing on outcomes, rather than explanations (Clark, 2013). Applying a lens of complexity theory sensitized my thesis research to these important concepts, acknowledging the potential importance of components and sub-components as well as of the whole. This meant looking beyond the whole of TIC interventions, and examining the details related to the intervention, as well as the context, and the implementation of the intervention (PhD Study1, PhD Study 2), in search of demi-regularities and mechanisms of change. Three

overlapping core concepts from complexity theory can assist in explaining patterns of unpredictability in change (applicable to both trauma and TIC interventions): a) systemic interactions, b) self-organization, and c) emergence (Caffrey, et al., 2016).

1.3.3.1 Systemic Interactions

Unlike closed and mechanical systems which have clear boundaries, organizations are open systems, interacting with many other systems, co-evolving and mutually adapting with others (Caffrey et al., 2016; Walby, 2007). According to some (e.g., Waldrop, 1992), it is precisely the property of systemic interactions that makes a system complex. Agents within one system (such as people interacting with that system) may also be interacting with other systems, and membership with systems is unfixed. In this way, agents of complex systems are often themselves complex systems within complex systems (Caffrey et al., 2016). Interconnectedness between agents and systems means that perturbations in one part of the system may generate disturbance in other parts of the system (Armijo Etre, 2009). This is known as the 'Butterfly Effect', discovered by Edward Lorenz through his study of weather prediction (Gleick, 1987). An example of how this element was implicated in my thesis research was appreciating that while TIC is primarily thought to involve the care of patients who may have histories of trauma, staff members, as well as implementors can also be living with histories of trauma (i.e., interacting with a 'trauma' system). Thus, TIC delivery and implementation must reflect this systemic interaction (see Chapter 3 and Chapter 5). With the acknowledgement of these systemic interactions, complexity theory emphasizes that causal processes are non-linear, rather than linear, requiring more complicated levels of analyses to explore the interacting components and causal mechanisms (Caffery et al., 2016; Callaghan, 2008; Walby, 2007).

1.3.3.2 Self-organization

Complexity theory proposes that complex systems, such as healthcare systems, are adaptive and self-organizing, in that they organize themselves without the necessity of external control, direction, or pressure (Byrne, 2013; Caffrey et al., 2016; Waldrop, 1992). The trajectory that systems take is shaped in part by their 'structure', which are the relations between parts of the system a product of time and history (Byrne, 2013; Caffrey et al, 2016, Walby, 2007). Complex systems, such as organizations, have a history that evolved into the system's current state, and will continue to influence the system's future. Byrne (2013) describes the implications of this 'structure' by offering the notion of a 'state space', a multi-dimensional mathematical space, to depict all possible states of the system. The number of dimensions of the state space correlates with number of descriptive variables of the system and the current position of the system within the state space is specified by the values of each of those variables (Byrne, 2013). As the descriptive variables for the system increases, so does the number of dimensions of the state space and the complexity of explaining the system's current location in that space. The state space contains the entire range of possible states of the system within the possible values of the descriptive variables (Byrne, 2013). However, as Byrne (2013) explains, even the most complex of systems don't truly have access to every possible state. Systems are limited in their range of accessible future states, and one chief determinant of the nature of that range is the system's history. This notion of path dependency proposes that a system's set of futures is not determined but rather "bounded within a range" (Byrne, 2013, p. 220). Structures, or histories, set the stage on which agents negotiate and navigate the future, and structures shape the character of those journeys (Caffrey et al., 2016). This was an important consideration throughout my thesis research, from forming a multidisciplinary Advisory Committee with historical knowledge of the organization, to reviewing the results of a recent organizational needs assessment, to

incorporating the perspectives of various groups of KUs to inform implementation (PhD Study 2, Chapter 3).Thus, complexity theory stresses the importance of accounting for and attending to historical elements within the organization that may be contributing to its current state of functioning and may affect the way individuals and the organization as a whole reacts to implementation of innovations. In this sense, complexity theory is congruent with TIC.

1.3.3.3 Emergence

Emergence is described by many as a key characteristic of complex systems and a primary tenet of complexity theory (e.g., Byrne, 2013; Caffrey et al., 2016; Schneider & Somers, 2006; Walby, 2007). Byrne (2013) suggests that the earliest use of the word in context may provide the clearest definition of emergence and its implications:

> Every resultant is either a sum or a difference of the co-operant forces… Further, every resultant is clearly traceable in its components... *It is otherwise with emergent*, when, instead of adding measurable motion to measurable motion, or things of one kind to other individuals of their kind, there is a co-operation of things of unlike kinds...The emergent is unlike its components insofar as these are incommensurable and it cannot be reduced to their sum or their differences (Lewes, 1875, p.413).

Emergence relates to both concepts of systemic interactions and self-organization in that interactions within the self-organizing system may yield emergent characteristics that cannot be understood through analyzing the sub-parts in isolation (Byrne, 2013; Caffrey et al., 2016). These patterns develop through the dynamic relations of micro-level parts and agents resulting in a macro-level emergent whole (Byrne, 2013; Caffrey et al., 2016). Not only are these novel patterns of the system greater than the sum of its parts, but they become true properties of the system to be seen as a totality (Byrne, 2013; Caffrey et al., 2016). An understanding of

emergence implies that causality within the system as a whole cannot be understood simply by examining its components, rather, we must also consider interactions among the parts, the influence of parts on other parts, and the effects that the whole has on the parts (Byrne, 2013; Caffrey et al., 2016; Callaghan, 2008; Schneider & Somers, 2006; Walby, 2007). Complexity and emergence reject the notions of reductionism and the tendency to seek the key explanation while ignoring the whole, as well as rejecting the movement to reduce upwards to holism, ignoring components of the system (Walby, 2007). In other words, we must consider both the components and the whole of the system and acknowledge that causality does not run in a single direction (Byrne, 2013). Accordingly, in planning the implementation of TIC, organizations must consider not only the components of the TIC intervention (e.g., the intervention itself, the actors, implementation strategies and process, the setting and context, historical aspects, and theoretical bases), but also how these components interact as a whole, without losing sight of the significance and influence of each component and subcomponent (as described in Chapters 4 and Chapter 5).

Applying the concepts of structure (history) and path dependency (breadth of variability for the future) to healthcare organizations and organizational research proposes that all those involved within the organization, including patients, clinicians, managers, administrators, leaders, and researchers, will "act, react, and adapt based on their individual perspectives and experiences" (Caffrey et al., 2016, p. 3). There are often many possible reactions to any intervention, and small actions can result in large outcomes, as systems venture away from equilibrium, paving new pathways and creating new structures for the future (Caffrey et al., 2016; Walby 2007). Therefore, while the structure of a system shapes the system's trajectory, the agents within the system also contribute to the shaping and re-shaping of the system's structure

(Caffrey et al., 2016; Walby, 2007). This was an important aspect that I considered in each of my thesis studies and chapters, in considering the range of agents at play in receiving, delivering, and implementing the TIC interventions, and individual and organizational histories. In PhD Study 1 (Chapter 2) I sought to clarify components of the TIC interventions beyond the 'ingredients' of the interventions, to include characteristics of those tasked with delivering the TIC intervention, as well as of the study setting. In PhD Study 2 (Chapter 3) and PhD Study 3 (Chapter 4) I attempted to integrate perspectives of a range of KUs with various experiences and views (youth, caregiver, staff, including staff in an array of roles) into the implementation planning process.

Complexity theory thus appreciates that there are challenges to developing generalizable knowledge about causal relationships within organizations and complex systems, and supports that while prediction is not always possible, explanation is (Byrne, 2013; Callaghan, 2008). Rather than claiming to establish knowledge of what works in transforming complex systems, complexity theory promotes questions such as: What has worked? How, where, and when has it worked? And can it work elsewhere and elsewhen? (Byrne, 2013). 'What' refers to the specific intervention (in this case the TIC intervention), 'where' and 'when' relate to the context of the intervention (including the implementation of the TIC intervention), and 'elsewhere' and 'elsewhen' convey the transferability (Byrne, 2013). Consequently, when considering complex systems, the outcome will rarely be dependent solely on the intervention (Byrne, 2013). It is of importance instead to explore the mechanisms of how the intervention functions in relation to the dynamic system components and in conjunction with overlapping and intersecting systems (Byrne, 2013). The task, therefore, when analyzing interventions related to complex systems, is to identify methods of identifying and exploring these multiple and dynamic causal mechanisms

(Byrne, 2013). This was relevant throughout my thesis research as I sought to clarify and articulate the multiple interacting components at play within TIC implementation (i.e., the TIC intervention itself, as well as the associated agents, implementation strategies, implementation process, setting, context, and theoretical underpinnings). In Study 1 (Chapter 2) I aimed to clarify the 'what', 'how', and 'when' through the use of the AIMD framework (aims, ingredients, mechanism, delivery; Bragge et al., 2017), and the ERIC (Expert Recommendations for Implementing Change; Powell et al., 2015) in elucidating both the intervention and the combination of implementation strategies used. In PhD Study 2 (Chapter 3) I attempted to explore not only the 'what' of participants' vision of TIC on the target unit, but also the 'where' and 'when', that is, important implementation considerations given the specific context and setting. Finally, in PhD Study 3 (Chapter 4), I described in detail 'what' was done throughout the implementation planning process, the 'when' and 'where' in terms of the KUs contributed and the context in which it took place, as well as the rationales for the decisions that were made.

1.3.4 Integrated Knowledge Translation

Canadian Institutes of Health Research (CIHR) defines knowledge translation as "a dynamic and iterative process that includes synthesis, dissemination, exchange, and ethically-sound application of knowledge to improve health, provide more effective health services and products and strengthen the healthcare system" that "takes place within a complex system of interactions between researchers and knowledge-users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge-user" (CIHR, 2016). Integrated knowledge translation (IKT) involves researchers partnering with KUs with the goal of producing relevant and useful evidence (CIHR, 2016). IKT is an approach to implementation planning that entails collaboration

and shared decision-making among the implementation team (i.e., the researchers and the KU partners). Employing IKT in healthcare has been demonstrated to increase the value and use of research amongst KUs while generating more relevant and usable research findings (Cassidy et al., 2021; Gagliardi et al., 2016; Walter et al., 2003). There are several proposed mechanisms of IKT, including: a) meaningful and effective partnerships based on trust, empowerment, and collaboration, b) co-production of relevant research, c) increased understanding of and engagement in research (KUs), and d) increased understanding of real-world contexts (researchers) (Gagliardi et al., 2016). Ideally, IKT involves KUs throughout the entire process, from the development of the research question, through the application and dissemination of findings (Boland et al., 2020). I applied an IKT approach to my thesis research, forming a multi-disciplinary advisory committee at the outset, who collaborated with me through the process to co-create relevant and useful research findings (PhD Study 3, Chapter 4).

1.3.5 Knowledge to Action Framework

The Knowledge to Action (K2A) Framework was developed to help clarify the process of knowledges translation and elucidate key elements of the process (Graham et al., 2006). Based on a synthesis of common elements in over 30 planned action theories, the K2A Framework presents two major processes: a) knowledge creation, and b) planned action (Graham et al., 2006; Harrison & Graham, 2021). These two processes may be done in isolation (i.e., researchers generate evidence and KUs implement it) or performed in an IKT approach, as described above (Harrison & Graham, 2021). In practice, these two phases interact dynamically and may occur simultaneously (Graham et al., 2006). The K2A describes phases along the knowledge creation and planned action processes to clarify, guide, and track implementation initiatives (Harrison & Graham, 2021). Many researchers have used the K2A, and it is one of the most frequently cited

implementation frameworks in the literature (Harrison & Graham, 2021). I intended to use the K2A Framework to guide my thesis research, and I relied on it in the initial phases of my work. However, in 2021, a new implementation framework was published, called the Implementation Roadmap (Harrison & Graham, 2021), that encompasses the phases of the K2A to provide a practical approach to IKT implementation planning. I describe the Implementation Roadmap below.

1.3.6 Implementation Roadmap

The Implementation Roadmap is a comprehensive implementation planning framework, built off of previous research and experiences in the areas of knowledge translation, adaptation, and implementation (Harrison & Graham, 2021). This roadmap identifies three phases of implementation, each consisting of multiple steps:

- Phase 1: Identify and Clarify the Issues
- Phase 2: Build Solutions and Field Test Them
- Phase 3: Implement, Evaluate, and Sustain

The Implementation Roadmap provides concrete instructions for KUs and researchers on how to build on local knowledge and evidence, while integrating appropriate external evidence, to enact relevant and useful change (Harrison & Graham, 2021). This framework emphasizes the importance of balancing external evidence (i.e., literature, guidelines) with the local, contextual knowledge and identified needs. The Implementation Roadmap delineates implementation planning as an integrative process in conjunction with KUs (practitioners and decision-makers) that takes place incrementally over time to effectively and proactively plan change initiatives and identify key supports and barriers at multiple levels. Noted key contributors to supporting successful implementation planning include: sustaining a strategic alliance; engendering shared

agreement on needs and solutions; fostering a supportive context for learning about and appreciating external evidence, relative to local evidence; making use of available resources within the context; and modeling a process for future evidence-informed implementation initiatives (Harrison & Graham, 2021). The developers of the Implementation Roadmap underscored that implementation teams need to appreciate the sociological systems and structures that may facilitate or hinder effective evidence implementation (Harrison & Graham, 2021). They also emphasized that implementation planning should be informed by implementation-science evidence, while being pragmatic, and methodologically rigorous. In thesis research, my implementation partnership with KUs (the CHEO TIC Advisory Committee) followed a fluid and iterative process based on the Implementation Roadmap. Of the three Roadmap phases, this thesis project encompassed elements of the first two phases (Identify and Clarify the Issues, Build Solutions and Field Test Them), broken down into several steps, as described in PhD Study 3 (Chapter 4).

1.4 Setting and Context

The Children's Hospital of Eastern Ontario (CHEO) is an acute care pediatric hospital, a child and youth mental health agency, and a research institute. I began working at the CHEO Research Institute in 2013 and at CHEO as a Registered Nurse in 2014. Concurrently, I was completing my Master's of Science in Nursing (2014-2016), which included a two-phase study, Exploring Nurses' Knowledge and Experiences Related to TIC (Stokes, 2016). During this time, as I was developing relationships with colleagues and members of leadership at CHEO, I expressed an ongoing interest in furthering awareness and implementation of TIC within the hospital. Further, I was frequently invited to present to teams and students on the topic of trauma and TIC.

1.4.1 Setting the Stage for the Partnership

From 2014 to 2019 I had the opportunity to engage in several activities that laid the foundation for this thesis project. In 2015, a CHEO clinician (Child and Adolescent Psychiatrist 1, M. Robb) contacted me with an interest in collaborating on implementing and evaluating TIC. In 2016, CHEO mental health leadership identified TIC as a strategic priority and we formed a small working group (with five members; two psychiatrists, an occupational therapist, a social worker, and myself, a registered nurse and now doctoral student) to begin discussions around conceptualizing TIC and exploring current models of TIC. We initiated discussions with another Canadian pediatric hospital (IWK Health Centre, 2021) that had already dedicated substantial resources and efforts to developing and implementing a TIC approach in their setting. In late 2017, we arranged for the clinical lead member of the TIC program at IWK to visit CHEO for a day to lead large and small group discussions about TIC and implementing TIC at CHEO. While these initiatives were met with great interest and enthusiasm, our TIC working group continuously found that progress was hindered by a lack of internal funding to support dedicated time and expertise for further clinical, implementation, and research realms of TIC.

1.4.2 2019 Mental Health Department Needs Assessment

In 2019, I collaborated with two CHEO KUs (Child and Adolescent Psychiatrist 2, D. Aggarwal, and a Mental Health Research Associate, P. Cloutier) to co-lead a TIC needs assessment across all CHEO mental health departments (inpatient, outpatient, and community-based) (Aggarwal et al., 2019). This project was reviewed by the CHEO REB and deemed a quality improvement project that did not require ethics approval. The goal of this needs assessment was to assess the mental health program's current level of trauma-informed awareness and services and to determine gaps and needs. We adapted an organizational TIC

needs assessment survey developed by IWK and the work of Fallot and Harris (2009) to our context and administered the survey through REDcap (Research Electronic Data Capture; Harris et al., 2009). The survey included the following sections: a) demographics (five items), b) trauma-informed physical spaces (six items), c) trauma-informed supports for staff (17 items), d) trauma-informed awareness and knowledge (12 items), e) trauma-informed patient care (19 items), f) open ended questions (3 items). All staff working in the mental health department at CHEO (n= approximately 400) were invited via email and respondents were asked to rate their knowledge and experiences of TIC in their work setting. We also conducted qualitative interviews with six key informants (leadership and managers in mental health) to identify the organization's current trauma-informed models or services, using an adapted interview guide form IWK (IWK, 2018).

One hundred and forty-five staff completed the survey (36% response rate), with good representation across hospital teams and disciplines. Of the participants, 142 (98%) provided direct clinical care to patients and families, and 30 (21%) were working primarily on the inpatient mental health units. Most participants (over 80%) reported being knowledgeable about various aspects of trauma and TIC. Overall, staff reported feeling safe and supported, however, 20% (n=28/141) of staff reported that they rarely or never feel emotionally safe on their team. There were also noteworthy differences in survey responses between inpatient and outpatient mental health staff, with statistically significant differences on 26 of the 54 Likert-scale TIC items (t-test; $p<0.05$). For example, for item 3.16 "I feel emotionally safe on my team", 95% of outpatients staff responded 'always' or 'usually', versus 57% of inpatient staff; while 43% of inpatient staff responded 'rarely' or 'never' ($t(49) = 6.274$, $p = <.001$). Statistically significant differences between inpatient and outpatient staff were found on all six items pertaining to

trauma-informed physical spaces, 14 (out of the 17) items pertaining to trauma-informed supports for staff, and six (out of the 19) items pertaining to trauma-informed patient care. Eighty-three survey participants (57%) provided qualitative feedback identifying several areas of need that were summarized under the following 6 categories: a) comprehensive TIC training and support for all staff (clinical and non-clinical), b) culture shift towards "universal precautions", c) improving communication and overall support (for patients, caregivers, and staff), d) preventing and managing vicarious trauma and burnout, e) environmental conditions and privacy, and f) recognizing current aspects of care as traumatic. Many participants also shared enthusiasm and interest in furthering TIC at CHEO. Key informants (managers and leaders) echoed the feedback from survey participants and emphasized that while some mental health services currently offer components that are trauma-informed, CHEO mental health did not currently operate in a uniformed, trauma-informed manner.

This needs assessment helped to identify several strengths and gaps in the mental health system of care, and in part as a result of these findings, mental health leadership identified a local priority of re-modelling the inpatient mental health unit within an overarching program of TIC. I took this opportunity to discuss with mental health leadership how I could contribute to CHEO's goals through my doctoral thesis research. Given the needs assessment findings, and the acute nature of the environment on the inpatient mental health setting, leadership continued to affirm their priority of focusing our initial TIC implementation planning efforts on in inpatient mental health unit.

1.5 Thesis Purpose

While there is preliminary evidence to support the implementation for TIC in pediatric mental health settings, the theoretical and practical elements of TIC interventions remain unclear,

particularly in relation to how TIC interventions are operationalized and implemented in their respective settings. Given the complex nature of trauma, TIC, and of organizational change initiatives, there is a need for further research that increases our understanding of implementing TIC in pediatric mental health settings. In doing such research, it would be important to elucidate and compare the core components of TIC interventions in pediatric mental health settings (including aims, core ingredients, target audiences, and theoretical underpinnings), as well as the associated implementation strategies and planning processes used across individual settings, and contextual-specific considerations. The local acute pediatric hospital, where I was already affiliated as a clinician with established relationships, was interested in pursuing implementation planning of a TIC intervention, which they would term a TIC Program, with an initial focus on the inpatient mental health unit. This provided me with an opportunity to facilitate the implementation planning process, while observing aspects of the process in a naturalistic setting. I utilized the K2A and the Implementation Roadmap frameworks to guide each step of my thesis (corresponding to the thesis studies summarized below). To align with my IKT approach, at the outset of my thesis planning stage (May 2019) I sent an email to nine individuals spanning various disciplines and roles (including leaders, clinicians, and researchers) from the CHEO mental health department with a preliminary description of my PhD thesis ideas and an invitation to form an advisory committee to support and guide my thesis research. Of the nine individuals originally invited to join the committee, seven responded with an interest in joining the advisory committee, and all seven have remained active members up until today (four years later). These initial collaborators provided me with feedback on my preliminary thesis ideas. Over time, the initial advisory committee became more inclusive as the group identified other important partners (n=20), which became the CHEO Mental Health TIC Advisory Committee (TIC AC). In

January 2020 we held our first (and due to the subsequent pandemic, last) in-person TIC AC meeting, and consensus was reached on shared research goals. These initial objectives were narrowed over the course of the thesis, and what follows were the final thesis objectives.

In this doctoral thesis, I aimed to develop an understanding the implementation planning process of a 'TIC Program' at a local pediatric hospital. I sought to partner with the hospital in implementation planning in an evidence-informed manner, through facilitating the selection of a TIC intervention and exploring the context-specific adaptations and considerations for implementation. My specific thesis objectives were:

Objective 1. To examine the current literature relating to TIC interventions used in pediatric mental health inpatient and residential settings, the intervention components, and the implementation goals and implementation strategies used.

Objective 2. To explore youth, caregiver, and staff perspectives on their vision of TIC, and to identify and understand potential implementation considerations, including facilitators and barriers, and the implementation context.

Objective 3. To describe and reflect upon a trainee's experience using an IKT approach to planning the implementation of a TIC Program at an acute pediatric hospital, including the initiation and management of the partnership, the impact and usefulness of the IKT partnership and of engagement with KUs, and lessons learned.

The thesis consists of a series of three studies. The content and structure for this manuscript-based thesis is outlined in Table 1.1. To begin, I conducted a scoping review of the literature pertaining TIC interventions used in pediatric mental health inpatient and residential settings (Objective 1). Next, I conducted semi-structured interviews with youth, caregiver, and staff KUs to explore their perspectives on their vision of TIC, and to understand potential

implementation considerations in the local setting (Objective 2). Subsequently, I summarized and reflected my experience as a trainee using an IKT approach to planning the implementation of TIC, describing the initiation of the partnership and the development of shared research aims, the management of the partnership and the implementation steps, the impact of the partnership and of engaging with KUs, and lessons learned (Objective 3). A final integrative discussion chapter offers a broad analysis of how the findings of my thesis integrate and build on one another to inform further developments in research, education, policy, and practice.

Table 1.1

Manuscript-based Thesis Structure and Content

Chapter	Chapter Title	Objectives	Study Design	Manuscript (with citation if applicable)
1	Introduction	To describe the research problem, research objectives, guiding theoretical frameworks, and the structure for this manuscript-based thesis.	-	-
2	Trauma-informed care interventions used in pediatric inpatient or residential treatment mental health settings and strategies to implement them: A scoping review	To examine the current literature relating to TIC interventions used in pediatric mental health inpatient and residential settings through answering the following research questions: a) What are the TIC interventions used in pediatric inpatient and residential treatment mental health care settings and what are their components? and b) What are the implementation goals and strategies used with these TIC interventions?	Scoping review	**Published.** Stokes, Y., Lewis, K.B., Tricco, A.C., Hambrick, E., Jacob, J.D., Demery Varin, M., Gould, J., Aggarwal, D., Cloutier, P., Landriault, C., Greenham, S., Ward, M., Kennedy, A., Boggett, J., Sheppard, R., Murphy, D., Robb, M., Gandy, H., Lavergne, S., Graham, I.D. (2023). Trauma-informed care interventions used in pediatric inpatient or residential treatment mental health settings and strategies to implement them: A scoping review. *Trauma, Violence, & Abuse.* https://doi.org/10.1177/15248380231193444
3	Youth, Caregiver, and Healthcare Professional Perspectives on Planning the Implementation of a Trauma-Informed Care Program: A Qualitative Study	To explore youth, caregiver, and staff perspectives on their vision of trauma-informed care, and to identify and understand potential implementation considerations.	Qualitative semi-structured individual and group interviews	**Published.** Stokes, Y., Cloutier, P., Aggarwal, D., Jacob, J.D., Hambrick, E., Tricco, A.C., Ward, M. K., Kennedy, A., Greenham, S., Robb, M., Sheppard, R., Murphy, D., Boggett, J., Graham, I.D., & Lewis, K.B. (In Press). Youth, caregiver, and healthcare professional perspectives on planning the implementation of a trauma-informed care program: A qualitative study. *Journal of Advanced Nursing.*
4	Planning the implementation of a trauma-informed care program at a pediatric hospital: A trainee's	To describe a trainee's experience using an IKT approach to planning the implementation of a TIC Program at an acute pediatric hospital, including a) initiation of the partnership and the development of	Document analysis	**Published.** Stokes, Y., Aggarwal, D., Cloutier, P., Graham, I.D., Tricco, A.C., Jacob, J.D., Hambrick, E., Lewis, K.B. (2022). Planning the implementation of a trauma-informed care program at a pediatric hospital: A trainee's experience using an integrated knowledge translation process (pp. 20-24). In: J. Reszel, C. McCutcheon,

	experience using an integrated knowledge translation process	shared research aims, b) management of the partnership and the implementation steps, c) impact and usefulness of the IKT partnership and of engagement with KUs, and d) reflections on lessons learned as a trainee using an IKT approach		A. Kothari, I.D. Graham (Eds): *How we work together: The integrated knowledge translation casebook* (Vol. 6). Integrated Knowledge Translation Research Network. https://iktrn.ohri.ca/projects/casebook/
5	Integrated Discussion	To integrate the thesis findings and identify implications for practice, policy, and research.	-	-

The three chapters that follow comprise the three manuscripts that were co-produced through this IKT thesis research.

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Chapter 2 Trauma-Informed Care Interventions Used in Pediatric Inpatient or Residential Treatment Mental Health Settings and Strategies to Implement Them: A Scoping Review

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2.1 Abstract

Trauma-informed care (TIC) is an approach to care emerging in research and in practice that involves addressing the needs of individuals with histories of trauma. The aim of this scoping review was to examine the current literature relating to trauma informed care interventions used in pediatric mental health inpatient and residential settings. We sought to answer the following two research questions: a) What are the TIC interventions used in pediatric inpatient and residential treatment mental health care settings and what are their components? and b) What are the implementation goals and strategies used with these TIC interventions? We conducted this scoping review according to JBI (formerly Joanna Briggs Institute) methodology for scoping reviews. We included any primary study describing a TIC intervention that was implemented at a specific site which identified and described implementation strategies used. Of 1,571 identified citations and 54 full-text articles located by handsearching, 49 met the eligibility criteria and were included, representing 21 distinct TIC interventions. We present the reported aim, ingredients, mechanism, and delivery (AIMD) of TIC interventions as well as the implementation goals and strategies used, which varied in detail, ranging from very little information to more detailed descriptions. In the context of these findings, we emphasize the complexity of TIC and of TIC interventions, and the importance of identifying and clearly reporting TIC intervention goals, intervention details, and implementation strategies. We suggest applying intervention frameworks or reporting guidelines to support clear and comprehensive reporting, which would better facilitate replication and synthesis of published TIC interventions.

Keywords: *cultural contexts, treatment/intervention, child abuse, vicarious trauma*

2.2 Background

2.2.1 Trauma-Informed Care

'Trauma-informed care' (TIC) is a philosophy that involves addressing the needs of individuals with histories of trauma, whether they are the ones seeking care, or providing care (Fallot & M. Harris, 2009). Generally agreed upon assumptions of TIC include the four 'R's: Realizing the prevalence of trauma, Recognizing manifestations of trauma, Responding appropriately to trauma, and Resisting Re-traumatization. Additionally, many apply the seven principles of TIC: safety (physical and psychological), trustworthiness and transparency, peer support, collaboration and mutuality, empowerment, voice, and choice, and cultural, historical and gender considerations (e.g., Fallot & M. Harris, 2009; Substance Abuse and Mental Health Services Administration (SAMHSA), 2014). Yatchmenoff, Sundborg, and Davis (2017) reduce these principles to three common elements: safety, power, and self-worth. For an organization to be trauma-informed, the culture of the organization must reflect the above principles in every interpersonal contact, setting, and relationship, as perceived by both staff and consumers (Fallot & M. Harris, 2009). Furthermore, it is important that organizations consider every patient and staff member as though they may have trauma histories, an approach known as 'universal precautions' (Elliott et al., 2005; M. Harris & Fallot, 2001).

2.2.2 Trauma-Informed Care in Pediatric Mental Health Settings

Extensive research has linked childhood exposure to trauma and maltreatment with higher rates of physical and mental disorders and healthcare use (e.g., Chu, 2011; Cuijpers, et al., 2011; Felitti, 2009; Felitti, et al., 1998; Huffhines et al., 2016). A chart review of pediatric psychiatric inpatient hospitalizations was conducted over a 10-month period (Keeshin et al., 2014). The authors found that children and adolescents with a history of maltreatment were more

likely to be diagnosed with multiple disorders than youth without a history of trauma (physical abuse adjusted odds ratio=1.93, $p<0.001$; sexual abuse adjusted odds ratio=2.97; $p<0.001$; Keeshin et al., 2014). These authors identified that physical and sexual abuse histories in patients were also independently associated with increased length of stay by 2.3 days ($F(3, 1075) = 9.2$, p<,0.001; Keeshin et al., 2014), all highlighting the need for trauma-informed services in pediatric mental health settings. Additionally, there may be unique factors to consider in addressing trauma in children and youth within pediatric-specific contexts, such as developmental considerations and relationships between youth and adult caregivers (Lowenthal, 2020).

We identified three recent reviews of TIC interventions (TICI) in pediatric mental health settings (Bailey et al., 2019; Bryson et al., 2017; Lowenthal, 2020). Bailey and colleagues (2019) systematically reviewed the empirical evidence for organisation-wide TICI in out-of-home care published from 2002-2017. The authors identified three TICI across seven studies: Attachment Regulation and Competency framework (3 studies), Children and Residential Experiences programme (1 study), and The Sanctuary Model (3 studies) (Bailey et al., 2019).

Bryson and colleagues (2017) conducted a realist review of implementation strategies of organization wide TICI in child and adolescent inpatient psychiatric and residential settings including literature from 2000-2015. Across 13 articles, they identified five primary factors relating to successful TIC implementation: a) senior leadership prioritizing TIC, b) aligning organizational policies and practices, formal and informal, with the principles of TIC, c) listening to patients' and families' experiences, needs, and priorities, d) supporting staff through training and providing ongoing supervision, coaching, and debriefing, and e) reviewing data and outcome indicators to foster continuous improvement.

Finally, Lowenthal (2020) performed a scoping review to describe the characteristics of TIC implementation research in child and youth serving sectors. Consistent with the previous reviews, Lowenthal (2020) included only articles that reported results of the TIC implementation initiative. They included 54 articles published between 2004-2019, 17 of which were identified as psychiatric inpatient or residential treatment settings. Lowenthal (2020) classified implementation interventions as limited change initiatives (e.g., one-off training with little follow-up), moderate change initiatives (e.g., using a few different types of initiatives over a moderate period of time), and comprehensive change initiatives (e.g., using a multifaceted approach over longer periods of time to support changes in the organizational culture, structure, and policies). This review highlighted the lack of details available in the included studies pertaining to the actual TICI and their implementation strategies.

These three reviews provide preliminary evidence to support organizations wishing to implement TICI in pediatric mental health settings. Yet, the theoretical and practical aspects of TICI remain unclear, particularly as they relate to how TICI are implemented or operationalized in pediatric settings. Authors of these reviews limited their literature searches to articles which reported evaluative results (of the TICI and/or the implementation strategies), and none reported, in detail, the components of each of the TICI nor the implementation strategies used at each site. The most recent review by Lowenthal (2020) provided an overview of the methodological approaches used, geographical locations, and service sectors related to each intervention, however, lacked descriptive details pertaining to the TICI (i.e. what was the actual TIC intervention). The author classified the scope of the TICI implementation initiatives, yet did not clearly describe the criteria, nor the basis for the criteria, for the classification decisions.

Furthermore, the article did not include a comprehensive summary of the implementation strategies used within each study.

2.3 Research Questions

Within this review, we sought to answer the following research questions: What are the TICI used in pediatric inpatient and residential treatment mental health care settings and what are their components? What are the implementation goals and strategies used with these TICI?

2.4 Methods

2.4.1 Protocol, Registration, and Reporting Methods

This scoping review was conducted according to JBI (formerly Joanna Briggs Institute) methodology for scoping reviews (Peters et al., 2020) guided by an *a priori* protocol in Open Science Framework (Stokes et al., 2020). We report this review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR; Tricco et al., 2018; Appendix B).

2.4.2 Search Strategy

We applied the three-step search strategy recommended by JBI for scoping reviews (Peters et al., 2020). First, we conducted a pilot search of one of the relevant databases (MEDLINE), designed by the first author (YS) in collaboration with a library scientist (MS). YS subsequently performed an analysis of the text words contained in the titles and abstracts of the identified papers and of the respective descriptive index terms. Second, YS designed a second search, including all the identified keywords and index terms. We performed this search in CINAHL, MEDLINE, and PsycINFO on September 2, 2020. A library scientist (MS) peer reviewed the search strategy in accordance with the Peer Review of Electronic Search Strategies

(PRESS) guidelines (Mcgowan et al., 2016). Third, YS screened the reference lists of all included studies for additional studies. The full electronic search strategy for Medline is found in Figure 2.1 and all search strategies are available through the Open Science Framework (Stokes el al., 2020).

Figure 2.1

Search Strategy in Medline

# ▲	Searches	Results
1	("trauma-informed" or "trauma-sensitive" or "trauma-integrated").ti,ab,kf.	1183
2	(trauma adj2 care).ti,ab,kf.	6250
3	(intervention* or treatment* or model* or framework* or manual* or program*).ti,ab,kf.	8268288
4	(child* or youth or p*ediatric* or adolesc*).mp.	3620168
5	("mental health" or "mental illness" or "behavio*ral health" or psych*).ti,ab,kf.	969551
6	Mental Health/ or exp Mental Disorders/ or exp Mental Health Services/	1322749
7	5 or 6	1881503
8	1 or 2	6930
9	3 and 4 and 7 and 8	411

2.4.3 Eligibility Criteria

2.4.3.1 Population

We included pediatric patients under the age of 18, their families, and/or staff (including, but not limited to, health care providers) and excluded infant populations under age two.

2.4.3.2 Intervention

We included clinical interventions described by authors as “trauma-informed”, “trauma-integrated”, or “trauma-sensitive”. These interventions (including models, programs, and initiatives) may be targeted to patients, their families, and/or staff members. We excluded interventions for individuals with a diagnosis of post-traumatic stress disorder (PTSD) or designed to process a trauma narrative because TICI are intended to be inclusive and applicable

to individuals without a known history of trauma. We also excluded interventions that were not milieu-based interventions (e.g., stand-alone therapeutic groups). We excluded articles that did not include a description of implementation strategies used, or only described the hypothetical implementation of the TICI.

2.4.3.3 Context

We included pediatric inpatient or residential treatment mental health care settings and excluded juvenile justice, secure settings, and school settings that were not clearly described as a mental health treatment program.

2.4.3.4 Study Type

We included any primary study describing a TICI that was implemented at a specific site which identified and described implementation strategies used. Related reviews were excluded, yet their reference lists were screened.

2.4.3.5 Language

We only included studies published in English or French.

2.4.3.6 Publication Date

We limited the search to literature from 1995 onwards because TIC is a concept that was first used in approximately 2001 by M. Harris and Fallot (2001).

2.4.3.7 Publication Status

We included peer reviewed articles and excluded grey literature including theses.

2.4.4 Study Selection

YS uploaded all citations and abstracts to Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia; available at www.covidence.org) and removed duplicates. Two reviewers (YS and MDV) independently screened studies for eligibility using Covidence. We initially conducted a pilot test by screening a random sample of 25 titles/abstracts for inclusion, and then met to discuss discrepancies and to modify the inclusion criteria, if required. Articles were excluded if both reviewers agreed to exclude them, otherwise, they proceeded to the next step of full-text screening. Reviewers met to resolve conflicts, and a third team member (EH or IDG) resolved conflicts as needed. The reviewers then independently screened the remaining full texts in a similar fashion. Articles were excluded if both reviewers agreed to exclude them, and reasons for exclusion were documented. Systematic reviews and scoping reviews meeting first-level screening were retained and YS screened their reference lists for eligible studies.

2.4.5 Data Extraction

Two reviewers (YS and JG or MDV or MH) independently extracted study details from the included articles into a template form in REDCap (Research Electronic Data Capture; Harris et al., 2009) and Microsoft Word (Appendix C). We pilot-tested the extraction process as follows: each reviewer independently extracted the data for six articles and then met to compare and reach consensus. At that time, we discussed and revised the forms prior to continuing with the rest of the data extraction. Any disagreements between reviewers' extractions were resolved through discussion, or with a third reviewer when needed.

We extracted the following data items into REDCap: study characteristics (first author, study year, year of publication, journal, language, country, corresponding author, study type,

study funding, study limitations; study authors' definition of TIC (verbatim) and reported theoretical underpinnings of TIC; study aims; setting details (type of setting, treatment population of setting, location, urban/ rural location); descriptors of TIC intervention participants, including patients, families, full-time equivalent (FTE) of staff; intervention and implementation strategy details, as described below.

We used the AIMD framework (Aims, Ingredients, Mechanism, Delivery; see Table 2.1 for definitions) (Bragge et al., 2017) to guide the extraction of information about the TICI and implementation strategies using the following process: Two reviewers (YS and JG) independently extracted the data from each article into Microsoft Word tables and extracted in the same manner any specified goals of the implementation strategies, and any information regarding theory or frameworks used to guide the implementation of the TIC intervention. We resolved discrepancies through consensus.

Table 2.1

AIMD Definitions

Adapted from Bragge et al., 2017

Component	Description	Definition and Considerations
AIMS	What will be achieved and for whom? *(what are the targets or goals of the intervention)*	This component relates to the objective and outcome of the intervention. Based on your endpoint, what are you measuring in whom?
INGREDIENTS	What comprises the intervention? *(what are the essential components of intervention)*	These are the observable, replicable, and irreducible aspects of the intervention.
MECHANISM	How do you propose the intervention will work? *(how does the intervention work; what is the theoretical rationale for the intervention)*	This refers to the pathways or processes by which it is proposed that an intervention effects change or which change comes into effect.
DELIVERY	How will you deliver the intervention? *(how is the intervention delivered to clients/patients/caregivers)*	This encompasses logistical and practical information pertaining to intervention delivery, including mode (e.g. video, brochure); level (e.g. individual, team, population); dose, frequency, intensity; who's delivering; and size of target group.

2.4.6 Data Analysis

TICI. We aggregated multiple reports on the same TICI, so that each intervention was a unit of interest in the review. We used synthesis tables and descriptive summaries to report on the article characteristics, the TICI characteristics, and the implementation strategies. Two reviewers (YS and JG) independently and (subsequently) collaboratively distilled and summarized the AIMD tables. We compared similarities and differences between the reported interventions and performed a high-level content analysis of TICI objectives.

2.4.6.1 Goals of Implementation Strategies

We categorized the goals of the implementation strategies based on the Canadian Institutes of Health Research (CIHR, 2012) categories for knowledge translation (KT) planning goals.

2.4.6.2 Implementation Strategies

We categorized implementation strategies based on the 73 implementation categories defined by the Expert Recommendations for Implementing Change (ERIC; Powell et al., 2015), incorporating the updates recommended for existing category names and definitions as well as three additional categories (Perry et al., 2019), and using Waltz and colleagues' (2015) thematic classification system. YS and JG independently applied the ERIC strategies and implementation goal categories, and discrepancies were resolved with IDG and KBL. We inductively identified an additional category named (77: "Align with organizational or government mandate") to incorporate a strategy that was not otherwise captured. The four additional categories (three added by Perry and colleagues, one added by our team) were not included in Waltz and colleagues' thematic classification system and were therefore labeled as 'not categorized'.

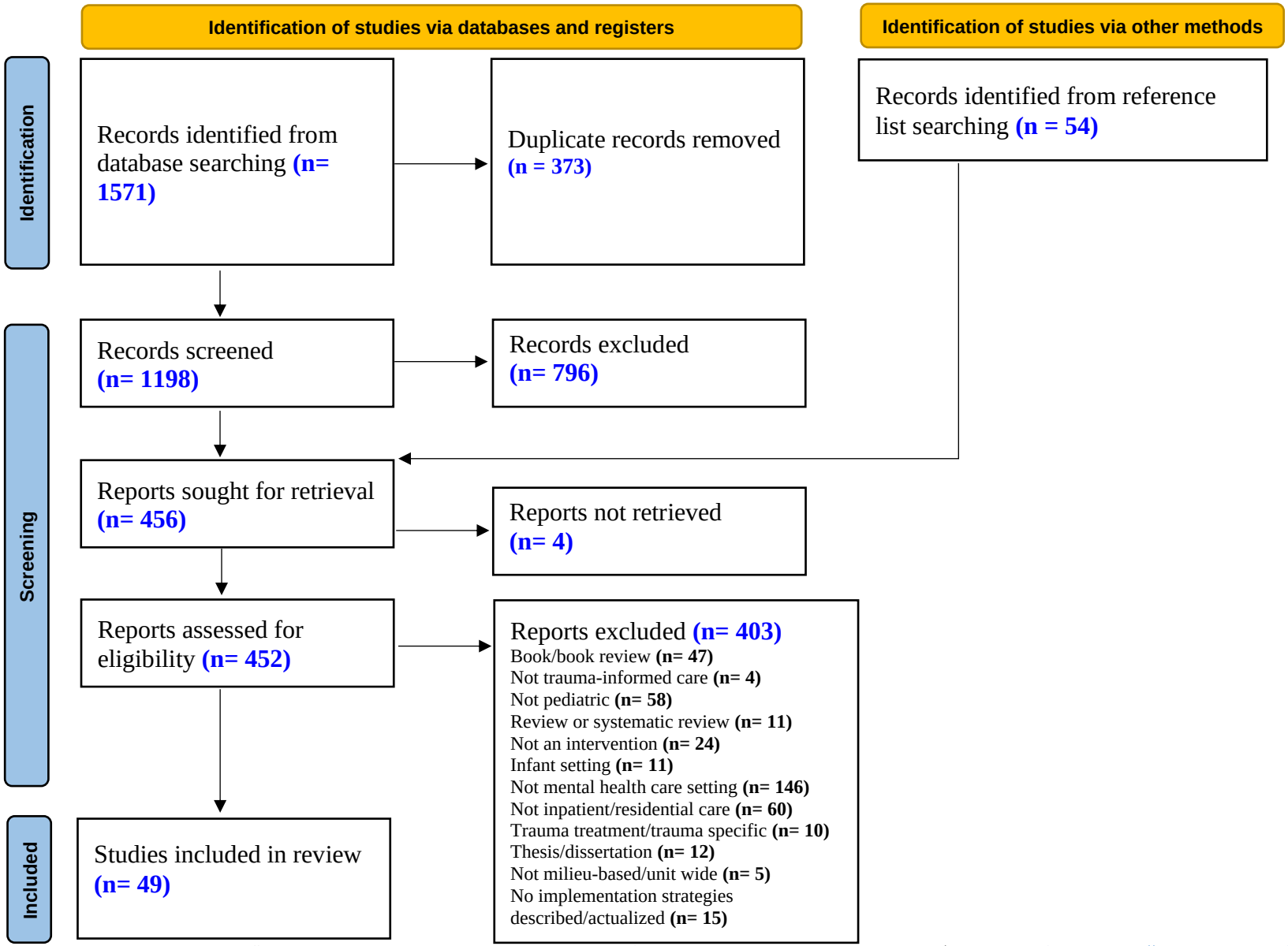
Throughout this article we will refer to the ERIC implementation categories as the ERIC implementation strategies. We tabulated frequency counts of the ERIC implementation strategies, the ERIC thematic classifications, and the implementation goal strategies and presented summaries in table formats. All categorical synthesis used simple content analysis, in accordance with the JBI guide.

2.5 Results

Of 1,571 identified citations and 54 full-text articles located by handsearching, 49 met the eligibility criteria and were included (Figure 2.2). The earliest article identified was published in 2003 (regarding the Sanctuary Model), with more than one third (n=19, 39%) published since 2016. In Table 2.2 we present the characteristics of the 49 included articles. Most articles (n=41, 84%) were conducted in the USA, while a few were based in Canada (n=3, 6%) and Australia (n=4, 8%), and one article (2%) included sites from Canada, Scotland, and USA. Most articles (n=39; 80%) contained non-experimental study designs, and 20% of articles (n=10) used experimental or quasi experimental designs. Most intervention sites were residential treatment/congregate care treatment settings (n=28, 57%), followed by inpatient psychiatric hospital settings (n=9, 18%). Two articles (4%) reported on both inpatient and residential treatment sites, five articles (10%) were of statewide initiatives, and three articles (6%) were set in child welfare systems that incorporated residential treatment. One article (2%) took place in a mental health treatment unit within a juvenile justice setting, and one (2%) was public health unit intervention which included staff from pediatric psychiatric facilities.

Figure 2.2

PRISMA Flow Diagram



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

2.5.1 TIC Interventions

We grouped together articles reporting on identical sites, and subsequently collapsed all articles reporting on the same intervention, resulting in 21 distinct TICI (Table 2.2). Some interventions were described by multiple articles, including the Sanctuary Model (11 articles), Collaborative Program Solving (CPS; five articles), the National Association of State Mental Health Program Directors (NASHMHPD) Six Core Strategies (five articles), Attachment, Regulation and Competency (ARC; four articles), Trauma Systems Therapy (TST; three articles), and Risking Connection and Restorative Approach (RC and RA; two articles). Five articles described initiatives that were sensory integration based. There were five additional TICI that did not fall into the categories above.

2.5.1.1 TICI Aims

In Supplemental Table 2.1 we present the AIMD (Aims, Ingredients, Mechanism, Delivery) of each TICI (n=21) as reported in the included articles. Many articles did not explicitly state the intervention aims/goals, making it difficult for reviewers to identify and extract. We identified six overarching themes in the reported aims of the interventions which we sequenced from narrow to broader range in focus: a) to reduce incidence of restraints, seclusions, and critical events (eight interventions), b) to change staff attitudes and skills or behaviours towards patients (11 interventions), c) to increase or change available assessments and treatments or to coordinate care (10 interventions), d) to support staff wellness or increase staff wellness capacities (four interventions), e) to increase patient wellness capacities or improve patient outcomes (eight interventions), and f) to change culture (12 interventions). We present the TICI aims in Table 2.3. Most articles reported multiple TICI aims. Two TICI (three articles) had no

explicitly reported aims. Overall, the intervention aims were varied with no single common aim amongst the 21 TICI. However, some aims were more common than others with more than half of the included interventions described as aiming to change the organizational culture.

2.5.1.2 TICI Ingredients

The reported essential components or ingredients of the TICI varied in detail, ranging from very little information (nine of the 49 included articles) to more detailed descriptions of the intervention ingredients.

2.5.1.3 TICI Mechanisms

Most TICI (18, 86%) included some description of their underlying mechanism and/or theoretical basis (i.e., Risking Connection being based on the constructivist self-development theory (Brown et al., 2012); the mechanism of TARGET is "to maximize a person's awareness of the present moment, thereby reducing mental health symptoms commonly associated with trauma, such as rumination, panic, or dissociation" (Marrow et al., 2012; p. 260)).

2.5.1.4 TICI Delivery

Details related to the delivery of the TICI also varied, with 15 articles not reporting any detail of intervention delivery and only describing the implementation of the intervention, (i.e., training, without explaining how the actual TICI would be delivered in practice). Across the AIMD analysis (see Supplemental Table 2.1), several studies highlighted elements that were related to pediatric context. Namely, an emphasis on parent or caregiver involvement within the essential ingredients or the delivery of the TICI (17 articles), a focus on attachment and on enhancing adult-child relationships in a more general sense (six articles), and a focus on developmental considerations (eight articles). Four of the included articles described TICI that

were implemented across pediatric and adult settings, without any reported adjustments made between settings (Craig & Sanders, 2018; McEvedy et al., 2017; Jacobowitz et al., 2015; Williams & Smith, 2017).

Table 2.2

Study Characteristics (n=49) Sorted by Intervention (n=21)

Intervention Name	Author/Year	Country	Setting	Article Type	Funding (F) Conflict of Interest (CoI)*
Attachment, Regulation and Competency (ARC) n=4					
Project Penguin informed by ARC and Positive Behavioural Interventions and Supports (PBIS)	Brend/2020	Canada	Residential treatment centres in child welfare	Mixed methods (non-controlled before and after and qualitative)	F: Government CoI:RN
Building Communities of Care (BCC)	Forrest/2018	USA (author affiliation)	6 Residential treatment programs	Non-controlled before and after	F: NR CoI:RN
ARC; Grow Strong/Stepping Stones	Hodgdon/2013	USA	2 residential treatment programs serving female youth	Non-controlled before and after	F:Government; CoI:NR
Trauma-Informed Care (TIC) Training informed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and ARC	Matte-Landry/2021	Canada	44 residential units for children and youth	Interrupted time series	F: Government & Academic CoI: RN
Child Adult Relationship Enhancement (CARE) n=1					
Child Adult Relationship Enhancement (CARE)	Gurwitch/2016	USA	State of Delaware Division of Prevention and Behavioral Health Services (DPBHS), including youth inpatient units	Case study	F: Foundation, Government; CoI:RN
Children and Residential Experiences (CARE) n=1					
Children and Residential Experiences (CARE)	Izzo/2016	USA	11 group care agencies serving youth from child welfare	Interrupted time series	F: Foundation; CoI:RY
Collaborative Problem Solving (CPS) n=5					
CPS	Greene/2006	USA	1 inpatient child psychiatric unit	Non-controlled before and after	F:NR; CoI:NR
CPS	Martin/2008	USA	1 child psychiatric inpatient setting	Non-controlled before and after	F:Foundation, CoI:RN
CPS	Pollastri/2015	USA	1 youth mental health agency providing residential treatment	Interrupted time series	F:NR; CoI:NR

'Major Change' including CPS	Regan/2010	USA	1 inpatient child psychiatric unit	Case series	F:NR; CoI:RN
Child and Family Centered Care (CFCC): Including Collaborative CPS	Regan/2017	USA	1 inpatient child psychiatric unit	Non-controlled before and after	F:Government, Acadmic; CoI:NR
Devereux's Safe and Positive Approaches (SPA) n=1					
SPA	Russell/2009	USA	Programs offering residential treatment to children and adolescents	Prospective cohort study	F:NR; CoI:NR
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth n=1					
EQ2	Griffing/2020	USA	1 short-term crisis stabilization unit and 2 residential treatment centres for adolescents	Mixed methods (non-controlled before and after and qualitative)	F:Foundation CoI:NR
NASMHPD Six Core Strategies n=5					
Six Core Strategies	Azeem/2011	USA	State psychiatric hospital with child and adolescent unit	Non-controlled before and after	F:NR; CoI:RN
Six Core Strategies	Azeem/2015	USA	Pediatric psychiatric hospital	Non-controlled before and after	F:NR; CoI:NR
'Broad TIC program' based on Six Core Strategies and Risking Connections	Barnett/2018	USA	Youth residential treatment center	Non-controlled before and after	F:Foundation; CoI:NR
Six Core Strategies, Building Bridges Initiative (BBI)	Caldwell/2014	USA	3 programs: a) Pediatric psychiatric hospital, b) secure residential treatment centre, c) residential services	Non-controlled before and after	F:NR; CoI:RN
TIC Program based on the Six Core Strategies	Hale/2020	USA	Inpatient psychiatric hospital, which cares for children and adolescents	Non-controlled before and after	F:RN; CoI:RN
Neurosequential Model of Therapeutics (NMT) n=1					
NMT	Hambrick/2018	USA/Canada /Scotland	10 residential and day treatment settings for adolescents	Interrupted time series	F:Foundation, Gov, Private; CoI:RN
Patient-Focused Intervention (PFI) Model n=1					
PFI Model	Goetz/2012	USA	Adolescent residential treatment unit in an inpatient psychiatric facility	Non-controlled before and after	F:RN CoI:RN
Risking Connection (RC) and Restorative Approach (RA) n=2					

RC and RA	Baker/2018	Canada	1 residential youth services division	Mixed methods (non-controlled before and after and qualitative)	F: Academic, Government; CoI:NR
RC and RA	Brown/2012	USA	5 child congregate care agencies	Non-controlled before and after	F:NR; CoI: RY
Sanctuary Model n=11					
Sanctuary Model	Bloom/2003[a]	USA	2 Residential treatment centres for children	Case series	F:Government; CoI:NR
Sanctuary Model	Bloom/2003[b]	USA	2 Residential treatment centres and 1 group home for children and adolescents	Case series	F:NR; CoI:NR
Sanctuary Model	Clarke/2012	Australia	Residential care programs for children and young people	Case study	F:NR; CoI:NR
Sanctuary Model	Esaki/2014	USA	Child welfare agency that offers residential care	Cross-sectional	F:NR; CoI:NR
Sanctuary Model	Farragher/2005	USA	Residential and day treatment program for youth	Case study	F:NR; CoI:NR
Sanctuary Model	Leigh-Smith/2014	Australia	Residential care programs for children and young people	Case study	F:NR; CoI:NR
Sanctuary Model	McCorkle/2005	USA	1 residential treatment facility for children and adolescents	Case study	F:NR; CoI:NR
Sanctuary Model	Rivard/2003	USA	17 residential treatment units across 3 programs	Cluster randomized-controlled trial	F:Government; CoI:NR
Sanctuary Model	Rivard/2004a	USA	17 residential treatment units across 3 programs	Cluster randomized-controlled trial	F:Government; CoI:NR
Sanctuary Model	Rivard/2004b	USA	17 residential treatment units across 3 programs	Mixed methods (Cluster randomized-controlled trial and qualitative)	F:Government; CoI:NR
Sanctuary Model	Rivard/2005	USA	8 residential treatment units for youth	Non-controlled before and after	F:Government; CoI:NR
Sensory Integration Initiatives n=5					
Trauma-Informed Care (TIC) and Ayres Sensory Integration Training	Denison/2018	USA	Residential treatment centre for adolescents	Non-controlled before and after	F:NR; CoI:NR

Massachusetts R/S Prevention Initiative to Promote Strength-Based Care	Lebel /2004	USA	State-wide child and adolescent inpatient units	Non-controlled before and after	F:Government; CoI:NR
Massachusetts State R/S Prevention Initiative: Integrating Sensory and Trauma-Informed Interventions	Lebel/2010	USA	State-wide including child and adolescent mental health facilities	Non-controlled before and after	F:NR; CoI:NR
Sensory Modulation and trauma-informed-care	McEvedy/2017	Australia	State-wide, 19 area mental health services	Qualitative	F:Government; CoI:RN
Sensory Room/Occupational Therapy (OT) Consultation/Sensory Motor Arousal Regulation Treatment (SMART)	Warner/2013	USA	Residential treatment sites for adolescents	Case series	F: Source not specified; CoI:NR
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS) n=1					
SPARCS	Habib/2013	USA	1 Residential program for adolescents	Non-controlled before and after	F:NR; CoI:NR
Trauma Affect Regulation: Guide for Education and Therapy (TARGET) n=1					
TARGET and environmental modifications	Marrow/2012	USA	2 mental health units in juvenile justice settings	Non-randomized cluster-controlled trial	F:NR; CoI:NR
Trauma-Informed Psychiatric Residential Treatment (TI-PRT) n=1					
TI-PRT	Boel-Studt/2017	USA	Psychiatric residential facilities of a large Behavioral Health Agency	Historically controlled cohort study	F:RN; CoI:RN
Trauma-Systems Therapy (TST) n=3					
TST	Brown/2013	USA	3 child and adolescent residential treatment centres	Case series	F:NR; CoI:NR
TST	Murphy/2017	USA	1 private child welfare system	Interrupted time series	F:Foundation; CoI:RN
TST/ Bridging the Way Home initiative	Redd/2017	USA	1 private child welfare system	Mixed methods (Interrupted time series and qualitative)	F:Foundation; CoI:RN
Uncategorized TIC Programs n=5					
Gender-Specific and Trauma-Informed Training Curriculum	Crable/2013	USA (author affiliation)	Residential group care facility	Non-controlled before and after	F:NR; CoI:NR
Trauma-informed approach (TIA)	Craig/2018	USA	Behavioral healthcare facility	Non-controlled before and after	F:NR; CoI:RN

A Trauma-Informed Care Program	Jacobowitz/2015	USA	Psychiatric hospital providing short-term acute care (including child and youth)	Cross-sectional	F:NR; CoI:RN
Trauma-Informed Child Welfare Service (CWS)	Lang/2016	USA	State-wide including child and adolescent mental health facilities	Non-controlled before and after	F:Government; CoI:RN
TIC Training Program	Williams/2017	Australia	Public mental health, including staff from pediatric mental health facilities	Cross-sectional	F:Government; CoI:NR

*Conflicts: NR: No conflict reported; RN: reported no conflicts; RY: reported conflicts

Table 2.3

TIC Intervention Aims

Intervention Name	Reduce restraints/ seclusions/ critical events	Change staff attitudes/ practices	Increase assessments & treatments/ coordinate care	Support staff wellness/ increase staff capacities	Increase patient capacity/ improve outcomes	Change culture	**Total AIM Themes Captured**
Attachment, Regulation and Competency (ARC)	☑	☑	☑	☑	☑	☑	**6**
Collaborative Problem Solving (CPS)	☑	☑	☑	☑	☑	☑	**6**
Sensory Integration Initiatives	☑	☑	☑		☑	☑	**5**
Sanctuary Model			☑	☑	☑	☑	**4**
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)	☑	☑			☑	☑	**4**
Children and Residential Experiences (CARE)		☑	☑			☑	**3**
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth		☑		☑		☑	**3**
NASMHPD Six Core Strategies	☑	☑				☑	**3**
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)	☑				☑	☑	**3**
Trauma-Systems Therapy (TST)		☑	☑		☑		**3**
Child Adult Relationship Enhancement (CARE)		☑	☑				**2**
Patient-Focused Intervention (PFI) Model	☑					☑	**2**
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)			☑		☑		**2**
Devereux's Safe and Positive Approaches (SPA)		☑					**1**
Neurosequential Model of Therapeutics (NMT)						☑	**1**
Risking Connection (RC) and Restorative Approach (RA)						☑	**1**
Gender-Specific and Trauma-Informed Training Curriculum		☑					**1**
Trauma-informed approach (TIA)	☑						**1**
Trauma-Informed Child Welfare Service (CWS)			☑				**1**
TIC Training Program			☑				**1**
A Trauma-Informed Care Program							**0**

2.5.2 Implementation of TIC Interventions

2.5.2.1 Implementation Strategies Implementation Goals

In Table 2.4 we present the list of implementation strategy goal categories along with a tabulation of the total TICI (n=21) reporting the respective goals for within their implementation strategies. Eleven interventions included five or more different implementation goal categories, while four articles (out of the included 49) reported only one implementation goal, and two articles reported no implementation strategy goals. The most commonly reported implementation goal was to increase knowledge and awareness (20 interventions), followed by changing behaviour or practice (18 interventions) and informing or supporting implementation (17 interventions). In Supplemental Table 2.2 we present the detailed implementation strategies and implementation goals by TICI (n=21) including the corresponding ERIC categories and implementation goal categories.

Table 2.4

Implementation Strategy Goal Categories by TIC Intervention (n=21)

Goal of the Implementation Strategy
1. Increase Knowledge/ Awareness (n=20;95%)
2. Inform/Change Attitudes (n=3; 14%)
3. Inform/Change Behaviour/Practice (n=18;86%)
4. Inform/Change Policy (n=5;24%)
5. Increase patient/family involvement (n=4;19%)
6. Increase staff involvement (n=7; 33%)
7. Inform/Support implementation (n=17;81%)
8. Embed the model (n=12;57%)

2.5.2.2 Implementation Strategy (ERIC) Themes

All 21 included TICI incorporated the implementation theme of training and educating stakeholders, and almost all (18 of the 21 interventions) included the implementation theme of developing stakeholder interrelationships. The remaining eight implementation strategy themes were used to implement with approximately half of the interventions. See Supplemental Table 2.3 for a list of the ERIC implementation strategies contained within each overarching theme. Four of the TICI included implementation strategies across all the 10 themes (ARC, NASMHPD Six Core Strategies, PFI, and the grouped sensory integration initiatives). The majority of the TICI (n=11) incorporated strategies related to six or more implementation themes, while five interventions incorporated strategies from three or fewer implementation themes (see Table 2.5).

2.5.2.3 Implementation Strategies (ERIC)

Of the 73 original ERIC strategies and the four added strategies, one strategy, "Conduct educational meetings" was used to implement all 21 TICI, with two TICI only using this implementation strategy (see Supplemental Table 2.4). In addition to educational meetings, there were seven other ERIC strategies used by more than half of the interventions: E27 "Develop and organize quality monitoring systems", E65 "Use an implementation advisor", E19 "Conduct ongoing training", E55 "Provide ongoing consultation", E71 "Use train-the-trainer strategies", E41b "Involve staff", and E44 "Mandate change". Most TICI reported using more than 10 ERIC strategies, with four interventions (NASMHPD Six Core Strategies, ARC, the grouped sensory integration initiatives, and the Sanctuary Model) using more than 30 ERIC strategies. Sixteen ERIC implementation strategies were not used with any of the included TICI. Six of the nine strategies under the theme "H: Utilize financial strategies" and three of the eight strategies under the theme "I: Change infrastructure" were unused.

Table 2.5

ERIC Overarching Themes Used with Each TIC Intervention

TIC Intervention Name	Total ERIC Themes	A. Use evaluative and iterative strategies	B. Provide interactive assistance	C. Adapt and tailor to context	D. Develop stakeholder inter-relationships	E. Train and educate stakeholders	F. Support clinicians	G. Engage consumers & staff	H. Utilize financial strategies	I. Change infrastructure	J. Not categorized
NASMHPD Six Core Strategies	10	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Attachment, Regulation and Competency (ARC)	10	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Sensory Integration Initiatives	10	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Patient-Focused Intervention (PFI) Model	10	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Sanctuary Model	9	☑	☑	☑	☑	☑	☑	☑		☑	☑
Collaborative Problem Solving (CPS)	9	☑	☑		☑	☑	☑	☑	☑	☑	☑
Trauma-Systems Therapy (TST)	9	☑	☑	☑	☑	☑		☑	☑	☑	☑
Trauma-Informed Child Welfare Service (CWS)	8	☑			☑	☑	☑	☑	☑	☑	☑
Trauma-informed approach (TIA)	7	☑	☑			☑	☑	☑		☑	☑

EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth	6	☑		☑	☑	☑	☑	☑			
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)	6		☑	☑	☑	☑		☑		☑	
Neurosequential Model of Therapeutics (NMT)	5	☑		☑	☑	☑				☑	
Child Adult Relationship Enhancement (CARE)	5		☑		☑	☑		☑	☑		
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)	5		☑	☑	☑	☑	☑				
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)	5	☑	☑		☑	☑		☑			
TIC Training Program	4	☑			☑	☑			☑		
Children and Residential Experiences (CARE)	3			☑	☑	☑					
Risking Connection (RC) and Restorative Approach (RA)	3				☑	☑				☑	
Gender-Specific and Trauma-Informed Training Curriculum	2				☑	☑					
Devereux's Safe and Positive Approaches (SPA)	1					☑					
A Trauma-Informed Care Program	1					☑					
Total TICI Using Theme		13	12	11	18	21	10	13	9	12	9

2.6 Discussion

2.6.1 Recent Proliferation of TICI

In this scoping review, we identified 21 TICI in pediatric mental health inpatient and residential settings across 49 articles. While our database search spanned from 1995 onwards, the earliest article we identified was published in 2003 and most articles (n=35) were published since 2010. The reasons for the recent proliferation of different TICI and approaches may be numerous. First, settings and populations are diverse and complex and require specialized adaptations according to the context in which the interventions are to be implemented. Second, and perhaps more importantly, TICI that are better known and more established are not widely accessible to the public; they tend to be quite expensive to purchase and implement and require a substantial commitment of time, effort, and resources (Hanson & Lang, 2016). For example, in addition to the cost of purchasing the Sanctuary Model, there may be further internal resources required, as the model is designed to be implemented over three years (Andrus, 2022). To obtain the certification, organizations must demonstrate that they have met all 28 of the Sanctuary Institute Standards for Certification (Sanctuary Institute, 2021). Organizations may therefore opt to design and develop their own less expensive and comprehensive approaches. Third, as demonstrated in this review, the reporting of TICI and their implementation is often limited and lacks detail, making them difficult to replicate. Fourth, various definitions of TIC exist (e.g., Bath, 2008; Becker-Blease, 2017; Hanson & Lang, 2016; The National Child Traumatic Stress Network, N.D., SAMHSA, 2014). We have yet to achieve a consensus on what TIC actually represents, and the elements and mechanisms needed to achieve it (Hanson & Lang, 2016; Perry, 2020). Hence, it logically follows that depending on the TIC definition adopted by organizations aiming to implement TIC, various TICI could be developed to achieve their desired goals.

2.6.2 Complexity of TIC: TICI Aims, Targets, and Implementation

In this scoping review we identified TICI that endeavour to operationalize the complexity of TIC through various intervention aims, target audiences, and multifaceted interventions. In many cases, it was difficult to identify the TICI aims (distinct from the study aims). When explicitly reported, they varied, potentially indicating that the TICI were designed for different purposes, or possibly representing a continuum of the multiple levels along the complexity of TIC. Aims ranged from abstract to narrower and more specific. TICI specifically targeted patients (e.g., Clarke, 2012; Habib, et al., 2013; Forrest et al., 2018; Marrow et al., 2012), staff (e.g., Crable et al., 2013; Hale & Wendler, 2020; Russell et al., 2009), and caregivers (e.g., Hodgdon et al., 2013; Regan et al., 2017), or a combination thereof. While it may seem evident to target patients with TICI, some authors posit the importance of also including direct care staff (e.g., Wolf et al., 2014) and caregivers (e.g., Lotty et al., 2020; Sullivan et al., 2016) in the cultivation of trauma-informed organizations that engender safety, trustworthiness, support, collaboration, and empowerment. Moreover, perhaps we need to consider not only multiple target audiences but also the complexity of how these audiences interact dynamically within TICI. This may be especially true within the pediatric context, where caregivers play an essential role in supporting and bridging the youth to the community. Eight of the twenty-one TICI aimed to reduce seclusion and restraint events. Yet all those TICI also encompassed aims that went beyond and targeted other areas such as increasing patient capacities, changing staff attitudes, and bringing about a broader culture change, seeming to indicate a general consensus that TIC aims go well beyond simply reducing restraints and seclusions. The most common aim, stated by 12 of the 21 of TICI included in this review, was to promote a form of organizational culture change. While the higher-level aim of culture change is congruent with the complexity of TIC,

we also need to consider how this can be operationalized in practice (Hanson & Lang, 2016). A recent example of a TICI (not included in this review, as it is not published in the peer-reviewed literature) that considers the larger cultural context and operationalization of TIC, is a tool developed by the National Children Traumatic Stress Network (NSTCN) called the Trauma-Informed Organizational Assessment (TIOA; Halladay Goldman, et al., 2019). The TIOA assesses nine broad aspects of TIC within the organization (covering youth, caregiver, and staff domains) and includes a detailed implementation guide exhibiting the complexity of TIC and the complexity of implementing a TICI.

We also found a large degree of variability in the nature, scope, and number of implementation strategies used to implement each TICI, which is consistent with findings of other reviews of TICI (e.g., Bryson et al., 2017; Lowenthal, 2020). Some TICI used more than half of the 77 ERIC implementation strategies, while others used very few, but the majority did use a multipronged implementation plan. All the included TICI used educational meetings as an implementation strategy with two using educational meetings as the sole implementation strategy. Yet, educational meetings as an exclusive strategy are likely to fall short in achieving the commonly targeted culture change. This was illustrated by authors of two TICI included in this review. Williams and Smith (2017) reported that while training was effective in increasing knowledge and altering attitudes, training had less effect on changing individual practice and an even lower level of influence on changing workplace practice. Lang and colleagues (2016) also flagged the shortcomings of educational meetings in producing practice changes and warned that "as interest in trauma-informed care grows, there is a risk that 'receiving some trauma-related training' becomes equivalent to 'being trauma-informed' " (Lang et al., 2016, pp 121-122).

Lowenthal (2020), in their review of TIC implementation in the child- and youth-serving sectors, created a three-category post-hoc analytic framework called the TIC Implementation Scope Continuum to classify the nature, scope, and number of implementation strategies of the range of TIC implementation initiatives. Limited Change Initiatives (LCI) consisted generally of one-off trainings with little to no follow up, while Comprehensive Change Initiatives (CCI) used numerous strategies over longer periods of time to create lasting changes in organizational culture, structure, and policies. While this framework offers potential to classify the nature and scope of TIC implementation initiatives, the framework needs to be studied to establish reliability and validity. Further, an important direction for future focus would be to investigate the association between their comprehensiveness and intensity and the effectiveness of the TICI and its implementation.

2.6.3 Reporting of TICI and Implementation Strategies

In conducting this scoping review, we found the reporting of both the TICI and of the implementation strategies to be varied and limited. Some articles did not describe or described very minimally the intervention and/or the implementation strategies, so we suggest caution when reviewing and interpreting what was actually done. We note from these articles that there is confusion or lack of clarity around the TICI in contrast to strategies used to implement it. Some articles reported primarily the implementation strategies (such as describing the TICI as a ‘training’) rather than what the TICI was in practice. From an implementation perspective, a training would be an implementation strategy to facilitate the adoption of the core clinical intervention, whatever that may be (Eldh et al., 2017). To achieve greater clarity and consistency in the reporting of TICI will necessitate further elucidation and agreement around each of these concepts: TIC definitions, TICI, and TIC implementation strategies. Moreover, intervention

frameworks or reporting guidelines should be adopted to aid in consistent reporting of and to distinguish between clinical and implementation interventions or strategies (Eldh et al., 2017). None of the included articles in this review incorporated intervention frameworks or reporting guidelines, which made the TICI difficult to synthesize. There are a number of intervention reporting guidelines in the EQUATOR (Enhancing the Quality and Transparency of Health Research network; Simera et al., 2010) database that may be useful to consider in identifying the most useful guidelines for the reporting of TICI, such as the Template for Intervention Description and Replication (TIDieR) checklist (Hoffmann et al., 2014), and the Standards for Reporting Implementation Studies (StaRI) checklist (Pinnock et al., 2017). In our scoping review protocol, we initially selected the (TIDieR) Checklist to guide our data extraction of the TICI and of the implementation strategies. After commencing data extraction, we realized TIDieR Checklist incorporated detailed elements that for the most part were not relevant to the reported TICI that we had identified. After reviewing other available frameworks, we opted to use the AIMD framework (Bragge et al., 2017) as a structure for breaking down and discussing the TICI. Furthermore, the Expert Recommendations for Implementing Change (ERIC; Powell et al., 2015) as a taxonomy for classifying the implementation strategies proved useful for classifying/categorizing strategies used to implement TICI. While intervention frameworks and reporting guidelines can structure and facilitate reporting, the onus remains on the authors to report completely and transparently what took place, otherwise we are still left with incomplete and inconsistent reporting. We encourage authors to enhance the descriptive clarity of the TICI and implementation strategies used with the support of available intervention frameworks and reporting guidelines. See Table 2.6 for a summary of the implications from this review findings for practice, policy, and research.

Table 2.6

Implications for Practice, Policy, and Research

Implications for Practice
• Numerous TIC interventions for pediatric settings exist. • These TICI vary in their aims and essential components. • Organizations looking to implement TICI need to consider their goals for TIC, which will inform who the TICI will target (e.g., patients, staff, caregivers) and TICI aims (e.g., reducing incidence of critical events, improving patient outcomes, changing culture). • In planning implementation of TICI, consider using a multi-pronged approach that goes beyond educational trainings (education is necessary but not sufficient to support implementation). • Given that the amount of detail reported on TICI and implementation strategies is limited, organizations may need to explore and create their own implementation plans based on the needs of their setting. • Organizations should monitor and document the impact of their implementation efforts.
Implications for Policy
• When planning implementation of a TIC intervention, policy makers should clearly identify the specific goals that they want the TIC intervention to achieve. • Policy makers have an important role in supporting the implementation of TIC interventions (as evidenced by many of the implementation strategies which have implications for policy providers - e.g. Using evaluative and iterative strategies, Developing knowledge-user interrelationships, Supporting clinicians, and Changing infrastructure).
Implications for Research
• Researchers need to do better in describing the TIC interventions and the implementation strategies used. • More research is needed to better understand what combination of implementation strategies work best for what TIC interventions and for specific contexts.

2.7 Study limitations

Our search strategy included the terms of "trauma-informed", "trauma-sensitive", "trauma-integrated", and "trauma * care" which are commonly used to describe this phenomenon (e.g., Hanson & Lang, 2016), but it is possible additional relevant articles exist that were not indexed with these terms. Due to feasibility concerns, we excluded non-peer reviewed articles, including theses, as well as articles published in languages outsides of English or French; in doing so, we may have missed relevant TICI. It is also possible that others may have coded data differently (e.g., when applying the ERIC implementation strategies as categories). However, our citation screening, data extraction, and data coding processes involved two independent team members and reviewed with the larger team when consensus or clarification was needed leading us to believe that the chance of miscoding was small. We did not assess the quality of the included studies; however, this is consistent with guidance related to conducting scoping reviews (Peters et al., 2020). This review focused on pediatric settings and therefore we could not compare how TICI within adult and pediatric settings differ, however this may be a valuable area for future research.

Most articles identified in this scoping review were based in the USA, with a few based in Canada and Australia, and one article including sites from Canada, Scotland, and USA. Given that the healthcare system in the USA differs from other systems in the world, there may be limitations to the transferability of these interventions to other locations. Furthermore, the lack of published interventions implemented elsewhere in the world, including in from countries in the Global South, limits our ability to conceptualize TIC and TIC implementation within diverse settings and contexts. Finally, our analysis was limited to what was reported in articles (both in

terms of the TICI and the implementation strategies). Authors may not have fully reported what was done in either the clinical intervention or the implementation.

2.8 Conclusions

In conducting this scoping review, we identified numerous admirable efforts to implement TICI in pediatric inpatient and residential mental health settings, demonstrating a broad interest in TIC. The included TICI encompassed some common aims and elements, however, there were also many differences. In selecting, implementing, or reporting on a TIC intervention, it will be important for organizations to consider their goals for TIC and to describe the aims and core components of the TIC intervention separate from the implementation strategies to be used. This specificity will better allow for synthesis and transferability of TICI. We suggest that a tailored implementation plan should include a multi-pronged approach that goes well beyond educational trainings. We also recommend further research to focus on developing a better understanding what combination of implementation strategies work best for what TICI and for which specific contexts.

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Supplemental Table 2.1

TIC Interventions Grouped by Intervention (n=21)

See AIMS Legend below table.

Intervention Name	Author/ Year	Aims of Intervention (A)	Ingredients (I)	Mechanism (M) or Theoretical Basis	TIC Delivery (D)
Attachment, Regulation and Competency (ARC)					
Project Penguin informed by ARC and Positive Behavioural Interventions and Supports (PBIS)	Brend/2020	"To respond to the needs of residential treatment centres serving children aged 6 to 12"[C] "To help workers develop trauma-informed attitudes and implement trauma-informed practices[B], make the workplace more responsive to the well-being of RC [residential childcare] workers[D], and reduce the use of restraints and seclusions among school-aged children in RCs[A]"	• Tier 1: Competency, emotion regulation, routines, and rhythms: These elements of Program Penguin are in place for all children at all times • Tier 2: Strategies employed for children who are at a higher risk or of higher need • Tier 3: Individual interventions and referrals: For the most vulnerable children or those who are not responding to the interventions represented in the first two tiers. • Adapted adolescent program (Program Polaris)	Four distinct yet overlapping knowledge bring Program Penguin together. • Understanding Complex Trauma • Attachment Self-Regulation and Competency (ARC) • Positive Behavioural Interventions & Support (PBIS) • Social Innovation (Implementation)	• Tier 1 example: "several units created calming rooms"
Building Communities of Care (BCC)	Forrest/ 2018	"To create a system-wide community of care that maximizes client growth and capacity for self-regulation[E] while minimizing violent incidents[A] and costs for the organization." "BCC was designed to reduce the frequency and intrusiveness of restraints."[A] "To create a restorative community"[F]	• Integrative: Intentionally coordinated programming across systems with a common language • Individualized: "Caregivers [providers] maintain routines, policies, and systems upon which they individualize care with a menu-based approach, including collaboratively developing treatment plans, individualizing the environment for maximum predictability, comfort, and	• "BCC is grounded in the empirically supported Attachment, Regulation, and Competency (ARC) Model" • "The ARC foundation constitutes enhancing children's caregiver-child relationships (attachment), skills to manage internal, and interpersonal experiences (regulation), and key capacities associated with	• Individualized: "For example, bedrooms are decorated prior to clients' arrival with the interests of each client in mind, while simultaneously eliminating possible triggers of dysregulation. Additionally, during intake parents and their children approve the types of non-verbal, verbal, and physical interventions appropriate if necessary" • Proactive: "Attuning includes remaining aware of how caregiver body language and facial expression affects the situation, and maintaining a nonthreatening approach. In the event a restraint occurs, caregivers [providers] utilize the least intrusive, preapproved restraint while remaining attuned to the child's needs and level of dysregulation so release occurs promptly. Post-restraint a debriefing period involves finding the

		"To collaboratively design, implement, and maintain an environmental culture[F] where instances of client dysregulation and difficulty become a rare occurrence"	safety, and planning youth-selected activities" • Proactive: "Caregivers [providers] are trained to attune to initial signs of dysregulation and respond with validating strategies to deescalate before a negative strategy [restraint] is needed." "BCC is broken down into core considerations of trauma-informed care: the environment, clinical treatment, community engagement, and behavioral interventions. These core considerations exist across three ecological systems: individual, community, and external"	resilience (competency)."	dysregulation and escalation triggers in order to remove them as well as addressing potential retraumatization."
ARC; Grow Strong/Stepping Stones	Hodgdon/ 2013	To "offer a guiding structure for providers working with trauma-impacted youth and their care-givers,[B] while allowing significant flexibility in application"	ARC is a framework for intervention with youth and families with Three Core Domains: Attachment, Self-Regulation, and Competency • "Within these domains, nine core targets or "building blocks" of intervention are delineated, along with a tenth target, Trauma Experience Integration" • Milieu/program culture changes • IRTP site: o ARC individual therapy o ARC group therapy: "Grow Strong" • Residential school site o "Stepping Stones Program": Individual and group therapy o Incorporating techniques, psychoeducation, and	• Changing "the intervention strategy from punishing unwanted behavior to teaching and supporting alternative skills in order to increase a client's sense of control and mastery." • "Stepping Stones": "The overall principles of the individual component include: being developmentally tailored, self-enhancement focused, integrates consistent response and routines and rituals, and co-regulation of affective states"	ARC Individual: • "At IRTP, specific clients were selected by their clinicians to participate in ARC individual treatment... clinicians implemented an explicit ritual with regulation strategies practiced at the beginning and end of session…all ARC individual clients received psychoeducation about triggers and the trauma response. Specific treatment targets within the framework were selected based on individualized assessment of client needs…In addition, a group of clients … were selected for an ARC group. Eligible clients were asked to voluntarily participate and therefore self-selected into the treatment. The ARC group, named "Grow Strong" was a 16 session group…The group was co-facilitated by the trauma consultant and clinical director" • "Each ARC group followed a structure with the following components presented in a specific order: 1) self-regulation exercise, 2) self-appraisal and rating of physiological/ emotional response to the exercise, 3) snack, 4) homework review, 5) psychoeducation about a specific ARC skill, and 6) self-regulation exercise followed by self-appraisal and rating of emotional response...homework was an integral part of each group to support ongoing practice and

		activities from several treatment models including ARC, Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS), and Urban Improv-Intensive Protocol for Middle School Children Exposed to Trauma and Violence"	generalization of skills to the milieu and community settings" • "Self-regulation exercises were incorporated into all sessions of the group" Stepping Stones Program: • "With both individual and group programming… incorporating techniques, psychoeducation, and activities from several treatment models including ARC… • "Clients were deemed eligible for the group based on a history of successful participation in group treatment and were asked to voluntarily participate…." Stepping Stones Group: • "A 22 session group … Each group session had specific components including: 1) initial check in and self-appraisal rating of distress and control, 2) mindfulness activity, 3) snack, 4) review of prior week, 5) psychoeducation/content, 6) experiential activity, 7) sharing of progress with personal goal, 8) homework review, and 9) ending self-appraisal using same distress/control scale at used at the start of group" • "Stepping Stones addressed self-regulation, cooperative relational engagement, and competency building skills in each session, offering repetitive experiential practice of skills, techniques, and activities...Homework was also an integral part of each group…as well as the integration of several community building activities that were implemented in milieu setting" Stepping Stones individual intervention: • "Clients who participated in the Stepping Stones group also received the Stepping Stones individual intervention." • "Each session had a specific structure, starting with a feelings check-in, mindfulness activity, goal activity from the session (client could choose from a group of activities, all of which would be covered throughout the course of the treatment)" Milieu/program culture:

					• "Teaching and supporting alternative skills" • "Clearly defined structure that includes programmatic rules and expectations and associated rewards/ consequences and daily routines. The structure must be explicitly stated and accessible through visual cues posted within the milieu" • "ARC-based milieu activities were designed to parallel and support clinical group and individual intervention on multiple fronts, including initiatives such as creating psychoeducational bulletin boards in the residential common areas and classrooms, changing behavior systems" • "One program created "the comfort zone" on the unit… to be used by clients (with the support of staff) to practice various up- and down-regulation skills" "Grow Strong" group: • "The group was co-facilitated by the trauma consultant and clinical director." Stepping Stones individual intervention: • "Following every group session, each client would meet with his or her individual therapist for a 1-h session focused on the components of the group ending with a grounding exercise and review of the session." • "One program created an "On Track Action" wall… The goal of the wall was to provide clients with weekly and monthly incentives for positive behaviors and to provide staff members with a systematic tool for consistently giving praise"
Trauma-Informed Care (TIC) Training informed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and ARC	Matte-Landry/ 2021	NR	• Incorporating TIC in day-to-day interventions and procedures • Specific actions that could be used by staff to de-escalate crises and to minimize the use of restrictive measures • Principles and intervention targets from SAMHSA, ARC and PBIS	• Training material informed by the principles introduced by SAMHSA and the ARC framework • "An adapted version of this training was created for workers serving children in 6 of the 15 community group homes in order to integrate Positive Behavioral	Not described**

				Interventions and Supports (PBIS)"	
Child Adult Relationship Enhancement (CARE)					
Child Adult Relationship Enhancement (CARE)	Gurwitch/ 2016	To fill the void of "services[C] to enhance the child–adult relationships for these children, and potentially reduce risk for maltreatment or other behavioral and relationship concerns" "To fill a void often overlooked by large training initiatives – individuals in non-clinical positions who interact with children in health settings, yet often lack the resources and training to implement theoretically-sound and practical behavior management skills."[B] To be a "prevention model for children at risk for maltreatment or other behavioral concerns, or to complement ongoing therapy services."[C]	• CARE training (contains a trauma education component)* • CARE skills ○ The "P"s: Praise, Paraphrase, Point out ○ The "Q"s: Quash, Quit, Quiet ○ Strategic ignoring • Good commands and directions	• Parent Child Interaction Therapy (PCIT) forms the basis of CARE • "If adults learn ways to quickly and effectively engage in a positive relationship with the child or adolescent, CARE developers theorized that the children and adolescents will be more likely to interact with the adult in an appropriate manner, including improving compliance"	• CARE skills can be implemented by any adult interacting with a child between the ages of 2 and 18 years of age
Children and Residential Experiences (CARE)					
Children and Residential Experiences (CARE)	Izzo/2016	"A principle based program that helps agencies use a set of evidence informed principles to guide programming[C] and enrich the relational dynamics throughout the agency[F]." "Designed to enhance the social dynamics in group care settings through targeted staff development and ongoing reflective practice"	• Six evidence informed principles: ○ Relationship-based ○ Trauma-informed ○ Developmentally focused ○ Family-involved ○ Competence-centered ○ Ecologically oriented	• "CARE explicitly uses an ecological approach to help agencies transition from simply maintaining compliance to creating a living environment that offers/provides developmentally enriching experiences and a 'sense of normality'	NR

Collaborative Problem Solving (CPS)					
CPS	Greene/ 2006 Martin/ 2008	1- "to help adults identify the cognitive factors that may contribute to aggressive outbursts of children and adolescents, most notably in the domains of emotion regulation, frustration tolerance, problem solving, and adaptability skills."[C] 2- "to help adults become cognizant of three common options for handling problems or unmet expectations— imposition of adult will, collaborative problem solving, and removal of the expectation—and the impact of each of these three strategies on adult-child interactions."[B] 3- "to help adults[D] and children[E] become proficient at solving problems collaboratively so as to resolve potentially conflictual situations in a manner that reduces the likelihood of aggressive outbursts, facilitates assessment of the cognitive factors underlying the child's difficulties[C] (in our view, this is among the foremost goals of an inpatient stay), and length of stay permitting, teaches the child specific cognitive skills[E]" [Greene/2006] "To comprehensively assess—and ultimately teach—specific cognitive skills[C] that may be contributing to difficulties in these global domains" [Greene/2006] To work with "children and adolescents with oppositional behaviours and aggressive outbursts" [Martin/2008]	• Assessment of lagging skills ○ Executive functioning (including inattention, disorganized thinking, and poor handling of transitions), ○ Language processing (such as expressive or receptive impairments and difficulty expressing feelings), ○ Emotion regulation (including irritability, anxiety, and distorted self-perception), ○ Cognitive flexibility (such as concrete thinking and insistence on sameness and rigid routines), -social skills (such as misreading interpersonal nuance and difficulty appreciating the views of others) • Skills training	• Rooted in cognitive behavioural principles • "Implementation of the model also typically leads to contemplation of unit organization, schedule, structure, and expectations that may actually heighten the likelihood of aggressive outbursts. Adoption of the model results in improvement in mechanisms for staff communication and significant augmentation of the role of direct care staff, from mere "behavior managers" to active participants in each resident's assessment and treatment." [Greene/2006]	• "Assessing and teaching skills primarily in the context of ongoing staff-resident interactions rather than in cognitive skills groups." [Green/2006]

		"To identify pertinent social and cognitive pathway impairments and precipitating antecedent events[C]… Through these means, CPS seeks to ultimately prevent further aggressive outbursts" [Martin/2008]			
CPS	Pollastri/ 2015	To understand and intervene with youth who have social, emotional, and behavioural challenges[C]	• Understanding unmet expectations as lagging skills • Assessing lagging skills • Intervening with 3 plans: Plan A, Plan B, Plan C	• "The guiding philosophy of CPS posits that "kids do well if they can," and youth who are often thought of as disruptive, oppositional, and challenging are re-conceptualized as lacking the skill, not the will, to behave well." • CPS is thought to increase caregivers' empathy and patience, resulting in reduced use of restrictive practices and improved youth-adult relationships • CPS is thought to improve cognitive skills in youth resulting in improved behavioural and emotional symptoms in youth	• "The collaborative problem solving process can take place between a CPS-trained adult and a youth whenever the adult recognizes that the youth is having consistent difficulty meeting expectations, responding to triggers, or following rules in a home, school, or community setting. Any adult caregiver can become trained in Collaborative Problem Solving; understanding and implementing the model does not require advanced clinical training"
Child and Family Centered Care (CFCC): CPS, Open Hours, and Trauma-Sensitive Protocols	Regan/2010 Regan/2017	To move "from a traditional consequence based milieu to one that was collaborative, nurturing, and child and family centered"[F] (Regan, 2010) To decrease restraints and seclusions[A] and to increase a sense of safety and staff work satisfaction[D] (Regan/2017) CPS: "to understand and help children manage the frustration and	• Adoption of collaborative problem solving (CPS) model in responding to children's behavioral difficulties • Open hours for parents • Trauma-sensitive protocols and procedures. • Nursing Code of Ethics with interpretive statements*	• "CPS is based on the assumption that children do well if they can." (Regan/2017) • Principals: ○ dignity and respect ○ affirming and useful communication ○ strengths- based and participatory ○ collaboration	• CPS: "Under the CPS approach, a staff member approaches the child with a desire to understand the child's refusal to attend group and to learn all he/she could from the child… The staff person's agenda is to prevent a "meltdown" (an aggressive behavioral escalation), to maintain the child's trust by showing concern (expressed through empathy), and to resolve the problem in a mutually satisfactory manner, taking into account the concerns of both child and adult. Again, the child is not forced to attend the group, nor is he/she given a consequence for not going."(Regan, 2017)

		the cognitive underpinnings that generate behavioral dyscontrol"[C] (Regan, 2010) CPS: "To provide a child-centered model of care around child behavioral problems" (Regan, 2017) Open hours: "to join with parents in creating partnerships to care for the children admitted to the unit"[C] (Regan, 2017)			• Open hours policy:" Parents may come to the unit at any time, for any length of time." • Trauma-Sensitive: "Positive physical touch from safe, stable adults is considered an important component in helping children heal and in providing a "safe haven.""; "(1) children may sleep in the hall in view of staff if they wish; (2) they may stay up until tired if they are afraid to enter the bedroom; (3) some children who are fearful of their own thoughts at bedtime and become agitated are permitted to watch TV in their room until sleepy" • "Medical procedures and protocols are not forced on children"
Devereux's Safe and Positive Approaches (SPA)					
SPA	Russell/ 2009	"To equip staff with the knowledge and ability to safely and effectively prevent, de-escalate, and manage crisis situations."[B]	The SPA program has three components: • Staff Effectiveness Training* • Safety Techniques Training* • Personal Emergency Interventions Training*	NR	NR
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth					
EQ2	Griffing/ 2020	To address "staffs' understanding of the effects of complex trauma on youths' social, emotional and cognitive development and functioning"[B] To build "staff's self-regulation and social-emotional skills to promote resilience, reduce burnout[D] and create a more trauma- responsive community[F]." "To create an ongoing support for staff to serve as a buffer against secondary traumatic stress."[D] To provide "skills to manage conflict that can arise in the milieu[B], to create a psychologically	• Trauma-informed knowledge • Mindfulness-based practices (e.g., attention training, focused-breathing exercises, and guided visualizations reinforcing session content)* • Practices from restorative justice (e.g., Circles)* • "skills to manage conflict that can arise in the milieu"	• "These skills are essential if staff are to create environments in which they can form and maintain nurturing and reparative relationships with youth, because self-regulation skills necessarily precede co-regulation skills" • "EQ2 encompasses several key components of a trauma-informed approach as outlined by Substance Abuse and Mental Health Services	Not described

		safer environment for staff and clients[F]"		Administration (SAMHSA, 2014), most notably: 1) building safety; 2) increasing trustworthiness and transparency amongst staff; 3) promoting peer support; 4) enhancing collaboration and mutuality; and, 5) bolstering staff empowerment, voice and choice"	
NASMHPD Six Core Strategies				•	
NASMHPD Six Core Strategies	Azeem/ 2011	To reduce "the use of seclusion and restraints with hospitalized youth"[A]	• Leadership towards organizational change* • Use of data to inform practice* • Workforce development* • Use of restraint and seclusion reduction tools • Improving consumers' role in inpatient setting* • Vigorous debriefing techniques*	• Trauma-informed and strength-based care "with a focus on primary prevention principles "	• Use of Restraint and Reduction Prevention tools: "Using primary prevention principles, a variety of tools and assessments were included in the individual treatment plans"
NASMHPD Six Core Strategies (and Building Bridges Initiative; BBI)	Azeem/ 2015 Caldwell/ 2014	"To reduce the use of restraints[A] and to provide trauma informed care"[C] [Azeem/2015] To create a culture change of the milieus being trauma informed and strength based[F] [Azeem/2015] "To prevent the conflicts that lead to violence and the use of R/S [restraints and seclusions] in residential and inpatient mental health programs"[A] [Caldwell//2014]	• Leadership toward organizational change* • Youth and family inclusion* • Workforce development* • Prevention tools • Debriefing* • Using data to inform practice*	• "The strategic plan toward those goals was built around the framework of trauma-informed and strength-based care which outlined various activities and initiatives which became embedded through leadership of line staff and milieu managers, unit clinical, and leadership teams." [Azeem/2015]	• Prevention Tools Solnit [Azeem/2015]: ○ "Families were welcomed to the hospital before arrival of a youth to tour the facility, meet staff, and familiarize themselves with the principles of care and programming… ○ The hospital clinical teams visited complex youth transferring from other facilities to begin the process of engagement and ease their transition… ○ An individualized treatment plan was developed by the youth's team using primary prevention principles…[incorporating] youth's specific interests, hobbies, coping skills, and motivators …Regular revisions to plans were made … ○ The occupational therapy consultant was utilized liberally to assess the sensory needs of youth…

					○ Youths had access to comfort rooms.... Rehabilitation services have been utilized to provide recreational activities such as music therapy, art, pottery, cooking, and swimming ... Various sports were offered… ○ Staff…worked with family members to identify strategies …for de-escalation of youth" YDI [Caldwell/2014]: ○ "YDI converted some R/S rooms into "comfort rooms." Shortly after admission, in addition to an MP3 player with music of their choice from YDI's approved music library, youth began to and still receive an individualized "comfort box" of sensory items" ○ New admissions are told from the beginning, by both staff and youth, "We do not restrain here." ○ Youth who are admitted with a history of restraints are put on a "hug program," whereby they receive, as much as they can tolerate, "YDI side-hugs" from…the supervisory and administrative staff… ○ Extremely dysregulated youth receive scheduled and individualized sensory regulation breaks during the day ○ Youth who have assaulted or been aggressive with a staff are brought into the Intervention Team (a component of the YDI debriefing process for serious incidents), comprised of one or both of the executive directors, the clinical director, the therapist, case manager, and direct care staff, including the staff member who may have been the recipient of the aggression...to resolve the conflict that has occurred and ensure planning to repair the relationship"
'Broad TIC program' based on Six Core Strategies and Risking Connections	Barnett/ 2018	"To create a broader cultural shift in the agency[F] so that the staff would understand and respond sensitively[B] to traumatized youth"	Not described	• Content/strategies derived from 6 Core Strategies and Risking Connection models	Not described**
TIC Program based on the NASMHPD Six Core Strategies	Hale/2020	"To reduce the use of crisis interventions"[A] To help staff learn new ways of being present with the patient, and creating a caring and compassionate	• Commitment of leadership team to organizational change* • Using data to inform the practice change* • Developing the workforce/staff*	• "Having a TIC program provided alternative interventions but, more important, brought a heightened level of staff self-awareness when interacting with an aggressive child.... Staff	Deescalation techniques that were a part of the seclusion and restraint reduction tools • Communicating caring with empathy in a calm manner; • Repeating simple messages as needed • Intentional use of non-threatening body language • Approaching the patient one-to-one (as opposed to multiple people hovering)

		response, and not just moving to seclusion and restraint.[B]	• Using seclusion and restraint reduction tools • Ensuring that patients/family members have input • Using a three-step debriefing process when crisis interventions are used	began to use deescalation techniques learned during education and following debriefings and were able to see that this approach was successful in maintaining the dignity and care of the child, while keeping staff safe.... A consensus of understanding developed with the staff that using crisis interventions increased a patient's risk for retraumatization; and began approaching each patient situation as if the patient, indeed, had a history of trauma, whether or not they did. This became an under-lying assumption of the TIC culture"	• Listening, and responding to the expressed needs of the patient • Setting clear limits that were simple • Therapeutic use of self: monitoring one's own body language, speaking in a low and calm voice, using eye contact, expressing a comportment of empathy Three-step debriefing process: • The first included employees involved … to get data before the end of the shift • The second took place between the patient and a staff who was identified as having the best rapport with the patient within 24 hours; The goal was to record the patient's perspectives • The final debriefing, occurred within 48 hours, included a review of video documentation of the incident, before, during and after. This was led by the Restraint/Seclusion prevention team, included the employees involved and the assigned social worker Psychological safety was assured; private support meetings would occur as needed
Neurosequential Model of Therapeutics (NMT)					
NMT	Hambrick/ 2018	To approach clinical work and problem-solving in a developmentally sensitive manner[F]	• The three major components of this approach: ○ Capacity building and mastery of core concepts* ○ An assessment process to determine (a) the timing and nature of developmental adversities and resilience-related factors, (b) current functioning in multiple domains (e.g., sensory integration, self-regulation, relational, cognitive), and (c) current relational milieu (i.e., connection to family, community, culture)	• Based on elements of "attachment, the impact of maltreatment and trauma, and emerging concepts in developmental psychology, neuroscience and traumatology"	Not described**

			○ The selection and sequencing of specific educational, therapeutic and enrichment interventions		
Patient-Focused Intervention (PFI) Model				•	
PFI	Barnum Goetz/2012	To build a culture of safety[F] To reduce/eliminate use of restraints[A] To reduce staff injuries[A]	"PFI model embraced trauma-informed care as the core intervention" Components: • Trauma-informed care principles • Aggression management*, • Code event review*, • Leadership involvement*, • Quality feedback*, • Recovery orientation, • Patient assessment, • Education* • Collaboration*	• Patient-centred, strengths-based	Not described**
Risking Connection (RC) and Restorative Approach (RA)				•	
Risking Connection (RC) and Restorative Approach (RA)	Baker/2018	To provide "a pathway towards TIC culture change"[F]	• RC and RA are curriculum-based trauma training programs, with a focus on helper well-being and managing vicarious traumatization • RC: ○ Leadership consultation* ○ Foundational trauma trainings* ○ Guidance about embedding TIC in the system* ○ Shared language • RA: ○ Emphasizes clients doing learning tasks and restorative tasks (e.g., making things right with	• RA is based on restorative justice principles	Not described**

			the harmed party) rather than receiving punitive consequences		
Risking Connection (RC) and Restorative Approach (RA)	Brown/2012	"A pathway toward TIC culture change in human service organizations including residential treatment"[F]	• RC training: * ○ "Teaches … that childhood trauma experiences derail the trajectory of development in three critical areas—attachment, brain and nervous system… symptoms are adaptations…Since trauma happens in the context of interpersonal relationships, therapeutic relationships are the primary agent of change and healing" ○ focus "on vicarious traumatization and counter- transference": • Agencies C & D: ○ Training in the Restorative Approach, a trauma-informed alternative to point and level systems*	• "Based on constructivist self-development theory (CSDT) [which draws from] attachment theory, relational psychoanalytic theory, developmental psychopathology, theory of cognitive schemas, and social learning theory"	Not described**
Sanctuary Model					
Sanctuary Model	Bloom/2003a Bloom/2003b Farragher/ 2005 McCorkle/ 2005	"To help systems move out of the rigid equilibrium …thus enabling them to develop the flexibility in leadership, decision making and therapeutic response …." [F] [Bloom/2003b] To create a trauma-sensitive culture and build the protective factors necessary for the staff and the agency as a whole [F] [Farragher/2005] "For creating or changing an organizational culture in order to more effectively provide a	• A shared base of common assumptions created in a "culture of participation and citizenship" • SELF model: Safety, Emotions, Loss, Future ○ "Treatment plans, planning conferences, lifespace interviews and therapy sessions all construct dialogue using the language of SELF." [Farragher/2005] • Community meetings • 5 components [Farragher/2005]*: ○ Integration	The Model is informed by four basic pillars of knowledge: • the psychobiology of trauma; • the active creation of nonviolent environments; • principles of social learning; and an understanding of the ways in which complex adaptive systems grow, change, and alter their course • "A trauma sensitive culture is one in which	• Community meetings: Twice daily with staff and residents; "if there is an 'incident' on one of our units it is our practice to call the whole community together to address what we could have done and will do in the future to prevent collective disturbances of disrespect, physical aggression, personal property respect, and sexual boundary issues" [McCorkle/2005] • Safety plans: "The child receives assistance writing this plan with her social worker and primary milieu counsellor, and is encouraged to call upon all safe adults in the Sanctuary community for support" [McCorkle/2005]

		cohesive, more democratic context within which healing from psychological and social traumatic experience can be addressed"[F] [McCorkle/2005]	○ Understanding trauma ○ Avoiding reenactment ○ Fighting rigidity ○ Embracing non-violence. • Staff knowledge of residents' history[McCorkle/ 2005] • Safety plans [McCorkle/2005]	all members feel physically, psychologically, socially, and morally safe; where members of the community manage their emotions appropriately; acknowledge and deal with loss and grief; and focus on creating a positive future. In the Sanctuary Model, this concept is expressed through the acronym SELF" [Farragher/2005] • "Key values include: a communal atmosphere, group meetings, a belief in the therapeutic role of everyone, participatory democracy, shared authority and responsibility" [McCorkle/ 2005]	
Sanctuary Model	Clarke/2012 Leigh-Smith/2014	"To teach the individual within a group context the necessary skills for creating and sustaining non-violent lives"[E] [Clarke/2012] To "support healing from trauma, and bring about organisational change"[F] [Leigh-Smith/2014] "To create a therapeutic milieu that promotes safety for the entire community, including all levels of the organisation"[F] [Leigh-Smith/2014] "The Sanctuary Model provides tools to help carers and staff	• Theoretic Foundation • Sanctuary Norms (7 Commitments, SELF) • Sanctuary Tools (Self-care plans, care planning, red flag meetings, community meetings, safety plans, psychoeducational groupwork, self-care plans, team meetings*) • "Pathways have also included Dr Dan Hughes' PACE (Playfulness, Acceptance, Curiosity and Empathy) [model]"[Leigh-Smith/2014]	• Trauma Theory • Social Learning Theory • Non violent practice • Complexity Theory • "Concepts such as traumatic re-enactment, parallel process, collective disturbance and vicarious trauma, facilitate an understanding of how trauma can manifest in all areas of the out-of-	• Community Meeting: The community meetings are used daily…involve asking three questions of each other: ○ How are your feeling? ○ What is your goal for today? ○ Who are you going to ask for help? ○ "Pathways staff have implemented the community meeting with their foster carers and families…Staff have also used community meetings on commencement of departmental meetings" [Leigh-Smith/2014] • Safety Plans: "not only used for children and young people but also for the staff and foster carers" [Clarke/2012]; "The plan is worn at all times and is also known by others around the individual, therefore allowing others to assist with de-escalation by

		manage their emotions"[D] [Leigh-Smith/2014] "To assist in mitigating the impact of stressors associated with trauma, as well as a means for creating safety within this environment"[F] [Leigh-Smith/2014]		home care community" [Leigh-Smith/2014]	prompting the individual to use the strategies within the plan." [Clarke/2012]; "Pathways staff are expected and encouraged to wear their safety plans at all times. Safety plans are a set of five instructions to help de-escalate the user and maintain safety" [Leigh-Smith/2014] • Self-care plans: "All staff are encouraged to have a self-care plan…Staff also help their carers to create self-care plans" [Leigh-Smith/2014]
Sanctuary Model	Esaki/2014	"To more effectively provide a cohesive context within which healing from physical, psychological, and social traumatic experience can be addressed"[F] "As an organizational culture intervention, the Sanctuary Model is designed to facilitate the development of structures, processes, and behaviors on the part of staff, clients, and the community as a whole that can counteract the biological, affective, cognitive, social, and existential wounds suffered by the victims of traumatic experience and extended exposure to adversity"[F]	• Trauma Theory • 7 Sanctuary Commitments (nonviolence, emotional intelligence, democracy, open communication, social responsibility, commitment to social learning, and growth and change) • SELF acronym (safety, emotion management, loss, and future, is used to formulate plans for client services or treatment as well as for interpersonal and organizational problem solving • Sanctuary Toolkit (10 practical applications of trauma theory, the Seven Commitments, and S.E.L.F)	Not described	Not described**
Sanctuary Model	Rivard/2003 Rivard/2004a Rivard/2004b	"To teach youths effective adaptation and coping skills to replace nonadaptive cognitive, social, and behavioral strategies that may have emerged earlier as means of coping with traumatic life experiences"[E] [Rivard/2003] To "address maladaptive behaviors and functioning that may have developed in response to repeated traumatic experiences"[C] [Rivard/2003]	• The SAGE Recovery Framework (aka SELF): Safety (including physical, psychological, social and moral), Affect modulation, Grieving, Empowerment • Therapeutic community & Community Meetings • Psychoeducation Program [group and milieu]	• "The intervention … is based in social psychiatry, trauma theories, therapeutic community philosophy, and cognitive-behavioral approaches… incorporates knowledge of the developmental needs of youth."[Rivard /2003] • "The Sanctuary Model rests upon the basic premise that the	• "The SAGE recovery framework is integrated into the primary therapeutic modalities of the Sanctuary Model, which include the therapeutic community itself, community meetings, and psychoeducation exercises and groups." [Rivard/2003] • Community meetings occur twice daily; "A protocol is followed in which all community members share feelings, state their goals for the day, ask for specific help from other members in achieving their goals, share successes at the end of the day, and discuss ways to solve community problems." [Rivard/2003] • 12 session Psychoeducation Group curriculum: "New skills learned in the psychoeducation groups are practiced and reinforced in everyday activities on the

		"The intervention is aimed at both strengthening the therapeutic community environment[F] and at empowering youths to influence their own lives and communities in positive ways[E]" [Rivard/2004b] "To address the special treatment needs of youth with emotional and behavioral disturbances and histories of maltreatment or exposure to domestic and community violence"[C] [Rivard/2004a]		therapeutic environment is a critical determinant in facilitating the recovery process." [Rivard/2003] • "A fundamental premise of the intervention is that the treatment environment is a core modality for modeling healthy relationships among interdependent community members." [Rivard/2004b]	unit, and to prepare for home and community passes." [Rivard/2003] Group supplemental activities can be used in unit daily programming and staff interactions with you [Rivard/2004a, Rivard/2004b]
Sanctuary Model	Rivard/2005	"The intervention is aimed both at strengthening the therapeutic community environment[F] and at empowering youths to influence their own lives and communities in positive ways[E]" "To specifically address the needs of children and youth that have experienced and often reexperienced the trauma of maltreatment and community violence[C]"	• Milieu adaptations • Trauma Recovery Framework (SELF: Safety, Emotional management, Loss, Future) • Psychoeducation curriculum for youth	• "The Sanctuary Model integrates an enhanced therapeutic community philosophy (Bloom, 1997), trauma theories (Bloom, 1997), and Friedrich's (1996) recommended child treatment strategies that address post-traumatic symptoms, developmental disruptions, and unhealthy accommodations to traumatic experiences" • "A fundamental premise of the Sanctuary Model is that the treatment environment is a core modality for modeling healthy relationships among interdependent community members"	• "The Sanctuary Model is operationalized through… twice-daily community meetings, a range of pyschoeducation exercises that staff use in their daily interactions with youth, and weekly psychoeducation groups to teach knowledge and skills needed"
Sensory Integration Initiatives					
Trauma-Informed care (TIC) and Ayres	Denision/ 2018	NR	• In service training*	• "The program was based on best practice,	Not described**

Sensory Integration Training				the principles described by Malcolm Knowles' adult learning theory. the TIC model, and Ayres Sensory Integration theory."	
Massachusetts State R/S Prevention Initiative: Integrating Sensory and Trauma-Informed Interventions	Lebel /2004 Lebel/2010	"To reduce the use of restraint and seclusion with children and adolescents in psychiatric inpatient units"[A] [Lebel/2004] "To foster feelings of safety and support development and engagement in meaningful life roles, routines, and activities"[E][Lebel/2010] "To provide a more nurturing, healing, and trauma-informed culture of care"[F][Lebel/2010]	Key components include [Lebel/2010]: • Assessing, exploring sensory tendencies and preferences • Creating sensory diets (individual and programmatic) • Using sensorimotor activities and modalities • Modifying the physical environment • Educating caregivers • Use of the safety tool [Lebel/2004]	"This approach addressed: • "Primary prevention: establishing collaborative, trauma-sensitive, child-friendly, strength-based models of care that rest on focal problem-solving, stress skill development, and de-emphasize deficits and pathology • Secondary prevention: using early intervention techniques that underscore proactive de-escalation and least restrictive developmentally responsive alternatives tailored to the individual • Tertiary prevention: preventing or reversing negative consequences through the use of anticipatory planning… supporting the earliest possible release from restraint, debriefing of staff, and using patient comment forms, all of which minimize the possibility of harm and encourage prevention" [Lebel/2004] • "Key to the state's work was the infusion of sensory approaches	• Safety tool: "Using the tool, a patient, family member (as appropriate), and staff person collaboratively develop a plan, on admission, that identifies preferred strategies for de-escalation and avoidance of R/S, and restraint preferences to consider if restraint becomes necessary.. Programs have adapted the Safety Tool to meet the developmental • needs of children and adolescents." [Lebel/2004] • Sensory integration: Not described.**

				informed by occupational therapy and the allied health disciplines of nursing, recreational therapy, art therapy, and music therapy" [Lebel/2010]	
Sensory Modulation and Trauma-Informed-Care	McEvedy/ 2017	"To transfer knowledge of SM and TIC to mental health nurses and allied health professionals …. [and] for staff to translate newly acquired knowledge into practice by adopting SM and TIC strategies[B], with a view to these becoming embedded as part of routine care in mental health service delivery[C]" To reduce the use of restrictive interventions[A]	• Sensory modulation (SM) • Trauma-informed-care (TIC)	• SM: "providing consumers with access to a range of sensory modalities suitable for their particular sensory needs, to help them to self-regulate their states of emotional arousal." • TIC "A framework which acknowledges the impact of physical, psychological and sexual trauma on a person's mental health and strives to avoid any further trauma that may be caused in the delivery of mental health care"	• SM: Many services established sensory rooms and equipment • TIC: Not described
Sensory Room/Occupational Therapy (OT) Consultation/Sensory Motor Arousal Regulation Treatment (SMART)	Warner/2013	To treat affect and behavioral dysregulation[C] Cohannet Academy: "To help develop safe and effective strategies[C] for residents to manage and regulate physiological and emotional experiences" OTA-GLC: "To address sensory modulation difficulties for their students"[C] "The aim of the GLC program is to better understand the needs of these students, and to develop a direct care, sensory integration-based model for the students who are most in need of support"[C]	• Cohannet Academy: o Overarching ARC framework o Individualized sensory diet o Sensory Room: The "Getaway" o The "Comfort Zone" • OTA Watertown: o On site occupational therapy consultation o Structural changes to unit o Direct Occupational therapy intervention and referrals with Ayres Sensory Integration	• "Sensory Integration, a specialization within occupational therapy provides knowledge of the sensory motor systems and strategies for sensory modulation that addresses arousal regulation, which underlies this dysregulation."	Cohannet Academy: • "These tools are utilized on a voluntary basis by residents, and are available at most times of their day." • Sensory diets: "staff began working with each resident individually to develop her own "sensory diet"…the purchase of "sensory tool boxes" for each resident to have in her room to access when dysregulated…This process starts at the pre-admission meeting…to find what is currently helpful. Some of the items are immediately purchased so on the day of admission they are available" • The "Getaway" "space was used for group therapies, and individual and family sessions" • "Comfort Zone": "Staff regularly sit with a resident and practice up and down regulation strategies… as a means to rehearse and utilize sensory interventions. There are other times the staff find residents need more outlets for managing energy… For some of

	SMART: "To add power to a trauma psychotherapy by more effectively addressing the problems of affect and behavioral dysregulation which disrupt the daily lives of these traumatized children and adolescents and challenge their caregivers aand psychotherapists.""	• OTA: Gifford
		  ○ OT room for use with multidisciplinary staff
		
		• OTA:GLC
		  • Sensory comfort zones
		  • Appropriate, sensory-modulating activities
		  • Referral to OT
		  • Sensory Motor Arousal Regulation Treatment (SMART)
		  • The SMART Therapy room
			these occasions, residents will wear ankle and wrist weights and skateboard or rollerblade up and down the hallways"
			
			OTA Watertown-Brandon
			• "When students require spaces for regulation …quiet rooms are available …The quiet rooms are provided with mats for the floors… bean bag chairs, manipulative tactile and proprioceptive materials, and a chinup bar for older students… The Brandon students helped choose the wall colors of sand and blue to simulate a "calm beach" scene. The OT works with… staff to help in the selection of … activities and environments, and to make changes as student needs change"
			• "The occupational therapists provide one-to-one and small group sessions in the OT room, as well as consultation during activities of daily living …. The OT room is 14' by 20' and is equipped with both suspended swings as well as non-suspended equipment to address sensory integration issues"
			
			OTA: Gifford
			• "The OT room was outfitted as a sensory motor area, with equipment provided for motor exploration and regulation of arousal…The room included equipment to address the body senses such as weighted blankets, Bosu balls for jumping and balancing, multiple crash cushions, large truck tire inner tubes for stacking to create both hide-aways and targets for jumping into, accordion mats for creating private spaces and for receiving whole body self-directed 'squeezes'"
			• "Following training by the OT… staff began to take children for "sensory break" times in the OT room during which students selected (often with assistance) materials and activities to help them regain or retain an arousal state that would allow them to participate in … aspects of the school day... Psychotherapists also began using the room…for conducting psychotherapy sessions"
			
			OTA:GLC
			• "GLC has referred students…to OTA-Watertown for in depth sensory integration-based OT evaluations …

					and then addressed through on-site OT consultation and/or off-site direct OT intervention at OTA-Watertown" SMART: • "The outpatient clinic room is approximately 14' by 17' wide, allowing sufficient space for motor exploration. A gym mat was installed on the floor and movable 3' × 5' gym mats were utilized for safety, protection against the walls, and construction of smaller spaces for children to go into. Simple equipment, commonly found in gyms and play spaces, such as physioballs, a mini-trampoline, a low balance beam, a balance board, a tunnel, stepping stones, and blankets, as well as equipment commonly found in sensory integration based OT rooms such as large crash pillows filled with chunks of foam, a "walrus" air pillow, pieces of spandex and spandex body socks, a sensory shaker (bag of balls to climb inside) and 10 and 20 pound weighted blankets were included in the room… Adaptations of the space to meet adolescent needs are ongoing…importantly, a videotaping system was installed so that sessions could be taped for therapist training and supervision, parent guidance, SMART team learning, and model development" • "All of the equipment in the SMART rooms is available for engagement" • "With the therapist's support, the adolescents explore [the room] In some cases, they use the equipment and the movement afforded as an avenue and support to talk to the therapist about their daily lives as well as their traumatic experiences…In other instances, the equipment offers a non-verbal way to address difficult interpersonal dynamics"
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)					
SPARCS	Habib/2013	"To address the needs of adolescents who have witnessed, or	• SPARCS curriculum (16 session, manually-guided	• Based on complex trauma treatment principles and is	• Groups: approximately 1 hour in length, over 16-20 weeks

		directly experienced, repeated or multiple forms of violence"[C] "Targets the emotional, social, and behavioral difficulties resulting from multiple exposures to violence" "To help adolescents find the wisdom in their responses, support skills they already possess, and foster new ways of coping"[E]	group intervention), with core skills based on the 4 Cs: ○ Cultivating Awareness (of Self and Other) ○ Coping Effectively ○ Connecting with Others ○ Creating Meaning • The "other 23 hours": a milieu-based approach	grounded the following evidence-based interventions: ○ Dialectical Behavior Therapy for Adolescents ○ TARGET ○ Trauma and Grief Component Therapy for Adolescents • Developmentally-sensitive, strengths-based, and present-focused	
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)					
TARGET and environmental modifications	Marrow/ 2012	To improve youth management and treatment outcomes[E] To reduce youth post traumatic stress symptoms[E], youth threats toward staff, and seclusion and restraint rates[A] To provide training for staff on childhood traumatic stress[B] To help staff problem solve effective ways to intervene with youth[B] To enhance the unit environment by decreasing noise and providing safe places to practice skills[F]	• 1- General trauma training for staff* • 2- TARGET (a 10-session manualized treatment and prevention intervention for traumatized adolescents and adults). TARGET is comprised of three main therapeutic components: ○ Education ○ Teaching and guided practice of the FREEDOM skills ○ An experiential exercise where the client makes a timeline of their life • 3-Environmental modifications*	• "TARGET is designed to maximize a person's awareness of the present moment, thereby reducing mental health symptoms commonly associated with trauma, such as rumination, panic, or dissociation"	• TARGET: 10 session manualized treatment, reinforced in 24/7 milieu environment • FREEDOM skills are integrated in the 24/7 milieu
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)					
TI-PRT	Boel-Studt/2017	To create a supportive, therapeutic environment[F]	TI-PRT Enhancements (to traditional PRT) •Trauma-focused individual therapy—EMDR or TF-CBT	• The trauma recovery curriculum is based on a combination of trauma treatments.	• Youth participate in a trauma recovery group-based curriculum 2 times per week. The groups are led by staff who are trained in the curriculum and are

		To achieve greater reductions in youth's functional impairment[E] To reduce restraints and seclusion[A] To discharge youth in fewer months To increase discharges to community-based placements[E]	•Trauma orientation/ongoing training •Safety planning/ documentation •Mission/shadow mission •Daily member (client/staff) check-ins •Family/caregiver education •Trauma recovery group-based curriculum	• The youth are consistently exposed to prosocial and adaptive processes versus power and control	comprised of approximately 8–10 youth matched by age • Member check-ins occur daily
Trauma-Systems Therapy (TST)					
Trauma Systems Therapy (TST)	Brown/2013 Murphy/ 2017 Redd/2017	"Provides both an organizing framework for identifying and coordinating the different service elements[C] [in working with children with traumatic stress], as well as a clinical model that describes exactly what providers do[B]…" [Brown/2013] "KVC selected TST with a goal of increasing child well-being, placement stability, and timeliness of permanency[E] by implementing the approach with fidelity in all KVC service systems" [Redd/2017]	• "Dual emphasis on the emotional/behavioral functioning of the youth and the impact of the social environment" [Brown/2013] 1. Accurate Assessment: "Repeatedly assessing children's emotional and behavioral regulation capacity and the functioning of children's social environment" (including caregiver involvement and environment) [Murphy/2017]. "Moment by moment assessments" [Brown/2013] 2. Treatment (what providers do) 3. Organizational model for identifying and coordinating different service elements 4. Adaptations of TST to Residential Settings: • A common language of care • A focus on the social environment of the milieu (as well as caregivers – Ready Set Go module)	• "The primary clinical innovation that encapsulates TST is the concept of the trauma system": ○ "A traumatized child who has difficulty regulating emotional states" ○ "A social environment or system of care that is not able to help the child regulate these emotional states" • "TST recognizes trauma as a barrier to children's self-regulation that needs to be addressed before children can recognize and deal with trauma through cognitive behavioral therapy and other treatments. It assumes that the "triggers" in children's environments causing "fight, flight or freeze" behaviors must be reduced or neutralized to foster a feeling of safety in	• Each service is provided by separate clinicians who serve on a multi-specialty TST team • Assessment: at intake and repeated frequently

			• A vehicle to integrate care across staff and team members • Involving/training* the child's community care team (therapists, case managers, foster and birth parents) [Redd/2017]	children, which then permits them to recognize and deal with their trauma." [Redd/2017]	
Uncategorized TIC Programs					
Gender-Specific and Trauma-Informed Training Curriculum	Crable/2013	"To increase awareness of best practice interventions; improve understanding of components of trauma-informed care; improve engagement skills with youth; improve emotional and physical boundaries with youth; improve understanding of cycle of sexual retraumatization"[B]	• Training curriculum consisting of eight modules: * ○ In depth look at what is trauma ○ Risk and protective factors ○ Review of trauma-informed interventions ○ Overview of trauma reactions ○ Signs and symptoms of trauma ○ Tools for engaging and helping traumatized youth ○ How empowerment is instrumental to healing ○ Tips for creating therapeutic milieus	• "Without adequate training counselors will not be prepared to understand the family dynamics of sexual abuse and most importantly how to identify victims of childhood sexual abuse"	Not described**
Trauma-Informed Approach (TIA)	Craig/2018	To "minimize the chance for everyday operations to traumatize or re-traumatize that client during service delivery" "To reduce or eliminate restraint and seclusion"[A]	• Response blocking • Knowledge of behavioural intent and client needs • Creative solutions as alternatives to restraint and seclusion	• "TIA is a multilevel approach to treatment that begins with physical and emotional safety provided by an adult caregiver …With the presentation of a safe environment, children will be open to altering behavior, considering new ideas, and accepting help instead of worrying about their survival"	• Treatment planning assessment performed by newly formed treatment team

Trauma-Informed Care (TIC) Program	Jacobowitz/ 2015	NR	NR	NR	Not described**
Trauma-Informed Child Welfare Service (CWS)/ The Connecticut Collaborative on Effective Practices for Trauma (CONCEPT)	Lang/2013	"The broad goal of CONCEPT is to create a more trauma informed CWS that integrates research and best practices on childhood trauma and ultimately results in improved identification, case planning, and service delivery for children and families"[C] "The long-term goal of CONCEPT is to implement trauma screening for all children receiving in- home or out-of-home CPS and to embed screening data into the Statewide Automated Child Welfare Information System (SACWIS)"[C]	• Trauma screening • Availability of EBP treatments • Trauma-informed policy and practice guide revisions* (including considerations for assessing and supporting caregivers)	• "Screening children for PTEs [potentially traumatic events] and traumatic stress reactions is a key component of trauma-informed care and is the primary strategy…for ''recognizing'' children suffering from trauma"	Not described
Trauma-Informed Care (TIC) Training Program	Williams/ 2017	"To enable the adoption of trauma informed approaches throughout public mental health and alcohol and other drug services in Western Australia"[C]	• Training program*	NR	Not described**

*We (the review authors) perceived these components as implementation strategies
**See Table S2 for summary of implementation strategies

AIMS Footnotes Legend:

AIMS Category legend	Number of interventions (N=21)
A To reduce use of restraints/seclusions/incidence of critical events	7
B To change staff attitudes, practices	11
C To increase/change available assessments and treatments/ coordinate care	10
D To support staff wellness/increase staff self-capacities	4
E To increase patient capacity/improving patient outcomes	8
F To change culture	12

Supplemental Table 2.2

Implementation Strategies Grouped by TIC Intervention (n=21)

See Supplemental Table 2.3 for the legend of the ERIC Categories and Table 2.4 for the legend of the Implementation Goal Categories

Intervention Name	Author/Year	Implementation Strategies[ERIC Categories]	Stated Goals of Implementation Strategies[Goal Categories]
Attachment, Self-regulation, and Competency (ARC)			
Project Penguin informed by Attachment, Regulation and Competency (ARC) and Positive Behavioural Interventions and Supports (PBIS)	Brend/2020	a) Multiple innovators converged to create Program Penguin[24,52,65] b) Awareness training, additional training days[15] c) On-site coaching[55], case studies[15], clinical supervision[53], implementation committees[48,65] d) Supplementary training and support activities for leaders[15] e) Calming rooms[11] f) Development of on-site expertise[57] g) Adapting interventions to each site[41b,51] h) Multi-site exchanges[7] i) Using data to inform decision making[27,32,46b] j) Social Innovation approach, scaling up the innovation[41b,61]	a) To pool efforts to improve the lived reality and outcomes for children in residential treatment centres[7] b) To increase staff understanding of complex trauma[1] c) NR d) "To transfer the knowledge base from the implementation team to key individuals within each site"[1] e) NR f) "To transfer knowledge from the implementation team to the residential treatment centres making the program more independently sustainable"[1,8] g) To ensure the interventions were relevant to local needs while maintaining efficacy[7] h) "To allow settings to learn from each other about effective strategies and problems encountered throughout the province"[1,7] i) "Both to document implementation, and to assess intervention effects"[7] j) "To achieve lasting transformation through methods that include people with lived experience of the challenge being addressed and allows for the process of change to be scaled up to respond to the breadth of the social problem of concern"[8]
Building Communities of Care (BCC)	Forrest/2018	a) Needs assessment[18,64] b) Model workgroup[64] c) Train the trainer training[15,22,65,71] d) Constant presence of highly qualified trainers[27] e) Trainer meetings[55] f) Recertification[19]	a) "To assess the degree to which our residential schools, group homes and treatment centers were trauma-informed"[7] b) "To develop an evidence-informed care model that integrated trauma-informed principles and behavior management into an organizational framework"[7] c)NR d)To ensure fidelity[7] e) To monitor application of the model[7] f) NR
ARC; Grow Strong/Stepping Stones	Hodgdon/2013	a) Funding from SAMHSA to adapt and implement the ARC framework in residential settings[1] b) Trauma-informed needs assessment[4,18,41ab] c) Implementation teams: "Trauma teams"[48,65] d) Training program staff[15,43,55,65]	a) "To adapt and implement the ARC framework…"[3,7] b) "To identify specific residential programs that demonstrated interest in and commitment to implementing trauma-informed programming"[7] "assessing needs from the perspective of clients, families (when possible), and program staff"[5,6,7] c) To develop and carry out "interventions that specifically targeted building a trauma-informed milieu"[3,7]

		e) Implementing milieu behavioral enhancement initiatives[27,29,31,32,33,41b,,58] f) Implementation of individual and group treatment[15,27,29,31,55,,65] g) Evaluating outcomes[27,67] h) Sustaining trauma informed services: i) trauma team leadership and focus[48,57]; ii) policy and procedure modifications[74]; iii) orientation and ongoing training (including train the trainer)[19,71] and iv) on-going evaluation[27]	d) "To address educational needs as well as the need for all program staff to utilize a shared lens to understand client presentations and to select appropriate intervention strategies."[1,3]"To increase [staff] attunement"[3] e) To increase "caregiver affect management skills"[3] and to decrease "vicarious trauma"[9] ; "To build a culture that accepted discussion about caregivers' emotional responses to clients."[8]"To increase consistent responses to problematic risk behaviors as well as positive behaviors"[3] f) To sustain the program[8] g) NR h) i) To sustain the program[8]; ii) "To incorporate both the acknowledgement of the impact of trauma on their clients and the importance of providing trauma-focused treatment."[4] iii) "To ensure that the trauma training occurs for both new staff members and on an ongoing basis"[8]
Trauma-Informed Care (TIC) Training informed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and Attachment, Regulation, Competency (ARC)	Matte-Landry/2021	a) Training development[17,18,29,63] b) Phase 1: Initial training[15,43,44] c) Phase 2: Coaching and supervision sessions[19,55] d) Phase 3: Communities of practice, annual symposium, meetings with senior managers[7,15,41b,48,52,56]	a) Training developed with stakeholders: "in order to ensure the acceptability, appropriateness, and feasibility of the proposed training"[7] b) Training: "included teaching modules on SAMHSA principles and intervention targets from the ARC"[1] "This part of the training thus targeted the workers' skills and the units' policies and intervention plans"[3,4] c) To complete case vignettes and create action plans[7]; To allow "for in-depth discussions of alternatives of restrictive measures"[1] d) Communities of practice: "Devoted to sharing experiences and resources and discuss global advancements in TIC knowledge, practices and policies"[1,7] ; Yearly symposium: where renowned researchers presented information on TIC[1]; Regular meetings with upper management: "to address adoption and sustainability issues, such as high staff turnover"[7]
Child Adult Relationship Enhancement (CARE)			
Child Adult Relationship Enhancement (CARE)	Gurwitch/2016	a) CARE training[15,31,33,41b,43,45] b) Delaware Initiative: Funding[1] c) Delaware Initiative: Training[15,31,55,65,71]	a) "…are then taught the first components of CARE… to connect and engage with them [the child]"[1,3] b) NR c) Train the trainer: ""to teach the CARE model"[1,7]
Children and Residential Experiences (CARE)			
Children and Residential Experiences (CARE)	Izzo/2016	a) Training and on-site consultation[15,19,55,65,71] b) Local implementation determined by agency leaders and staff using creativity and professional judgment[51,63] c) CARE Implementation Team (IT)[35,48]	a) Train the trainer: "agency-based trainers are prepared to deliver the same 5-day training to remaining staff"[1;] Consultation: "supporting and facilitating day-to-day application of the principles in both childcare and staff management arenas"[3] b) "Cultivates personal investment and ownership and serves to reduce the sense of being constrained or controlled that is often elicited by more directive program models"[6] c) "Its role involves providing support, modeling, and mentoring to staff as they incorporate CARE principles into their work. The team also builds structures and

			processes that facilitate application of the CARE principles and their eventual integration into the agency culture"[3,8]
Collaborative Problem Solving (CPS)			
CPS	Greene/2006 Martin/2008	a) Staff-wide training[15,31,65] b) Supervision sessions[48,53] c) Updating documentation systems[12] d)Data collection[27,77] e) Inclusion of family and caregivers in treatment[15,50]	a) Schedule of training: To maximize exposure to the model for all staff members[1] b) NR c) "to maintain the CPS model incorporated into the unit's clinical practices after the active implementation phase was over"[8] [Martin/2008] d) NR e) Family education: "to teach the basic elements of the model"[1] [Martin/2008]
CPS	Pollastri/2015	Pre-implementation: a) Identifying the need and implementation planning[15,40,44] Active implementation: b) Training (Intro, Tier 1, Tier 2, brief for admin and support staff)[15,65] c) Phone/video coaching and supervision[53,55] d) Certification for internal staff to provide training[71] e) Reviews of restrictive interventions[32] f) Language adjusted in clinical case presentations and clinical documentation[74] Maintenance: g) Ongoing training provided mostly by internal trainers[2,19,22,59,71] h) Internal coaching provided by most highly trained staff.[19] i) Monthly maintenance coaching[55] j) Leaders talked with staff and managers[33,56] k) Funding from community trainings[1]	a) To identify an approach that would provide adequate "guidance in how to respond in trauma-informed ways to situations in which youth were not meeting adult expectations"[1] b) NR c) Tier 2 Supervision: "to discuss integrating the model into clinical programming and documentation"[3,7] d) NR e) NR f) NR g) NR h) NR i) "To address challenges with CPS fidelity at the provider or organizational level"[7] j) To inform and support implementation[7] k) NR
Child and Family Centered Care (CFCC): CPS, Open Hours, and Trauma-Sensitive Protocols	Regan/2010 Regan/2017	a) Trainings and supervision[15,53] b) Focus groups with youth and consensus with staff[17,41b,46a] c) Code of ethics poster[58] d) Staffing switches upon request[41b,74]	a) Training: To disseminate information "to staff regarding the dangers involved in physical restraints of children and adults"[1][Regan/2010] b) NR c) NR d) NR
Devereux's Safe and Positive Approaches (SPA)			

SPA	Russell/2009	a) Training and supervisory training[15]	a) To provide "strategies of preventing and limiting crisis situations, methods of intervention using a non-physical approach"[1]; To present "safe and effective physical intervention techniques"[1,3]
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth			
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth	Griffing/2020	a) Planning meeting prior to implementation[4,23] b) The "Circle" sessions[15,31,41b,43,48,51] c) Circle booster sessions[19] d) Weekly follow up contacts[46b,56,63] e) "Checklists tracking completed components within each session"[27] f) "An application (app)"[58] g) An online e-learning program using a train-the trainer model, in development[29,43,71] h) Tracking of recruitment and retention rates and weekly attendance[27,56] i) Follow-up interviews with program directors[56] j) EQ2 Survey[46b,56]	a) "To: i) determine the most effective way to introduce EQ2 to program staff; ii) discuss the optional program evaluation component; iii) review programmatic needs and potential implementation barriers; and iv) plan logistics, with attention to the challenges in delivering services in residential programs that require continuous staff supervision"[7] b) To strengthen "community engagement and collaboratively identifying nonpunitive approaches to managing challenging behaviors."[1.6] "To promote staff voice through the sharing of personal experiences, which normalizes the stressors inherent in direct-care work."[2,6] c) "To help reinforce the concepts and skills presented during core EQ2 groups"[1,3] d) "To obtain feedback and address any logistical and/or clinical issues."[7] "To discuss possible adaptations over the course of the intervention"[7] e) "To increase implementation fidelity across sites" (of the Circle sessions)[7] f) "To reinforce the use of these self-regulation and mindfulness skills"[3] g) NR h) To assess "feasibility"[7] i) To assess "feasibility"[7] j) To assess "acceptability and efficacy" of the intervention[7]
NASMHPD Six Core Strategies			
NASMHPD Six Core Strategies	Azeem/2011	a) Leadership towards organizational change[2,15,19,23,27,40,44,48] b) Use of data to inform practice[5,27,32,33] c) Workforce development[15,19,58,59] d) Use of restraint and seclusion reduction tools[15,32] e) Improve consumer's role[41ab,46ab,50] f) Debriefing techniques[27,32,33,41ab]	a) To bring "major culture change"[8], "to explain and inform staff"[1], "to look at the progress and to implement various strategies [Trauma Reduction Team]"[7] b) "Clinical reviews were conducted… to look at various reasons for seclusions and restraints and what can be done in the future to prevent them"[7] c)To create a "treatment environment that was based on Trauma Informed Care, facilitates recovery, and was inclusive"[8] d) NR e) NR f) To identify "what went wrong, what could have been done differently, and how to avoid similar incidents in the future."[7]; To implement "Interventions to mitigate the impact of traumatization and re-traumatization"[3]
NASMHPD Six Core Strategies (and	Azeem/2015 Caldwell/2014	a) Leadership toward organizational change [Solnit][8, 39b,40,44,74] [YDI][40,44] [MBA][40,44]	a) [Solnit:Azeem/2015]: "to assist in operationalizing the tenets of optimal care, and for the provision of support and consultation for complex situations"[3]; [Solnit:Caldwell/2014]"to eliminate mechanical restraints"[3];

Building Bridges Initiative; BBI)		b) Youth, family, and advocate involvement [Solnit][2,13,41ab,46a,50,64][YDI][19,41ab,43,64] c)Workforce development/Staff involvement [Solnit][6,15,19,21,33,41ab,43,46b,55,72] [YDI][15,53] [MPA][6,15,41b,44,48] d)Prevention tools [Solnit][13,33,35,41ab,51,54,74] [YDI :Caldwell][11,41ab,44,58] e) Debriefing [Solnit:Azeem/Caldwell][33,39ab,41ab,46a,74] f) Using data to inform practice [Solnit][5,27,32,33,39b] [MPA:Caldwell][27,46a,57] g) Environmental modifications: The healing bench [Solnit:Azeem, Caldwell][11,58]	[YDI; MPA]: NR b) [Solnit:Azeem/2015]: "To build closer [family] relationships with staff at the hospital"[5]; "To identify areas of service and care in need of improvement"[7]; [Solnit:Caldwell/2014]:"To implement Solnit's mission statement (i.e., "Caring, Healing and Teaching—Partnering with Children, Families and Communities to Build Hope and Create Opportunities)"[3]; "to involve both youth and families to better direct individualized care and service provision"[5] [YDI:Caldwell/2014]: "To develop a Student Advisory Board"[5] c) [Solnit:Azeem/2015] "To keep focus on the health of staff a priority"[6] [Solnit:Caldwell/2014] To "shift towards a treatment culture change"[8] Staff surveys: "Staff surveys were used to monitor staff satisfaction and training needs"[7] [YDI:Caldwell/2014] "To support (a) the integration of new skills into staff's work with youths and (b) staff's ability to teach the same skills to families."[3] [MPA:Caldwell/2014]: Weekly meetings: "to address and eliminate any barriers that may impact success in making agency goals and values a reality."[7] "To getting all staff to join together to become educated on the new principles and practices"[1,3] d) [Solnit: Azeem] "To intervene and support youth with unsafe behaviours"[3] "To begin the process of engagement and ease their transition into the hospital program"[3,5] "Staff have worked with family members to identify strategies [and recreational activities] that work for de-escalation of youth"[3,5] [YDI:Caldwell/2014] To eliminate the use of restraint[3] e) [Solnit:Azeem]: To prevent future restraint episodes[3] [YDI:Caldwell/2014]: The goal of this [debriefing] approach is to resolve the conflict that has occurred and ensure planning to repair the relationship[3] f) [Solnit:Azeem/2015]:To build strategies to pre-empt future occurrences of restraints[3,7] [Solnit: Caldwell/2014]: NR [MPA:Caldwell/2014]:"To help inform needed improvements"[7] g) [Solnit:Caldwell/2014]: To remind staff, children, and families of the work that has been done to reduce restraint use[1]
'Broad TIC program' based on Six Core Strategies and Risking Connection (RC)	Barnett/2018	a) Administration Buy-in and Planning[15,17,24,40,41a,65] b) Initial needs assessment[4,18,41b] c) Trauma trainings and sustainment[15,16,19,53,55,57,71] d) Internal sustainment of the program (incentives)[2]	a) "To speak with the leadership board and board of directors about trauma and TIC as it applied to their programs"[1] ;"To obtain leadership board interest in and approval of the project"[7] b) "To understand the needs of the facility and assist in planning the intervention program"[1,7] c) Train the Trainer Model: "To sustain the activities"[1,8] d) "As an incentive for staff to participate in the program"[3]
TIC Program based on the NASMHPD Six Core Strategies	Hale/2020	a) Leadership commitment to organizational change[21,27,35,40,41ab,44,48,77] b) Workforce development: Staff education[15], all-star program[2], and debriefings[33,41ab,46a,74] c) Administrative updates: policies[44,] job descriptions[59], employee award[2], patient documentation[12]	a) To review "data and effectiveness of interventions as they rolled out" [the Restraint and Seclusion Performance Improvement Team][7] b) To educate in the TIC philosophy and expected outcomes[1,] Debriefings: "As a learning tool"[1], To evaluate the use of de-escalation techniques and to teach alternatives[1,3,7]

		d)Enhanced communication: multidisciplinary discussions[74] e) Use of data to inform the practice change[2,5,27]	c) "Policies and procedures related to the use of physical holds and seclusions were updated to reflect the processes and expected outcomes of infusion of TIC philosophy"[4,8] "Job descriptions were updated to include requirements to use TIC"[3], to recognize "excellent employee use of TIC actions"[3], documentation updated "to uphold the principles and practice of TIC"[3] d) To use "individual patient data … to inform practice"[3] e) "Data… was shared with staff and patients, and used to evaluate adoption of the intervention of each floor"[7]
Neurosequential Model of Therapeutics (NMT)			
NMT	Hambrick/2018	a) Training and capacity building[7,15,19,22,23, 31,43,51,65,71] b) Bi-annual fidelity assessments[26]	a) "For individual clinicians and organizations/ sites to learn and implement [and be certified] this approach"[1,7] b) To monitor and evaluate the clinician and site fidelity[7]
Patient-Focused Intervention (PFI) Model			
PFI	Barnum Goetz/2012	a) Leadership involvement[40,44, 57, 63, 65] b) Education[15, 16,74] c) Regular staff certification[19] d) Train-the-trainer model[71] e) Code event review[5, 27,32, 33, 39b, 41b] f) Quality feedback[5,27,32,63,] g) Collaboration and consultation[6,41ab,46ab, 56, 63,65,] h) Shared governance[32,41b,46b,52,64] i) Celebrations[2] j) Plan-do-check-act framework[14]	a) "To improve and refine the model"[7] b) "To introduce trauma-free concepts" [1], "introduce the local staff and community providers to these principles" [1], "To help reduce the violence potential of the patients.", to manage aggression[1,3,4] c) NR d) "To assist with the adoption of the SWA [Sorensen and Wilder Associates aggression management program] process" [1,3], "increase trust in the SWA process"[2], "act as role models for other staff" [8] e) "To reinforce education of the model and identify areas for improvement"[1,7] f) "To determine areas of success and opportunities for improvement in the staff interventions being implemented"[3,7], "To increase the involvement of the medical staff and administration in the process"[6], "To both inform the leadership team and raise awareness of the outcomes of the project for the entire staff"[1] g) "To improve the ongoing processes at the hospital" [4], "To identify improvements needed in the psychiatric inpatient programming"[7] h) "To make recommendations for changes in current practices, policies, and procedures and the current model of care"[3,4,7,8] i) "To accentuate the demonstrated successes"[3] j) "To manage the change" based on a theory[7]
Risking Connection (RC) and Restorative Approach (RA)			
RC and RA	Baker/2018	a) Leadership consultation[55,65] b) Training: Basic RC training, RA training[15,16,44,65] c) Train the trainer[15,35,65,71]	a) "To shift the policies, procedures, and practices of the organization toward TIC"[3,4]

		d) Trainer and mentor guidance on the floor[60]	b) RC training: "To increase awareness about the prevalence and impact of trauma and to shift helper perspectives to be more trauma-informed"[1] RA training: To provide helpers with tools that they can use in their work with clients[3] c) "To gain the internal capacity to conduct ongoing formal RC trainings using their own credentialed trainers"[8]; "To impart the content and skills necessary to formally and informally teach RC within an organization"[7] d) To "model the approach 'on the floor', sustaining and further embedding RC and RA into the work environment"[8]
RC and RA	Brown/2012	a) RC Training[15,16,43,65,71] b) Identifying trainers [Agencies B,C,D][35,65] c) Consultation and additional training [Agencies C &D][15,55]	a) "Aimed at creating a common language among a variety of agency professionals serving traumatized individuals"[1] b) "To affect the greatest impact on the agency system"[8] c) NR
Sanctuary Model			
Sanctuary Model	Bloom/2003a Bloom/2003b Farragher/2005 McCorkle/2005	Julia Dyckman Andrus Memorial Center: a) Integration: Formation of a core team[6,15,29,35,48,65]; b) Understanding trauma & Avoiding reenactment: Staff training[15,52], meetings[44,48], supervision[53,74]; Revamping assessment process[12], Retreats with a multidisciplinary team[48] c) Fighting rigidity: Encouraging flexibility and creativity[51], training in new therapy models[15] d) Embracing non-violence: Red flag reviews; mandatory restraint reviews[27,32,33,39b,41b,44] e) Preparing Sanctuary facilitation team as trainers[15,71] Hawthorne-Cedar Knolls: f) A multidisciplinary workgroup creating an organizational constitution[64] g) Crafting mission statements for each unit[6,41ab] h) Collaboration with an educational institution[24] i) Ongoing training and consultation[19,55] j) Trainings, supervision, management retreat[15,48,52,53] CRR Group Home: k) Training and supervision[15,16,53,65]	a) The core team "assumed responsibility for training the entire staff"[Bloom/2003a][1,8] "Through the Core Team, representatives from each department were able to take an honest look at their own departments' strengths, shortcomings … and most importantly the assumptions which had been driving their current behaviors and functioning" [Farragher/2005][1,7] "One of the tasks of the Core Team was to train the staff in trauma theory and to teach them a common language – the language of trauma" [Farragher/2005][1] b) For staff "to have a basic understanding of how traumatic experiences disrupt normal coping and functioning in individuals and systems: to teach staff to ask "what happened" rather than "what is wrong with you?"" [Farragher/2005][1,3]; "to help staff identify and break through their assumptions about each other and begin to build trusting, supportive relationships" [Farragher/2005][2]; to create a "safer environment… with reduced reliance on physical restraint" [Farragher/2005][3,8] c) For staff "to know that it is safe to try new things, as long as they stay within the shared values and beliefs of the organization" [Farragher/2005][3,6] d) "To understand and reformulate a plan, any time there is an incident of violence on campus" [Farragher/2005][3]; "to discuss alternative or proactive responses for the future…[and] to debrief the incident and revise the safety plan" [Farragher/2005][3,7] e) "To prepare them to become trainers for the rest of the institution" [Bloom/2003b][1,8] f) "To be the organizing framework for the day-to-day functioning of the program" [Bloom/2003b][7] g) "As part of a democratic process reinforcing group ownership" [Bloom/2003b][5,6] h) NR i) NR j) "The purpose of holding joint trainings [with all disciplines] is to allow for multiple perspectives…[and] to learn from one another"[1,6] [McCorkle/2005], Supervision: "To validate and support staff in balance of what needs improvement"[6,7] [McCorkle/2005] k) NR

Sanctuary Model	Clarke/2012 Leigh-Smith/2014	a) Training[15,16,65] b) The core team and implementation consultation[31,35,48,65] c) Supervision[53] d) Educating foster carers[50] e) Posters and hiring practices[44,58] f) Team meetings[41b] g) Quantitative and qualitative data collection[27]	a) "To commence this process"[7] [Clarke/2012]; "to provide a safe environment, offer them support in recovery from their trauma and instill a belief that they can create a different future for themselves"[3] [Leigh-Smith/2014], "Being informed of trauma theory should serve as a preventative measure, or as 'universal precaution' to protect carers from experiencing vicarious trauma"[1,6] [Leigh-Smith/2014] b) To support the team through the change and implementation process[7] c) "To help address safety, manage their emotions, deal with personal grief or loss, and finally set goals to move forward"[3,6] [Leigh-Smith/2014] d) "To identify, in themselves, when they are having this experience and when they might require additional support"[1,5] [Leigh-Smith/2014] e) Hiring practices: "helps to gauge if new employees understand the concepts, and if they are already implementing them within their practice"[8] [Leigh-Smith/2014] f) NR g) NR
Sanctuary Model	Esaki/2014	a) Initial 5-day training on the model for key leaders[15] b) Formation of core team, and indirect care core team[35,48,55,65] c)Certification process[22] d)Staff survey[27]	a) NR b) To be primary change agents who work with colleagues to implement the model[7] c)In the evaluation process the agency "is evaluated for successful implementation"[7] d) "To assess the implementation of the Sanctuary Model"[7]
Sanctuary Model	Rivard/2003 Rivard/2004a Rivard/2004b	a) Staff training and consultation [Rivard/2003, Rivard/2004b][15,31,41b,43,55,65] b) Booster trainings [Rivard/2003, Rivard/2004b][19,56] c) Unit mission statements [Rivard/2003, Rivard/2004b][52] d) Core team [Rivard/2004b][33,35] e) Initial pilot [Rivard/2004a, Rivard/2004b][61] f) Partnership with academic institution [Rivard/2004b][24]	a) Training: Staff "are trained in the basic principles of the Sanctuary Model and taught how to diffuse the model into the environment and into all aspects of the treatment program" [Rivard/2004b][1,3] Consultation: "To translate the Sanctuary Model philosophy, principles, and language into daily programming, team meetings, treatment planning, community meetings, and work with families" [Rivard/2003, Rivard/2004b][3] b) "In response to identified needs [for more training]" [Rivard/2003][7] c) To begin "diffusion of this enhanced therapeutic community philosophy"[6,8] [Rivard/2004b] d) To guide initial program development and pave the way for implementation[7] e) NR f) "To develop evidence-based practices" [Rivard/2004b][7]
Sanctuary Model	Rivard/2005	a) Staff training, staff dialogues and on-going technical assistance[8,15] b) Self evaluations of residential units' structure and functioning, Implementation Milestones Checklist[27]	a) NR b) NR
Sensory Integration Initiatives			
Trauma-Informed Care (TIC) and Ayres Sensory Integration Training	Denision/2018	a) Inservice training[15,31]	a) To impact the knowledge and attitudes of staff members[1,2]

Massachusetts State R/S Prevention Initiative: Integrating Sensory and Trauma-Informed Interventions	Lebel /2004 Lebel/2010	Sensory Initiative: a) Funding from SAMHSA[1] b) Partnering with national R/S reduction initiative – sensory based crisis planning tool[30,52] c)State-wide training[15,16,19,71] d) Sensory rooms and equipment[11] e) Crisis prevention toolkit, resource guide, and educational curriculum[29] f) New state regulations: Trauma-informed, individualized, sensory-based treatment and crisis plans[44,77] g) Statewide surveys of inpatient and intensive residential treatment providers[56] Broader Initiative: h) Evaluating data as part of a quality management process[27] i) Review of actions by other State Mental Health Authorities[7,72]; presented at roundtable discussions[17] j) Departmental mandate to reduce/eliminate restraints and seclusions[44] k) Training, consultation, and technical assistance[15,54,55,65] l) Use of the Safety Tool[30,41a,44,51] m)Roundtable discussions[52] n) Conferences[7,15,41a,43] and grand rounds series[7,15,33] o) Strategic plans[4,23,51,54] p) Manual under development[29]	a) "to actualize seclusion-and-restraint reduction initiatives"[3] [Lebel/2010] b) NR c) Contracted OTs "to provide a statewide training for occupational therapy and allied health professionals to help spearhead a sensory modulation train-the-trainer initiative"[1,8][Lebel/2010] d) NR e) "To support new learning and practice"[1,3] "To inform and advance the statewide effort"[7][Lebel/2010] f) "To prevent the use of R/S and [to mandate] requirements if they are used"[3,8] [Lebel/2010] g) "To support the development of sensory-based practices"[7] "To assess the extent of sensory intervention interest, implementation, and outcomes"[7] [Lebel/2010] h) "To measure and compare its [each unit's] performance against similar units statewide"[7] [Lebel/2004] i) NR j) NR k) "To help the provider community meet the R/S [restraints/seclusions] reduction goal"[7] [Lebel/2004] l) NR m) "Offered peer-to-peer support and encouraged collective problem solving to change culture and implement innovative R/S [restraints/seclusions] reduction approaches"[7,8] [Lebel/2004] n) Grand Round Series 1: "helped providers refine their strategic plans and strength-based approaches"[7] ; Grand Round Series 2: "To link DMH [Department of Mental Health] efforts with those of other child/adolescent-serving state agencies and to enhance supports for children and adolescents with trauma histories"[3,7] [Lebel/2004] o) "To introduce strength-based care and reduce R/S [restraints/seclusions]"[7] [Lebel/2004] p) NR
Sensory Modulation and Trauma-Informed-Care	McEvedy/2017	a) Train the trainer training[1,15,19,31,43,47,51,71]	a) "Equipping trainees with knowledge and confidence to educate their nursing, medical and allied health colleagues (end-users)"[1]; "to translate newly acquired knowledge into practice by adopting SM and TIC strategies[3], with a view to these becoming embedded as part of routine care in mental health service delivery" [8]
Sensory Room/Occupational Therapy (OT) Consultation/Sensory Motor Arousal Regulation Treatment (SMART)	Warner/2013	Cohannet Academy: a) Sensory diet and sensory rooms[11,41b] b) Tracking target measures[27] OTA Watertown: Brandon: c) Funding to hire OTs to train all staff and provide therapy[1,21,57] d) Structural changes on the unit and residences[11,41a,65] e) Referrals for full extent of sensory integration based OT[74] OTA: Gifford School	a) "To expand sensory modulation interventions offered in the program"[3] b) NR c) "To hire occupational therapists to train all therapeutic, educational and residential staff in sensory integration theory and sensory modulation techniques and strategies"[1,3,7] d) NR e) "To address sensory modulation needs, sensory discrimination, postural, ocular and bilateral motor coordination problems, as well as praxis"[7] f) "To use the OT room as a place to learn what strategies are most beneficial and then to utilize these strategies in the classroom or break rooms"[3,7] g) NR

		f) OT consultation model[65] including an OT room[11] g) Training by the OT for staff[15] OTA: GLC h) Contract with OTA Watertown[34,65] SMART: i) SMART rooms[11] j) Pilot project[61] k) Training therapists[15,43,65] l) Videotaping of therapy sessions[26,74] m)Therapist supervision[53]	h) "To develop a program to address sensory modulation difficulties"[7] i) "To allow for movement and utilization of some basic equipment"[7] j) NR k) "The goal was to share tools regarding sensory modulation for arousal regulation, a part of sensory integration that might practically work in psychotherapy"[1,3] l) "Caregivers or guardians are given a consent form that indicates options for use of videotape for clinical, supervisory, teaching and/or research purposes"[7] "The SMART team continued to view videotapes together with the OT to identify the kinds of sensory motor input that seemed to be upregulating and down-regulating for individual clients in order to feed back to the clinicians in their consultations"[7] m) NR
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)			
SPARCS	Habib/2013	a) Training and supervision[15,51,53,65] b) Consultation[55,65] c) Sustainability: ongoing in-house trainings, staff meetings[19], email reminders and updates, posters[31,58]	a) To "assist clinicians in flexibly applying material in a manner that is both personally relevant to the group and maintains fidelity to the core concepts"[3] b) "For assistance with recruitment, assessment, engagement, retention, and treatment implementation"[7] c) "Ways for spreading concepts and techniques throughout a system"[8]
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)			
TARGET and environmental modifications	Marrow/2012	a) General trauma training[15,44,52] b) TARGET training, supervision, and consultation[15,53,55] c) Environmental modifications[11,41ab,51]	a) To increase knowledge on childhood traumatic stress[1]; To plan and design ways to integrate trauma-focused interventions onto the unit[7] c) To "assist in reducing noise and other triggers and … allow spaces for youth to practice coping skills"[8]
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)			
TI-PRT	Boel-Studt/2017	a) Hire and designate personnel to lead the process[57] b) Training and supervision[15,19,41b,53] c) Training and implementation checklist [27] d) Trauma education for families[41a,50]	a) To convert the agency to a trauma-informed organization[8] b) To understand trauma and working effectively with trauma-affected youth[1,3] c) To assess fidelity to the model[7] d) "To provide trauma education and teach skills to help them support their child's treatment"[1,3,5]

Trauma-Systems Therapy (TST)			
TST	Brown/2013 Murphy/2017 Redd/2017	All three sites: a) Commitment from leadership [44] b) Training staff at all levels[15] c)Development of tools[26] The Children's Village: d) Tracking clinical outcomes[27] e) Piloting the model[61] KVS Health Systems: f) Partnership and creation of fidelity measures[26,65] g) Trainings, workbooks, newsletters, consultation calls, coaching and supervision.[15,16,19,29,31,41a,43,50,53,55,65,69] h) Integrating training feedback from interviews and focus groups[46b] i) Sustainability team[48] j) Peer coaches[35] k) Foster/resource parent training coaching, and mentoring and birth parent training[2,15,29,31,33,41a,43,44,50] l) Planning and implementing evaluation and fidelity feedback[5,24,26,27,51] m) TST tools and assessments[74] n) Enhanced centralized data system[12,56] o) Community partners training[6,76] p) Piloting the model[61] Adaptation by one unidentified agency: q) Integrating training into existing meetings [48]	a) "To make changes throughout every level of the organization."[4] [Brown/2013] b) To create "a TST team of which direct care staff are a crucial component"[6] [Brown/2013] c) To assess the youth's trauma system and to assess the functioning of the residential team/milieu[3] d) To use "this data to improve treatment"[3][Brown/2013] e) NR f) "To develop and provide a wide range of training approaches (including web-based e-learning modules) specific to unique roles of individuals that comprise children's care teams"[7] [Murphy/2017] g) "To ensure that youth leaving residential care received the same, consistent, child-specific TST services in the community upon discharge"[1,3] [Brown/2013] h) NR i) To provide "oversight to the TST implementation effort"[7] j) "To serve as a peer coaches or models for newly hired staff. These peer coaches provided direct support for staff on how to use TST and related tools effectively within their roles"[3,7] [Redd/2017] k) Multiple modes of training: "To boost participation rates of resource parents in the TST training"[5] [Redd/2017] l) To evaluate TST[7] m) "To provide tools to help staff and foster parents apply their knowledge of TST into daily practice"[3,5] [Redd/2017] n) "To better monitor implementation of TST"[7] [Redd/2017] o) NR p) NR q) To enable direct care staff to participate in trainings[7]
Uncategorized TIC Programs			
Gender-Specific and Trauma-Informed Training Curriculum	Crable/2013	a) Training program[15,16,65]	a) "To increase awareness of best practice interventions[1]; improve understanding of components of trauma-informed care[1]; improve engagement skills with youth[3]; improve emotional and physical boundaries with youth[3]; improve understanding of cycle of sexual retraumatization[3]"
Trauma-Informed Approach (TIA)	Craig/2018	a) Leadership and communication components[32,44] b) Training[15,44] c) Employee feedback[46b] d) Measurement[27] e) Debriefing[33] f) A written Implementation plan[23]	a)"To create a vision that sets a tone for future success", To provide a clear vision and passion for the initiative, "identifying different vehicles to communicate the message, modeling practices, and sharing results and progress routinely"[1,3] b) "teaching the knowledge and skills needed to practically implement a philosophy of comfort-verses-control…"[1,3] "To share the motivation behind the initiative "[1] c) "To ascertain how employees felt about the change"[7]

		g) Support component[39b,60] h) Creating a treatment team[21] i) Intervention in accordance with Joint Committee on Standards for Educational Evaluation[77]	d) "To evaluate whether progress was being made to guide subsequent steps in the improvement process"[7] e) "To determine whether each use of restraint or seclusion was warranted or unwarranted"[1], "To avoid future use of restraint or seclusion"[3], "to review the antecedents to avoid, and the supports needed to prevent future restraints or seclusions"[3,7] f) "To establish accountability as to who was responsible for what, where, and when"[3] g) To provide support[3], "allowing for modelling and teaching opportunities"[3] h) To implement therapeutic treatment planning[3] i) NR
Trauma-Informed Care (TIC) Program	Jacobowitz/2015	a) Regularly scheduled TIC meetings for all levels of direct care staff[15]	a) To discuss "the principles of TIC and a specific patient's or multiple patients' behaviors"[1]
Trauma-Informed Child Welfare Service (CWS)/ The Connecticut Collaborative on Effective Practices for Trauma (CONCEPT)	Lang/2013	a) Funding and collaboration[1,6,24] b) Aligning initiative with government mandate[77] c) Core team and subcommittees[48] d) Workforce development: trauma champions[19,35], mandatory trauma training[15,19,44,71], addressing worker wellness and traumatic stress[2,7,11,15,21,41b,44,48] e) Trauma screening[12] f) Trauma-informed policy and practice guide revisions[44,64,74] g) EBP dissemination[20,55,74,76] h) System-level evaluation procedures[27]	a) "To support development of trauma-informed CWSs"[7] b) NR c) To provide "oversight of planning and implementation for CONCEPT"[7] d) Trauma Champions: "to provide at least one monthly in-service training focused on trauma in their local office"[1]; Trauma Training: "To improve knowledge about child trauma and promote trauma-informed practice change…."[1,3]; Train the trainer: "To promote sustainability"[8]; Officewide staff events: "to promote peer supports and improved morale"[6] e) NR f) "To align department policy with its practice efforts to create a trauma-informed CWS"[4]; "with the goal of supporting trauma-informed care"[8] g) To increase "availability of trauma-focused EBPs"[3] h) "to assess system level change in the overall capacity of the CWS to deliver trauma-informed care"[7]
Trauma-Informed Care (TIC) Training Program	Williams/2017	a) Funding from the Western Australian (WA)Mental Health Commission[1] b) Academic partnership[24,27] c) Training program (separate trainings for clinicians and for managers)[15]	a) To fund the TIC training program[7] b) "To inform a business case for further funding to continue the training programme"[7] c) "The training was specifically designed to enable the adoption of trauma informed approaches throughout public mental health and alcohol and other drug services in Western Australia"[3] Clinician training: "To equip them with basic knowledge and skills which could be adapted and applied to their roles within their services"[1,3] Manager training: "to support them in implementing TIC principles within their services"[7]

Supplemental Table 2.3

ERIC Strategies and Overarching Themes

Classification/Theme	Strategy within Theme
A. Use evaluative and iterative strategies	E4 Assess for readiness and identify barriers and facilitators; E5 Audit and provide feedback; E56 Purposefully reexamine the implementation; E26 Develop and implement tools for quality monitoring; E27 Develop and organize quality monitoring systems; E23 Develop an implementation blueprint; E18 Conduct local need assessment; E61 Stage implementation scale up; E46 Obtain and use a) patients/consumers and family or b) staff feedback; E14 Conduct cyclical small tests of change
B. Provide interactive assistance	E33 Implementation Facilitation; E54 Provide local technical assistance; E53 Provide clinical supervision ; E8 Centralize technical assistance
C. Adapt and tailor to context	E63 Tailor strategies; E51 Promote adaptability; E67 Use data experts; E68 Use data warehousing techniques
D. Develop stakeholder interrelationships	E35 Identify and prepare champions ; E48 Organize implementation teams and team meetings; E57 Recruit, designate, and train for leadership; E38 Inform local opinion leaders; E6 Build a coalition; E47 Obtain formal commitments; E36 Identify early adopters; E17 Conduct local consensus discussions; E7 Capture and share local knowledge; E64 Use advisory boards and workgroups; E65 Use an implementation advisor; E45 Model and simulate change; E72 Visit other sites; E40 Involve executive boards; E25 Develop an implementation glossary; E24 Develop academic partnerships; E52 Promote network weaving
E. Train and educate stakeholders	E19 Conduct ongoing training; E55 Provide ongoing consultation; E29 Develop educational materials; E43 Make training dynamic; E31 Distribute educational materials; E71 Use train-the-trainer strategies; E15 Conduct educational meetings; E16 Conduct educational outreach visits; E20 Create a learning collaborative; E60 Shadow other experts; E73 Work with educational institutions
F. Support clinicians	E32 Facilitate relay of clinical data to providers; E58 Remind clinicians; E30 Develop resource sharing agreements; E59 Revise professional roles; E21 Create new clinical teams
G. Engage consumers & staff	E41 Involve a) patients/consumers and family members or b) staff; E39 Intervene with a) patients/consumers or b) staff to enhance uptake and adherence; E50 Prepare patients/consumers to be active participants; E37 Increase demand; E69 Use mass media
H. Utilize financial strategies	E34 Fund and contract for the clinical innovation; E1 Access new funding; E49 Place innovation on fee for service lists/formularies; E2 Alter incentive/allowance structures; E42 Make billing easier; E3 Alter patient/consumer fees; E70 Use other payment schemes; E28 Develop disincentives; E66 Use capitated payments
I. Change infrastructure	E44 Mandate change; E12 Change record systems; E11 Change physical structure and equipment; E22 Create or change credentialing and/or licensure standards; E13 Change service sites; E9 Change accreditation or membership requirements; E62 Start a dissemination organization; E10 Change liability laws
J. Not categorized	E74 Assess and redesign workflow; E75 Create online learning communities; E76 Engage community resources; E77 Align with organizational or government mandate

Supplemental Table 2.4

ERIC Strategies and Overarching Themes Used with Each TIC Intervention

See Supplemental Table 2.3, above, for the legend corresponding to the ERIC themes and categories

	A. Use evaluative and iterative strategies												B.Provide interactive					C.Adapt and tailor to context				
	A.	E4	E5	E56	E26	E27	E23	E18	E61	E46a	E46b	E14	B.	E33	E54	E53	E8	C.	E63	E51	E67	E68
NASMHPD Six Core Strategies	☑	☑	☑			☑	☑	☑		☑	☑		☑	☑	☑	☑	☑	☑		☑		
Attachment, Regulation and Competency (ARC)	☑	☑		☑		☑		☑	☑		☑		☑	☑		☑		☑	☑	☑	☑	
Sensory Integration Initiatives	☑	☑		☑	☑	☑	☑		☑				☑	☑	☑	☑		☑		☑		
Sanctuary Model	☑			☑		☑			☑				☑	☑		☑	☑	☑		☑		
Collaborative Problem Solving (CPS)	☑			☑		☑				☑			☑	☑		☑						
Trauma-Systems Therapy (TST)	☑		☑	☑	☑	☑			☑				☑	☑		☑		☑		☑		
Patient-Focused Intervention (PFI) Model	☑		☑	☑		☑				☑	☑	☑	☑	☑				☑	☑			
Trauma-Informed Child Welfare Service (CWS)	☑					☑																
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth	☑	☑		☑		☑	☑				☑							☑	☑	☑		
Neurosequential Model of Therapeutics (NMT)	☑				☑		☑											☑		☑		
Trauma-informed approach (TIA)	☑					☑	☑				☑		☑	☑								
Child Adult Relationship Enhancement (CARE)													☑	☑								
Children and Residential Experiences (CARE)																		☑	☑	☑		
Risking Connection (RC) and Restorative Approach (RA)																						
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)													☑			☑		☑		☑		
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)													☑			☑		☑		☑		
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)	☑					☑							☑			☑						
TIC Training Program	☑					☑																
Gender-Specific and Trauma-Informed Training Curriculum																						
Devereux's Safe and Positive Approaches (SPA)																						
A Trauma-Informed Care Program																						
Total Inteventions		4	3	7	3	12	5	2	4	3	5	1		9	2	9	2		4	10	1	0

	D.Develop stakeholder interrelationships																		E.Train and educate stakeholders											
	D.	E35	E48	E57	E38	E6	E47	E36	E17	E7	E64	E65	E45	E72	E40	E25	E24	E52	E.	E19	E55	E29	E43	E31	E71	E15	E16	E20	E60	E73
NASMHPD Six Core Strategies	☑	☑	☑	☑		☑			☑		☑	☑		☑	☑		☑		☑	☑	☑		☑		☑	☑	☑			
Attachment, Regulation and Competency (ARC)	☑		☑	☑					☑	☑	☑	☑					☑	☑	☑	☑	☑	☑	☑	☑	☑	☑				
Sensory Integration Initiatives	☑			☑			☑		☑	☑		☑		☑				☑	☑	☑	☑	☑	☑	☑	☑	☑	☑			
Sanctuary Model	☑	☑	☑			☑					☑	☑					☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑			
Collaborative Problem Solving (CPS)	☑		☑						☑			☑			☑				☑	☑	☑			☑	☑	☑				
Trauma-Systems Therapy (TST)	☑		☑			☑						☑					☑		☑		☑	☑	☑	☑		☑	☑			
Patient-Focused Intervention (PFI) Model	☑			☑		☑					☑	☑			☑			☑	☑	☑					☑	☑	☑			
Trauma-Informed Child Welfare Service (CWS)	☑	☑	☑			☑				☑	☑						☑		☑	☑	☑				☑	☑		☑		
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth	☑		☑																☑	☑		☑	☑	☑	☑	☑				
Neurosequential Model of Therapeutics (NMT)	☑									☑		☑							☑	☑			☑	☑	☑	☑				
Trauma-informed approach (TIA)																			☑							☑			☑	
Child Adult Relationship Enhancement (CARE)	☑											☑	☑						☑		☑		☑	☑	☑	☑				
Children and Residential Experiences (CARE)	☑	☑	☑									☑							☑	☑	☑				☑	☑				
Risking Connection (RC) and Restorative Approach (RA)	☑	☑										☑							☑		☑		☑		☑	☑	☑		☑	
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)	☑																	☑	☑		☑					☑				
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)	☑											☑							☑	☑	☑			☑		☑				
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)	☑			☑															☑	☑						☑				
TIC Training Program	☑																☑		☑							☑				
Gender-Specific and Trauma-Informed Training Curriculum	☑											☑							☑							☑	☑			
Devereux's Safe and Positive Approaches (SPA)																			☑							☑				
A Trauma-Informed Care Program																			☑							☑				
Total Inteventions		5	8	5	0	5	1	0	4	4	5	13	1	2	3	0	6	5		12	12	5	9	9	12	21	7	1	2	0

	F.Support clinicians						G.Engage consumers & staff								H.Utilize financial strategies										I.Change infrastructure									J.Not categorized					
	F.	E32	E58	E30	E59	E21	G.	E41a	E41b	E39a	E39b	E50	E37	E69	H.	E34	E1	E49	E2	E42	E3	E70	E28	E66	I.	E44	E12	E11	E22	E13	E9	E62	E10	J.	E74	E75	E76	E77	Total E
NASMHPD Six Core Strategies	☑	☑	☑		☑	☑	☑	☑	☑	☑	☑	☑			☑				☑						☑	☑	☑	☑		☑				☑	☑			☑	44
Attachment, Regulation and Competency (ARC)	☑	☑	☑				☑	☑	☑						☑		☑								☑	☑		☑	☑					☑	☑				35
Sensory Integration Initiatives	☑			☑		☑	☑	☑	☑						☑	☑	☑								☑	☑		☑						☑	☑			☑	35
Sanctuary Model	☑	☑	☑				☑	☑	☑		☑	☑													☑	☑	☑		☑					☑	☑				32
Collaborative Problem Solving (CPS)	☑	☑	☑		☑		☑		☑			☑			☑		☑		☑						☑	☑	☑		☑					☑	☑			☑	26
Trauma-Systems Therapy (TST)							☑	☑				☑		☑	☑				☑						☑	☑	☑							☑	☑		☑		26
Patient-Focused Intervention (PFI) Model	☑	☑					☑	☑	☑		☑				☑				☑						☑	☑								☑	☑				25
Trauma-Informed Child Welfare Service (CWS)	☑					☑	☑		☑						☑		☑		☑						☑	☑	☑	☑						☑	☑		☑	☑	22
EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth	☑		☑				☑		☑																														16
Neurosequential Model of Therapeutics (NMT)																									☑				☑										11
Trauma-informed approach (TIA)	☑	☑				☑	☑				☑														☑	☑								☑				☑	11
Child Adult Relationship Enhancement (CARE)							☑		☑						☑		☑																						10
Children and Residential Experiences (CARE)																																							9
Risking Connection (RC) and Restorative Approach (RA)																									☑	☑													9
Trauma Affect Regulation: Guide for Education and Therapy (TARGET)							☑	☑	☑																☑	☑		☑											9
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)	☑		☑																																				**8**
Trauma-Informed Psychiatric Residential Treatment (TI-PRT)							☑	☑	☑			☑																											8
TIC Training Program															☑		☑																						4
Gender-Specific and Trauma-Informed Training Curriculum																																							3
Devereux's Safe and Positive Approaches (SPA)																																							1
A Trauma-Informed Care Program																																							1
Total Inteventions		6	6	1	2	4		8	11	1	4	5	0	1		1	6	0	5	0	0	0	0	0		11	5	5	4	1	0	0	0		8	0	2	5	

Chapter 3 Youth, Caregiver, and Staff Perspectives on Planning the Implementation of a Trauma-Informed Care Program: A Qualitative Study

This manuscript-based chapter has been accepted for publication:

Stokes, Y., Cloutier, P., Aggarwal, D., Jacob, J.D., Hambrick, E., Tricco, A.C., Ward, M. K., Kennedy, A., Greenham, S., Robb, M., Sheppard, R., Murphy, D., Boggett, J., Graham, I.D., & Lewis, K.B. (In Press). Youth, caregiver, and healthcare professional perspectives on planning the implementation of a trauma-informed care program: A qualitative study. *Journal of Advanced Nursing.*

3.1 Abstract

Aims

To explore youth, caregiver, and staff perspectives on their vision of trauma-informed care, and to identify and understand potential considerations for the implementation of a trauma-informed care program on an inpatient mental health unit within a pediatric hospital.

Design and Methods

We applied the Interpretive Description approach, guided by complexity theory and the Implementation Roadmap, and used Applied Thematic Analysis methods.

Findings

Twenty-five individuals participated in individual or group interviews between March and June 2022, including 21 staff, three youth, and one caregiver. We identified two overarching themes. The first theme, 'Understanding and Addressing the Underlying Reasons for Distress', related to participants' understanding and vision of TIC in the current setting comprising: a) 'Participants' Understanding of TIC'; b) 'Trauma Screening and Trauma Processing Within TIC'; c) 'Taking "A More Individualized Approach"'; d) 'Unit Programming'; and e) "Connecting to the Community". The second theme, 'Factors that Support or Limit Successful TIC Implementation' comprising: a) The 'Need for A Broad "Cultural Shift"'; b) The 'Physical Environment on the Unit'; and c) 'Factors that May Limit Successful Implementation'.

Conclusions

We identified five key elements to consider within trauma-informed care implementation: a) the centrality of engagement with youth, caregivers, and staff in trauma-informed care delivery and implementation, b) trauma-informed care core program components, c) factors that may support or limit success in implementing trauma-informed care within the mental health unit and d)

hospital wide, and e) the importance of intersectoral collaboration (partnering with external organizations and sectors).

Impact

- When implementing TIC, there is an ongoing need to increase clarity regarding TIC interventions and implementation initiatives
- Youth, caregiver, and staff participants shared considerations important for planning the delivery and implementation of trauma-informed care in their setting
- We identified five key domains to consider within trauma-informed care implementation: a) the centrality of relational engagement, b) trauma-informed care program components, c) factors that may support or limit successful implementation of trauma-informed care within the mental health unit and d) hospital-wide, and e) the importance of intersectoral collaboration
- Organizations wishing to implement trauma-informed care should consider ongoing engagement with all relevant knowledge-user groups throughout the process.

Reporting Method: Standards for Reporting Qualitative Research (SRQR)

Patient or Public Contribution: The local hospital research institute Patient and Family Advisory Committee reviewed the draft study methods and provided feedback.

3.2 Introduction

Trauma-informed care (TIC) is a philosophy of care that goes beyond trauma-specific interventions to attend to the needs of individuals with histories of trauma, whether they are the ones receiving care or staffing the care system (Substance Abuse and Mental Health Services Administration (SAMHSA), 2014). While varying definitions of TIC exist, commonly agreed upon principles include the four 'R's: Realizing the prevalence of trauma, Recognizing manifestations of trauma, Responding appropriately to trauma, and Resisting Re-traumatization, as well as the six principles of a) safety, b) trustworthiness and transparency, c) support, d) collaboration, e) empowerment, and f) cultural, historical and gender considerations (e.g., SAMHSA, 2014). Further, the notion of 'universal precautions' suggests that services regard every patient and staff member with trauma-informed sensitivity, acknowledging that anyone encountering the organization may have a trauma history (Elliott et al., 2005).

3.3 Background

3.3.1 Trauma-Informed Care in Pediatric Inpatient Mental Health Settings

Decades of research have demonstrated the association between trauma, morbidity, and healthcare usage (e.g., Felitti, et al., 1998). Youth with histories of trauma and adversity are at increased risk for a range of emotional, social, and cognitive difficulties, and associated inpatient psychiatric and residential care admissions (e.g., Briggs et al., 2012; Keeshin et al., 2014). Individuals may not disclose a trauma history or even consider their experience to be trauma, therefore TIC involves treating all patients, caregivers, and staff with the recognition that we often do not know what has happened to them. While there are growing efforts to better serve this population with numerous published accounts of TIC implementation in pediatric inpatient mental health settings (e.g., Bryson et al., 2017; Lowenthal, 2020; Stokes et al., 2023), there is an

ongoing need to increase clarity regarding TIC interventions and implementation initiatives (e.g., Stokes et al., 2023).

3.3.2 The Current Study: Context within the Implementation Roadmap

This study was a part of a larger integrated knowledge translation (IKT) project planning the implementation of a TIC approach on an inpatient mental health unit, within a Canadian tertiary-care pediatric hospital. Departmental leadership was interested in implementing a TIC approach (operationalization of TIC principles described above), which they would refer to as a TIC Program, within an initiative to re-design the model of care of the unit and wished to do so in an implementation-science informed manner. As described by Stokes and colleagues (2022), researchers and site knowledge-users (KUs; those who are likely to use or be affected by the research) collaborated within a multi-disciplinary TIC Advisory Committee (TIC AC) to design a project using principles of IKT (Banner et al., 2019) and the Implementation Roadmap (Harrison & Graham, 2021). This roadmap identifies three phases of implementation: a) identify and clarify issues; b) build solutions and field test them; and c) implement, evaluate, and sustain. To address the first phase, we conducted a scoping review that examined the current state of the literature relating to TIC interventions in pediatric mental health inpatient and residential settings (Stokes et al., 2023), and an environmental scan that identified TIC interventions currently used in the Canadian context. The findings from the review and environmental scan informed the TIC AC's selection of a TIC program. This current study targeted the second phase of building solutions: customizing the best practices to the context and discovering barriers and drivers for best practice implementation. While a few studies have explored KU perspectives on TIC to broadly inform TIC implementation across settings (e.g., Isobel, 2021), we are not aware of any

of studies that engaged with KUs at a specific setting to inform the implementation of TIC on a pediatric inpatient mental health unit.

3.4 Study Methods

3.4.1 Aims

We sought input from youth, caregivers, and staff about a) their vision of TIC, and b) potential implementation considerations related to their described vision of TIC, including facilitators and barriers, and the contextual setting. While this study focused on the local context of a pediatric inpatient mental health unit, the issues identified hold relevance for those planning the implementation of TIC in similar settings.

3.4.2 Design

We applied the interpretive description (ID) approach to guide this qualitative study. ID is inductive, suitable for exploratory research, with an emphasis on the clinical application of the data and findings within a disciplinary context (Thorne, 2008). Complexity theory guided this study (Clark, 2013) in considering not only the TIC clinical program, but also factors relating to individuals and groups receiving and providing the intervention, the physical setting, the implementation process, and the context within and beyond the target unit. As described above, this project was also informed by principles of IKT and the Implementation Roadmap. We used the Standards for Reporting Qualitative Research (O'Brien et al., 2014) to guide the reporting of this study (see checklist in Appendix D).

3.4.3 Positionality of Research Members

Our research team consisted of a doctoral student (YS), who is also a nurse on the inpatient unit where this study was focused, five university-based researchers who formed the

thesis advisory committee of the aforementioned doctoral student (IDG, KBL, JDJ, EH, & ACT), and 17 additional site KUs (the TIC Advisory Committee). The five thesis advisory committee members hold expertise and interest in trauma, mental health care, and/or implementation science. The thesis advisory committee were external to the hospital allowing for impartial feedback relating to the study. The TIC AC included members representing leadership, nursing and allied health, medicine, and research, who provided input and expertise related to the local setting and helped to ensure relevance and applicability of the study findings.

3.4.4 Knowledge-User Contribution

The TIC AC members were involved in deciding types of participants, recruitment and data collection strategies, participant compensation, and interpretation of the findings within this manuscript. After the initial planning stage, YS also reviewed the study methods with the hospital research institute Patient and Family Advisory Committee, who provided feedback regarding youth and caregiver recruitment and compensation.

3.4.5 Study Setting

The inpatient mental health unit set within the pediatric hospital is an acute care stabilization unit that holds 19 beds for youth up to age 18, with an average length of stay of approximately 10 days.

3.4.6 Eligibility Criteria

The eligibility criteria for participating are presented in Table 3.1.

Table 3.1

Participant Eligibility Criteria

Participant Group	Criteria

Youth	• Youth aged 13-24 years of age, who have experienced an admission on the inpatient mental health unit in the last six years (when the unit underwent a program remodeling). • Exclusion: Youth who were admitted exclusively to the inpatient eating disorders program as it functions under its own model.
Caregivers	• Caregiver of youth who have experienced an admission on the inpatient mental health unit in the last six years.
Staff	• Staff who have spent time in their role on the inpatient mental health unit in the last six years, including direct care, clinical care, administrative, housekeeping, security, and management roles.
Exclusion Criteria (All Participants)	• Does not read or speak English fluently. • Not able to consent to participate.

3.4.7 Recruitment

We recruited a convenience sample and interviewed all eligible volunteers. All participants received a $5 gift card. Youth were also offered high school volunteer hours. Management offered support for interested staff by facilitating coverage for those working a shift during a scheduled interview, and by compensating staff who were not working for their time. Interested participants emailed the study email address and the first author screened participants for eligibility and obtained informed consent. (See Appendix E for recruitment materials.)

3.4.7.1 Youth and Caregivers

Youth and caregivers were recruited in several ways. The hospital communications department posted the recruitment invitation on their social media platforms (Twitter and Facebook) on two occasions (February and March 2022) and promoted the study in their community newsletter (February 2022). The hospital's Research Institute also posted the recruitment invitation on its website. A youth-run in-house mental health advocacy and support program invited eligible youth who were, at the time, affiliated with their program to participate in the study. A local non-profit, peer support organization for caregivers of youth facing mental health challenges advertised the recruitment message amongst their members. A local knowledge institute on child and youth mental health forwarded the recruitment poster to community partner

agencies. Finally, to boost recruitment, we placed posters for youth and caregivers at the entrance to the inpatient mental health unit and included posters in patient and caregiver discharge packages. Without being asked to, unit staff also took their own initiative to promote the study on the unit announcement board.

3.4.7.2 Staff

Staff were invited to participate via emails (two emails, one in February 2022 with a reminder in March 2022) and through posters placed in the staff areas on the hospital in-patient unit.

3.4.8 Data Collection

Data collection spanned March-June 2022 and included: a short online demographic questionnaire, and a virtual focus group or individual interview. Demographic data were collected prior to the interviews via REDCap (Research Electronic Data Capture; Harris et al., 2009) and were not linked to focus group data. Interviews took place through Zoom facilitated by two team members (YS and PC; individual interviews were facilitated by YS). Sessions were recorded through Zoom, with live transcription. YS reviewed the recordings and edited the transcripts in Microsoft Word.

To gain an understanding of the implementation context, the facilitators prompted participants to share: a) their perspectives and understandings of TIC and what TIC meant to them and b) their vision of TIC on the inpatient mental health unit, including any important race, culture, and gender considerations, as well as implementation factors. The demographics forms (Appendix F) and interview guides (Appendix G) were piloted before use and revised for minor grammar changes.

3.4.9 Data Analysis

3.4.9.1 Demographics

We descriptively analyzed demographic data for each of the participant groups (youth, caregivers, staff) in Microsoft Excel.

3.4.9.2 Individual and Group Interviews

We used Applied Thematic Analysis methods following the structure of the interview guide to assist in segmenting and coding the data (Guest et al., 2012). To enhance trustworthiness, two research team members (YS and PC) independently reviewed each transcript, creating memos and highlighting text to reflect thematic similarities and differences. YS and PC independently coded participants' responses using the words of participants, organizing the codes into categories that, best reflected the questions in the interview guide. During analysis, we guided our thinking by asking questions such as "What am I seeing?" and "Why am I seeing that?" (Thorne, 2008, p.158). After reviewing and coding each transcript, YS and PC met to compare coding and notes, identifying disparities in interpretations, coming to a shared consensus on each code, and aggregating codes into initial themes and sub-themes. Once three transcripts were coded and agreed upon, we aggregated the individual transcript summary files together into files by theme and developed a structural code book (based on Guest et al., 2012, p. 57). After analyzing five transcripts, YS, PC and additional team members (IDG, KBL, JDJ) met to review the analysis and discuss the construction of the emerging themes. Themes and sub-themes were continuously re-evaluated to ensure that they remained internally homogenous (grouped codes were aggregated appropriately, creating a coherent theme) and externally heterogeneous (themes were mutually exclusive). Throughout the analysis process, we regularly returned to the initial transcripts to ensure that the findings were grounded in the data.

Once we completed the initial analysis, YS presented the findings to the thesis advisory committee and to the TIC AC, with the purpose of refining the themes and sub-themes and determining how the findings informed the organization's decision-making goals, and how the AC would proceed. All research team members agreed upon the final construction of the findings.

3.4.10 Ethical Considerations

This study was approved (Appendix H) by the Research Ethics Board (REB) at the participating hospital (Protocol No. 21/103X) and at the University of Ottawa (Protocol No. H-01-22-7691). All participants provided electronic informed consent prior to participating (Appendix I).

3.5 Findings

3.5.1 Characteristics of Participants

Twenty-five individuals volunteered for individual or focus group interviews (Table 3.2). We conducted five staff focus groups (ranging from two to six participants per group), two staff individual interviews (total 21 staff), one youth focus group, one youth individual interview (total three youth) and one caregiver individual interview (total one caregiver). Most participants self-identified as women, with one staff member identifying as a man. All youth were under age 21 and had been admitted to the inpatient unit between 2019 and 2022. Staff participants ranged in age from 21 to 60 years and had worked on the mental health in-patient unit 1 to 25 years. The majority of staff were direct care providers (Registered Nurses or Child and Youth Counsellors). The sample included people who self-identified as Black, Caucasian, First Nations, Ashkenazi Jewish, and Filipino.

Table 3.2

Participant Demographics

	Youth (N=3)	Caregivers (N=1)	Staff (N=21)
Self-identified Gender: n(%)			
Woman	3(100)	1(100)	20(95.2)
Man			1(4.8)
Age range: n(%)		[data suppressed]	
<21	3(100)		
21-30			3(14.3)
31-40			5(23.8)
41-50			9(42.9)
51-60			4(19.0)
Rural/Urban: n(%)			
Rural	1(33.3)		7(33.3)
Urban	1(33.3)	1(100)	14(66.7)
Missing	1(33.3)		
Role: n(%)			
Direct Care*			16(76.2)
Clinical Care*			4(19.0)
Management/ Leadership			1(4.8)
Youth	3(100)		
Parent		1(100)	
Years worked on unit	NA	NA	
Range (Median)			1-25(6)**
Year youth last admitted to unit			
Range	2019-2022	[data suppressed]	

*****Direct Care (Registered Nurse, Child and Youth Counsellor); Clinical Care (MD, Psychologist, Occupational Therapist, Social Worker)
**n=19

3.5.2 Themes

All participants voiced enthusiasm for TIC as an approach that fit with their values, and a strong desire to see TIC operationalized on the unit. We identified two overarching themes. The first theme, 'Understanding and Addressing the Underlying Reasons for Distress', which related to participants' understanding of TIC and their vision of TIC on the unit, comprises five sub-themes. a) 'Participants' Understanding of TIC', encapsulates participants' perceived definitions of TIC. The remaining sub-themes address core elements of participants' visions of TIC on the unit: b) 'Trauma Screening and Trauma Processing Within TIC'; c) 'Taking "A More Individualized Approach"' (Youth 2)_; d) 'Unit Programming'; and e) "Connecting to the

Community" (Staff 3). The second theme, 'Factors that Support or Limit Successful TIC Implementation', contains sub-themes that participants deemed necessary to successfully implement a TIC program, and elements that may hinder. These sub-themes include: a) 'The Need for A Broad "Cultural Shift"' (Staff 10), which incorporates a 'Need to Improve Staff Supports and Multidisciplinary Team Collaboration'; b) The 'Physical Environment on the Unit', making the unit 'More Visually Comfortable and Engaging', and 'Creating More Therapeutic Spaces'; and c) 'Factors that May Limit Successful Implementation', including 'Staff Buy-in', 'Delivery of Training', and 'Maintenance and Sustainability Concerns'. Themes and sub-themes are summarized (Table 3.3) with illustrative quotes.

3.5.2.1 Theme 1. Understanding and Addressing the Underlying Reasons for Distress

Participants Understanding of TIC. All three groups (youth, caregivers, and staff) understood TIC as looking beyond "what's wrong with the person" (Caregiver 1) to focusing on the underlying reasons for the person's distress, informing how they can be helped. One youth summarized the essence of TIC as the process of understanding and addressing the "why" behind the symptoms that present, before jumping to diagnoses and pharmacological interventions. Accordingly, participants noted that TIC should involve assessing and addressing the "deeper" holistic factors related to a youth's mental health presentation. All youth specified that avoiding further trauma from mental health care should be a priority within a trauma-informed approach.

The caregiver described TIC as an approach where instead of pathologizing, providers acknowledge and meet the patient where they currently are and identify how they can support healing and growth. In addition to changing from a deficit-based approach to a more supportive stance, the caregiver highlighted incorporating principles of safety and connection.

Staff emphasized the importance of acknowledging the prevalence of trauma in their patient population and developing an awareness of the neurological and developmental changes caused by trauma. They spoke of orienting to how these trauma-based changes affect the processes of providing and receiving care, with trauma considered as potentially the most critical issue at the core of a patient's presentation. They noted the importance of the emotional regulation capacities of patients, caregivers, and staff that are providing care and creating a healthcare system that is responsive to everyone's needs. Staff echoed youth in prioritizing the avoidance of further trauma through care, and the caregiver's emphasis on safety and connection. as well as managing emotions. Staff suggested that adopting a 'universal precautions' approach would ensure that each person is approached with trauma-informed sensitivity.

In discussing their vision of patient care on the unit within a TIC approach, participants identified a number of core considerations (sub-themes): a) whether trauma screening and trauma processing should be a part of TIC b) taking "more individualized approach" (Youth 2) to care that incorporates the patient's trauma history and their sociocultural identities, c) making changes to unit programming, and d) "connecting to the community" (Staff 3) including post-discharge follow-up.

Trauma Screening and Trauma Processing Within TIC. Participants expressed conflicting views about whether trauma screening and trauma processing (i.e., discussing and treating the trauma) should be components of a TIC program.

One youth asserted that trauma screening is essential, with the caveat that it must be done sensitively, and recognizing that disclosure is dependent on trust and rapport with staff, which can take time to build. Yet, some staff voiced that with the assumption of 'universal precautions', formal trauma screening would not be needed. Other staff stated that trauma screening, in

addition to universal precautions, is essential to TIC because information gathered from it would inform the provision of care. Staff who supported screening noted important considerations for its timing, nature, and environment. All participants who spoke of trauma screening alluded to its complexity, and all stated the importance of a context of therapeutic rapport built on trust. There were also different views about discussing and processing a patient's trauma in the context of the inpatient mental health unit. Some staff perceived the unit environment as an unsafe and unpredictable environment to discuss trauma, while other staff described it as a safe place for patients to work through issues that may evoke high levels of distress. Others saw the inpatient unit as an opportunity to build foundations of safety towards trauma processing, depending on the patient's readiness. Many staff voiced concerns about the acute care nature of unit, such as whether they will have follow-up to continue processing the trauma.

Taking "A More Individualized Approach" (Youth 2). All participants conveyed the necessity to individualize care to specific needs of the patient, considering any known trauma history, as well as acknowledging and addressing the youth's individual sociocultural needs and identities.

Regardless of views relating to trauma screening, participants across groups spoke to the importance of having a consistent way to document and communicate a patient's known trauma history to other providers on the team, as well as to integrate the patient's specific needs related to the trauma into a care plan that is readily accessible to all team members. This was in response to participants' mention of the detrimental effects of requiring patients to continuously repeat aspects of their history to new providers when that history and profile is not communicated well throughout the team. Moreover, participants emphasized taking a strengths-based lens when developing the care plan as most congruent with TIC.

Participants identified the imperative for an individualized approach that considers individual patient experiences, perspectives, and characteristics, including developmental, cultural, and gender factors, to inform the planning and delivery of care. One youth described that being more directly involved in her care and treatment planning could have improved the trajectory of her stay on the unit.

Some staff spoke of the necessity to proactively identify when patient needs are best served by integrating multidisciplinary team members (e.g., social work, occupational therapy, psychology) into their care, and to promptly involve those disciplines. Staff suggested an initial intake with youth and caregivers, including multidisciplinary representatives, to explore how the full team could best meet this youth's needs with the available resources. One staff reflected on the necessity to consider individual patient needs in the context of general unit restrictions, while balancing the eminence of safety. Another staff gave precedence to considering the distinct needs of patients with developmental disabilities (e.g., autism) within TIC.

When asked to reflect on any cultural, racial or gender considerations that would be important in planning the implementation of TIC, youth supported that an individualized approach is key. One youth and staff suggested it would be vital to ensure patients can access an appropriate prayer space. The caregiver raised the importance of offering care in the preferred language of the youth and family, preferably through having staff with diverse language skills, a sentiment shared by staff who suggested having interpreters readily available so as to provide assessments and care in a congruent language for patients and families without delay. The caregiver also raised the value of offering more culturally diverse food menu options, noting that the current menu contains mostly Westernized options. The caregiver and staff both echoed the need for a clear plan on how to cohort patients who identify as transgender, further noting the

need for education to better support transgender patients. Several staff spoke of the need to learn more both about specific cultures and about the intersection of mental health and cultures, and to be able to reflect on societal and personal biases to provide more culturally sensitive care.

Unit Programming. In articulating their vision of TIC, all groups of participants touched on aspects of unit programming to be developed to further support TIC. Participants discussed the fundamental need for therapeutic engagement, as a form of engagement that is intentional and empathetic and that fosters relational safety, trust, and emotional regulation. They also suggested unit programming content such as dialectical behaviour therapy (DBT), more physical activity, outdoor/nature activities, somatic and sensory approaches, and caregiver education and engagement.

An integral aspect of TIC that emerged was therapeutic engagement. The primacy of engagement was underscored by youth participants in contrast to unfavourable consequences of a lack of engagement. Youth described the necessity that staff be present with patients in their distress, rather than leaving them alone. Another youth described how consistent therapeutic engagement is vital in supporting distress tolerance and emotion regulation, and how a paucity of engagement can lead to accumulation of unexpressed distress that may present in more disruptive and even violent ways. The caregiver similarly endorsed that their youth's affect and level of engagement in therapeutic tasks fluctuated, depending on whether their assigned staff on that shift were present and engaged. Staff congruently voiced relational presence and engagement as essential to TIC, and many explicitly expressed a wish that the unit context be more conducive for staff to offer this ideal.

Participants also brought up a desire to incorporate specific types and content of programming on the unit, which they saw as congruent with TIC. Two youth referred to the

value of dialectical behaviour therapy (DBT) and advocated for more DBT components on the unit. Youth and staff also identified the need to integrate physical activity into programming. Similarly, three staff spoke to the value of finding creative ways to integrate nature-based programming within the setting of a locked unit. Some staff suggested incorporating more body-based somatic awareness programming, to increase patients' sense of internal safety, which they saw as a pre-requisite to trauma processing and a feasible task on an acute care unit. One staff highlighted that patients already familiar with the experience of emotional dysregulation, and that the providers' task is to gradually expose and familiarize the youth with emotionally soothing and safe experiences. Several staff and one youth echoed the value of offering more sensory soothing resources and interventions.

While youth had mixed perspectives on the extent to which caregivers should be involved during the admission, staff and the caregiver participants agreed that caregiver engagement and needs must be considered. Participants noted that focusing solely on the youth in treatment may overlook the needs of the caregivers in fostering their capacity to support the youth when they are discharged home. Some staff suggested building caregiver programming within the unit schedule, acknowledging that trauma is often passed down inter-generationally through interpersonal dynamics resulting in insecure attachments.

"Connecting to the Community" (Staff 3). Caregiver and staff participants spoke to the importance of linking the inpatient unit - including providers, youth, and caregivers – with community resources. Staff agreed upon the need to offer patients the option of referral to trauma-specific providers, as appropriate, post-discharge. Some staff specified the value of facilitating sensory regulation related referrals, with particular value on joint caregiver and youth participation in sensory co-regulation activities. The caregiver participant expressed surprise that

upon discharge her child had not been provided with any direct referrals or follow-up appointments. Given the significant safety concerns that led to the hospital admission, the caregiver assumed that some follow-up support would be offered. Additionally, staff spoke of a desire to become more familiar with the community resources where youth may be referred or transferred to, so to better support and prepare youth for discharge and follow-up.

3.5.2.2 Theme 2. Factors that Support or Limit Successful TIC Implementation

Need for A Broad "Cultural Shift" (Staff 10). To achieve TIC, participants spoke to the need for a "cultural change" (Staff 20)- more than simply a care intervention but a shift in everyone's approach to care and to working together. Staff emphasized that TIC needs to be implemented not only on the inpatient mental health unit, but hospital-wide and across all levels of staff. They rationalized that this would provide a consistent approach for patients as they travel through the hospital system, particularly in the emergency department, which is typically the point of entry to admission to the inpatient units.

Need to Improve Staff Supports and Multidisciplinary Team Collaboration. Within this cultural shift, staff articulated needs to be addressed to enable them to provide consistent TIC: a) trauma-informed support within a "culture of working together" (Staff 7), b) adequate TIC training, and c) post-incident debrief processes to support patients and staff and to foster meaningful improvements to care.

Staff reasoned that for TIC implementation to be successful at the level of patient care, it needed to begin with trauma-informed support for staff. They affirmed that just as TIC involves taking a less pathologizing approach to patient experiences, so too for staff. Staff suggested that it would require a culture shift for them to feel safe to share their own experiences with each other without stigma, and that supporting staff within a culture of TIC would facilitate TIC for

patients. They noted that staff may experience traumatic events at work, which may or may not be experienced by other staff as traumatic. Yet it is the individual's experience that must be validated and supported. One participant described that when staff are well supported to face their day-to-day challenges and to provide TIC for patients, it will reduce trauma in staff as well as patients. This participant further asserted that all levels of staff, including leadership, require this consistent support.

Direct care staff described a tension within their roles, with ever-accumulating tasks to complete, while acknowledging that TIC cannot be reduced to a task or checklist. Some staff expressed concern that implementing TIC would result in even more "tasks" (Staff 8) delegated to the direct care providers. Many staff expressed that the cultural shift needed to include a more cohesive and collaborative multi-disciplinary team approach. They spoke of the need for appreciation and respect of team members' roles and contributions across disciplines. One staff spoke of this notion in terms of cultural competence – acknowledging and respecting diverse professional cultures within a team when promoting team collaboration and cohesion. Staff further expressed a desire to continue to be involved in TIC implementation planning discussions to offer input into changes that would affect their daily work.

In addition, staff highlighted the need for training about TIC. They emphasized that training is essential but must be comprehensive and ongoing. Staff agreed that TIC training must provide not only knowledge, but also facilitate comfort in applying the knowledge and skills in practical contexts.

Further, staff spoke specifically to the need to improve the post-incident debrief processes. Some direct care participants wanted a more formal debrief process that incorporates multi-disciplinary team members in a format that is supportive of both patient and the staff

members involved. They noted that current debriefs are often rushed due to staffing needs and the acuity on the unit, preventing full or complete participation. Other staff suggested that someone external to the department offer debriefs and support for staff. Within any debrief process, they spoke of the necessity to consider individual needs of staff members. For example, some staff may be ready to debrief immediately after the incident, and others may need a day to reflect before reviewing the event with others. Finally, staff emphasized that any outcomes from a debrief must not only be documented, but also receive attention and follow-up from leadership to ensure that the lessons learned result in tangible changes.

Physical Environment on the Unit. All participants commented on the need to modify the unit's physical environment by: a) making the unit more visually comfortable and engaging, and b) adjusting the structure of the unit to create more therapeutic spaces.

More Visually Comfortable and Engaging. Participants from each group emphasized a need to improve the visual appearance of the unit. Youth and staff acknowledged the distinction "between making it comfortable and making it fun" (Youth 2), with the goal of creating a therapeutic environment that fosters safety and emotion regulation and thereby engagement in treatment. Staff voiced a need for more timely upkeep to fix broken areas of the unit (e.g., walls, windows), as well as visual design enhancements such as paint, artwork, and furniture that is calming, soothing, and friendly.

Creating More Therapeutic Spaces. Staff expressed a need for structural changes to allow for more therapeutic spaces on the unit. They highlighted the need for more meeting rooms where staff could meet privately with youth, caregivers, or colleagues. Participants noted that the entrance to the unit is far from the unit clerk, resulting in families needing to wait sometimes long periods at the unit door before being let in. They suggested that having the clerk closer to

the entrance would be more welcoming. Staff also suggested structural changes to the patient rooms and location of the patient showers that would increase patient dignity and decrease anxiety during their stay. Several staff emphasized the need for dedicated and safely constructed unit spaces for the most acute patients. They reasoned this would facilitate a quieter space for relatively less acute patients who could benefit from unit programming and protect them from noises that could be re-traumatizing. Youth similarly suggested the need for better insulated walls between patient rooms and more private spaces to provide privacy during conversations with others and to protect vulnerable youth from hearing other youth in distress. Staff also suggested the importance of larger spaces for patient physical activity.

Factors that May Limit Successful Implementation. Staff identified several factors limiting their current capacity to provide TIC, as well as perceived future factors that could limit successful implementation of the TIC program. These included a) 'Staff Buy-in', b) 'Delivery of TIC Training', and c) 'Maintenance and Sustainability Concerns'.

Staff Buy-in. Staff voiced concern that some staff may be reluctant to buy-into the new TIC approach to care. In particular, they suspected that there would be resistance to a program that required staff to share their own emotions and needs with their team members. Participants also expressed some concern about a perceived dichotomy of TIC versus maintaining physical safety of youth and staff.

Delivery of Training. One staff detailed concerns about a train-the-trainer model, that staff who are traumatized and burnt-out would not be effective trainers and champions for TIC. Furthermore, several staff described challenges in supporting direct care shift workers to complete trainings, given scheduling conflicts and staffing shortages. There was a consensus that

shift workers could not be expected to complete trainings on their days off, as that would be incongruent with a culture that fosters staff wellness.

Maintenance and Sustainability Concerns. Many staff expressed apprehension about maintaining a TIC program and sustaining the benefits. They described previous experiences with rollouts of new interventions, where there was initial enthusiasm that wavered with time, because of lack of forthcoming support and structure to sustain it.

Table 3.3

Themes and Illustrative Quotes

Theme	Explanation of Themes as Derived from Participant Quotes	Illustrative Quotes* (Y= Youth; C= Caregiver; S= Staff) *Not all the dimensions of the themes are represented, due to space constraints.
Theme 1. Understanding and Addressing the Underlying Reasons for Distress		
1.1 Participants' Understanding of TIC	Participants defined as TIC as: • Considering the underlying reasons for distress • Taking a less pathologizing and strengths-based lens • Understanding the effects of trauma and the importance of considering and addressing trauma in care • Avoiding re-traumatization • Considering experiences and capacities of caregivers and staff • Focusing on safety and connection • Using 'universal precautions'	"I think to me it means coming from a place of why people are feeling how they're feeling, instead of coming from a diagnosis-based place. Instead of saying, 'You're depressed so here's a bunch of drugs', saying, 'What factors are contributing to your depression, or what factors led to you having being suicidal'. Looking how things arose, instead of just putting a band-aid on it, working at those deeper set of issues." Y-2 "Instead of saying what's wrong with the person, it's more of, this is where they're at and how can we help them be a better version of themselves" C-1 "They might be there for depression, yet they have all these traumas, and they're only dealing with the depression… And if you don't take care of the traumas, what's the point in taking care of the depression... It's part of the puzzle… like the traumas are the biggest piece of the puzzle, because usually those are the things that are causing the other things." S-4
1.2 Trauma Screening and Trauma Processing	• Differing views on whether trauma screening and trauma processing should be a part of TIC on a short-stay unit to understand and address underlying reasons for distress • Considering the purpose, nature, delivery, and follow-up of screening practices	"I think the screening needs to happen…early detection starting right from when you walk in the door …but also understanding that people aren't going to talk to a bunch of strangers...so I think it's about starting early, and providing that open space to talk about it, but also following up and not assuming that what they say the first time is the hard facts." Y-2 "And then the screening and identifying piece…. my opinion is that that's not necessary, because … we just walk in with this notion that most individuals have experienced trauma. I feel like the early screening and comprehensive assessment…has the potential to re-trigger and retraumatize." S-3 "And standard screening for trauma…can we recognize also that there are going to be things that are not reported...Not just screening, but what this tells us, how will this impact our care." S-20

		"The early screening and comprehensive assessment, kind of depends on what that is right, I'll find that if we force people to open up when they're not ready, that's traumatizing in itself, depending on the environment...." S-19 "It does take a long time, meaning you can't just walk in and say what's bothering you, and walk back out… it's a way of approaching them and letting them talk." S-4 "I myself am pretty cautious about unpacking someone's trauma in the context of an inpatient admission or on the inpatient ward, because I can't control the variables to create the safety for a kid over an extended period of time, for them to actually work to truly heal their trauma, it's just it's a noisy loud unit, you just can't do that." S-2 "Because they're scared of the patient escalating, but you know, this is a safe space for patients to be able to deal with that…" S-13 "At the end of the day, the challenging part…is that we're crisis stay, and if we know that we're not going to get that kiddo when they're discharged, therapy right after; it's really hard to open up to tell me about all of this trauma, but yet you're not going to have supports once we've opened this up for you…." S-13 "Sometimes people aren't ready to work on them or to talk about it, or this isn't the right place for them to start building those attachments to have that discussion about the in-depth trauma work; [however] we can start the foundations, and that's normally the goal of the safety plan, that we're a part of the process…" S-19
1.3 Taking "A More Individualized Approach" (Y-2).	• Considering the patient's known trauma history, development, and sociocultural identities in care planning and delivery • Establishing a consistent way to communicate a patient's history and care needs within the care team • Involving youth (and caregivers) in care planning • Integrating appropriate multi-disciplinary team members early on. • Balancing individualized flexibility with unit safety • Considering developmental needs and disabilities • Improving cultural- and gender – competence in care	"Retelling what happened every single time to each person… it should just be told to everyone that's coming to check on the person, so that they don't have to keep bringing it up, because it could be traumatizing for some people...Because for me, I felt really overwhelmed when everyone kept asking me the exact same questions." Y-3 "She was tired of always retelling her story and I felt the same way…We bared our soul. I was like, okay what else do you need to know, because I knew it was helping [the patient], but I felt like it's the same story that I'm going to tell you again that you can read …" C-1 "We've got this standard one pager that you do; communication needs, sensory needs…. And it gets shared in an easy format right on the chart, and where the kid goes, it's easy to pull that up and go: Oh, quiet environment, kid does well with having this, I need to communicate expectations in this way…. But more aspects then these… the strengths profile; because these kids get brought in, and you look immediately to their deficits and their challenges. The strengths profile is so important because that's what you tap into to help the kid get through." S-20 "To have a more individualized approach, that one treatment doesn't fit all, and I think that just needs to be taken a lot more seriously…Because you can't just approach everyone with the same kind of idea of what people have gone through… you can't think that this set of circumstances is going to work for everyone…." Y-2 "If it were a more trauma-informed care based approach, I feel like questions would have been asked, like do you prefer male or female staff….And I wouldn't have been triggered and I wouldn't have been crying and screaming…So those kind of things would

		have been much different if people have asked me what my experiences were and how they could better help me while I was there." Y-2 "In my wildest dreams we would have at intake a meeting with that full team and that youth and family… then each discipline would be able to explore with that family what their possible role would be" S-6 "'Blanket restrictions'; which is just rules that we put on the unit for the entire unit that don't necessarily make sense [for every patient]...But I'm always questioning... how do we balance that on our unit… Sometimes we get into literally like restraints over the silliest things that literally when you look back, it makes zero sense, if you could have just let them have xyz you probably wouldn't have gotten to a restraint; was it really worth it... but again there's reasons why we don't allow blankets [and other safety restrictions], but does it need to be for everybody, probably not, how do we balance that…" S-18 "Is there room in this model to look to incorporate elements that can serve the population with developmental needs [e.g., autism]" S-20 **Cultural considerations in the delivery of TIC:** "I think just specific to each individual…Religious beliefs and values may need to be respected to a higher level than what is being done". Y-2 "I think we need to do better. We see so many kids coming in from different cultures and I don't think we're very sensitive to the fact that certain cultures look at mental health differently…" S-21 "Recognizing that we've got our biases, we don't want to have them, but we have to recognize that we have them…" S-20
1.4 Unit Programming.	• Focusing unit programming on therapeutic engagement with youth • Integrating programming content such as dialectical behaviour therapy (DBT), physical activity, outdoors/nature activities, somatic and sensory approaches, and programming and engagement that is inclusive of caregivers	"I don't know why there's this common thought that to put a person with mental health issues in a room thinking all day is going to fix them. But it's not, I promise you it's not… just sitting there thinking will not fix my depression, it won't fix the issues that I have, and there needs to be more engagement. Engagement is a big thing…Eliminating the social isolation punishment…Just having people be there with you in distress, instead of leaving you alone…" Y-2 "Nipping these problems in the bud and not letting them get to the point where people are being like physically aggressive … you don't often go from being completely calm to hitting your staff within five seconds, there are things that lead up to that. There are experiences, there are feelings, and trying to express those feelings. So, I think it would be really dishonest if someone were to say 'Oh well, they just they just got angry, they just started hitting me, I have no idea why'. But, did you look back, an hour earlier when you told them that they couldn't see their family that day, and you didn't stay with them to help through that distress? Or were you there when their parents called and said 'Oh hey I can't come today', did you sit with them through that? Did you help them when they had to be taken out of groups because they had harmed themselves or something they were being punished for, were you there to help them? Or did you let that anger built up, and that frustration, and those horrible feelings built up to the point where this [happened]? Then you're like 'Oh well, we're just going have to sedate them and restrain them, I mean there's nothing we can do'. But there was something you could do, you know." Y-1 "The more we can do to get people moving and not sitting in their rooms all day…" Y-2.

		"Our patients can be a very high-risk to be out in the community, but wouldn't it be great if we somehow cut a door out to the roof and create a nice park area where we could grow things, and have a secure area that they can be outside and experience nature, and programming possibilities would be endless…we could have a garden out there, we could grow food, we could grow trees, we could grow flowers... have a purpose to be out there…" S-6 "The somatic awareness… we first start working with them to help them understand the autonomic nervous system and regulation. We often will help clients to orient to the things that are working for them… the shirt that you chose today, notice that it's a comfy cozy hoody, and did you pick it because of the colour, did you pick it because it was sitting on the couch or the chair beside you, just notice what it feels like. Or that warm cup of tea that you have, and there's the sensory piece, notice the smells and notice the warmth of the mug … they know what dysregulation feels like, they're in hospital for dysregulation, so helping to notice what a little bit of regulation in a really small and titrated way feels like, and having them start to attune to that. And then that helps to expand their awareness that there is another place, there is that more balanced state in the nervous system." S-3 "I think it would be great if we had.the ability to play music in kids rooms or white noise... it would be fantastic if it was set up to speakers or something in the ceiling, where we could let kids choose preferred music or white noise…just something so that they can have their own safe place" S-19 "It's a family-based situation it's not just a patient-based" S-15. "Trauma-informed; yes, you're looking at [the patient], but…a piece has to be done for the caregivers as well. Because if the whole purpose is to have a patient learn the strategies...vocalize and get to a point where they have a safety plan in place and discharge can happen, as the caregivers you have to make sure that we are okay in doing what's being said in this, and that we have the tools to do it". C-1 "Hopefully in the future we could have some parent-child groups, maybe even on the unit in evenings during family time, coming together to learn about co-regulation, learning simple tools like how to practice validation, how to practice empathy...if we're going to bring in that trauma-informed piece, it's usually generational trauma …so the parents have trauma and then the kids subsequently are passed on that trauma, with the insecure attachments and all, that so how does that parent training look." S-1
1.5 "Connecting to the Community" (S-3).	• Offering trauma-sensitive and trauma-specific community referrals • Providing staff with knowledge relating to resources so they can better support patients with the transition to discharge • Directly supporting youth and caregivers in discharge preparation and follow up post-discharge	"That idea of connecting to the community... around trauma, as opposed to…dealing with the depression and not naming the trauma." S-3 "Connecting them to things in the community where they would be doing something together along those lines, like a yoga class or a drumming circle…" S-2 "She's met the criteria to be discharged, but everything falls on the parents or the caregivers to then continue on the journey... I was kind of surprised because I was like okay so [patient] becomes an outpatient right, and she gets to come back a little bit. And they were like no, there is no outpatient [follow-up], and I was like, what do you mean there's no outpatient [follow-up] for [patient], usually [after] someone's in the hospital, there are some type of a, come back, let's evaluate…" C-1

		"You're discharging my daughter. We've done everything that you've told us….what's the next piece to help us. And there wasn't really a next piece.…I think one of my recommendations or suggestions would be an aftercare for the parents, just a check-in a week later. 'How are things going, have you tried [the recommendations] from her the recommendation page…have you managed to achieve any of this… what's working really well, what can I help you with, what else can we tweak for you'…[We would] have felt validated… out of your seven recommendations we've done the first five. This one has been a really tricky one, what do you recommend we can do instead…." C-1 "I think it would be helpful if we could have the opportunity to go to visit other agencies or talk to other agencies. Our kids will often express being fearful or sad or anxious about being transferred to a different place or having to start a new program. And other than what's available within [our agency], none of us have ever really seen what these other places are like right… how much trauma-informed care can you deliver if, like you have no idea what you're talking about, how much reassurance can you give a patient…" S-14
Theme 2. Factors that Support or Limit Successful TIC Implementation		
2.1 Need for A Broad "Cultural Shift" (S-10).	• Requiring a broad cultural shift • Implementing TIC not only on the inpatient mental health unit, but hospital-wide and across all levels of staff.	"I feel like that is a huge cultural shift, like large, it's not just, here's a program and let's all follow it, it's a culture that we have to change…If we're going to truly embody trauma-informed care, that it has to be top down, like everybody." S-10 "When I think of trauma-informed care… it's so much more than just the interventions that we do, it's every aspect, it touches every aspect of the hospital and the inpatient experience…" S-6 "We really need to incorporate some of those values into our discussions, into the whole process, right from admitting on…" S-21
2.1.1 Need to Improve Staff Supports and Multidisciplinary Team Collaboration	• Staff need to experience trauma-informed support within a "culture of working together" • Staff wish to have a voice in the implementation planning.	"When we look at implementing a trauma-informed care model, the first part that goes to my mind is, okay trauma-informed for the patients, but I think we need to actually start at the base- and that's trauma-informed for the staff, because we're not going to be able to appropriately, safely, trauma-informed-ly,if that's a word, support our patients, if our staff aren't even at that. So I think the best way for this to be successful, is starting at the roots and the basics, with the staff." S-7 "How do you make an environment where people are talking in a non-pathologizing way about the experiences we go through, as well as our patients' experiences…" S-9 "If that person is feeling it's trauma it's trauma. It doesn't matter what it was, because that person's experiences need to be validated and supported. Rather than dismissed, because we do lose staff because of that sometimes." S-8 "The recognition that reducing trauma in kids will probably correlate with reducing trauma in staff…They [direct care staff] need to know that they can turn around and go, 'Listen this isn't working' and somebody's got their back…What kind of a culture, what kind of support do staff need to have so they can show up all the time?…Staff need that to feel secure… What happens can influence whether you walk away from a difficult situation feeling like, that was hard but I'm okay, versus, that was hard and I'm not okay, and I still have to keep going back into that situation, even though I'm not ok." S-20

	"I've seen over the pandemic signs of clinical leaders burning out… But I also see…and recognize, that's because you have no idea what to do, and you don't feel supported, and you feel at the end of your rope ...So, the support also needs to be at the upper clinical levels, in the managerial levels… at every level. We can slip into negative practices, or we can put in the supports that we need to keep ourselves framed in positive and therapeutic stances. So yes, multi-tiered support." S-20 "And it's hard to [provide] 'trauma-informed care' if you have too many tasks in a day, because you can't just tick off- I was trauma-informed today… it's a much bigger thing." S-8 "My other concern is that a lot of that will again fall to frontline [staff]…how can we kind of give pieces to all of the team members…." S-10 "Recognizing people's roles, and understanding how trauma-informed care can be impacted by us working in silos, or our roles not being clearly defined or respected, or our roles not fitting into each other's' properly or accurately." S-5 "The allied health team; because I feel it's very 'frontline staff versus others' and if we are going to work towards trauma-informed care, it has to be everyone right. Social work, OTs [occupational therapists] everyone, psychiatrists." S-19 "We also need to show that we are a team, and we work together…that culture of working together." S-7 "When you say culture, I think of cultural ways of knowing. So different people experience different traumas differently, I'd also wonder about … professional cultures, so how different people see themselves as helping, and do we always recognize when people are seeing themselves as helping... And how do professionals take care of themselves, and what spaces are made for that, even if that looks different between professions..." S-9 "As frontline I feel like we're often not always involved in the decisions of things and the rollout…we didn't really get a say in how it was going to change our day-to-day lives… so I am really enjoying being able to give my input, and hope that we can keep these kinds of discussions going." S-13
• Staff need to receive adequate TIC training	"I would like to see…regular refreshers and ongoing training, not just a one-off…I've had all of those introductions to CBT and DBT but I don't feel that I've had accurate time to be able to practice the little bits that I did learn…" S-7 "My concern… if we are to get trauma-informed training, introductions are good, but they can't fully support a patient by only having little bits of training, here and there, and not [be] fully competent in anything" S-12 "Things like that are really difficult when you don't have that simulation-based practice…then you're learning in a crisis situation where we don't learn well…" S-19
• Needing to enhance debrief processes to be more supportive of staff and in turn of youth, and	"I would love to see more time made for debriefing after a significant event. That could be more time to debrief with the patient…but not just one-on-one with the assigned staff…[also]with the physician present or with social work present, but done in a way that it's not intimidating for the patient. I think that oftentimes it falls on just frontline to review what happened with the

	to result in meaningful improvements to care	patient, one-on-one…I think that to come together would be helpful for staff to feel supported...And it comes across as more supportive [for the patient], 'We're your team…what can we do differently'" S-14 "Oftentimes the debriefs turn into everybody pointing out what went wrong, which isn't really supportive for that staff…" S-14 "A lot of the times our debriefs are rushed because there's not enough staff to cover the floor... there's never any coverage ... people aren't given the time or opportunity to talk...We still have to attend to patient care, so then whoever is involved in that situation is once again just forced to get back onto the floor and continue on with their day and not really have a safe space to process anything that just happened." S-14 "I honestly wonder if it could be someone outside of management and leadership, a third party to come in or to review it with us…I think sometimes it's hard to be completely honest with how you're feeling to management and leadership…. that would give you, or someone who's just been through a significant event, a contact person to be able to say, 'This is what happened, like this is how I'm feeling'…because if they can tell, well, this one person came to me about it, and this person and this person, this seems to be a significant thing, why don't we liaise with management or whoever to escalate this further, because it seems to be affecting a lot more staff than we thought." S-13 "We all process emotions at different times right, so for some people, right after is the time where they can shift their emotions and be like okay … I'm ready to have that conversation. But not all of our staff are going to be able to do that. Some of our staff may need that time to go home to process it, to do other things to then say okay, I'm ready to hear what I could have done differently. And I think that comes at the trauma-informed perspective that we're all very different…." S-19 "In these group debriefs, the few times that we have been able to do them, we say what went well, what didn't go well, but there's not really any follow-up. Yes, you can say what didn't go well…or what we could do better next time, and then somebody writes it on a paper, and then nothing comes of it… contributes to staff not feeling supported, and to re-traumatization of staff. And I also think that…it's not good for the patient either …" S-14
2.2 Physical Environment on the Unit.	• The physical environment of the unit affects staff's ability to provide TIC ○ Needing for the unit to be more visually engaging and comforting ○ Needing to create more therapeutic spaces	"If there was a way to make it less hospital-y… a way to make it a little bit less horrifyingly scary when you first walk in the door." Y-2 "It's almost a distinction between welcoming and hospitable, so you don't want to say welcome on [the unit]… but you do want to be hospitable to people and…you want to figure out a way that they can be somewhat comfortable in the uncomfortableness of what they're going through." S-9 "Recognizing that the right physical space has to be there, and it has to be there for the kid yes, and it has to be there for the staff; to know that they can do what the kid needs, while keeping themselves safe. So, the right physical setup is key." S-20 "To help either burn off energy or do something that gets them outside of the walls [of their room] where they're just stewing in their emotions" S-13

		"We don't have the inviting places to have those one-to-one therapeutic conversations with whatever person or team member that might be." S-7 "Even staff spaces don't seem to be places where people can sit and talk…just to sit down and debrief with somebody..." S-9
2.3 Factors that May Limit Successful Implementation.		
2.3.1 Staff Buy-in	• Concerns around potential lack of staff buy-in for new TIC approach to care	"I wonder about the receptiveness of staff [to being vulnerable about their own emotions and needs]" S-6 "They [staff] don't want to feel like they're in therapy…I think there is this culture of…if I don't feel like I can trust you, I'm not going to let my guard down and really be vulnerable and let you know how my feelings are… I think that our unit would be very reluctant to participate." S-21 "It can't even get off the ground, because you have strong voices that are just not going to be a part of it. And they impact other people, and then the whole thing gets sabotaged by the strong voices that have been around for years." S-21 "We obviously do [need] the trauma-informed care, but we are also responsible for maintaining physical safety of the patient and staff, so I think it's going to be that delicate dynamic… [and] is where I feel there might be difficulty [with] buy-in, is maintaining the trauma-informed [care] and maintaining safety." S-8
2.3.2 Delivery of Training	• Concerns the train-the trainer model and traumatized and burnt-out staff becoming trainers • Challenges supporting direct care staff to complete trainings	"When you rely on people [current staff] to do that training [train-the-trainer], what happens is all of those feelings of frustration, having no job satisfaction, it all siphons through. And so now, even though you had a brand-new staff, who was motivated…is a really skilled person, now they become tarnished … And we need to address that before we can bring something in ..,I don't have a whole lot of hope." S-21 "They try with the education and half the time people can't even attend …" S-8 "Having to actually change the culture in how you deliver the education" S-8
2.3.3 Maintenance Concerns	• Concerns around maintaining the new TIC program.	"It is hot in the moment and popular in the moment, and we try to live by it in the moment, and then as we get busy, as we get more kids, a lot of that is forgotten, and then we slip back into what we were doing before. And there's no accountability of where...or why did we stop, and how do we get back to it right, and it almost feels like now we're just waiting for the next new model of care all over again…" S-14 "Since we got all the training, or since we said this is what we're starting, there hasn't been any follow-up, and we're all just kind of trying to stay afloat at this point, and doing what we think is right in the moment, versus being able to have the time or have the check-ins to say, are we on the right track." S-14 "It was so many little things that all got implemented at the same time, and sometimes I don't really remember what's in the new care model -what am I supposed to be doing…" S-13

3.6 Discussion

This study offers youth, caregiver, and staff perspectives on TIC at a pediatric hospital and on issues that should be considered when implementing a TIC program on an inpatient mental health unit. Participants shared their understanding of TIC, their vision of how TIC would ideally be operationalized in the current setting, and their perceptions of factors that would enable or limit the successful implementation of TIC. Our findings lead us to four main discussion points: the centrality of relational engagement in TIC and in the implementation of TIC, core TIC program components, mental health unit and hospital-wide factors for success in implementing TIC, and the importance of intersectoral collaboration (partnering with external organizations and sectors).

3.6.1 Centrality of Relational Engagement in TIC and in the Implementation of TIC

All participant groups described that psychologically safe, supporting, and trusting engagement is core to both implementing and delivering TIC. The absence of such engagement, "social isolation", was expressed by youth as unhelpful, and prone to be retraumatizing. One youth described how when patients experience a lack of trust and engagement, as well as disinterest from their staff, then providers may easily misunderstand the context of patients' escalating distress. Staff participants also stated the importance of facilitating relational improvements between youth and their caregiver(s). Furthermore, staff specified that to be able to provide TIC, staff must first experience safety, support, and engagement within their workplace and multi-disciplinary teams. Relational engagement is defined as engagement within a relational ethic framework that considers three transactional dimensions: power, compassion, and openness to uncertainty (acknowledgement that another's truth may not be fully known or

understood) (Birrell & Bruns, 2016). Our findings suggest that relational engagement is required to implement and deliver TIC.

The social and relational context is an essential mediator of individual stress response (e.g., Perry, 2009). Furthermore, trauma has been conceptualized at its essence as a relational experience of being disconnected and isolated from safe and trusting relational support before, during, or after events of adversity (e.g., Badenoch, 2018). While there are differences in how individuals cope with and overcome stress and trauma, experts repeatedly observed the significance of healthy relationships in protecting from and healing from trauma (Badenoch, 2018; Halladay Goldman, et al., 2019; Perry, 2009), and assert that "relationships are the agent of change" (Perry & Szalavitz, 2006, p. 230). On the other hand, those who experience very few positive relational contacts during and following traumatic events, find it more challenging to manage and decrease trauma-activated stress reactivity, resulting in a higher likelihood of ongoing symptoms and challenges (Perry & Szalavitz, 2006). With the relational environment as the facilitator of therapeutic experiences, it is those youth with relational stability and multiple secure adults invested in their lives that tend to improve in their trauma-related symptoms. Those with a paucity of secure and predictable relationships do not improve, regardless of the therapeutic treatments they receive (Perry, 2009). Psychological safety is an interpersonally based concept, defined as the belief that the context is interpersonally safe for vulnerability and risk-taking, and that one can express oneself without negative consequences (Plasse, 2015). It is within an atmosphere of psychological safety that individuals and teams can learn and "feel secure and capable of changing" (Edmondson, 1999, p.354), and develop a sense of agency to live within their values (e.g. Brown & McCormack, 2016; Wanless 2016). It is therefore congruent with current theories that the transactional nature of relational engagement impacting

healing and wellness emerged in the findings as a central element of TIC. Thus, the foundation of psychologically safe and restorative relational engagement, for youth, caregivers, and staff, must be considered when selecting, or developing and implementing a TIC program.

In addition to the prominence of relational engagement within a TIC program, staff participants highlighted the importance of leadership relational engagement with staff throughout the implementation process to facilitate effective TIC practice changes. The healthcare implementation science literature describes successful implementation as resulting "from the interactions and engagement of multiple stakeholders who are a part of a complex system" (Harrison & Graham, 2021, p.5), stressing that the interactions and engagement with KUs are key determinants of success (e.g., Ozanne et al., 2017). The evidence pertaining to TIC implementation similarly points to the importance of engaging and involving patients, caregivers, staff members, and community-based partners who are affected by or may affect the TIC program and implementation process. These KUs can participate in preparing for TIC implementation, including planning, adapting, implementing, evaluating, and maintaining (e.g., Bryson et al., 2017; Halladay Goldman, et al., 2019; Mihelicova et al., 2018; Wassink-de Stigter et al., 2022; Yatchmenoff et al., 2017). Staff in this study were enthusiastic to participate and share their perspectives and expressed a strong desire to continue to be involved in the TIC implementation planning process. The implementation process itself should mirror the safe, transparent, and predictable aspects of meaningful relational engagement that are prioritized within the clinical applications of TIC. This includes facilitating empowerment, voice, and choice amongst all involved.

3.6.2 Core TIC Program Components

Study participants identified core elements of TIC to be integrated on an acute care mental health unit, which align closely with the key domains in the TIC literature. For example, the National Child Traumatic Stress Network (NCTSN) Trauma-Informed Organizational Assessment (TIOA) covers nine key domains to creating a trauma-informed program or organization, all of which were raised by participants in this study: a) Trauma Screening, b) Assessment, Care-Planning and Treatment, c) Workforce Development, d) Strengthening Resilience and Protective Factors, e) Addressing Parent/Caregiver Trauma, f) Continuity of Care and Cross-System Collaboration, g) Addressing, Reducing and Treating Secondary Traumatic Stress, h) Partnering with Youth and Families, and i) Addressing the Intersections of Culture, Race and Trauma (Halladay Goldman, et al., 2019). The TIOA nine domains are also consistent with other reviews of TIC definitions and interventions in the literature (e.g., Bendall et al., 2021; Branson et al., 2017; Conradi & Wilson, 2010). Previous critiques of TIC have pointed to an ambiguity about the operationalization of TIC principles and the core clinical components of TIC interventions, calling for clarity with respect to its practical application (e.g., Berliner & Kolko, 2016; Mihelicova et al., 2018; Yatchmenoff et al., 2017). As Wassink-de Stigter and colleagues (2022) noted, successful implementation of an innovation such as TIC depends in part on adequately defining the characteristics of the innovation, the changes to be made, and the individuals that need to be involved. In selecting and adapting a TIC program to inpatient unit settings, it will be important to consider the priorities expressed by study participants, including clarification of inclusion of trauma screening and processing, individualized approaches to care, elements of structured unit programming, and fostering community connections.

3.6.2.1 Core TIC Program Components: Including Trauma Screening versus Clinical Inquiry

Among participants in this study, there were differing perspectives on whether and how trauma screening and trauma processing (trauma-focused treatment) should be integrated on an acute care mental health unit. Much of the TIC literature presents a generally consistent view that trauma screening and access to trauma-specific treatments are core elements of TIC (e.g., Bendall et al., 2021; Branson et al., 2017; Conradi & Wilson, 2010; Halladay Goldman, et al., 2019). Proponents of trauma screening urge that trauma-informed organizations serving youth with acute mental health concerns need a clear process of identifying youth who may have experienced trauma and who require a subsequent comprehensive trauma-informed mental health assessment and appropriate referrals (Halladay Goldman, et al., 2019). However, other authors acknowledge that trauma screening is complex and not without risks (Bendall et al., 2021; Berliner & Kolko, 2016; Yatchmenoff et al., 2017). There is evidence that screening, particularly when it is not conducted in a trauma-informed manner, can cause distress for a minority of youth, generating a conflict between two elements of TIC: screening and avoiding re-traumatization (Bendall et al., 2021). Furthermore, there is evidence suggesting that universal trauma screening, such as in general pediatric settings, carries risks of harm and offers limited benefits (Loveday et al., 2022; World Health Organization (WHO), 2022). Moreover, screening in the absence of an appropriate therapeutic response and specialized referral would call into question the purpose of screening (Berliner & Kolko, 2016).

That said, in a specialized acute mental health setting, where the prevalence of trauma is relatively high, and the influence of trauma exposure on their mental health presentation is potentially significant, using methods to identify trauma-exposed patients may be justified. Rather than screening per se, the WHO (2022) suggests taking an approach referred to as clinical

inquiry when signs, symptoms, or clinical history suggest the possibility of trauma or maltreatment (such as a mental health inpatient admission). In clinical inquiry, a trained professional raises the topic of trauma and inquiries about potential trauma exposure while also providing first-line support following disclosures. Such an approach requires: a private setting, ensured confidentiality, a protocol or standard operating procedures, trained providers, and a system for referrals (WHO, 2022). The clinical inquiry approach to identifying trauma-exposed youth is consistent with literature pertaining to trauma-informed trauma screening, acknowledges and addresses the potential of distress, and ensures protocols are in place to reduce and manage that distress, such as fully informing participants of the purpose and results of the assessment, a prompt response to the needs identified, and support for youth, caregivers, and staff throughout the process (Bendall et al., 2021; Halladay Goldman, et al., 2019). Furthermore, as highlighted in our findings, the nuanced context of screening/clinical inquiry matters greatly, and those designated to conduct the assessment must receive specialized training, monitoring, supervision, and support (Halladay Goldman, et al., 2019, Yatchmenoff et al., 2017).

In considering whether to incorporate trauma screening or clinical inquiry into a TIC program in the context of an acute care mental health inpatient unit, it will be important for decision-makers to reflect on the purpose of the assessment, and whether there are protocols and resources in place to meet that purpose (such as follow-up assessments and referrals for trauma-specific treatment). Identifying diverging views staff member may hold on trauma screening/inquiry can assist implementation planning regarding whether screening or clinical inquiry should occur, and if so by whom, when, and how.

3.6.3 Mental Health Unit and Hospital-wide Factors for Success in Implementing TIC

Participants described elements that would need to be in place, or considered, to support successful implementation of TIC. While these elements were relevant specifically to the inpatient mental health unit, many may also have relevance to hospital-wide implementation of TIC. As pre-requisite to TIC, staff participants underscored the need for a cultural shift; that staff in all roles need to experience the trauma-informed principles (of physical and psychological safety, trustworthiness and transparency, support, collaboration, empowerment, and acknowledgement of cultural and gender considerations; SAMHSA, 2014) as individuals and teams within their work settings. Furthermore, implementation of TIC will need to incorporate comprehensive and practice-based training for staff, as well as ongoing supervision, coaching, and debriefs, all tailored to the context and delivered in a safe and supportive manner. This is consistent with literature citing that TIC training is essential, but on its own insufficient for successful implementation (e.g., Bendall et al., 2021; Mihelicova et al., 2018; Wassink-de Stigter et al., 2022; Williams & Smith, 2017). Trauma-informed systems of support for the safety and well-being of all levels of staff, and a culture shift that fosters respect and collaboration across roles is essential (Halladay Goldman, et al., 2019; Isobel et al., 2021; Roberts et al., 2023; Williams & Smith, 2017). Staff also described factors they perceived may limit successful implementation of TIC, including concerns relating to staff buy-in, and to the scheduling and delivery of TIC training (burnt-out staff training other staff within the proposed train-the-trainer model). Difficulties obtaining staff buy-in is a commonly reported barrier in the implementation of TIC, linked to staff attitudes and beliefs about the need for TIC, investment in traditional behavioral approaches, a general resistance to changes, and inadequate infrastructure support (e.g., Champine et al, 2022; Wassink-de Stigter et al., 2022). Staff buy-in may be fostered

through a shared understanding of: staff perceptions of relevance of the TIC program; benefits and drawbacks of the innovation; and of outcome expectations (Fleuren et al., 2014). Implementation of TIC will need to thoughtfully address factors related to the scheduling and delivery of staff training, as well as to reluctance and vulnerability about the new TIC program and clarify how TIC balances and addresses the physical and psychological safety of all individuals.

Participants suggested that to achieve TIC, the physical environment needs to be more visually soothing and engaging, and the structure of the unit may need adjustments to offer sufficient therapeutic spaces. Other studies have similarly reported that to facilitate TIC, the physical and architectural design of inpatient mental health units must be hospitable and support safety and relational engagement (Wilson et al., 2023; Yatchmenoff et al., 2017). Involving youth, caregivers, and staff in the process of reviewing and modifying the physical environment may help ensure that the changes are suitable and respectful of those with diverse experiences, cultures, and roles (Halladay Goldman, et al., 2019; Yatchmenoff et al., 2017).

Finally, participants asserted that to achieve TIC, and the broad cultural shift TIC encompasses, implementation must occur not only within the mental health unit, but hospital-wide. In particular, the emergency department, where most patients are first triaged and assessed before admission, needs to offer a consistent TIC approach, to facilitate a seamless patient experience throughout their hospital encounter. Our findings also raised concerns about maintaining the TIC program and sustaining the gains, given staff experiences with previous innovations that were implemented without sufficient support to maintain. Implementation planning will need to incorporate a comprehensive strategy to support sustainability of the TIC program.

3.6.4 Intersectoral Collaboration

Participants voiced that a trauma-informed program would need to consider how to better support youth and families in the transition from inpatient admission to discharge to the community. As Berliner and Kolko (2016) maintain, TIC ultimately only holds value if the innovation improves the lives of youth and families, and presumably their lives post-discharge. Thus, a TIC program would ideally transcend an episodic hospital-based encounter and bridge youth and caregivers to ongoing, integrated, individualized, and holistic care, in contrast to ongoing disenfranchisement and re-traumatization (Halladay Goldman, et al., 2019). Reviews have consistently identified interagency or intersectoral collaboration as a core component of TIC (e.g., Bendall et al., 2021; Branson et al., 2017; Conradi & Wilson, 2010). Intersectoral collaboration in TIC has two goals: 1) coordination, integration, and continuity of care for youth and families across systems, and 2) development of partnerships with external agencies, including all levels of staff, to foster a shared understanding of TIC and to inform ongoing planning of TIC implementation and maintenance across systems (Halladay Goldman, et al., 2019; Roberts et al., 2023).

3.6.5 Implications

Table 3.4 presents the implications for implementation of TIC on an acute pediatric mental health inpatient unit, based on the youth, caregiver, and staff perspectives reported in this study. In Figure 3.1 we introduce a summary of the implications which may be useful beyond our local setting. Within concentric circles, we propose five fundamental domains to consider and address in implementing TIC in a pediatric mental health inpatient setting: a) TIC program components that make up the clinical intervention; b) Mental health unit factors for success in implementing TIC (factors that may facilitate or hinder successfully implementation), c)

Hospital-wide factors for success in implementing TIC, d) Intersectoral collaboration, and e) We suggest that the final outer domain of relational engagement envelops each of the first four domains as a chief tenet necessary for both the implementation and the delivery of TIC.

Table 3.4

Implications for TIC Implementation

Relational Engagement (within TIC Program and TIC Implementation)

- Policies and staff/ care providers prioritize safe relational engagement with youth and with caregivers in treatment
- Leadership prioritizes staff engagement and support in TIC implementation planning and enactment

Components to Consider in a TIC Program

- **Leadership selects and staff enacts a TIC program that incorporates these factors:**
  - Approaching each person with intent to understand the underlying contributors
  - Taking a strengths-based perspective
  - Understanding the effects of trauma
  - Addressing the effects of trauma in care
  - Avoiding further trauma in care
  - Considering a trauma-informed culture not only for patients but also for caregivers and staff
  - Incorporating emphasis on: Safety, Connection, Managing Emotions, and 'Universal Precautions'
- Trauma Screening/Processing Policies and Practices:
  - Leadership reaches consensus on whether/how to integrate trauma screening or inquiry in TIC and whether/how to integrate trauma processing in TIC or a system to refer for trauma processing post-discharge, and staff enact these practices
  - Policies and practices consider goals, context, delivery, and follow-up of trauma screening/clinical inquiry
- Unit Programming Policies and Practices:
  - Leaderships considers integration of DBT components, physical activity, outdoors/nature, somatic and sensory approaches, under an umbrella of relational engagement
- Care Planning Policies and Practices:
  - Require a consistent way to document and communicate a patient's identified trauma history to other staff
  - Integrate patient-specific needs related to the trauma into a care plan that is readily accessible to the care team; Take a strengths-based lens to the care plan
  - Consider how individual patient experiences, perspectives, and characteristics, including developmental, cultural, and gender, inform the planning and delivery of treatment and care
  - Take a more collaborative approach to care (with youth and families)
  - Proactively identify and include relevant members of the multi-disciplinary team in care planning
- Discharge Planning Policies and Practices:
  - Link to appropriate referrals post-discharge (e.g., psychotherapy, including trauma processing, sensory integration)
  - Provide a follow-up check-in for youth/caregiver post-discharge
  - Educate staff about community resources so they can better prepare and support youth and caregivers

Mental Health Unit and Hospital Wide Considerations for Leadership

- TIC Support for Staff:
  - TIC should begin with trauma-informed support for staff at all levels; This includes not only direct care providers, but also non-clinical staff, and leadership

- Direct care healthcare-professionals should be supported to navigate the tension between accumulating tasks and performing TIC, which cannot be reduced to a task or check-box
- Foster a more cohesive and collaborative multi-disciplinary team environment to support a culture of working together

- TIC Education and Training:
  - At the undergraduate and post-graduate levels for nurses and other healthcare-professionals, consider offering foundational training about trauma, neurodevelopmental effects of trauma, and TIC, including theory, research, and practical simulation
  - At the post-graduate level, consider ongoing and comprehensive education about TIC in relation to the care setting (e.g., pediatric inpatient mental health unit)
  - If selecting a train-the-trainer model, consider and address the issue of burned-out and traumatized staff as trainers
  - Consider how direct care healthcare-professionals will be supported to complete TIC training within their scheduled work hours
  - Consider educational formats that may foster opportunities to increase multidisciplinary collaboration and enrich multidisciplinary care delivery for patients
- Debriefing Process and Practice:
  - Institute a formal incident debrief process including the larger multi-disciplinary team, that is supportive of, and allows for, the participation of staff and youth
  - Include someone external of departmental leadership to offer debriefs and support for staff
  - Debrief findings should receive attention by leadership and follow-up, to ensure the enactment of tangible changes for patients and for staff
- Physical Unit Environment:
  - Make the unit more visually comfortable and engaging
  - Adjust the structure and setup of the unit to create more therapeutic spaces
- Leadership Address Staff Buy-In:
  - Explore and address staff reluctance and vulnerability around new TIC program
  - Support staff in navigating TIC inclusive of managing physical safety of youth and staff

Hospital-wide Considerations for Leadership

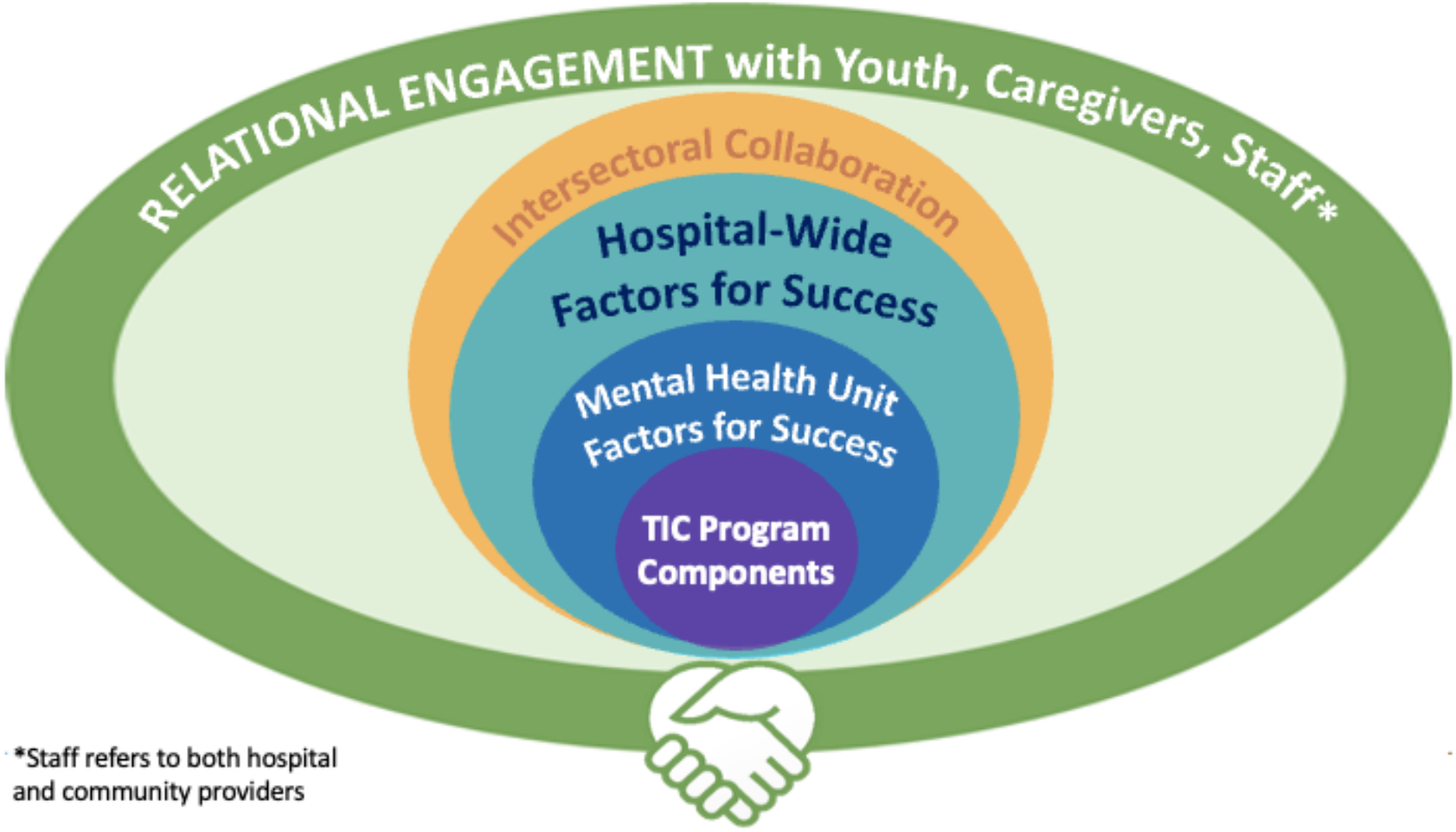
- Promote a Trauma-Informed Cultural Shift:
  - Plan and execute strategies to support a hospital-wide TIC culture shift
- Support Broad Implementation:
  - Plan hospital-wide implementation of TIC, including in the Emergency Department
- Focus on Sustainability of Program Benefits:
  - Incorporate a comprehensive strategy to support sustainability of the benefits of the TIC program within implementation planning
  - Engage youth, caregivers and all levels of staff in the implementation planning

Intersectoral Collaboration

- Leadership plans for and staff undertake intra-agency and inter-agency engagement in care to promote coordination, integration, and continuity of care for youth and families across systems
- Leadership develops partnerships with external agencies, including all levels of staff, to foster a shared understanding of TIC and to inform ongoing planning of TIC implementation and maintenance across systems

Figure 3.1

Domains for Consideration in Implementing TIC



3.7 Strengths and Limitations

This study sought the perspectives of youth, caregivers, and staff to inform the implementation of a TIC program on a pediatric inpatient mental health unit. Twenty-five participants volunteered to participate; however, the majority were staff members (n=21) with only a few youth (n=3) and caregiver (n=1) participants. Therefore, most of the data came from staff input, with several sub-themes encompassing views expressed solely from staff (e.g., the Need to Improve Staff Supports and Multidisciplinary Team Collaboration, and Factors that May Limit Successful Implementation of TIC). Further, all except one participant identified as a woman. Further representation from youth and caregivers, and from gender diverse participants, may have yielded additional findings. Nonetheless, participants that volunteered for this study each provided rich and relevant perspectives.

3.8 Conclusions and Directions for Future Research

This qualitative study sought to explore youth, caregiver, and staff perspectives on a pediatric inpatient mental health unit relating to a) their vision of TIC in this setting and b) what would be needed for a TIC program to be successfully implemented within the setting. What emerged from these findings were five key domains to consider within TIC implementation: a) the centrality of relational engagement in TIC and in implementation of TIC, b) TIC core program components, c) factors that may support or limit success in implementing TIC within the mental health unit and d) hospital-wide, and e) the importance of intersectoral collaboration. At present, we are drawing on these findings to customize the TIC program to the local context and to develop a tailored implementation plan before field testing and launching the program. Engaging youth, caregiver, and staff KUs during the implementation planning process highlighted essential issues to consider in adapting and implementing a TIC program in the local

setting. We recommend future research to continue to explore and broaden our understanding of KU perspectives regarding TIC and successful implementation of TIC, including youth (patients), caregivers, and staff members in varied healthcare settings. These perspectives may be elicited at various stages of the TIC implementation planning process and inform ongoing modifications, as needed. We also recommend careful documentation of TIC implementation activities and outputs to allow for clear and comprehensive dissemination of what was done and by whom, clinical and process outcomes, and lessons learned through this experience.

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Chapter 4 Using IKT to Plan Implementation of a Trauma-Informed Care Program: A Trainee's Experience

This chapter expands on the following peer-reviewed published article:

Stokes, Y., Aggarwal, D., Cloutier, P., Graham, I.D., Tricco, A.C., Jacob, J.D., Hambrick, E., Lewis, K.B. (2022). Planning the implementation of a trauma-informed care program at a pediatric hospital: A trainee's experience using an integrated knowledge translation process (pp. 20-24). In: J. Reszel, C. McCutcheon, A. Kothari, I.D. Graham (Eds): *How we work together: The integrated knowledge translation casebook* (Vol. 6). Integrated Knowledge Translation Research Network. https://IKTrn.ohri.ca/projects/casebook/

4.1 Background and Aims

This article was originally published in the Integrated Knowledge Translation Research Network (IKTRN) Casebook 2022 Special Issue on Children & Youth (Stokes et al., 2022; See Appendix J). In this expanded version, I elaborate on what was previously published. I provide an update and offer further reflections on the use of an integrated knowledge translation (IKT) approach throughout the implementation planning process. First, I will introduce IKT and the importance of sharing IKT approaches and experiences. Second, I will provide an overview of how the theoretical approaches underpinned my IKT approach. Third, I will describe the IKT approach of this thesis research to planning the implementation of a trauma-informed care (TIC) program at an acute pediatric hospital. Specifically, this chapter will describe a) the initiation of the partnership and the development of shared research aims, b) the management of the partnership and the implementation steps, as framed by the Implementation Roadmap (Harrison & Graham, 2021), c) the impact of the IKT partnership and of engagement with knowledge-users (KUs), and d) my reflections on lessons learned as a trainee using an IKT approach.

4.1.1 Integrated Knowledge Translation (IKT)

IKT is a collaborative model of research, "where researchers work with knowledge-users (KUs) who identify a problem and have the authority to implement the research recommendations," (Kothari et al., 2017, p. 299) with the goal of co-producing relevant research findings to be implemented. The application of IKT can increase the value of research among decision-makers, increase the capacity of decision-makers for engaging in research (Gagliardi et al., 2016), and generate more relevant and usable research findings (Cassidy et al., 2021; Walter et al., 2003). A recent scoping review examined the evidence about health research trainees' use of IKT (Cassidy et al., 2021). The authors found that trainees reported collaborating with KUs at

various stages of the research, including generating the research question, developing the research proposal, administrative pre-launch of the research, recruitment and data collection, data analysis, and dissemination and implementation of the findings (Cassidy et al., 2021). The level of KU engagement varied, based on the International Association for Public Participation (IAP2) Spectrum for Public Participation (IAP2, 2018), ranging from *Inform* to *Empower*, with most studies involving KUs at the level of *Collaborate.* Overall, this scoping review found gaps and ambiguity in the reporting of trainee led IKT research and recommended trainees clearly articulate a) their goals in using an IKT approach, b) the specific activities they used in each level of engagement, and c) the outcomes of their partner engagement.

4.1.2 Critical Realism and Complexity as Theoretical Approaches for this IKT Project

I applied critical realism and complexity theory as sensitizing theoretical approaches for this IKT project. Complexity theory is rooted in critical realism, which acknowledges the world as a layered, complex system containing an infinite number of dynamic and interrelating complex systems, making linear predictions difficult, and encouraging post-hoc explanations and exploring longer-term outcome tendencies (Callaghan, 2008). Healthcare interventions are often complex, involving several dynamic and interacting components relating to the intervention itself, as well as the implementation of the intervention, the providers delivering the intervention, the recipients of the intervention, the setting and context, and the theoretical and research basis (Clark, 2013). Components can be material, human, theoretical, social, or procedural, and may exert influence individually or in combination (Clark, 2013). Challenges occur when some components and their influence are deemed absent or irrelevant, such as seeing the intervention as whole onto itself, distinct from the implementation and contextual factors that compose it (Clark, 2013). In PhD Study 2 (Stokes et al., In Press) youth, caregiver, and staff participants

clearly conveyed the importance of not only the TIC intervention ingredients, but also considerations relating to individuals and groups receiving and providing the intervention, the physical setting, the implementation process, and the context within and beyond the target unit. Alternatively, there are times when the boundaries between the intervention and its components is blurred, and the intervention becomes defined by and equated with a single part, such a provider or an implementation strategy (Clark, 2013). In PhD Study 1 (Stokes et, al., 2023), this occurred when TIC interventions were defined and equated with a single implementation strategy such as a training. If we consider complex interventions as being composed of nested complex systems, then the implementation planning process through engagement with KUs may be considered a complex system in and of itself, and a component that guides and influences the healthcare intervention (in this case the TIC intervention, termed the 'TIC Program' by KUs). Framed in this light, it is important to recognize the complex nature of IKT and the relevant components of that engagement and implementation planning process, including the individuals and groups involved in the engagement partnership and their respective beliefs, knowledge, skills, and experiences, the implementation of the engagement partnership, the setting, the context, and theoretical and research basis for the partnership. Throughout the partnership that I describe in this chapter, I endeavoured to acknowledge and appreciate the components as well as the whole, and to reflect on how elements of IKT interactively and dynamically influenced outcomes.

4.2 Initiating the Partnership and Developing Shared Research Aims

The Children's Hospital of Eastern Ontario (CHEO) is an acute care pediatric hospital, a child and youth mental health agency, and a research institute. I began working at the CHEO Research Institute in 2013 and at CHEO as a Registered Nurse in 2014. Concurrently, I was

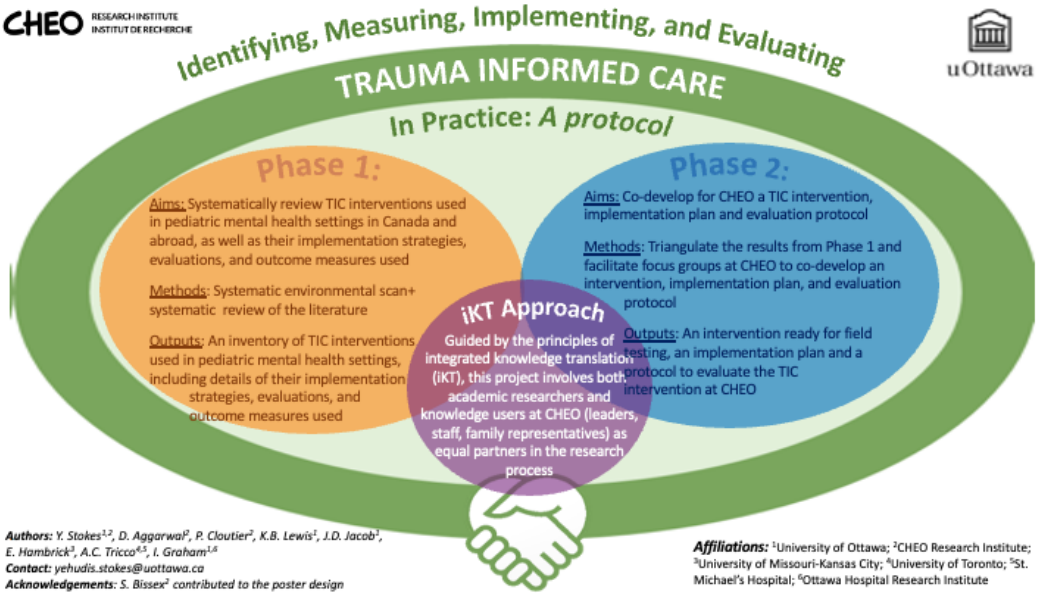
completing my Master's of Science in Nursing (2014-2016), which included a two-phase study titled "Exploring Nurses' Knowledge and Experiences Related to TIC" (Stokes, 2016). During that time, as I was developing professional relationships with colleagues and members of leadership at CHEO, I expressed an ongoing interest in furthering awareness and implementation of TIC within the hospital. Further details pertaining to the initiation of my TIC partnership with CHEO are presented in Chapter 1 (Setting and Context).

In May of 2019, I sent an email to nine individuals spanning various disciplines and roles (including leaders, clinicians, and researchers) from the CHEO mental health department with a preliminary description of my PhD thesis ideas, and an invitation to form an advisory committee to support and guide my thesis research (Appendix K). Of the nine individuals originally invited, seven responded with an interest in joining the advisory committee, and all seven have remained active members up until today (50 months later). These initial collaborators provided me with feedback on my preliminary thesis objectives, and the Director of Mental Health clarified their interest in specifically focusing on the implementation of a TIC Program on the inpatient mental health unit, which resulted in revised objectives. By the summer of 2019, I, in partnership with these initial collaborators, developed a preliminary thesis proposal aiming to facilitate the implementation of a TIC Program at CHEO on the inpatient mental health unit. Progressively, the initial advisory committee became more inclusive as the group identified other important partners (total n=20), which became the CHEO Mental Health TIC Advisory Committee (AC). In January 2020, the TIC AC held our first (and due to the subsequent pandemic, last) in-person meeting, where we discussed shared research aims. Over time we (the TIC AC, my thesis advisory committee, and myself) refined and narrowed our shared research aims to best align with CHEO TIC AC priorities and with my thesis timeline (Figure 4.1).

Figure 4.1

Shared Research Aims (September 2020)

Presented at Canadian Academy of Child & Adolescent Psychiatry Conference (Stokes et al., 2020)



Along the way, we had to make decisions about what we were *not* going to do. For example, although we discussed a concept analysis of TIC in nursing and healthcare, we eventually decided this was not as useful to the TIC AC. Furthermore, although we had intended to co-develop an implementation plan and evaluation protocol, these ended up not being feasible during my thesis research period (due to KU uncertainties relating to funding and resources, and a need for further clarity about the operationalization of the chosen TIC intervention). Nonetheless, the final agreed upon collaborative research objectives (presented below) were mutually beneficial, providing insight to inform the work of the TIC AC while also meeting my goals and timelines as a PhD student:

> **PhD Objective 1.** To examine the current literature relating TIC interventions used in pediatric mental health inpatient and residential settings, the intervention components, and the implementation goals and implementation strategies used.

PhD Objective 2. To explore KU (youth, caregiver, and staff) perspectives on their vision of TIC on the target unit, and to identify and understand potential implementation considerations, including facilitators and barriers, and the implementation context.

PhD Objective 3. To describe and reflect upon a trainee's experience using an IKT approach to planning the implementation of a TIC Program at an acute pediatric hospital, including the initiation and management of the partnership, and the impact and usefulness of the IKT approach.

Table 4.1 summarizes the evolving program of research and highlights the components that contributed to this thesis (the shaded rows represent the final PhD thesis objectives).

Table 4.1

Shared Research Aims and Final PhD Objectives and Activities

Original Shared Aim #	Original Shared Aim	Included in Final PhD Objectives and Obj. #	Final PhD Objective	Led by Doctoral Candidate	Study Design and/or Methods	Status of Outputs	Knowledge Translation Activities by PhD Objective	Knowledge Translation Activity Relating to Overall Thesis
1	Conceptualize TIC within nursing and healthcare.	No	N/A	No	Multi-disciplinary concept analysis.	Removed from thesis.	None	Invited Oral Presentations: • Princess Margaret Cancer Centre Department of Supportive Care Research Rounds (Stokes 2023a). • Research Impact Canada Engaged Scholar Award 2023 Presentation (Stokes, 2023b). • MobilizeU 2023 (Stokes, 2023c). Peer-Reviewed Oral Conference Presentations: • KT Canada Summer Institute 2021 (Stokes, 2021). • University of Ottawa Department of
2a	Systematically identify TIC interventions used in inpatient and residential pediatric mental health settings in Canada and abroad.	Yes: **Objective 1.**	Examine current literature relating to TIC interventions used in pediatric mental health inpatient and residential settings.	Yes	Scoping review of the literature and environmental scan.	PhD Study 1: Scoping review of TIC interventions used in pediatric inpatient and residential mental health settings and their implementation strategies. The environmental scan was performed, not published.	• Findings presented to the TIC AC, and informed TIC AC decisions. • Manuscript published in the Journal of Trauma, Violence, & Abuse (Stokes et al., 2023).	
2b	Systematically review the evidence relating to the implementation strategies used with the TIC interventions identified in Aim 2a.	Yes: **Objective 1.**	Examine current literature relating to the implementation goals and strategies used with TIC interventions in pediatric mental health inpatient and residential settings.	Yes	Scoping review of the literature and environmental scan.			
2c	Systematically review the evidence relating to the effective of the TIC interventions identified in Aim 2a.	No	N/A	Yes	Review of studies included in the scoping review and environmental scan.	This review was performed, not published.	• Findings presented to the TIC AC, and informed TIC AC decisions.	
2d	Systematically review the evidence relating to outcome measures used to	No	N/A	Yes	Review of studies included in the scoping review and	This review was performed, not published.	• Findings presented to the TIC AC, and informed TIC AC decisions.	

	evaluate TIC interventions.				environmental scan.			Psychiatry Research Day 2021 (Stokes et a., 2021). Peer-Reviewed Poster Conference Presentations: Canadian Academy of Child and Adolescent Psychiatry Conference (Stokes et al., 2020).
3	Facilitate the selection or development or a TIC intervention for the inpatient mental health unit.	No	N/A	Yes	Triangulation of results from Phase 1 and facilitation of discussions with TIC AC to identify criteria and select a TIC intervention.	Identification of TIC AC criteria for selection; selection of TIC Intervention (Creating Presence).	None.	
4a	Facilitate the customizing of the TIC intervention to the inpatient mental health unit setting.	Yes: **Objective 2.**	Explore KU (youth, caregiver, and staff) perspectives on their vision of TIC, and identify and understand potential implementation considerations.	Yes	Qualitative study, group and individual interviews with youth, caregiver, and staff, and discussions with the TIC AC.	PhD Study 2: Youth, caregiver, and staff perspectives on their vision of TIC, and potential implementation considerations.	• Findings presented to TIC AC, informed TIC AC decisions. • Manuscript accepted by the Journal of Advanced Nursing (Stokes et al., In Press).	
4b	Co-develop an implementation plan and evaluation protocol.	No	N/A	No	Co-development of an implementation plan and evaluation protocol.	Removed from thesis.	None.	
N/A	N/A	Yes: **Objective 3.**	Describe and reflect upon a trainee's experience using an IKT approach to planning the implementation of TIC.	Yes	Document analysis (meeting agendas, slides, minutes; emails, reflective notes), analysis of adapted PEIRS data.	PhD Study 3: Description of a trainee's experience using IKT in planning implementation of a TIC Program	• Manuscript published in the IKTRN Casebook (Stokes et al., 2022).	

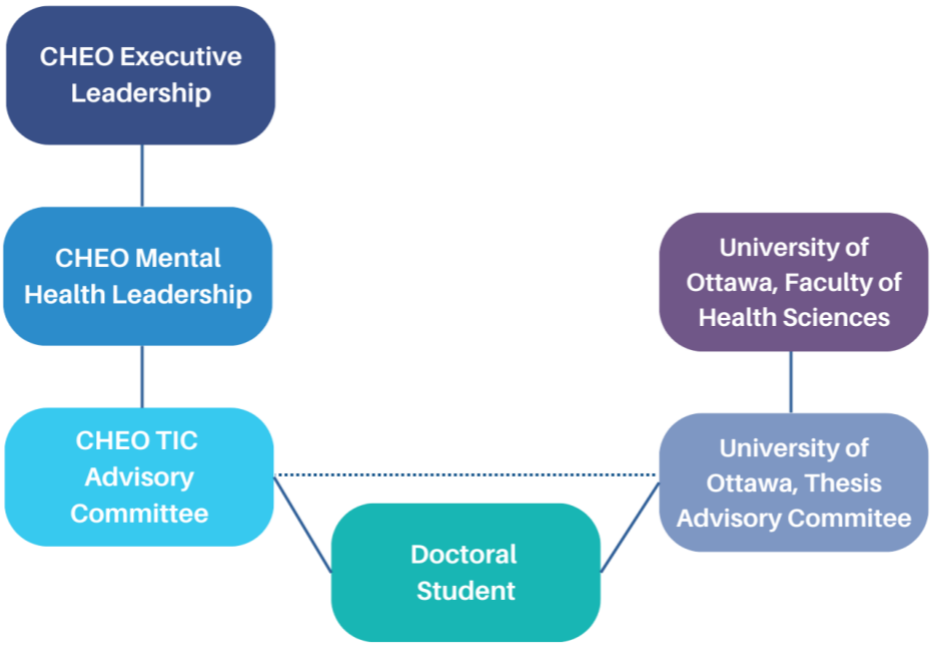
4.3 Managing the Partnership: Applying the Implementation Roadmap

Throughout our partnership, I met with the full TIC AC to consult and review project updates. TIC AC meetings occurred between three weeks to eight months apart, with meetings most often taking place monthly. Additional weekly ad hoc meetings were held with members with specific interests and roles or areas of expertise. From January 2020 to July 2023, I facilitated or co-facilitated 20 full TIC AC meetings (ranging from 8-14 participants per meeting), and 125 additional smaller group meetings with TIC AC members and sometimes external consultants (ranging from 2-10 participants). My thesis supervisors, faculty of the University of Ottawa, frequently attended the full TIC AC meetings. I also met with my thesis supervisors and/or members of my Thesis Advisory Committee on a weekly or bi-weekly basis to support the progression of the thesis research.

Figure 4.2 demonstrates the shared governance of this thesis project.

Figure 4.2

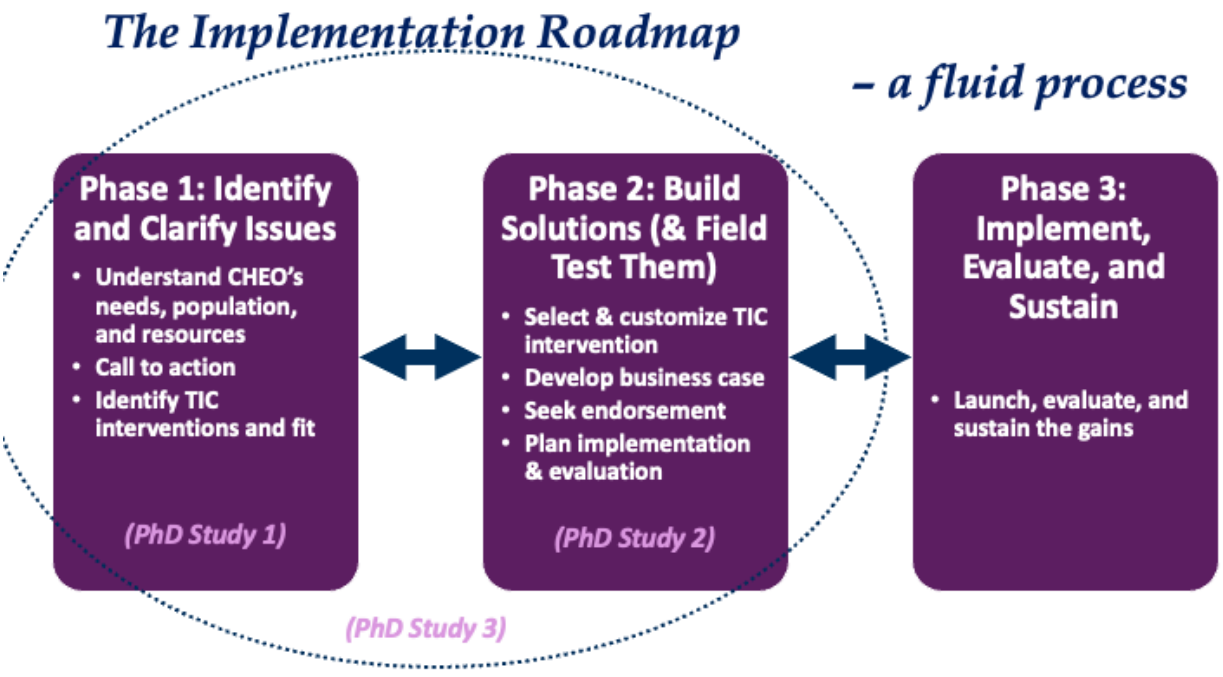
Shared Governance of Thesis Project



Our implementation partnership followed a fluid and iterative process based on the Implementation Roadmap (Harrison & Graham, 2021). This roadmap identifies three phases of implementation: Phase 1: Identify and Clarify the Issues; Phase 2: Build Solutions and Field Test Them; and Phase 3: Implement, Evaluate, and Sustain. My thesis project encompassed elements of the first two phases in preparation for Phase 3, broken down into six steps (Figure 4.3). In the remainder of this chapter, 'we' refers to myself (the doctoral student), the TIC AC, and my Thesis Advisory Committee. Next, I describe how we worked together through the six Roadmap steps, including the different roles team members took on, the activities we performed, and the strategies used to maintain engagement.

Figure 4.3

The Implementation Roadmap



4.3.1 Phase 1: Identify and Clarify the Issues

4.3.1.1 Phase 1, Step 1: Understand CHEO's Needs, Population, and Resources

In Step 1, we assembled evidence related to the CHEO context. I reviewed the results of the 2019 needs assessment (Aggarwal et al., 2019) with the TIC AC to contextualize and refine this thesis project and we discussed current practices taking place on the target unit. From June 2020-February 2021 I participated in the inpatient mental health Model of Care committee meetings (n=7) to discuss how TIC fits within leadership's vision of the new model of care as an overarching approach encompassing elements of safety, patient care, and staff wellness, and to provide updates on our TIC AC progress. We returned to this step regularly (such as in January 2021 when we reviewed the components of current initiatives taking place on the inpatient mental health unit) to ground our implementation planning within the local context.

4.3.1.2 Phase 1, Step 2: Call to Action

Step 2 involved both a call to action and identifying current best practice evidence. The call to action involved forming a TIC advisory committee (initiated in May 2019, formalized in January 2020). In the beginning, and throughout our implementation planning (2020-2023) we continued to discuss whether the initial implementation should be limited to the chosen inpatient mental health unit or expand beyond, and which KUs should be involved in the TIC implementation planning. Furthermore, at various points in our partnership (beginning in March 2021), we held discussions with representatives and leadership from the Emergency Department to explore whether a joint TIC initiative with Mental Health and Emergency Departments could be possible. At the time of writing (August 2023), these discussions are still ongoing. In March of 2021 the TIC AC began to formally discuss how to incorporate youth and caregiver representation on this committee. As of August 2023, these discussions are ongoing and have not

yet been finalized (clarifying the goals, commitment, possible compensation, and methods of youth and caregiver recruitment).

4.3.1.3 Phase 1, Step 2: Identify TIC Interventions and Fit

I explored current TIC practices by leading a scoping review of TIC interventions and their implementation strategies used in pediatric mental health settings (PhD Study 1, Chapter 2; Stokes et al., 2023). The TIC AC contributed to the design of the scoping review by co-developing the research questions and through refining the eligibility criteria to focus on milieu-based (unit-wide) TIC interventions that were implemented specifically on pediatric inpatient or residential treatment mental health care settings. The TIC AC also provided feedback on the clinical usefulness of applying the AIMD framework to distilling and summarizing the TIC interventions. Most TIC AC members contributed as co-authors to the scoping review manuscript (Stokes et al., 2023) and the others were acknowledged for their involvement. This scoping review brought to light considerations for the TIC AC and other organizations looking to select and implement a TIC intervention including: the importance of clarifying the goals of the prospective TIC intervention, as well as the core components of the TIC intervention, separate from the implementation strategies to be used.

I also conducted an environmental scan of TIC interventions in Canadian pediatric mental health settings, and of Canadian agencies that used these TIC interventions in inpatient or residential settings. CHEO RI Research Ethics Board (REB) and University of Ottawa REB both confirmed that the environmental scan did not require REB approval. I created a brief questionnaire (Appendix L) through REDCap (Research Electronic Data Capture; Harris et al., 2009) that was shared by email with relevant networks that were identified by the TIC AC: Ontario Network of Child and Adolescent Inpatient Psychiatry Services (ONCAIPS), Children's

Healthcare Canada, and the Canadian Consortium on Child and Youth Trauma. Eight individuals responded to the survey about TIC interventions in their settings spanning seven agencies. I emailed each of the participating individuals /agencies requesting a follow-up interview, and successfully met with four of the agencies. In addition, I reached out to the developers of relevant TIC interventions that were identified in the scoping review to request an interview to explore the relevance of their intervention to our setting, and to inquire on whether the TIC intervention had been implemented in a Canadian setting. From December 2020 to April 2021, I facilitated a total of 14 interviews with agencies (both agencies that developed the interventions and Canadian agencies that had implemented the interventions) and invited TIC AC members to join the interviews to explore their feasibility and fit for CHEO. A range of three to eight TIC AC members attended each interview allowing them to hear first-hand about TIC interventions and their implementation, as well as to ask specific questions of relevance. The TIC interventions that we reviewed through this environmental scan included: The Sanctuary Model (Bloom, 2005), Risking Connection (Brown et al., 2012), Attachment Regulation and Competency (ARC; Hodgdon et al., 2013), Trauma Systems Therapy (TST; Brown et al., 2013), the Neurosequential Model of Therapeutics (NMT; Perry, 2009), Your Experiences Matter (IWK Health Centre, 2021), Child Advocacy and Assessment Program (Hamilton Health Sciences, 2023), and Creating Presence (Bloom, 2021) used across eight Canadian agencies. We asked the agencies to describe the core components of their TIC intervention, the implementation strategies used, any evaluations of their TIC intervention or implementation, and if so, which outcomes. We also asked the agencies to reflect on their personal experiences implementing and using the TIC intervention, how they selected that intervention over others, any challenges they encountered in implementation, and any lessons learned through the process.

4.3.2 Phase 2: Build Solutions (and Field Test Them)

4.3.2.1 Phase 2, Step 3: Select the TIC Intervention

Step 3 involved customizing the best practices to the local context, which in this case included the selection of a TIC intervention to customize and adapt. From November 2020 through August 2021, I engaged the TIC AC in nine in-depth discussions comparing the TIC interventions identified in the literature and the environmental scan and the compatibility of these interventions with CHEO's context and needs. During these discussions, I presented TIC intervention components (aims, ingredients, proposed mechanism, and delivery; AIMD; Bragge et al., 2017), implementation strategies used, evidence of effectiveness, and associated costs. The TIC AC identified eight important criteria to consider in selecting an intervention: a) a focus on unit/organizational culture change, b) cost, c) limiting redundancy in what already exists on the unit, d) application on a short-stay pediatric mental health unit, e) generalizability to other areas at CHEO beyond mental health, f) evidence of Canadian experiences with the TIC intervention in pediatric inpatient or residential settings, g) availability of dedicated and experienced implementation supports to coach through the process, and h) implementation flexibility. In response to these, in January 2021, we also reviewed the components of current initiatives taking place on the inpatient mental health unit (Safewards; Emotion Focused Skills Training/EFST) to ensure compatibility and limit redundancies. Based on the priorities identified by the TIC AC and based on feedback from TIC AC regarding the environmental scan interviews, I presented them with a short list of three candidate options identified from the scoping review and environmental scan (Sanctuary Model, Risking Connections, and Creating Presence), of which the TIC AC selected one TIC intervention in October 2021 to recommend to Mental Health leadership (Creating Presence).

The decision to select Creating Presence was based on several factors including: An appreciation for the previous and current work of Dr. Sandy Bloom, clinical perception of usefulness and fit (based on environmental scan interviews and previews of the online training modules), costs, accessibility and flexibility (online asynchronous training strategy, with flexibility to adapt to real-time and in-person trainings, as described below). Overall, the TIC AC found the Creating Presence training modules to be accessible, and to cater to multiple learning styles, and they appreciated the integration of content based on mindfulness and dialectical behaviour therapy (DBT) principles, which were already elements of their current philosophies of care. The TIC AC stipulated one specific modification to the Creating Presence model for CHEO. Creating Presence was developed with goal of being an accessible, affordable, and flexible, model, and therefore the standard implementation training strategy is an online asynchronous training platform, with real-time virtual coaching available to the implementation team. While the TIC AC recognized that the online training platform would be advantageous for individuals that could not attend a real-time training, their strong preference was for the training to be delivered in live in a group context, and preferably in person (dependent on pandemic restrictions). The TIC AC articulated that because TIC is interpersonally-based, the medium for spreading knowledge and awareness of TIC must also be interpersonally-based. The Creating Presence team was amenable to this request, identifying the Creating Presence coaches located at the flagship Canadian site in Winnipeg as the prospective trainers and coaches for CHEO.

We also discussed potential indicators of success for the TIC Program at CHEO based on measures used in the literature (presented to TIC AC in October and December 2021) and based on consultations with CHEO KUs (patients, caregivers, staff in PhD Study 2; presented to TIC AC in August 2022 and January 2023), emphasizing the need for clarity around the TIC AC's

purpose and goals for the TIC Program. The TIC AC agreed that multiple outcomes would need to be considered, including patient/caregiver outcomes (both objective and subjective outcomes; indicators needed to be sensitive to change within our unit length of stay; relevant to the unit setting and to the specific TIC Program), staff outcomes (objective and subjective), administrative outcomes, and implementation outcomes. Ultimately the TIC AC decided to defer the final selection of indicators until they understood in greater detail the operationalization of the selected TIC intervention on the unit and the implementation plan. I also discussed with the TIC AC the importance of planning the evaluation process, indicators, and roles in advance of implementation to prepare the elements needed and collection of baseline data.

4.3.2.2 Phase 2, Step 3: Customize the TIC Intervention

To generate insight into how the selected TIC intervention for the inpatient mental health unit setting might need to be customized, and to uncover implementation considerations, from March to June 2022 I co-facilitated group and individual interviews with KUs, including youth (n=3), a caregiver (n=1), and staff members (n=21) (PhD Study 2, Chapter 3; Stokes et al., In Press). The TIC AC was involved in designing this qualitative study to explore KU perspectives by contributing to the following decisions:

- Types of Participants: We (the TIC AC and I) discussed whether we should recruit current or former patients and caregivers, given the sensitive nature of this topic. The AC members felt it was critical to hear the feedback from youth and caregivers with experience on the inpatients units and we attempted to recruit current and former youth, caregivers, and staff members. Seeing that the inpatient unit had undergone a remodeling approximately six years previously, we decided to include those who have had contact with the unit in the past six years.

- Recruitment: We explored various options to recruit youth, caregivers, and staff. One possibility explored was to use our electronic health record system to identify youth admitted to the inpatient unit in the past six years and to automatically send a recruitment message and/or email to those who had agreed to be contacted for research purposes. We met with Patient Experience Specialist / Family Partnership Lead in March 2021 to explore this option, but it was not possible to do this at this time, given privacy concerns. I also met with YouthNet, a local non-profit, peer support organization for caregivers of youth facing mental health challenges to discuss the possibility of recruitment amongst their members. During the recruitment process, we had challenges recruiting sufficient youth and caregiver participants, and we engaged in ongoing discussions with the AC throughout the project on how to improve recruitment.
- Data Collection: We discussed what data would be important to collect, including demographic data, and whether or not we should link demographic data to interview data (which we decided against), as well as the design of the interview guide. We also selected to offer individual interviews as an alternative to group focus groups for participants who would feel more comfortable. The TIC AC contributed to the design of the post-interview evaluation survey and finalized the items to include.
- Compensation: Based on feedback from external community KUs, the TIC AC discussed what compensation we would offer to participants. This conversation was of particular importance, because the TIC AC wanted to communicate to informants the value placed on their time and contributions, while navigating how to do so within a tight budget.

One TIC AC member (P. Cloutier) collaborated with me in facilitating the groups interviews and in conducting the analysis. The KU participants provided rich and nuanced

feedback relating to their vision of TIC on the inpatient mental health unit and important implementation considerations including: a) the centrality of engagement with youth, caregivers, and staff in TIC delivery and implementation, b) suggested TIC core program components, c) identified factors that may support or limit success in implementing TIC within the mental health unit and d) hospital wide, and e) the importance of intersectoral collaboration (partnering with external organizations and sectors). In June of 2022 when the inpatient mental health unit was preparing for structural renovations, I shared initial findings from the interviews relating to the physical environment of the unit with the unit clinical manager, who was able to incorporate some of the feedback into the upcoming changes (e.g., repositioning the unit clerk closer to the unit entrance, establishing individual rooms rather than shared rooms, introducing a new sensory room). I presented the findings of these interviews to the TIC AC in August 2022 (presented initial findings for feedback), December 2022 (presented fully developed themes), and May 2023 (presented findings in manuscript format for submission). TIC AC members described the findings as "relevant" and "invaluable" for informing implementation of TIC on the inpatient mental health unit, and beyond to other areas at CHEO.

4.3.2.3 Phase 2, Step 3: Seek Endorsement and Develop a Business Case

This third step also involved seeking endorsement from CHEO mental health leadership for the current initiative. In our case, the Director of Mental Health and other leadership members were also members of the TIC AC and therefore supported the project heavily from the outset and were directly involved in each stage. The Director of Mental Health approved funding to compensate staff for participating in group and individual interviews (either through claiming the interview hour as work time or obtaining coverage to participate during their scheduled shift), and provided protected time for a CHEO project manager to support the creation of a

business case. The TIC AC frequently reflected upon the need to ensure the maintenance and sustainability of the TIC Program, and the environmental scan interviews reinforced the importance of adequate staff support the implementation of TIC. With this in mind, the business case included not only a request for funds for the training costs associated with the TIC Program, but also a request for two full-time contract staff for 18 months to lead the implementation process.

We (the TIC AC and I) became aware in late 2022 that due to current fiscal constraints, the TIC AC was unable to secure funds for the staff positions needed to lead the implementation; however, funds were available from the Foundation to support training costs for current staff. Given that a key finding from the environmental scan was the need for dedicated staff to support TIC implementation, the TIC AC came to a consensus that offering staff further TIC training without the resources in place to support and sustain a cultural change would not be wise or effective at this time. While exploring further funding options, the TIC AC discussed the need for our group to develop a clearer understanding of the operationalization Creating Presence, the proposed TIC intervention, to inform detailed implementation and evaluation planning. In April 2023 we secured funding to host an in-person three-day Creating Presence workshop, scheduled for the fall of 2023. The goals of this workshop will be to a) confirm acceptability and fit of the intervention for CHEO and b) further inform implementation planning.

4.3.2.4 Phase 2, Steps 4, 5, and 6: Plan Implementation and Evaluation

Steps 4, 5, and 6, encompassing the development of an implementation plan and an evaluation protocol were removed from the original thesis aims. However, in the future, the TIC AC and CHEO will incorporate the perspectives from youth, caregiver, staff (PhD Study 2; Stokes et al., In Press), as well as feedback from the upcoming Creating Presence workshop, to

identify the specific barriers and facilitators to implementing and delivering the TIC Program (Step 4). Furthermore, the TIC AC and CHEO will identify strategies to overcome identified barriers, based on the TIC and implementation science literature (Step 5). Once the implementation plan is complete, the TIC AC and CHEO will prepare a detailed plan for evaluating and field testing the TIC Program (Step 6).

Table 4.2 summarizes the implementation planning activities contained in this thesis project corresponding the Implementation Roadmap phases and steps, specifying whether each task was performed jointly (by the TIC AC and me, the doctoral candidate) or by the doctoral candidate alone or the TIC AC alone. Additionally, I specify the contributions of my Thesis Advisory Committee.

Table 4.2

Project Timeline and Activities

Roadmap Phase & Step	**Activities** (J: Joint TIC AC & Doctoral Candidate; DC: Doctoral Candidate alone; AC: CHEO TIC AC Members alone; TAC: Thesis Advisory Committee)	**Dates**
Phase 1: Identify and Clarify Issues		
Phase 1, Step 1: Understand the CHEO's Needs, Population, and Resources		
	• Reviewed findings of 2019 TIC needs assessment (J) • Developed shared research aims (J) • Finalized research proposal (J; TAC)	Aug 2019-Sept 2020
	• Participated in Model of Care Committee (J)	Jun 2020-Feb 2021
Phase 1, Step 2: Call to Action		
	• Callout Invitation for TIC AC (DC)	May 2019
	• Dialogued about scope of project and relevant partners (J)	Aug 2020-Jul 2023
	• Brainstormed how to involve youth and caregiver partners (goals, scope, compensation, recruitment) (J)	Mar 2021-Jul 2023
Phase 1, Step 2: Identify TIC Interventions and Fit		
	• Explored TIC interventions in the literature (PhD Study 1: Scoping review; J; TAC)	Sept 2020-Sept 2021
	• Explored current TIC interventions used in Canadian settings (environmental scan; J)	Sept 2020-Apr 2021

Phase 2: Build Solutions (and Field Test Them)		
Phase 2, Step 3: Select the TIC Intervention		
	• Facilitated in-depth discussions with TIC AC comparing TIC intervention components, implementation, evidence of effectiveness, costs; reflecting on CHEO's needs (DC)	Nov 2020-Aug 2021
	• Reviewed components of current initiatives taking place on the inpatient mental health unit to ensure compatibility and limit redundancies (J)	Jan 2021
	• TIC AC identified criteria in selecting TIC intervention (AC)	Nov 2020-May 2021
	• Based on criteria, prepared (DC), and reviewed (J) short list of three candidate TIC interventions and selected one (AC)	Jun -Oct 2021
	• Discussed potential indicators for TIC Program, evaluation planning (J)	Oct- Dec 2021, Aug 2022, Jan 2023
Phase 2, Step 3: Customize the TIC Intervention		
	• Conducted interviews with youth, caregiver, staff KUs to explore perspectives and vision of TIC on the unit, context, and implementation considerations (PhD Study 2; J; TAC)	Mar-June 2022
	• Shared (DC) initial findings relating to the physical environment of the unit with the unit manager, incorporated some feedback into upcoming structural changes (AC)	Jun 2022
	• Presented interview findings to TIC AC framed around implementation considerations (DC) and dialogued about implications (J)	Aug, Dec 2022 May 2023
Phase 2, Step 3: Seek Endorsement and Develop a Business Case		
	• TIC AC co-chair (D. Aggarwal) dedicated research funds to support research assistants to aid with scoping review, and gift card compensation for interview participants. I collaborated with Dr. Aggarwal in preparing the grant applications. (J)	Dec 2019-Dec 2021
	• Director of Mental Health supported project, approved funding to compensate staff to participate in group and individual interviews, and protected time for project manager to support the creation of a business case (AC)	Jun 2021-Jul 2022
	• Subgroup of the TIC AC formalized a business case and submitted to CHEO Foundation to request funds for the training costs associated with the TIC Program and two full-time contract staff dedicated to lead the implementation process (J)	Jun 2022
	• Funding for training approved; funding to hire additional staff to support implementation was not approved • Brainstormed with TIC AC how to best proceed with implementation planning (J); TIC AC opted to proceed with small training workshop to inform implementation and confirm acceptability and fit for CHEO (AC)	Dec 2022-Jul 2023
Phase 2, Steps 4 and 5: Plan Implementation	• TIC AC will identify specific barriers and facilitators to implementing and delivering the TIC Program, and strategies to address barriers (AC) • TIC AC will formalize implementation plans (AC)	Removed from thesis

Phase 2, Step 6: Field Test, Plan Evaluation, Prepare to Launch	• TIC AC will plan evaluation and field TIC Program (AC)	Removed from thesis

4.4 Impact of the Partnership and of Engagement with Knowledge-Users

To the partnership, I brought expertise in TIC and of the implementation planning process, I identified, synthesized, and analyzed the evidence, and served as an implementation facilitator. The TIC AC demonstrated their commitment to this project through regular meetings (20 full TIC AC, and 125 sub-group TIC AC meetings) and contributing to workgroup tasks between meetings. They contributed knowledge and expertise of the CHEO context on various levels, feedback on what evidence about TIC interventions and implementation is useful from clinician and leadership perspectives, research support, and funding. Through this partnership, the TIC AC increasingly recognized the value of incorporating an implementation science-informed implementation planning process for selecting and implementing a TIC intervention, an approach which will guide CHEO's spread of the TIC Program beyond the inpatient mental health unit. In the following section, I describe how the IKT partnership and engagement with all CHEO KUs impacted: a) my thesis research and the implementation planning process, b) the KUs (the TIC AC and PhD Study 2 participants), and c) me as the trainee.

4.4.1 Impact of the Partnership and Engagement on Thesis Research and Implementation Planning

Throughout this project, the decisions made in designing the thesis project and in planning for the implementation of TIC at CHEO were grounded in evidence, including both external and internal evidence. The TIC AC and other KUs contributed clinical and contextual expertise impacting the research design, conduct, and interpretation of findings within this thesis project. In effect, working in partnership with the TIC AC influenced the direction of the

research in many ways. The TIC AC contributed to the design of the scoping review (PhD Study 1, Chapter 2) by co-developing the research questions, refining the eligibility criteria, and providing feedback on the clinical usefulness of applying the AIMD framework. In seeking youth, caregiver, and staff perspectives of and visions of TIC on the inpatient mental health unit (PhD Study 2; Stokes et al., In Press), the TIC AC participated in deciding the types of participants, recruitment methods, the data to collect, and the compensation. The Director of Mental Health (D. Murphy) along with the unit Clinical Manager (R. Sheppard) supported staff to participate in interviews through providing coverage or compensation for their time. The psychiatrist co-chair of the TIC AC (D. Aggarwal) dedicated his available research funds through the CHEO Psychiatry Associates fund to support this initiative from 2019-2022, totalling $20,000 to fund research assistants (that assisted with citation screening, data extraction, and data analysis for the scoping review), and gift card compensation for interview participants. I collaborated with Dr. Aggarwal in preparing the grant applications. Once the qualitative study methods were drafted, in June 2021 I presented a summary of the study protocol with the CHEO Research Institute Patient and Family Advisory Committee, which provided feedback and suggestions relating to youth and caregiver recruitment (recruiting through YouthNet, Facebook groups, snowballing strategies) and compensation strategies (preference for all participants to receive a lower value gift card of their choice over a few participants receiving a larger raffle prize; emphasizing to participants how their contribution of time would inform practical changes and benefit the community).

Table 4.3 summarizes all the CHEO KUs that engaged and contributed through this process along with the respective engagement level, based on the IAP2 Spectrum for Public Participation (IAP2 International Federation, 2018).

Table 4.3

CHEO Knowledge-Users and Contributions to the Research Process

Knowledge Users	Dates of Engagements	Activities	Level of Engagement (IAP2, 2018)
TIC AC	May 2019-2023	• Co-developed research aims, proposal, methods • Recruitment (environmental scan, interviews) • Identified criteria for selecting TIC intervention, selected intervention • Discussed preliminary indicators • Data analysis (interviews) • Tailored TIC intervention to current setting • Manuscript preparation and co-authorship	Collaborate, leading towards Empowerment post-thesis
CHEO Inpatient Mental Health Model of Care Committee	Jun 2020-Feb 2021	• Articulated aim of TIC Program to serve as overarching approach within new Model of Care, encompassing elements of safety, patient care, and staff wellness • Confirmed TIC Program should complement existing initiatives on the unit	Involve
Patient Experience	Jan-Mar 2021	• Consulted on recruitment planning	Consult
YouthNet	Jan-Mar 2021	• Consulted on recruitment planning	Consult
CHEO RI Patient and Family Advisory Committee	June 2021	• Consulted on recruitment, data collection, compensation planning	Consult
Emergency Department Leadership	Mar 2021-Jul 2023	• Dialogued about shared and unique visions and needs relating to TIC in mental health and emergency departments. • Proposed opportunities to collaborate.	Involve
Youth, Caregiver, Staff interview participants	March-June 2022	• Consulted in developing vision of TIC on the unit, understanding context, and identifying critical barriers and facilitators to consider. • Incorporated recommendations into the decisions to the maximum degree possible	Involve

4.4.2 Impact on the TIC AC and on Youth, Caregiver, and Staff Interview Participants

4.4.2.1 Impact of the Partnership on the TIC AC

Over the course of my partnership with the TIC AC, I observed a shift in the TIC AC members' knowledge of, and appreciation, for evidence-informed implementation planning. This was most clearly seen in movement from initially seeking a low-cost TIC training to roll out immediately, to realizing that the TIC intervention and intervention aims had to be clearly defined, and that implementation needed to be carefully planned, with consideration of the context and of barriers and facilitators to successful implementation. In the meetings following our environmental scan interviews with agencies, the TIC AC reflected on coming to understand the implementation of a TIC intervention as a "huge endeavor", and a "huge commitment, especially from leadership" demonstrating their appreciation for the enormity of this undertaking. Furthermore, at the outset the TIC AC was looking for me to advise them on what decisions to make, including what intervention to choose. With time the TIC AC came to acknowledge my role as a facilitator, providing the available evidence and support that would facilitate the TIC AC decision-making, which was more congruent with the partnership approach of IKT. In the spring of 2021, when decisions were being made about the selection of a TIC intervention, two KUs (psychiatrist D. Aggarwal, and social worker C. Landriault) became the first co-chairs of the TIC AC. This transition was critical to allow the TIC AC to take agency over the implementation planning process. It also allowed me to focus on providing evidence-based information to the TIC AC and facilitating the process that aligned with my thesis aims.

4.4.2.2 TIC AC Members Perspectives on the Partnership

Throughout this thesis project I gathered feedback from the KUs regarding their perspectives on the partnership and engagement approach. Formal feedback was captured from

the TIC AC and from Youth, Caregiver, and Staff interview participants through administering an adapted version of the Patient Engagement in Research Scale (PEIRS; Hamilton et al., 2018; Hamilton et al., 2021). Informal feedback included comments and feedback from TIC AC. The collection and use of these data was approved by the CHEO RI REB (Protocol No. 21/103X) and at the University of Ottawa REB (Protocol No. H-01-22-7691) (Appendix H). TIC AC members were formal partners throughout this process, and who were situated along the "Collaborate" level of engagement (IAP2 International Federation, 2018). The TIC AC completed the adapted PEIRS (37-item) engagement evaluation, with adapted language to reflect their roles as partners, rather than patients, and with specificity to this TIC project. The original PEIRS contains 37 items distributed across seven themes of meaningful engagement of patients (or partners) in research that could operate as subdomains (Hamilton et al., 2018). The seven subdomains are: Procedural Requirements, Convenience, Contributions, Team Environment and Interaction, Support, Feel Valued, and Benefits. The PEIRS uses a five-point Likert-scale to rate each item, ranging from 'Strongly Agree' to 'Strongly Disagree', and takes approximately 10 to 15 minutes to complete. While the original 37-item PEIRS had undergone face and content validation, there is no current data relating to its psychometric properties (Hamilton et al., 2021). The 22-item shortened PEIRS was developed to reduce respondent burden while retaining the essential elements of the original PEIRS-37 (Hamilton et al., 2021). The shortened PEIRS demonstrated internal consistency, construct validity, good test-retest reliability, interpretability (Hamilton et al., 2021). The PEIRS is suitable for reading at a 7th-grade level or higher (Hamilton et al., 2018). The adapted PEIRS-37 is in Appendix M.

I invited the TIC AC to complete the engagement measure on three occasions: May 2021, February 2023, and July 2023, which spanned the Implementation Roadmap from Phase 1, Step

2: Identify TIC Interventions and Fit to Phase 2, Step 3: Seek Endorsement and Develop a Business Case. These data were anonymous and were collected through REDCap (Harris et al., 2009). I scored the PEIRS data in accordance with the scoring instructions (Hamilton et al., 2018) using Microsoft Excel. I reported on descriptive statistics, including the measures of central tendency, range, and standard deviations (SDs) of the total subdomain scores and of the total score. Two team members (myself and P. Cloutier) independently performed a high-level content analysis of the free-text comments and then came together to achieve consensus on the coding. A detailed summary of the adapted PEIRS findings and feedback from the TIC AC and can be found in Appendix N.

A total of 20 responses from the TIC AC to the PEIRS-37 spanned the three periods of data collection (May 2021: nine participants; February 2023: seven participants; July 2023: four participants) with a total mean score of 84.97 out of a maximum of 100 and SD of 7.54 (May 2021: 81.49 (7.81); February 2023: 88.20 (5.62); July 2023: 87.16 (8.18)). Generally, the TIC AC responses indicated that members were satisfied with our partnership with two exceptions: “I have sufficient time to complete my tasks for the TIC project” received one response of ‘Disagree’ (May 2021), and “The number of patient partners on the TIC research project team seems appropriate” received six responses of ‘Disagree’ (May 2021 n=2, 22.2%; February 2023 n=3, 42.9%; July 2023 n=1, 25%). The latter item is noteworthy, as it was the overall lowest scored response of the survey, and because the importance of integrating youth and caregiver representatives into the TIC AC was discussed at ongoing meetings from March 2021 onwards; however, the TIC AC was unable to clarify the goals and nature of the representation or how they wished to proceed with recruiting youth and caregivers. Therefore, no patients were included on the TIC AC at the time and have yet to be added. Overall, the scores suggested that

the TIC AC was 'very' meaningfully engaged (Hamilton, 2022). Broken down by date, the mean engagement scores were: May 2021, 'moderately meaningful', February 2023, 'very meaningful' and July 2023 'very meaningful', suggesting an increase in meaningful engagement over time.

Of the 20 respondents, nine (45%) provided free-text comments, which were overwhelmingly positive and could be summarized under the following themes: a) Value of the project and participation (n=3 comments), b) Feedback on facilitator (n=3 comments), and c) Feedback on the PEIRS (n=3 comments) (Appendix N). In addition to the PEIRS survey, I received informal feedback from TIC AC members between August 2020 and July 2023, through meeting discussions and emails (>50), regarding their perspectives on the process. Most of the feedback encompassed messages of appreciation for: a) my commitment to this project, b) communicating and sharing updates in an organized manner, c) including them in this process, and d) providing additional information and resources as needed (Appendix N).

4.4.2.3 Youth, Caregiver, and Staff, Perspectives on Engagement

I also sought feedback from the youth, caregiver, and staff who participated in the individual and group interviews (PhD Study 2; Stokes et al., In Press) who placed on the "Involve" level of engagement (IAP2 International Federation, 2018). Given the different levels of engagement of the two groups (Collaborate for the TIC AC and Involve for the interview participants) I administered two different versions of the survey. Interview participants completed three subdomains (8 items) of the adapted PEIRS-22 (Hamilton et al., 2021). The TIC AC and I selected three subdomains from the PEIRS-22 (Contributions, Feel Valued, and Benefits) to use with interview participants, based on relevance to our study and participants, and given that the subdomains of the PEIRS-22 are equally weighted in the final score. The adapted PEIRS-22 is presented in Appendix O. The interview participants were invited to complete the

measure at the end of their interview. These data were anonymous and were collected through REDCap (Harris et al., 2009). The data analysis process was the identical to that described above for the adapted PEIRS-37, except that I did not calculate total scores because participants did not complete the full PEIRS-22. A detailed summary of the adapted PEIRS findings and feedback from PhD Study 2 participants can be found in Appendix P.

Twenty-four of the twenty-five interview participants (96%; three youth, one caregiver, and twenty staff) completed the adapted PEIRS-22 engagement scale, which consisted of three subdomains, and seven items. Given that these participants did not complete the full PEIRS-22, I was unable to interpret total scores, nevertheless, responses to individual items in the included subdomains (Contributions, Feel Valued, and Benefits) demonstrated a high degree of satisfaction with engagement particularly across youth and caregiver responses. There were seven staff that responded 'Neutral' to the item: "I made an impact on the decisions in the TIC project". However, two staff clarified that they felt it was too early for them to be able to comment on this item. Seeing as these staff had shared in interviews their sense of discouragement relating to previous implementation initiatives on the unit (PhD Study 2, Chapter 3), and considering they did not have decision-making capacity within this TIC implementation process (as did the TIC AC), it is not surprising that they expressed cautiousness to trust the degree to which their voices would impact decisions. Thirteen participants (54.17%) provided free text comments (one youth and twelve staff). Overall, the comments reflected enthusiasm and a longing for the successful implementation of the TIC Program, coupled with an interest in contributing to the process. Most expressed value and enthusiasm for the initiative (n=7 comments), while some stated appreciation for the opportunity to contribute (n=3 comments) and a desire to see the impact of their contribution on implementation as well as hope that the

initiative would not be ‘shelved’ and forgotten (n=3 comments). Comments also conveyed a desire to remain involved this implementation initiative (n=1 comment), hope for buy-in (n=1 comment), and feedback relating to the PEIRS (n=2 comments).

4.4.3 Impact of the Partnership with the TIC AC on Me, the Trainee

As a trainee, I also noticed within myself a shift, from initially shouldering the weight of responsibility for the implementation planning process and the associated decisions that needed to be made, to seeing myself as a facilitator, providing the Roadmap, and guiding the process, but leaving the decisions in the hands of the TIC AC. Moreover, I continued to gradually build confidence in my knowledge of the implementation planning process, and skills as an implementation facilitator, due in large part to the gentle guidance and mentoring of my thesis co-supervisors. In time, I began to recognize the similarities and overlap between the IKT approach to the implementation planning process and to providing TIC as a clinician, emphasizing the principles of safety, trustworthiness and transparency, support, collaboration, empowerment, and cultural and historical considerations (SAMHSA, 2014), while holding in sacred balance compassionate acceptance with the need for change (Rathus et al., 2015).

Feedback from TIC AC members was useful in informing my role and strategies as a facilitator. For example, during one TIC AC meeting in early 2021, when I was presenting initial findings relating to PhD Study 1 (Chapter 2), and seeking feedback on the usefulness of an intervention framework for describing interventions, it became clear that the volume and academic nature of the information in the presentation did not suit all members of the TIC AC. One member recommended initiating smaller workgroups for those with particular areas of interest and expertise for such discussions, which proved to be a valuable suggestion moving forwards.

4.5 Lessons Learned

I approached this thesis project with an awareness of complexity theory, viewing healthcare interventions as complex interventions, with their numerous interacting components (e.g., the intervention itself, implementation strategies, providers delivering the intervention, recipients of the intervention, the implementation team, setting, context, and the theoretical and research basis). Yet, it was challenging to maintain a high-level view of these interacting components (i.e., what we have already learned about these components through our process thus far), while immersed in the vast day-to-day details and tasks pertaining to one aspect of the intervention or implementation. I frequently needed to take a step back from being submerged in the task at hand, to review the broader picture of where we had come from, the components and influences we (the TIC AC and I) had previously identified (e.g., what we knew about trauma and TIC; what we knew about the history of the inpatient mental health unit, and the specific needs and wishes of staff and patients on the unit), along with the components we more recently became familiarized with (e.g., the need to adequately plan for implementation and evaluation in an evidence-informed manner, emerging TIC and implementation-science literature, the need for the implementation team members and staff members to feel valued, heard, supported, and useful, and supported, throughout the implementation process, and the need to advocate for funding for dedicated staff to support the implementation process). This time-consuming and labour-intensive implementation planning process was necessary to begin to see patterns and cycles, that would otherwise have been missed, and for me to bring to the attention of the TIC AC important discussions, rationales, processes, and decisions that were made earlier on in our partnership.

Furthermore, I have suggested that the IKT implementation planning process may be considered a complex system in and of itself, both guiding and influencing the healthcare

intervention (the TIC Program). Cassidy and colleagues (2021), identified several barriers to trainee-led IKT research, spanning along individual, interpersonal, and organizational levels, including lack of skills in IKT, an 'outsider' status, and competing priorities between trainees (completion of studies) and KUs (service delivery, resource use). I was fortunate to commence my thesis IKT partnership already as an 'insider', with professional relationships existing in various departments and disciplines at CHEO. However, similar to Cassidy and colleague's (2021) findings, I did, at times, find it difficult to define the scope of my thesis research in a manner that both met the needs of the TIC AC and aligned with my academic guidelines and timelines. Given my 'insider' status within the organization and my pre-existing involvement with TIC at CHEO, it was easy for me to slip into assuming responsibilities that went beyond the scope of my thesis or of my role as a trainee and an implementation facilitator. Cassidy and colleagues (2021) found that some trainees experience challenges in relation to power dynamics within the health system or academic institutions affecting KU engagement. On the other hand, trainees can be facilitators of KU engagement, with facilitator skills aiding the process, such as using clear language, setting common goals, applying flexibility and problem-solving skills, and developing trusting relationships that value diverse perspectives (Cassidy et al., 2021). I believe that these were skills that I gradually developed throughout my thesis research, increasing my confidence in my capacity to facilitate this partnership and process. Supervisors may also perform an important role in facilitating trainees' involvement with IKT by guiding them through the research partnership (Cassidy et al., 2021), which I certainly experienced for myself. These are just a few examples of sub-components that may act as barriers or facilitators, along individual (e.g., trainee, supervisor, implementation team factors), interpersonal (e.g., processes involving power dynamics, valuing of perspectives, clarity of communication), and

organizational (e.g., resources, history) levels, affecting the nature and functioning of an IKT partnership, and in turn, the implementation of the innovation. Over time, I increasingly learned to identify hypothesized components, and to observe patterns that could inform my understanding of the complex partnership and guide my role as an implementation facilitator through the implementation process.

What follows are a selection of lessons learned, as a trainee taking an IKT approach to implementation planning. These lessons are related to implementation planning, IKT, and TIC:

- Implementation planning is often a long and winding road. As an implementation facilitator it was important for me to provide a clear Implementation Roadmap (e.g., Harrison & Graham, 2021), the plan towards implementation and to attaining our shared goals, and to review this roadmap regularly to remind ourselves of where we have come from and where we wanted to get to.
- Leadership involvement and support (including providing funding) was critical for foundational resources required for this project. Having the Director of Mental Health on-board from the very beginning, supporting this project conceptually and financially, was critical to progression of this work.
- The TIC AC's development of responsibility for the decision-making was essential for the progression of this project. From the outset there were CHEO KUs guiding and contributing to this endeavour. While we were partnered on shared research aims, it became apparent that we still required formal KU leadership on the TIC AC. Once this was established, progress increased.
- Organizational and TIC AC enthusiasm and perseverance were and will continue to be essential in implementing and sustaining the CHEO TIC project. By the time we

established the CHEO TIC AC, there was already a great deal of interest among leaders, clinicians, and non-direct services providers to proceed with the initiative. From a TIC AC perspective, it was important to be prepared for challenges keeping the project 'on the radar', as other priority projects and unforeseen delays arose.

- There are similarities and overlaps between IKT implementation planning and the philosophy and delivery of TIC, with an emphasis on the principles of safety, trustworthiness and transparency, support, collaboration, empowerment, and cultural and historical considerations (Gainforth et al., 2021; SAMHSA, 2014). IKT facilitators and teams may benefit from considering application of TIC principles to IKT implementation planning.

4.6 Conclusions

As a trainee, I gained valuable experience using an IKT approach to implementation planning, under the supervision of experts in implementation science and IKT, and in collaboration with TIC AC partners possessing many levels of expertise. For me, selecting an IKT approach for my thesis research was tremendously rewarding and meaningful while simultaneously demanding and complex. Navigating the time obligations of the partnership together with the timeline requirements of my thesis, while studying and developing skills in IKT, implementation planning, and facilitation, became a huge undertaking that I could not have done alone. I was fortunate to have had the ongoing guidance and support of my academic supervisors, who were knowledgeable and skilled in IKT. Furthermore, I received encouragement from, and over time increasingly transferred responsibility to the TIC AC members, and in particular the current TIC AC co-chairs (D. Aggarwal, P. Cloutier, and E.

Locke). IKT is a partnership, and I am grateful for the partners who have joined me through this journey.

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Chapter 5 Integrated Discussion

5.1 Introduction

In this chapter, I summarize the findings of my three thesis studies, discuss how they integrate to contribute to the existing literature, and propose future directions for trauma-informed care (TIC) implementation, from a nursing and multi-disciplinary perspective.

5.2 Summary of Thesis Objectives and Findings

In this doctoral thesis, I sought to facilitate the implementation planning process of a TIC program at an acute care pediatric hospital, while observing aspects of the process in a naturalistic setting. I aimed to partner with the hospital in implementation planning in an evidence-informed manner, facilitating the selection of a TIC intervention and exploring the context-specific adaptations and considerations for implementation. The thesis consisted of a series of three studies each using different methods, guided by tenets of critical realism and complexity theory (Clark 2013; Clark et al., 2007) taking an integrated knowledge translation (IKT) approach based on the Knowledge to Action (K2A) framework (Graham et al., 2006), and the Implementation Roadmap (Harrison & Graham, 2021).

5.2.1 Objective 1: Scoping Review (PhD Study 1: Chapter 2; Stokes et al., 2023)

I led a scoping review of TIC interventions and implementation strategies used in pediatric mental health inpatient and residential settings, following the JBI methodology for scoping reviews (Peters et al., 2020). I sought to identify the TIC interventions, their components, and the implementation goal and strategies used with these interventions, each described using the Aims, Ingredients, Mechanism, and Delivery (AIMD) framework (Bragge et al., 2017). The database search spanned from 1995 to September 2020. Through this review, I identified 49 articles encompassing 21 distinct TIC interventions. The interventions ranged in detail in reported intervention aims, essential elements, mechanism, delivery, and related

implementation goals to the strategies used. The included TIC interventions encompassed some common aims and components, however, there were also many differences. I also found that although educational trainings were a common implementation strategy across TIC interventions, most authors recommended a tailored and multi-pronged approach to TIC implementation including but not limited to educational trainings. These findings support the importance of considering the goals for TIC and clearly describing and reporting the aims and core components of the TIC intervention separate from the implementation strategies to be used. Further, future research is needed to better understand what combination of implementation strategies work best for what TIC interventions and in specific contexts. This scoping review has been accepted for publication with the Journal of Trauma, Violence, and Abuse.

5.2.2 Objective 2: Youth, Caregiver, and Staff Perspectives of TIC and TIC Implementation (PhD Study 2: Chapter 3; Stokes et al., In Press)

In a qualitative study using an interpretive description approach (Thorne, 2008), I conducted individual and group interviews to explore youth, caregiver, and staff perspectives on their vision of TIC, and potential implementation considerations related to their described vision of TIC, including facilitators and barriers, and the contextual setting. I used Applied Thematic Analysis methods (MacQueen & Namey, 2012). Twenty-five individuals participated in individual or focus group interviews between March and June 2022, including twenty-one staff, three youth, and one caregiver. Participants shared their understanding of TIC, their vision of how TIC would ideally be operationalized in the current setting, and their perceptions of factors that would enable or limit the successful implementation of TIC. From these findings I identified five key elements to consider within TIC implementation: a) the centrality of engagement with youth, caregivers, and staff in trauma-informed care delivery and implementation, b) TIC core

program components, c) factors that may support or limit success in implementing TIC within the mental health unit and d) hospital wide, and e) the importance of intersectoral collaboration (partnering with external organizations and sectors). Engaging youth, caregiver, and staff perspectives during the implementation planning process highlighted essential issues to consider in adapting and implementing a TIC Program in the local setting. I recommended future research to explore and broaden understanding of providers' and recipients' perspectives regarding TIC and successful implementation of TIC in varied healthcare settings, as well as careful documentation of TIC implementation activities and outputs to allow for clear and comprehensive dissemination of what was done and by whom, outcomes, and lessons learned through this experience. This study is currently under review with the Journal of Advanced Nursing.

5.2.3 Objective 3: A Trainee's Experience Using an IKT Approach to Implementation Planning (PhD Study 3: Chapter 4; Stokes et al., 2022)

I described the IKT approach to planning the implementation of a TIC Program at an acute pediatric hospital. I reflected upon the initiation of the partnership with the CHEO TIC Advisory Committee (TIC AC) and the development of shared research aims, the management of the partnership and the implementation steps, as framed by the Implementation Roadmap (Harrison & Graham, 2021), and the impact of the partnership and of engagement with knowledge-users (KUs) on the research and implementation planning process, on KUs themselves, and on myself as a trainee. Partnering with the CHEO TIC AC throughout this process was an enriching experience for a trainee. Four lessons learned through this process were: a) the value of a blueprint for planning implementation and attaining shared research aims, such as the Implementation Roadmap (Harrison & Graham, 2021), b) the importance of

leadership involvement and support, which was critical to progression of this work, c) the importance of KU leadership taking responsibility for the decision-making and flow of the project, while I became a facilitator of the shared implementation aims, and d) the importance of organizational enthusiasm and perseverance to continue to prioritize this project was and will continue to be essential in implementing and sustaining this initiative. This work was partially published in the Integrated Knowledge Translation Network Research Network Casebook series (Stokes et al., 2022).

5.3 Integrated Discussion

In this section, I discuss the integration of my thesis findings and situate them within the context of the broader literature. First, findings from these three studies demonstrated the complexity inherent in TIC. Second, this complexity is also intrinsic to an IKT approach and to implementation planning in healthcare. Third, TIC implementation planning is not benign and can be (re-) traumatizing. When done well, the process can lead to benefits. Yet, the process is not immune to challenges, which could lead to harms. Fourth, effective implementation of TIC may benefit from taking a trauma-informed perspective, informed by principles of TIC and IKT. Finally, I explore implications for nursing and healthcare, including for developers of TIC interventions, leaders, implementation teams, care providers, care recipients, training, and research.

5.3.1 Complexity in Trauma-Informed Care (TIC)

Each of the three studies within this thesis generated findings that demonstrated the complexity of TIC and/or of implementing TIC. In Chapter 4 (PhD Study 3) I relied on Clark's (2013) definition of complex healthcare interventions, as involving several dynamic and interacting components relating to the intervention itself, as well as the implementation of the

intervention, the providers delivering the intervention, the setting context, and the theoretical and research basis. These intervention components can be material, human, theoretical, social, or procedural, and may exert influence individually or in combination. Unlike predictable, formula-based interventions which may be complicated but not necessarily complex (Clark, 2013), trauma and TIC interventions need to be seen through a complexity lens, given the many multi-level dynamic interacting factors.

In PhD Study 1 (Chapter 2) I presented a range of interventions that attempted to operationalize the complexity of TIC. These interventions incorporated various and often multifaceted aims (reducing the frequency of critical events, shifting staff attitudes or skills relating to patient care, increasing availability of assessments and treatments, increasing staff wellness, improving patient outcomes, and changing culture), target audiences (patients, caregivers, staff), intervention ingredients, and implementation strategies, each of which represented dynamic and interrelated complex components of the TIC intervention itself. I suggested that one way of fostering clarity and transparency within the complexity of TIC would be to employ an intervention framework or reporting guideline, such as the AIMD (Aims, Ingredients, Mechanism, Delivery; Bragge et al., 2017) as a structure for breaking down, discussing, and reporting the components of the TIC intervention as well as the implementation strategies used (PhD Study 1, Chapter 2). Such a framework must then be appreciated with the recognition that the TIC intervention is inextricability linked to its dynamic and interacting components, including the players and contextual factors that influence the intervention mechanisms and outcome tendencies. This thought was conveyed by participants in PhD Study 2 (Chapter 3) when youth, caregivers and staff articulated the importance of not only the TIC intervention ingredients, but also of the dynamics relating to individuals and groups receiving

and delivering the intervention, the physical setting, the implementation process, and the current and historical contexts within and beyond the target unit. Asking whether a specific TIC intervention 'works' erroneously assumes that the TIC intervention functions and is effective irrespective of time, players, setting, and context (Clark et al., 2012). Furthermore, PhD Studies 1, 2, and 3 (corresponding to Chapters 2, 3, and 4) highlighted that TIC implementation and TIC delivery are dynamically and inseparably linked. Taking a complexity lens to approaching TIC interventions and implementation supports an understanding of the nature of the components of the complex TIC intervention, and of how these components exert influence on each other and on intervention outcomes. For example, in PhD Study 2 (Chapter 3), participants described division amongst the interdisciplinary team and inadequate physical space barriers to staff's ability to implement the intervention.

5.3.2 Complexity in IKT and Implementation Planning

5.3.2.1 Complexity in IKT

Knowledge translation is defined as "a dynamic and iterative process that includes synthesis, dissemination, exchange, and ethically-sound application of knowledge to improve health, provide more effective health services and products and strengthen the healthcare system" that "takes place within a complex system of interactions between researchers and knowledge-users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge-user" (Canadian Institutes of Health Research [CIHR], 2016). With integrated knowledge-translation or IKT, researchers partner with KUs in the research process (in my case, with the CHEO TIC AC), with the aim of producing relevant and useful evidence (CIHR, 2016). IKT is an approach

to implementation planning that endorses collaboration and shared decision making among the implementation team (i.e., the researchers and the TIC AC members).

Potential benefits to partners participating in IKT include learning to value different perspectives, understanding varied experiences, and contexts, and discovering the applicability of research findings (Camden et al., 2015). Still, there are challenges associated with engaging in IKT, which, when inadequately addressed, can lead to harms (Erikson et al., 2023; Oliver et al., 2019). The IKT process requires more time than traditional research, involves navigating relationships and power differentials (potentially) under pressure, managing when partners may leave the project or organization during the process, and acceptance that there are no guarantees that the project will move forwards through implementation (e.g., Camden et al., 2015; Oliver et al., 2019). Each of these inherent challenges and tensions require skillful navigation, otherwise bear risks of harm for all parties. Failed IKT efforts may lead to harms to: a) the research itself (e.g., dominant voicing directing focus on unnecessary or redundant topics, or research that benefits some over others), b) the research process (e.g., power imbalances, some voices being silenced), c) the research partners both professionally (investment with no guaranteed outcomes) and d) personally (e.g., feeling ignored or used, experience lack of transparency or respect; stress, burnout, even re-traumatization), and e) the wider cause of scholarship (e.g., mistrust of researchers and decreased willingness to engage in research processes; decreased credibility of researchers) (Oliver et al., 2019).

In Chapter 4 (in the context of PhD Study 3), I proposed that the IKT approach to implementation planning in and of itself is a complex intervention encompassing multiple dynamic and interacting components relevant to engagement with KUs and the implementation planning process. These components include the individuals and groups involved in the

partnership and their respective beliefs, knowledge, skills, and experiences; the implementation of the partnership; the setting; the context; and the theoretical and research basis for the partnership. The nature and characteristics (i.e., sub-components) of each of these IKT components will have varying measures of influence on the IKT process (as exemplified by the barriers and facilitators described by Cassidy et al., 2021). Accordingly, I believe there is value to considering applications of complexity theory to the study of IKT partnership efforts.

5.3.2.2 Complexity in Implementation Planning

The aims of knowledge translation and implementation science include better uptake and dissemination of evidence producing meaningful changes to healthcare quality, systems, and outcomes, thereby improving population health and social justice (e.g., Beidas et al., 2022; Lawrence et al., 2019; Westerlund et al., 2019). However, even if the healthcare intervention itself offers potential for meaningful changes, there are studies that suggest that the majority of organizational change initiatives are unsuccessful (Beer & Noria, 2000; Kotter & Schlesinger, 2008). Reviews of implementation of healthcare interventions continue to specify challenges relating to complex interacting components of the intervention and its implementation including, characteristics of the healthcare intervention itself (the effectiveness of the intervention, as well as perceived features of the intervention, such as the acceptability, fidelity and feasibility over settings and time), characteristics of those implementing, delivering, and receiving the intervention (including level of knowledge, skills, perception of benefits and stressors), processes involved in implementation planning (including communication and engagement issues such as insufficient information, lack of trust, misunderstandings, blaming, and power plays to reach objectives), and inner and outer contextual factors (including lack of leadership support, program champions, funding, physical environment or geography, institutional instability or restrictions,

interagency pressures, socio-political context (e.g., Abbell et al., 2023; Cassidy et al., 2021; Klaic et al., 2022; Lopez et al., 2023; Shoesmith et al., 2021; Wu et al., 2022). A recent systematic review of barriers and facilitators to implementing of TIC interventions in healthcare settings reported similar barriers (Huo et al., 2023). Risks associated with failed implementation initiatives include time and financial expenditures, emotional and social disturbances, deterioration of staff morale (Kotter & Schlesinger, 2008), and decreased collective change efficacy (belief that change is possible; Weiner, 2009). For robust implementation planning, implementation teams need to bear in mind these interacting components (e.g., the intervention, implementors, providers, recipients, setting, and context) including the complexity within the implementation planning process itself, the phases or steps to take, and the external and local evidence to consider (Harrison & Graham, 2021).

5.3.3 Implementing TIC can be Traumatizing

The findings from PhD Study 2 (Chapter 3) revealed that while staff expressed enthusiasm and a need for TIC, they also conveyed a hesitancy in relation to the implementation initiative, due to previous unsuccessful implementation initiatives. Staff stated concerns about TIC resulting in additional 'tasks' to complete, distancing them further from having time and capacity to engage with patients and families and to provide holistic care in a collaborative interdisciplinary manner. They also described witnessing burnout among their colleagues as the basis for predicted resistance to adopting the proposed TIC intervention. Other studies have described how the combined effects of caring for complex patients while facing competing demands, all within the context of an inadequately resourced system result in a "traumatised and traumatizing system" (McElvaney & Tatlow-Golden, 2016, p.66), where the providers began to demonstrate patterns of agitation or avoidance and underlying experiences of helplessness,

frustration, and incompetence, similar to those of the patients they were there to serve. These 'parallel processes' occur when staff, as well as whole organizations (teams, departments), adapt to chronic and repetitive stress in ways that mirror trauma responses, resulting in a crisis-driven, reactive system, disconnected from emotional awareness, and resistant (or fearful) of change (Farragher & Bloom, 2010). Again, in PhD Study 2, (Chapter 3, as well as the post interview feedback presented in Chapter 4) staff conveyed interest and gratitude for the opportunity to contribute their perspectives, while sharing concerns that seeking their views may be considered tokenistic, only to be 'shelved', and a wariness that inherent barriers thwarting previous initiatives would impede current implementation efforts. These perceptions suggest the potential for a degree of 're-traumatization' when unsuccessful or disappointing implementation processes recur.

Huo and colleagues (2023) present 23 studies that reported barriers to implementation of TIC in healthcare, nine of which reported barriers that were classified as 'resistance to change', a barrier relating to the 'characteristics of individuals' (staff). Given our advancing state of knowledge on trauma, TIC, complexity, implementation, and IKT, perhaps it is time that we consider shifting out language, expectations, and approach in TIC implementation planning. Our health care delivery systems are often under-resourced and functioning under stress, resulting in 'parallel processes' (Farragher & Bloom, 2010) and "traumatised and traumatizing" systems (McElvaney & Tatlow-Golden, 2016, p.66) where "trauma perpetuates trauma" (Stokes et al., 2017, p. 7). Meanwhile, a complexity lens sheds light on not only TIC as a complex healthcare intervention. The implementation of TIC and implementation planning using an IKT approach both can also be considered complex interventions in their own right (see Chapter 4). Further, there is evidence to suggest that implementation and IKT are not benign processes but in and of

themselves hold challenges, which when ineffectively operationalized, bring risk of harm (e.g., Erikson et al., 2023; Oliver et al., 2019). Given these accounts in their entirety, I propose we take the stance that implementation of TIC, in its totality, may benefit from a trauma-informed process, abiding to the principles of TIC. As we strive to shift our language in healthcare away from pejorative patient labels in favour of strengths-based and trauma-informed terms (e.g., Strengths-Based Nursing, Gottlieb & Gottlieb, 2017; Stokes, 2016), and we change our fundamental question from "what's wrong with you" to "what happened to you" (Bloom, 1994, p. 476), we must apply the same degree of sensitivity and curiosity throughout TIC implementation. For example, just as we have revised our conceptualization of 'treatment-resistant' patients, so too, I propose that we shift from seeing staff as inherently representing 'resistance to change' (e.g., Huo et al., 2023), to seeing that 'resistance' as a historically and contextually driven adaptation (e.g., McMillan & Perron, 2020). Further, it is only through gradual and attuned relational engagement that can we proceed to realize and appreciate the varied 'pieces of the puzzle' that led up to and are contributing to this manifested 'resistance' (see PhD Study 2; Chapter 3; McEvedy et al., 2017, p. 40). In PhD Study 2 (Chapter 3), participants maintained that TIC, in essence, involves moving beyond labels, assumptions, and 'band-aid' solutions, to curiously and collaboratively developing an understanding of the 'why' underlying the symptoms and problems. Study 2 participants maintained that undercovering and understanding that 'why' requires safety, trust, time, skills, and a conducive environment. Participants also emphasized the importance of looking beyond deficiencies in developing strengths-based care plans. Nursing literature suggests that negative labelling practices contribute to depersonalizing the patient, resulting in distancing behaviours which modify or damage the nurse-patient relationship (e.g., Holmes & Federman, 2003). As we undertake a path towards

meaningful and collaborative engagement in implementation of TIC, we are obligated to reflect on and examine our language as a manifestation of our assumptions and deep-set mental models. In the following section, I build off recent literature that proposes the integration of TIC principles into research processes (Voith et al., 2020), TIC implementation planning (Raymond, 2020), and co-production of knowledge with individuals who have lived experience of trauma (McGeown et al., 2023), as well as IKT literature emphasizing the prominence of safe and meaningful relational engagement (e.g., Gainforth et al., 2021; PEIRS Project Team, 2018) in suggesting advancement towards trauma-informed, TIC implementation planning.

5.3.4 TIC Implementation Planning: The Need for a Trauma-Informed Approach

TIC is a philosophy of care that attends to the needs of individuals with histories of trauma, whether they are the ones receiving care or staffing the care system (Substance Abuse and Mental Health Services Administration (SAMHSA), 2014). Generally speaking, TIC is recognized as including six principles and four 'R' assumptions. These principles are: a) safety, b) trustworthiness and transparency, c) peer support, d) collaboration and mutuality, e) empowerment, voice and choice, and f) cultural, historical and gender considerations, well as the four 'R' assumptions refer to: Realizing the prevalence of trauma, Recognizing manifestations of trauma, Responding appropriately to trauma, and Resisting Re-traumatization (e.g., SAMHSA, 2014). Further, it is widely accepted that TIC requires 'universal precautions', approaching every patient and staff member with trauma-informed sensitivity, acknowledging that anyone encountering the organization may have a trauma history (Elliott et al., 2005; see PhD Study 2). In considering the 4 'R's of TIC, it is easy to imagine the relevance to TIC implementation planning using an IKT approach (Table 5.1).

Table 5.1

TIC 'R's and TIC Implementation

TIC 'R' Assumption	Definition (SAMHSA, 2014, p.9)	Applying TIC Assumption to Implementation
Realizing	○ A program, organization, or system that is trauma-informed ***realizes*** the widespread impact of trauma and understands potential paths for recovery	○ The implementation team ***realizes*** that trauma and/or chronic stress may be present within the organization and finds opportunities to listen to the experiences of those who will be affected by the implementation initiative* ○ The implementation team takes stock of current and historical stressors affecting those who will be affected by the implementation initiative* such as critical clinical incidents, previously unsuccessful change initiatives, clashes within interdisciplinary teams, lay-offs, diminished staff morale ○ The implementation team reflects on ways that implementation may cause or re-enact trauma, such as through enforcing implementation of interventions that increase the workload of providers with no perceived benefit, disregarding the voices of those who will be affected by the implementation initiative*, or overlooking the need for supports to effectively implement and maintain an intervention
Recognizing	○ A program, organization, or system that is trauma-informed... ***recognizes*** the signs and symptoms of trauma in clients, families, staff, and others involved with the system	○ The implementation team is alert to and ***recognizes*** manifestations of trauma among affected by the implementation initiative* during implementation, such as, increased reactivity/irritability, mistrust, efforts to regain control and resist change (vigilance response), increased avoidance, or disregard for the intervention, decreased participation in implementation process, absenteeism (escape response), increased burnout (vigilance, escape, fear, shame responses)
Responding	○ A program, organization, or system that is trauma-informed...***responds*** by fully integrating knowledge about trauma into policies, procedures, and practices	○ The implementation team ***responds*** sensitively to known or potential trauma responses among each other and of all affected by the implementation initiative* applying principles of TIC (see Tables 5.2 and 5.4 below)
Resisting Re-traumatization	○ A program, organization, or system that is trauma-informed...seeks to actively ***resist re-traumatization***	○ Individuals who have been previously hurt are very attentive to threats of a similar nature ○ The implementation team actively ***avoids repetition*** of previous implementation traumatic experiences (known or potential), where those

	affected by the implementation* experienced a lack of attunement, distrust, or disempowerment, such as when they were excluded from the implementation process, or included but their perspectives and values were disregarded or berated, or when previous implementation initiatives ignored their context and needs

*E.g., implementation team members, clinical and non-clinical staff, leadership, trainees, and recipients of the TIC intervention

TIC theory, interventions, and implementation may offer useful conceptualizations, elements, and frameworks to consider within a model of trauma-informed TIC implementation. PhD Study 1 (Chapter 2) found that most reports of TIC implementation blurred the actual TIC intervention with the implementation strategies used, making it difficult to distill the components of the TIC intervention, independent of the implementation. However, this blurring becomes more understandable when taking a lens of complexity (with the implementation as one component that is inseparable from the intervention itself), and a lens of trauma-informed TIC implementation (where the principles of TIC, and perhaps the elements of the TIC intervention must be integrated throughout implementation and with all implementation partners). As a novel concept, trauma-informed TIC implementation planning requires further attention and research. At this stage, I present a select number of potential suggestions, based on elements of existing TIC interventions that may be useful to aid in operationalizing TIC principles in the context of TIC implementation (see Table 5.2). All of these TIC interventions were included in PhD Study 1 (Chapter 2) except for two that did not meet eligibility criteria.

Table 5.2

Suggestions for Trauma-Informed TIC Implementation, Based on TIC Interventions

Implementation Issue	TIC Intervention Source	Concept or Framework
Models for Engagement and Problem Solving		
○ Model for engagement and collaboration that supports emotional regulation in a trauma responsive manner ○ Useful for implementation team to use when encountering distress within interactions with each other or with those affected by the implementation initiative*	Neurosequential Model of Therapeutics (NMT; Perry, 2021; Perry & Winfrey, 2021)	4 "Rs" Sequence of Engagement: o Regulate o Relate o Reason & Reflect Without regulation, it is difficult to connect, and without connection, there is minimal reasoning. Trying to reason before regulation won't work and will only increase frustration (dysregulation) for both. Effective communication, teaching, coaching, parenting, and therapeutic input require awareness of, and adherence to, the sequence of engagement. Regulate, relate, then reason [and reflect]. (Perry & Winfrey, 2021, p142).
○ Relational model for healing from trauma ○ Useful elements for implementation team to consider in interactions within implementation team and with others affected by the implementation initiative*	Risking Connection (RC; Wilcox, 2008)	The basic premise of RC is that symptoms are adaptive, and healing is within a RICH relationship, characterized by: o Respect o Information o Connection o Hope
○ Model for engagement and collaborative problem solving with implementation partners and others affected by the implementation initiative* ○ If team is facing differing opinions, this strategy can help clarify three options on	Collaborative Problem Solving (CPS; Ablon, 2018; Ablon, 2021)	CPS is based on the philosophy that "people do well if they can" and involves partnering to build skills and develop lasting to solutions to problems that work for everyone Three options in responding to problems: ○ Plan A: Impose your will (*Activates stress response, increases power differential risking dysregulation, stress dose too intense to regulate and change stress response)* ○ Plan B: Work towards solving the problem in a mutually satisfactory and realistic manner *(Activates stress response, decreases power differential, moderate dosing to change stress response)* ○ Plan C: Drop it (for now, at least), (*Decreases power differential, does not trigger or activate stress response, no dosing of to change stress response)*

how to proceed and the related effects on stress and trauma		Plan B Interactive Steps: 1. EMPATHIZE: Clarify partner concern (regulating) 2. SHARE own concern (dysregulating) 3. COLLABORATE: Brainstorm, assess and choose solution (regulating) Plan B Ingredients: ○ Clarifying questions ○ Educated guessing ○ Reflective listening ○ Reassurance
○ Framework for implementation discussions and problem solving ○ When facing a problem, the implementation team can use this framework to clarify and organize key considerations from all parties	Sanctuary Model (Bloom & Farragher, 2013), Creating Presence (Bloom, 2021)	S.E.L.F.: four nonlinear, domains that provide an organizing framework for problem solving, conversations, and collaborative decision making, with patients, families, and organizations affected by chronic stress: ○ Safety (*physical, psychological, social, moral, and cultural*) ○ Emotions (*identifying, expressing managing; acknowledging emotions of others)* ○ Loss (*loss creates change and change creates loss*) ○ Future (*the belief that things can get better*)
○ Value system within a partnership, providing checks and balances to minimize coercive control ○ Useful as guiding values for the implementation team	Sanctuary Model (Bloom & Farragher, 2013)	The Sanctuary Commitments: Guiding principles for implementing the Sanctuary Model. Commitment to: ○ Nonviolence: building and modeling safety skills ○ Emotional intelligence: teaching and modeling affect management skills ○ Social learning: building and modeling cognitive skills ○ Democracy: creating and modeling civic skills of self-control, self-discipline, and healthy authority ○ Open communication: overcoming barriers to healthy communication ○ Social responsibility: rebuilding social connection skills, establish healthy attachment relationships ○ Growth and change: restoring hope, meaning, purpose
Models for Implementation Planning		
○ Six key elements to consider to ensure the environment and tasks are respectful individuals' abilities and needs ○ Useful for implementation team in ensuring that	Neurosequential Model of Therapeutics (NMT; Perry 2020)	6 "R"s for Positive Development Key Elements of a Positive Workplace ○ Relevant (matched to skill level to meet expectation) ○ Rhythmic (resonant with neural patterns) ○ Repetitive (predictable routines and rituals) ○ Relational (consistent, predictable = safe) ○ Rewarding (meaningful and fairly compensated) ○ Respectful (individual, team, culture)

implementation tasks are suitable for and respectful of implementation team members' needs ○ Useful for implementation team to consider in ensuring the intervention and its implementation are suitable for and respectful the needs of those affected by the implementation initiative*		
○ Model for applying mindfulness practices to implementation of TIC, including development of logic model, and articulating clarity of intervention within 'growth intent' (strengths-based perspective) ○ Useful for implementation team in clarifying intervention goals, ingredients, outcomes and processes in a mindful and strengths-based manner	Intentional Practice and growth-focused logic modelling Life Buoyancy Model (Raymond, 2020)	Intentional Practice assumes interventions hold 'growth intent', to build capacity for improved wellbeing and involves bringing 'mindful awareness' to the intent of an intervention, including the desired outcomes and processes Growth-focused logic modelling through Life Buoyancy Model follows five phases: ○ Phase 1: Articulate a Hierarchy of Outcomes ▪ long-term: vision (life buoyancy) ▪ medium-term: expression (behavioral/engagement and psychological/ wellbeing markers) ▪ short-term: growth intent (awareness, skills, and mindset markers) ○ Phase 2: Isolate Core Intervention Components ▪ Intervention components, including delivery and implementation components and contextual considerations ○ Phase 3: Theory of Change and Program Intent ▪ Intervention mechanism of action, ▪ Incorporates activating processes of: validation, curiosity and coaching ○ Phase 4: Program Integrity (Or Fidelity) Benchmarks ▪ Specific quality assurance markers or outcomes for each of the intervention components ○ Phase 5: Communication and Implementation Planning ▪ Program model is documented and presented in an engaging manner to with those affected by the implementation initiative* ▪ More detailed implementation planning Key questions to support service development (pp. 39-40): ○ *What is the intent of our service model or program?* ○ *Are we bringing high levels of mindful awareness to the needs and experiences* of children, *the intent or purpose of our work, the outcomes we are working towards*, and how we are working towards those outcomes?

		○ Do we have *systems and methods to activate this awareness* within our program and across our staff teams within moment-to-moment practice? ○ *What are the active ingredients or core therapeutic or trauma-informed intervention* components of our service delivery? Can all of our staff articulate the intent or purpose of each component, and how do individual components relate and interface with each other? ○ *Do we have a cohesive practice philosophy* or intent that underpins all of our intervention or therapeutic components? ○ *Are we bringing enough awareness and energy to 'growth'* as an intent or practice philosophy within our service delivery? Or are we overly preoccupied with 'managing' child behavior or risk within our service? ○ *Do we have a method to operationalize our milieu-based model into moment-to-moment practice* (or in a manner that staff can operationalize into the next interaction with a child)?
○ Model for TIC Implementation Planning that ensures that the intervention addresses the priority needs of the implementation team and those affected by the implementation initiative*, and that the Intervention, according to the implementation team, providers, and recipients has the ability to attend to the priority need ○ Useful for implementation team to ensure TIC intervention and implementation is relevant and clear for those affected by the implementation initiative*	Trauma Systems Therapy (TST; Saxe et al., 2016)	TST Organizational Planning: ○ The intervention must address the priority needs of families ○ The intervention must, according to families have the ability to attend to the priority need Defining the TIC Implementation Plan: 1. Organizational/ KU priority problems (aims of TIC intervention) 2. Organizational solutions (mechanism of addressing aim) 3. Implementation partners 4. Delivery of TIC intervention 5. Target audience 6. Implementation strategies 7. Funding and budget 8. Evaluation plan Questions that define the components of the TST Organizational Plan: 1. Am I sure I have a good-enough understanding of how the implementation team and providers would define the thorn that I think is in their paw? 2. How do I imagine that the innovation will effectively remove the thorn in their paw? 3. Who is needed to make the innovation work? 4. How will my innovation operate? 5. For whom is my innovation intended, and how will we scale it up for this intended group? 6. How will my people get trained to do the innovation and to monitor its quality over time? 7. How will we pay for our innovation? 8. What does success look like and how will we know it if we see it?

○ Inventory of tenets and guiding questions to consider throughout the research process to support trauma-informed and just practices ○ Useful as a checklist implementation team to consider in planning and proceeding with research related to TIC implementation	Trauma-Informed, Socially Just Research (TISJR) Framework (Voith et al., 2020)	(TISJR) Framework Application Inventory: Stage of research, tenets, and guiding questions for application ○ Pre-study: *Sociopolitical, cultural, and historical context; peer support; transparency* ○ *What systems of privilege and oppression at the micro, meso, exo, and macro levels could affect the study (e.g., study staff, population, sociocultural/historical context)?* ○ *How could these dynamics promote or violate the assumptions of healing centered engagement?* ○ *Are there any ways to mitigate violations of key assumptions?* ○ Study design*: Safety; transparency; empowerment, voice, and choice; centralization of participants' identities* • *Does the study design consider the goals of the study while still promoting safety, transparency, and choice among participants?* • *Does the study design consider the goals of the research study while centralizing the lived experiences and identities of participants?* ○ Recruitment: *Safety, transparency, shared power, collaboration* • *Is the recruitment process transparent?* • *Do protocols and procedures reduce power differentials and promote collaboration between participants and those involved directly or indirectly with the study?* • *Is the study team prepared to discuss their social location in the context of the sociopolitical, historical context relative to the social location of participants?* ○ Informed consent: *Empowerment, voice, and choice; transparency* • *How can we promote agency, choice, and control during the informed consent process?* • *Do documents and procedures protect against potential challenges for trauma-exposed populations (for example, cognition overload)?* • *What elements of this process might threaten the safety (psychological, physical) of participants?* • *What changes can be made to make the process more transparent?* ○ Data collection: *Safety, building and maintaining trust* • *What threats to safety can we anticipate for participants and study staff?* • *How can safety and security be addressed while collecting quality data?* • *Is the study team equipped to maintain and promote emotional and behavioral regulation with participants?* ○ Post–data collection: *Safety; empowerment, voice, and choice* ○ *How will participants who have given their time to share deeply personal information be acknowledged?* ○ *Which tools to assess participants' stress levels are most appropriate for the study context?* ○ *What resources are available to empower participants post-study?*

*E.g., implementation team members, clinical and non-clinical staff, leadership, trainees, and recipients of the TIC intervention

An IKT approach aims to ensure research is translated into practice by engaging with those who may be affected by the implementation initiative as partners throughout the entire research process (Jull et al., 2017). Moreover, IKT aligns with efforts to empower providers and recipients of healthcare, decrease inequities in research and healthcare, and attend to relevant issues to improve the usefulness research and impact of outcomes (Gainforth et al., 2021; O'Mara-Eves et al., 2013). While challenges are inherent to partnerships, Gainforth and colleagues (2021) sought to support the fostering of meaningful research partnerships through developing consensus-based and evidence-informed IKT Guiding Principles for conducting and disseminating research in partnership. Interestingly, these eight IKT Guiding Principles largely overlap with the principles of TIC suggesting the congruency between IKT and TIC, and that authentic IKT is intended to be conducted in a trauma-informed manner (Gainforth et al., 2021; see also McGeown et al., 2023). In addition to the IKT Guiding Principles, I found that several implementation science-based models and frameworks that I used in this doctoral thesis were compatible with, and may contribute to, trauma-informed TIC implementation planning (Table 5.3).

Table 5.3

Suggestions for Trauma-Informed TIC Implementation, Borrowed on Implementation Frameworks

Implementation Issue	Implementation Science Source	Concept or Framework
Models for Engagement		
○ Guiding principles for IKT partnerships which are highly congruent with TIC principles ○ Useful for implementation team to refer to throughout implementation process	IKT Guiding Principles (Gainforth et al., 2021)	IKT Guiding Principles support IKT partnerships to conduct quality, ethical research that is relevant, useful, useable, and avoids tokenism. Partners should regularly refer to these principles while reflecting on their approach, contributions, and commitment to the partnership and adjust as needed. 1. Partners develop and maintain relationships based on trust, respect, dignity, and transparency 2. Partners share in decision-making 3. Partners foster open, honest, and responsive communication 4. Partners recognize, value, and share their diverse expertise and knowledge 5. Partners are flexible and receptive in tailoring the research approach to match the aims and context of the project 6. Partners can meaningfully benefit by participating in the partnership 7. Partners address ethical considerations 8. Partners respect the practical considerations and financial constraints of all partners.
○ Framework for collaboratively establishing and maintaining meaningful partnerships with implementation partners throughout the process ○ Useful for implementation team to use and discuss at the outset of the partnership and in an ongoing	Workbook to guide the development of a Patient Engagement in Research (PEIR) Plan (PEIRS Project Team, 2018)	Uses the Patient Engagement in Research (PEIR) Framework as a starting point to facilitate high quality partnerships between researchers and patients (and other non-researchers) This workbook can be used flexibly to enrich research project team discussions in a variety of formats. The ideal time to begin using it is when the research project team is still in the initial stages of development. The questions are intended to stimulate discussion between researchers and partners. The responses can then be used to form the foundation for a work plan that includes who will do what and by when, and how and when success will be evaluated. 1. Procedural Requirements: This component focuses on the procedural details of managing the inclusion of patient partners in a research project to ensure their experiences are both rewarding and productive. ○ *What are the patients' goals and the researchers' goals for working together on the project?* ○ *What attributes and personal experiences are researchers seeking in patient partners for this project, and how many patient partners would be sufficient?* ○ *What abilities or perspectives do the research project team members bring to the project?* ○ *What stages of the research process can most benefit from the contributions of patient partners? (For example, study design, data collection, analysis, interpretation, and sharing of results.)*

manner to foster trustworthiness and transparency, collaboration and mutuality, empowerment, and safety	○ *What are reasonable time commitments from patient partners?* ○ *What funding resources are available and required to cover the cost of engaging patients as research partners?* ○ *At what points during the research process will there be opportunities for patient partners to be involved?* ○ *What parts of the project are most interesting or relevant to the patient partners?* ○ *How will decisions be made? (For example, by consensus?)* 2. Convenience: Emphasizes the importance of choice and accessibility, including sufficient time to engage, and the flexibility for patient partners to choose how and when to contribute. ○ *What are the preferred days or times for meetings? (Consider other commitments, such as regular work hours or parenting responsibilities.)* ○ *How frequently will meetings be held?* ○ *What methods are preferred by patient partners to engage in discussions? (e.g., in-person, teleconference, videoconference, emails, informal phone calls.)* ○ *What are the best locations for patient partners to participate face-to-face? (e.g., consider accessibility of buildings, elevator access, and distance from public transit.)* ○ *What are the patient partners' preferred ways of receiving updates about the project or key information if they miss a meeting? (e.g., a brief one-on-one phone call to update a patient partner or a general email update to all team members.)* 3. Contributions: Focuses on patient partners' roles and project-related activities. This addresses the recognition that patient partners contribute both their perspectives and their experiences to the research project. ○ *In what ways will each team member contribute to the project? (e.g., do partners want to offer up their experiences with or perspectives on their health and the health care system, or their life experiences in general, or do they have relevant personal or professional expertise that could be valuable?)* ○ *How will the roles and tasks vary among team members?* ○ *Will the team member's roles and tasks change over the lifetime of the project?* 4. Support: Focuses on the resources offered to support partners as researcher team members. In particular, this component addresses the importance of using both financial and non-financial resources to support and encourage patient partners' contributions. ○ *What, if any, training would help partners to effectively work on the research project team?* ○ *What, if any, training would help researchers to effectively work together with partners and lay audiences?* ○ *What financial support do partners expect/appreciate? (e.g., consider expenses like travel, parking, internet access, and childcare.)* ○ *What non-financial support do patient partners expect or need in order to participate? (e.g., access to a workspace or to equipment like a computer.)* ○ *What items are "deal-breakers" and what items are appreciated as "nice to have if possible"?*

- *At what points in the project should supports for partners be re-evaluated to ensure the research project team is working effectively together?*
- *Are there any other considerations regarding support from the partners' perspective(s)? Or from the researcher's institution? (e.g., are there rules or limitations relating to payments by cash, cheque, or gift card?)*

5. Team Interaction: Focuses on aspects of interactions on a research project team, including communication style and rapport, which are important to partners and other team members.
   - *How do team members prefer to be addressed? (e.g., on a first-name basis.)*
   - *What are the preferred communication styles and methods of the research project team members? (e.g., bulk emails, online forums.)*
   - *What is the preferred format for meetings? (e.g., a presentation followed by team discussion.)*
   - *How could the research project team members demonstrate mutual respect? (What does mutual respect look like for each team member?)*
   - *How could the research project team establish and maintain trust within the team?*
6. Research Environment: Emphasizes the importance of having an inclusive organizational/team culture that encourages partners to feel comfortable and accepted as equal team members working together.
   - *How does the team create an environment that not only supports the goal of the research but also values all participants as contributors?*
   - *What are the team's ground rules and expectations for working together? (e.g., how do the team members share decision-making power?)*
   - *What should the team do to ensure that status and hierarchy do not discourage members from full participation in the research project?*
   - *Are there cultural or historical issues (e.g., systematic marginalization) to be considered before proceeding, or to revisit during the project?*
7. Feel Valued: Focuses on ensuring that partners and researchers feel equally valued on the research project team by ensuring everyone receives appropriate recognition and respect.
   - *How could the contributions of partners be appropriately recognized? (e.g., acknowledgement of their involvement on printed media or publications—including their being listed as co-authors or co-presenters—gifts, project business cards, honoraria or fee for service, formal ways of thanking individuals or groups.)*
   - *At what point in the project should the team get together to revisit and discuss ways to ensure that they all feel their perspectives and contributions are valued?*
   - *Are there any actions or behaviours that should be avoided because they could be inferred as suggesting that any team member is less valued? (e.g., if researchers request feedback within unrealistic timelines, this could be interpreted as suggesting that some team members' time and priorities are more important than others').*
   - *Are there other ways to ensure that patient partners feel valued?*
8. Benefits: Focuses on ensuring that patient partners derive benefits from working on the research project.

		○ *What benefits do team members perceive as meaningful in terms of their being partners on the project? What benefits can partners expect?* ○ *How will partners realize those benefits?* ○ *For partners with prior experience of engaging in research, what benefits did they appreciate most? Are those, or similar, benefits possible in the current project?* ○ *What benefits can researchers propose based on their past experiences of partnering on research project teams?* ○ *Who will be responsible for ensuring that benefits are realized?*
Models for Implementation Planning		
○ Planned action implementation planning framework ○ Implementation team can use to guide implementation, providing evidence-informed structure and predictability for team members, while allowing for flexibility	Implementation Roadmap (Harrison & Graham, 2021)	The Implementation Roadmap is a comprehensive implementation planning framework consisting of three iterative phases: 1. Identify and Clarify Issue i. Identify concern and potential best practices (call to action, find identify best practice evidence ii. Assemble local evidence on context and current practices (determine evidence-practice gap) 2. Build Solutions and Field Test iii. Customize best practices to the local context (determine best practice, select innovation, customize innovation, determine indicators, seek endorsement) iv. Discover barriers and facilitators for practice implementation (assess barriers related to innovation, potential adopters, and setting) v. Tailor implementation strategies (prioritize barriers/facilitators, map strategies, adjust strategies) vi. Field test, plan evaluation, prepare to launch (field test implementation strategies, plan evaluation, prepare to launch) 3. Implement, Evaluate, Sustain vii. Launch, evaluate, and sustain the gains (activate launch, oversee implementation and evaluation, plan sustainability, continuously improve)
○ Framework for clarifying and communicating essential elements of the TIC intervention ○ Useful for implementation team in planning/clarifying the TIC	AIMD: A validated, simplified intervention framework (Bragge et al., 2017)	The AIMD framework can aid in the promotion of evidence into practice, remove barriers to understanding how interventions work, enhance communication of interventions and support knowledge synthesis. AIMD: Aims, Ingredients, Mechanism, Delivery 1. AIMS: What will be achieved and for whom? (What are the targets or goals of the intervention) ○ *This component relates to the objective and outcome of the intervention. Based on your endpoint, what are you measuring in whom?* 2. INGREDIENTS: What comprises the intervention? (What are the essential components) ○ *These are the observable, replicable, and irreducible aspects of the intervention* 3. MECHANISM: How do you propose the intervention will work? (What is the theoretical rationale for the intervention)

intervention, as well as when communicating and reporting the intervention to others affected by the implementation initiative*	○ *This refers to the pathways or processes by which it is proposed that an intervention effects change or which change comes into effect.* 4. DELIVERY: How will you deliver the intervention? (How is the intervention delivered to clients/patients/caregivers) ○ *This encompasses logistical and practical information pertaining to intervention delivery, including mode (e.g., video, brochure); level (e.g., individual, team, population); dose, frequency, intensity; who's delivering; and size of target group.*

*E.g., implementation team members, clinical and non-clinical staff, leadership, trainees, and recipients of the TIC intervention

The concepts and frameworks described above (Tables 5.2 and 5.3) may be mapped on to the TIC principles (as described by SAMHSA, 2014), as suggested below in Table 5.4.

Table 5.4

TIC Principles and Application to IKT

TIC Principles *(SAMHSA, 2014)*	TIC Principle Background	Sample Applications to TIC Implementation	TIC or Implementation Science Suggested Resources (see Tables 5.2 and 5.3 for details)
1. Safety • Physical • Psychological • Social • Moral • Cultural	• Trauma and adversity result in violations of safety, whether physical, psychological, social, moral, or cultural	The implementation team: ○ Reflects on systems of privilege or oppression and ways to mitigate violations and promote safe engagement ○ Considers physical environments of KUs (implementation team, leadership, providers, recipients) and ways to increase safety ○ Applies trauma-informed and trauma-responsive expertise to the development and management of partnerships, attending to stress responses, and fostering environments within implementation planning where individual views and experiences are honoured and safe to share ○ Offers clear communications and expectations within the team and with those affected by the implementation initiative* ○ Scaffolds new expectations with tangible supports	• *Collaborative Problem Solving* • *Sanctuary Commitments* • *S.E.L.F. framework for problem solving: Safety, Emotions, Loss, Future (Sanctuary/Creating Presence)* • *4 'R's Sequence of Engagement: Regulate, Relate, Reason & Reflect (Neurosequential Model of Therapeutics)* • *6 'R's for Positive Development Key Elements of a Positive Workplace (Neurosequential Model of Therapeutics)* • *RICH relationships: Respect, Information, Connection, Hope (Risking Connection)* • *Trauma-Informed, Socially Just Research (TISJR) Framework* • *Patient Engagement in Research (PEIR) Plan* • *IKT Principles*
2. Trustworthiness and Transparency	• Trauma and adversity result in violations of trust	The implementation team: ○ Offers clear articulation of partnership norms, expectations, direction, as well as limitations of partnership among the implementation team ○ Provides clear communication of intervention components others affected by the implementation initiative* ○ Offers clarity for those affected by the implementation initiative* about the timeline for implementation, and how we are going to get there ○ Offers communications that are truthful, transparent, and respectful; follow-up actions are consistent and reliable	○ *Implementation Roadmap* ○ *TST Organizational Planning (TST)* ○ *AIMD: A validated, simplified intervention framework* ○ *PEIR Plan* ○ *Intentional Practice and growth-focused logic modelling Life Buoyancy Model (LBM)* • *TISJR Framework* ○ *RICH relationships: Respect, Information, Connection, Hope*

			○ *Sanctuary Commitments* ○ *IKT Principles.*
3. Peer Support	• Those who have experienced adversity in the absence of supports may have difficulty requesting or accepting support.	The implementation team: ○ Applies trauma-informed expertise to navigating the provision of predictable and consistent support for partners within the implementation team, as well as others affected by the implementation initiative* ○ Offers peer support that is non-judgmental, empathetic, respectful, and reciprocal ○ Considers both financial and non-financial resources to support partner contributions	○ *PEIR Plan* ○ *Intentional Practice and LBM, activating processes of validation, curiosity and coaching* ○ *RICH relationships* ○ *IKT Principles*
4. Collaboration and Mutuality	• Those who have experienced trauma may have also had their perspectives and needs dismissed	The Implementation team: ○ Demonstrates meaningful sharing of power and decision-making with all relevant partners on the implementation team ○ Considers whether all the relevant partners are at the table in every stage of the process (including those with lived experience/ intervention recipients, providers, and community partners) ○ Recognizes partners for their valuable input ○ Maintains pathways for others affected by the implementation initiative* to provide feedback throughout implementation Researchers: ○ Facilitates but does not direct organizational decisions	○ *Implementation Roadmap* • *TISJR Framework* ○ *PEIR Plan* ○ *TST Organizational Planning* ○ *Intentional Practice and LBM* • *Collaborative Problem Solving* • *Sanctuary Commitments* • *S.E.L.F. framework for problem solving* • *4 'R's Sequence of Engagement* • *6 'R's for Positive Development Key Elements of a Positive Workplace* • *IKT Principles*
5. Empowerment, Voice, and Choice	• Trauma and adversity result in disempowerment and disenfranchisement leading to a sense helplessness	The implementation team: ○ Considers ways to sensitively empower individuals and groups through acknowledging their strengths, abilities, and expertise, and offering and honouring their views and choices ○ Endeavours to finalize decisions collaboratively (incorporating some elements of all perspectives, exhibiting curiosity and empathy for all views), and at a minimum demonstrates authentically that every perspective holds value and continues to engage with those affected by the implementation initiative*to navigate challenges they may foresee, based on decisions made	○ *Implementation Roadmap* • *TISJR Framework* ○ *PEIR Plan* • *Collaborative Problem Solving* • *Sanctuary Commitments* • *S.E.L.F. framework for problem solving* • *IKT Principles*

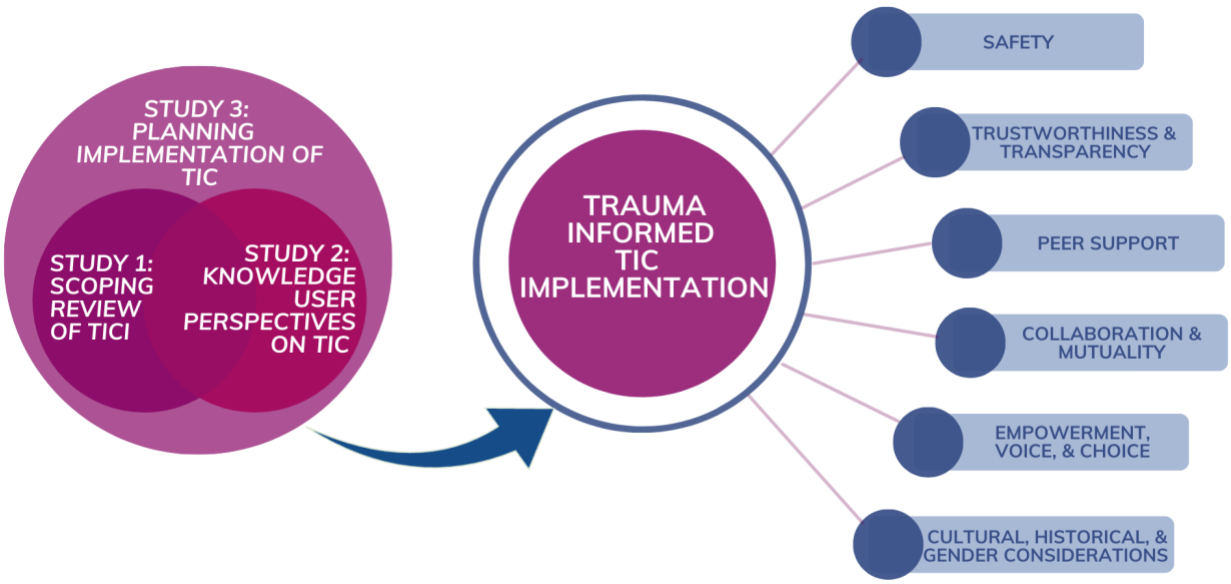
6. Cultural, Historical and Gender Issues	• Trauma (or re-traumatization) can occur in the context of cultural and gender biases or in the neglecting of known historical issues	The implementation team: ○ Considers historical, cultural, and gender-related facets of the organization and individuals, maintains awareness of potential stereotypes and biases and how they may affect the partnership or implementation process ○ Demonstrates openness and curiosity to learn, welcome and encourage sharing of personal knowledge and expertise, leverage the value of traditional cultural connections ○ Considers whether all the relevant partners at the table	○ *Implementation Roadmap* • *TISJR Framework* • *S.E.L.F. framework for problem solving* • *RICH relationships* • *6 'R's for Positive Development Key Elements of a Positive Workplace* • *IKT Principles*

*E.g., implementation team members, clinical and non-clinical staff, leadership, trainees, and recipients of the TIC interventi

The integration of findings from PhD Studies 1 and 2 (Chapters 2 and 3), encompassed by PhD Study 3 (Chapter 4) inform my proposition that TIC implementation planning would benefit from being anchored and supported by trauma-informed principles and expertise (Figure 5.1). PhD Study 3 described the IKT approach to planning the implementation of a TIC Program at an acute pediatric hospital, which included PhD Studies 1 and 2. As a whole, the findings from these studies suggest the importance of considering TIC principles (e.g., safety, trustworthiness and transparency, peer support, collaboration and mutuality, empowerment, voice, and choice, and cultural, historical and gender considerations; SAMHSA, 2014) not only within the delivery of TIC but also across the implementation of TIC.

Figure 5.1

Conceptual Map of PhD Studies Informing a Proposal for Trauma-Informed TIC Implementation

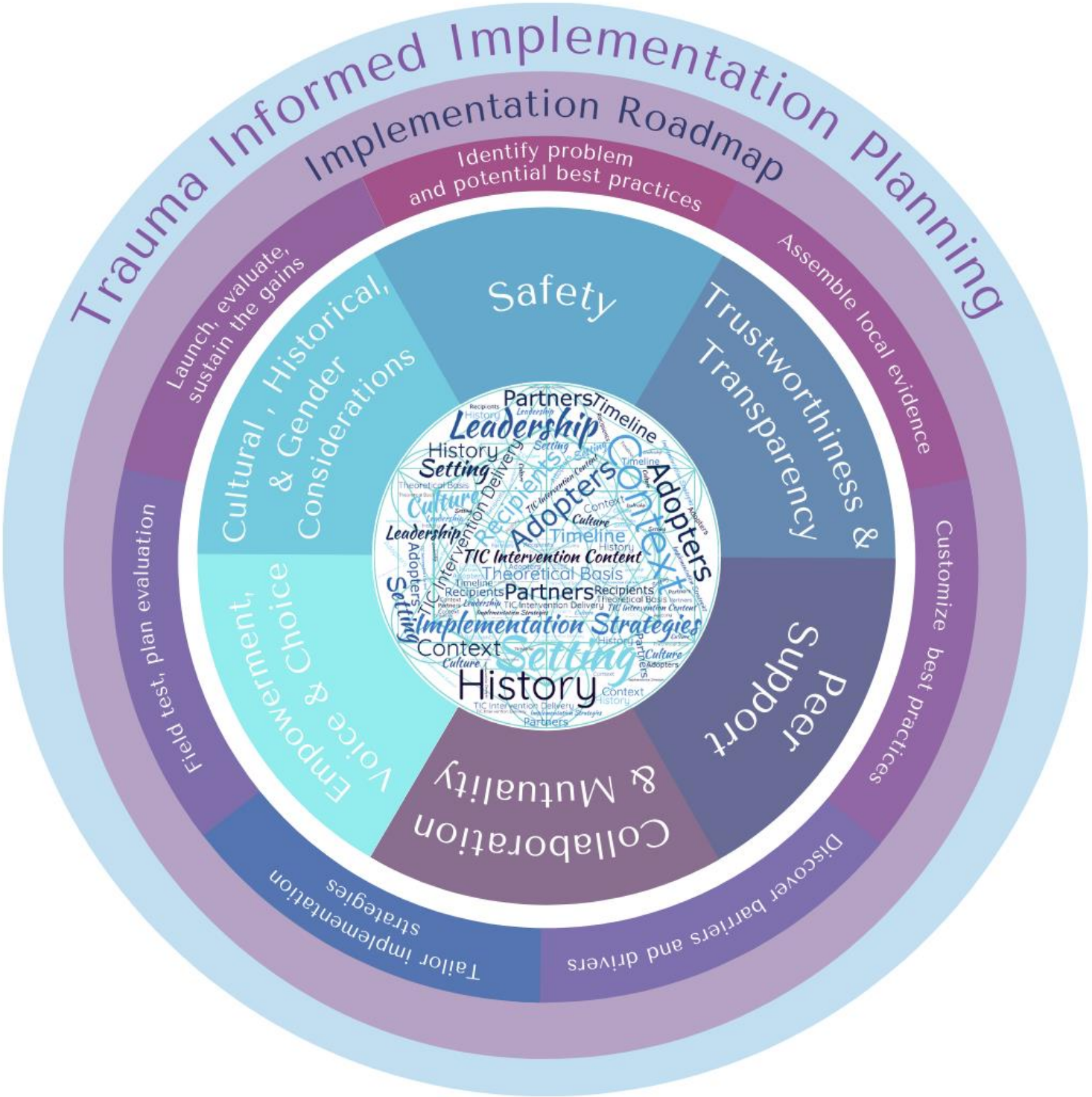


In conceptualizing trauma-informed TIC implementation I contemplated the theoretical approaches that underpinned my thesis research which demonstrated congruency with TIC

principles. I propose several elements to consider within a trauma-informed TIC implementation framework, as represented by concentric circles (see Figure 5.2). Beginning with the outermost circle, the framework depicts that trauma-informed implementation planning encompasses the entire process of TIC implementation. Next, the Implementation Roadmap (Harrison & Graham, 2021), as used in this doctoral thesis, may provide guidance and structure to frame the implementation process in a predictable, yet flexible manner along the seven iterative steps (identify problem and potential best practices, assemble local evidence, customize best practices, discovery barriers and drivers, tailor implementation strategies, field test and plan evaluation, and finally launch, evaluate, and sustain the gains). At each of these implementation steps, the implementation team must consider and apply the six TIC principles (SAMHSA, 2014). The centre of this proposed framework represents the complexity of the TIC intervention and implementation. This element highlights the importance of appreciating the variety of dynamic and interacting components (e.g., the TIC intervention itself, the implementation strategies, the implementation team, leadership, adopters such as clinical and non-clinical providers, recipients, the setting, context, organizational history and culture, timeline, and theoretical basis), and sub-components (e.g., individual skills, experiences, and values, and contextual variations) that interact and influence and generate effects (Clark et al., 2007; Clark et al., 2012). Each of these components and their level of influence will need to be considered and addressed through application of the TIC principles throughout the implementation process. Moving forward, I suggest that we study this proposed framework in TIC implementation planning and bear in mind how the TIC and implementation science literatures may complement each other in refining this work.

Figure 5.2

Conceptual Map of a Proposal for Trauma-informed TIC Implementation



5.4 Implications for Nursing and Healthcare

The findings from this thesis hold specific implications for the nursing discipline, as well as for developers of TIC interventions, nursing and other health system leaders, the team tasked with implementing TIC, those who are the target of TIC implementation efforts including staff, youth and their caregivers. I also identify research gaps in the area of TIC implementation that require future research.

5.4.1 Implications for the Nursing Discipline

Through my doctoral thesis findings, I revealed that nurses can play an integral role in facilitating the implementation planning of TIC. Given nurses' experiences both in providing 24/7 direct nursing care and in coordinating care at the multi-disciplinary team level, they hold a uniquely broad perspective of the patient-level, provider-level and system-level needs and sensitivities (e.g., Allen, 2015; College of Nurses of Ontario, 2023; National Academies of Sciences, Engineering, and Medicine, 2021). At the outset of my doctoral research, I had observed very few, if any, examples of nurses leading the implementation of TIC globally particularly in a multi-disciplinary manner. As a nurse facilitating the TIC implementation planning process in this thesis research, it is evident that nurses may be well-positioned to facilitate the implementation planning of TIC, and to lead IKT research initiatives related to TIC. Further implications for the nursing discipline, supported by PhD Study 2 (Chapter 3), include:

- *All nurses* should consider TIC as relevant to both the direct delivery of care and to the culture and structures of the unit and the organization
- *Direct-care nurses* should be involved throughout the TIC implementation process and included in a respectful and empowering manner

- *Nursing leaders* should be supportive of direct care nurses' involvement in the implementation process, support nurses to complete required TIC training within working hours and create structures for maintaining and sustaining TIC implementation efforts

5.4.2 Implications for Developers of TIC interventions

Findings from PhD Study 1 (Chapter 2) demonstrated that current TIC interventions may vary in aims, ingredients, and scope. Further, participants in PhD Study 2 (Chapter 3) suggested that the nature and content of TIC interventions (i.e., the intervention fit, and the belief that the intervention is useful and feasible) can influence their uptake. Literature pertaining to TIC and nurses has similarly called for the need for conceptual clarity about TIC and about how to operationalize TIC in practice (e.g., Hall et al., 2016; Isobel & Edwards, 2017; Stokes et al., 2017; Wilson et al., 2017). Developers of TIC interventions need to improve transparency in reporting on what the interventions actually consist of separate from the potential implementation strategies to be used in tandem, and this may potentially be accomplished through the use of reporting guidelines or intervention frameworks such as the AIMD (Bragge et al., 2017). TIC intervention developers and others need to evaluate their TIC interventions with valid and reliable outcome measures of interest to potential implementors of TIC (including implementation teams, leaders, and clinical and non-clinical providers), which could demonstrate the short-term and long-term potential usefulness of interventions, assist in determining fit for specific contexts, and increase buy-in (based on relevance to local need).

5.4.3 Implications for Nursing and Health Systems Leaders Tasked with Implementing TIC

PhD Study 3 (Chapter 4) revealed that leadership endorsement and support is critical in progressing with TIC implementation planning. In accordance with findings from PhD Studies 1,

2, and 3 (Chapters 2, 3, and 4) leadership is needed to support the activation of implementation strategies and address contextual issues relevant to the implementation of TIC including:

- Being attentive to workplace concerns raised by providers and recipients of care, and seeking further clarity on the extent and nature of the concerns
- Assembling an interdisciplinary implementation team to share varied perspectives and decrease silos of work
- Promoting interdisciplinary and inter-sectoral collaborations in support of TIC practice (at level of organization)
- Aligning policies and procedures with TIC principles
- Supporting unit or organizational-wide TIC culture change based on TIC principles
- Supporting staff wellbeing (when staff are overwhelmed or burnt out, they will not have capacity to implement change)
- Providing conceptual backing and practical financial resources for TIC implementation (e.g., purchase of intervention or tools, funding for implementation staff, funding for implementation strategies, establishing conducive physical environments, training, coaching, and supervision)

In addition, literature suggests that nursing and healthcare leadership can play a central role in orchestrating and modelling the principles of TIC throughout the implementation process (Wignall, 2021). Nursing and healthcare leaders that embark on this approach must acknowledge the ubiquitous experience of adversity and trauma and consider how trauma or re-enactment of trauma are present and relevant in every aspect of their work, the governing structures of their work, and how trauma dynamically shapes relationships and processes (Wignall, 2021). Leadership must also bear in mind that any large system or practice change will predictably

cause stress activation among staff, potentially resulting in a temporary decrease in functional capability, and anticipate this, adjusting expectations, and providing additional support during this transitional period (Perry, 2020).

In considering leadership implications for implementing TIC, it is imperative to mention that leadership require structures of support in place for themselves as well. In PhD Study 2 (Chapter 3), one staff spoke about burnout amongst not only direct care staff, but amid leadership as well, and the impact of this on delivery of patient care. When leadership enter into the cycle of 'parallel process' of vulnerability due to chronic and repetitive stress, they may also become overwhelmed, helpless, crisis-driven, reactive, and disconnected from emotional awareness, with the ripple effects impacting staff, patients, and the system as a whole (Farragher & Bloom, 2010). It seems then, that if leadership is to adequately support trauma-informed implementation of TIC, that they themselves require sufficient trauma-informed systems of support throughout the implementation process. Given that nursing and healthcare leadership are understood to be central contributors to successful implementation of TIC (Bryson et al., 2017), they may need to consider both the structures and supports available for leaders so that they themselves can function at optimal capacity, as well as the training and supports that leaders receive to be able to apply the TIC principles to supporting their staff members through the TIC implementation process.

5.4.4 Implications for the Implementation Team

In contemplating trauma-informed TIC implementation, the implementation team will need to consider how to actualize the principles of TIC (SAMHSA, 2014) amongst themselves within the team as well as within their interactions with providers and recipients of TIC. In doing so, they must bear in mind that introducing change processes will inevitably (temporarily)

activate stress responses of individuals and groups, and particularly for individuals with vulnerable stress response systems (such as those with histories of adversity) (Perry, 2020). The implementation team may reflect on the following throughout the implementation process:

- *Safety*: How can we create predictable and consistent experiences within TIC implementation where people are clear what is expected of them and where they feel safe and comfortable with what is expected of them at what timepoints (e.g., though use of an Implementation Roadmap; Harrison & Graham, 2021)? How can we ensure that people feel supported in their new roles and safe to share and explore their discomfort, knowing their perspectives will receive respectful consideration and responses?
- *Trust and Transparency:* How can we build and maintain trust throughout the implementation process, such as through confirming the relevance and acceptability of the TIC intervention to staff, and maintaining honesty and reliability in our communications?
- *Peer Support:* How can we acknowledge inherent power hierarchies within the institution and address the impact of those power imbalances on the implementation process? How can we foster respectful communities among peers and colleagues that can support each other mutually while navigating TIC implementation?
- *Collaboration and Mutuality:* How can we promote a culture where sharing and contributing are safe and mutually beneficial for all parties; where we continuously learn from and make dynamic adjustments to the implementation process based on collaborative input?
- *Empowerment, Voice, and Choice:* How we demonstrate the value of staff and recipients of care perspectives, such as through shared decision-making processes within TIC implementation? How can we restore control and promote choice and flexibility within the TIC intervention and implementation?

- *Cultural, Historical, and Gender Considerations*: How can we reflect on and authentically acknowledge historical factors (within and external to the organization), as well as cultural and gender biases, and how they influence the implementation process?

5.4.5 Implications for Nurses and Health Professionals (Providers of TIC Interventions)

Participants in PhD Study 2 (Chapter 3) expressed their interest and enthusiasm in implementing TIC while also affirming the pre-requisite of supportive systems for staff, that is, TIC for staff that fosters an environment and culture of physical and psychological safety, trust and transparency, peer support, collaboration and mutuality, and empowerment, voice, and choice. In essence, if we wish to advance TIC in practice, we must deeply consider how to integrate the principles of TIC within the organization culture and structures along the TIC implementation process. Involving nurses and healthcare providers throughout the implementation process, as members of the implementation team and through regular consultations and engagement, in ways that are congruent with the principles of TIC, may help clarify important implementation issues to address, while also empowering nurses and healthcare staff as partners in the process.

I believe that we (the TIC AC and I) facilitated a context (in PhD Study 2) where staff felt safe to collaborate and respond, evidenced by their interest and enthusiasm in participating and sharing their perspectives. These perspectives were critical in informing implementing planning considerations related to the TIC intervention. For example, staff spoke of the need to improve bridging processes to ensure a seamless transfer of care and follow-up services post-discharge. Some staff described their apprehension about engaging in in-depth therapeutic work with youth, without the assurance that the youth would be connected with follow-up services post discharge. Staff also described feeling inadequately informed about community resources

and therefore unable to appropriately support youth that were experiencing anxiety relating to their upcoming transfer or discharge. These concerns suggest there is relevance to considering the need for advancements in inter-sectoral collaboration in order to support nurses and healthcare providers in the implementation and delivery of TIC. Another example related to diverging views on whether trauma screening (or an adaptation of trauma screening such as clinical inquiry, see Chapter 3 for details) should be included as a component of the TIC Program, alluding to the complexity of this task, and considerations relating to aims, actors, timing, environment, and nature of the process. This finding highlighted that providers may have differing views on implementation issues and that it is vital that these views are heard and discussed in the context of implementation planning and decision-making. Finally, staff were bothered by fragmentation amongst their interdisciplinary team and spoke of the need to address team cohesion as a stipulation for implementation of TIC. Attempting to implement a team-based intervention without an optimally functioning team would be challenging suggesting the need to consider and address interdisciplinary team engagement and cohesion needs within the implementation process.

In effect, trauma-informed TIC implementation requires engagement and participation from nurses and healthcare providers (providers of TIC). However, if the implementation team and leadership expect providers to engage and collaborate without creating an environment where they feel safe, valued, and heard, then they are likely perpetuating the 'parallel processes' (Farragher & Bloom, 2010) and "traumatised and traumatizing system" (McElvaney & Tatlow-Golden, 2016, p.66) that they are actively seeking to avoid. If we are to place the expectation on staff to engage in implementation planning efforts then we must first create environments that reliably demonstrate that their views are valued, heard, and attended to.

5.4.6 Implications for Youth and Caregivers (Recipients of TIC Interventions)

Youth and caregiver participants in PhD Study 2 (Chapter 3) asserted that they desired to be engaged and heard in the TIC implementation planning process. Recruiting youth and caregivers within this study was challenging, despite several approaches to recruitment. Unfortunately, I was only able to recruit three youth and one caregiver to this study. However, this small number of participants shared rich and vital contributions to inform implementation planning. Consequently, youth and caregiver perspectives are essential to TIC implementation planning, and implementation teams need to endeavour to creatively engage with, and involve within implementation teams, those with lived experience in a trauma-informed manner (including offering appropriate compensation) (see McGeown et al., 2023).

5.4.7 Implications for TIC Educators

Education is one widespread implementation strategy used with TIC interventions (see PhD Study 1, Chapter 2). Staff participants in PhD Study 2 (Chapter 3) affirmed their interest in receiving TIC training, with the caveats that the training should be comprehensive and ongoing, and incorporate practice-based application. This is consistent with TIC literature identified in PhD Study 1 (Chapter 2) reporting that brief TIC trainings may improve knowledge and attitudes but are inadequate in changing practice (e.g., Lang et al., 2016; Williams & Smith, 2017). Participants in PhD Study 2 also noted the inherent challenges in obtaining shift relief to complete trainings, and one participant expressed concern about utilizing a train-the-trainer strategy for TIC trainings, alluding to the importance of ensuring that the individuals that deliver TIC trainings can impart not only the content and knowledge, but also model the TIC principles.

The College of Nurses of Ontario (CNO, 2023) has specified the application of TIC principles as a clinician-related core entry to practice competency. Therefore, TIC training for

nurses is essential, both pre- and post-licensure, however brief trainings and educational workshops on their own are insufficient in preparing nurses to deliver TIC (e.g., Huo et al., 2023; Maguire & Taylor, 2019; Purtle, 2020; Saunders et al., 2023). The effectiveness and acceptability of ongoing support, such as through coaching, supervision, and modelling in assisting nurses with the implementation of TIC, requires further study.

5.4.8 Implications for Research on the Implementation of TIC

The findings from this doctoral thesis suggest many gaps for future TIC implementation research. In this thesis research I sought to understand the implementation planning process of a TIC Program at a local pediatric hospital, guided by tenets of critical realism and complexity theory, and taking an IKT approach based on the K2A framework (Graham et al., 2006), and the Implementation Roadmap (Harrison & Graham, 2021). This thesis project encompassed elements of the first two implementation planning phases of the Implementation Roadmap (Identify and Clarify Issues; Build Solutions [and Field Test]; Harrison & Graham, 2021). I recommend building off of this thesis research with further study of the TIC implementation process across all implementation phases and within varied settings.

First, I suggest studying the implementation of TIC from a complexity lens (e.g., Clark 2013; Clark et al., 2012), using multiple methods to explore and examine the effectiveness and influence of various intervention components (e.g., TIC intervention, implementation strategies, actors and recipients, setting, context) and applying frameworks to facilitate clear reporting of what was done, by who, why, where, and when (e.g., AIMD framework, Bragge et al., 2017). This area of research may also contribute to the identification or development of relevant implementation and impact outcomes measures. Second, studying TIC implementation teams' experiences with implementation planning (and with use of an implementation planning

framework, such as the Implementation Roadmap, Harrison & Graham, 2021) would assist in further refining implementation frameworks and processes. Third, I suggest studying TIC implementation teams' experiences with using an IKT approach to implementation (and potentially studying the use of the PEIRS workbook, PEIRS Project Team, 2018). This area of study could include exploring how to include patients/youth and caregivers on the implementation team, and the perspectives of youth and caregivers on what they need to be supported throughout this process. Finally, I propose further study in understanding and measuring engagement and psychological safety (see Edmondson, 1999; Plasse, 2015; Wanless 2016) in the context of TIC implementation, within the implementation team as well as with providers and recipients of TIC as a potential mechanism for effective implementation planning.

5.5 Strengths and Limitations of Thesis

The implementation process used throughout this thesis was evidence-informed, integrating external evidence (from published literature and an environmental scan) and internal expertise (from the CHEO TIC AC and through youth, caregiver, and staff input). An interdisciplinary advisory committee co-produced solutions throughout the process, contributing to every step of the research. Given ongoing ambiguity about the operationalization of TIC, this thesis research sought to clarify key ingredients of TIC interventions in the literature (PhD Study 1, Chapter 2) and of the TIC Program in the local setting (PhD Study 2, Chapter 3), distinct from the associated implementation strategies and considerations. Finally, I used a comprehensive and evidence-informed implementation planning framework to guide the implementation process (PhD Study 3, Chapter 4). The Implementation Roadmap (Harrison & Graham, 2021) provided structure and a clear pathway, for me and for the TIC AC, in moving towards implementation.

PhD Studies 2 and 3 were specific to one pediatric acute care setting, and therefore the findings specific to this setting may not be transferrable to other settings. However, the processes I used to facilitate implementation planning are likely transferrable to varied settings, as well as the recommendations for clarity of conceptualization and reporting of TIC interventions, and the importance of considering KU perspectives in implementation planning. Another major limitation of this thesis project was the lack of youth and caregiver involvement, both on the implementation team (Chapter 4) and the paucity of youth and caregiver participation in PhD Study 2 (Chapter 3). I would have liked to include more youth and caregiver representation throughout this process; however, we encountered challenges in doing so. It is difficult to speculate on the reasons why there were only a small number of youth/caregiver participants in Study 2. Despite providing gift cards to all participants for a nominal amount and offering volunteer hours, the recruitment efforts were insufficient and perhaps better means of compensation would have encouraged greater participation. This also brings to mind the potential value of establishing a formalized compensation policy for providers and recipients of care contributors. It is also possible, given that these youth and caregivers had recently experienced a (potentially distressing) admission to an acute inpatient mental health unit, that expecting them to share their experiences and perspectives in a one-time setting with someone they may not know was too much to ask.

5.6 Conclusions

From 2019 and 2023, I partnered with an interdisciplinary advisory committee at an acute pediatric hospital to facilitate and study the implementation planning of a TIC intervention (the ‘TIC Program’). I used an evidence-informed IKT approach (PhD Study 3, Chapter 4), to facilitate the selection of a TIC intervention and the identification of important considerations for

implementation (PhD Studies 1 & 2, Chapters 2 & 3). Collectively, my findings suggest considering trauma-informed implementation of TIC, and the relevance for TIC intervention developers, nursing and health professional leaders, the TIC implementation team, nursing and health professional providers, youth and caregivers, nursing and health professional educators, and researchers. Such an implementation process could comprise of: a) Using the structure of the Implementation Roadmap (Harrison & Graham 2021); b) Applying the TIC principles (SAMHSA, 2014) across each step of the Roadmap; and c) Embracing, addressing, and incorporating the complexity of the TIC intervention and of implementation process. To this point, the TIC implementation planning process was inclusive, collaborative, and evidence-informed. As the implementation remains ongoing, it remains to be seen what the outcomes of this planning will be. The true test of the value of implementation planning will only be ascertained in the months and years to come.

5.7 References

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Appendices

Appendix A: JBI Critical Appraisal Checklist of Included Reviews of TIC in Pediatric Mental Health Care Settings

Table A.1

Methodological Quality of Included Reviews

Author, year	1*	2	3	4	5	6	7	8	9	10	11	Quality Rating** (Total score)
Bailey, 2019	Y	Y	Y	Y	Y	N	N	U	N	Y	Y	Moderate (0.68)
Bargeman, 2021	Y	N	U	Y	N	N	N	U	N	Y	Y	Weak-moderate (0.45)
Bendall, 2021	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Moderate (0.73)
Bryson 2017	Y	U	U	Y	N	N	N	U	N	Y	U	Weak-moderate (0.45)
Kelly, 2023	Y	Y	Y	Y	Y	U	Y	U	N	Y	Y	Strong (0.82)
Lowenthal, 2020	Y	N	Y	Y	NA	NA	U	U	NA	Y	Y	Moderate (0.75)

Y=Yes; N=No; U=Unclear; NA= Not applicable

*The following 11 questions of JBI Critical Appraisal Checklist for quality appraisal of the included reviews:
1. Is the review question clearly and explicitly stated?
2. Were the inclusion criteria appropriate for the review question?
3. Was the search strategy appropriate?
4. Were the sources and resources used to search for studies adequate?
5. Were the criteria for appraising studies appropriate?
6. Was critical appraisal conducted by two or more reviewers independently?
7. Were there methods to minimize errors in data extraction?
8. Were the methods used to combine studies appropriate?
9. Was the likelihood of publication bias assessed?
10. Were recommendations for policy and/or practice supported by the reported data?
11. Were the specific directives for new research appropriate?
**Quality of reviews was classified as weak (0–0.25), weak-moderate (0.26–0.50), moderate (0.51–0.75), or strong (0.76–1.0).

Appendix B: PhD Study 1 Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

Table B.1

PRISMA-ScRChecklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	68
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	69
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	70-73
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	73
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	73
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	74-75
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	73-75
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	73-74
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	76
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	76-77, 311-317

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	76-78, 311-317
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	79-80
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	80-81
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	80, 85-89
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	80, 117-154
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	80, 82-84, 90-94
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	95-100
Limitations	20	Discuss the limitations of the scoping review process.	101-102
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	102
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	85-89 Acknowledgements

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).
From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Appendix C: PhD Study 1 Data Extraction Forms

Figure C.1

General Study Descriptors

General Study Descriptors

Record ID	_____ (study number + RA initials e.g. 001YS)
General Study Information	
First Author, initials (e.g. Smith, JM):	_____
Year of Publication:	_____
Article name:	_____
Study year (cut and paste)	_____
Corresponding author name:	_____ (If not indicated, use first and last author)
Corresponding author email:	_____
List citations merged with this article, if applicable	_____
Published Peer Reviewed?	○ No ○ Yes ○ Thesis
Journal (may specify dissertation):	_____
Study Funding (if applicable):	_____
Language	○ English ○ Other
Other language:	_____
Record identified through:	○ Scoping review ○ Hand-searching ○ Other
Other (please specify):	_____

Location of main site: (Middle Eastern Countries - Egypt, Iran, Turkey, Saudi Arabia, Yemen, Syria, United Arab Emirates, Israel, Jordan, Palestine, Lebanon, Oman, Kuwait, Qatar, Bahrain, Cyprus; East Asia: China, Japan, Korea, Mongolia, Russia, Taiwan)	◯ North America ◯ Central & South America ◯ Europe ◯ East Asia ◯ Rest of Asia ◯ Africa ◯ Australia/New Zealand ◯ Middle East ◯ Other ◯ Not Reported
Specify other (main site):	_____
Multicentre study?	◯ Yes ◯ No ◯ Unclear
Number of study sites:	_____
Regions of the world involved (check all that apply): (Middle Eastern Countries - Egypt, Iran, Turkey, Saudi Arabia, Yemen, Syria, United Arab Emirates, Israel, Jordan, Palestine, Lebanon, Oman, Kuwait, Qatar, Bahrain, Cyprus; East Asia: China, Japan, Korea, Mongolia, Russia, Taiwan)	☐ North America ☐ Central & South America ☐ Europe ☐ East Asia ☐ Rest of Asia ☐ Africa ☐ Australia/New Zealand ☐ Middle East ☐ Other ☐ Not Reported
Specify other regions involved:	_____
Details relating to other sites:	_____
Study type (copy/paste):	_____
Study type (interpretation):	◯ Randomized controlled trial (Experimental) ◯ Cluster randomized controlled trial (Experimental) ◯ Quasi-randomized controlled trial (Experimental) ◯ Non-randomized controlled trial (NRCT) (Experimental) ◯ Prospective cohort study (Observational) ◯ Retrospective cohort study (Observational) ◯ Historical controlled cohort study (Observational) ◯ Case control study (Observational) ◯ Cross-sectional study (Observational) ◯ Case report (Descriptive) ◯ Case series (Descriptive) ◯ Controlled before-and-after study (Quasi-experimental) ◯ Interrupted time series study (Quasi-experimental) ◯ Qualitative research ◯ Non-Controlled before and after Study ◯ Descriptive

Purpose of article:

Purpose of article (copy/paste):

_____

TIC definitions and theory

Definition of TIC (copy and paste from text):

_____

Theoretical underpinnings of TIC definition (copy and paste from text):

_____

Ethics

Comments made on whether study was approved by REB/IRB:

_____

Comments made on whether consent was obtained from participants:

_____

Limitations

Study Limitations (copy/paste)

_____

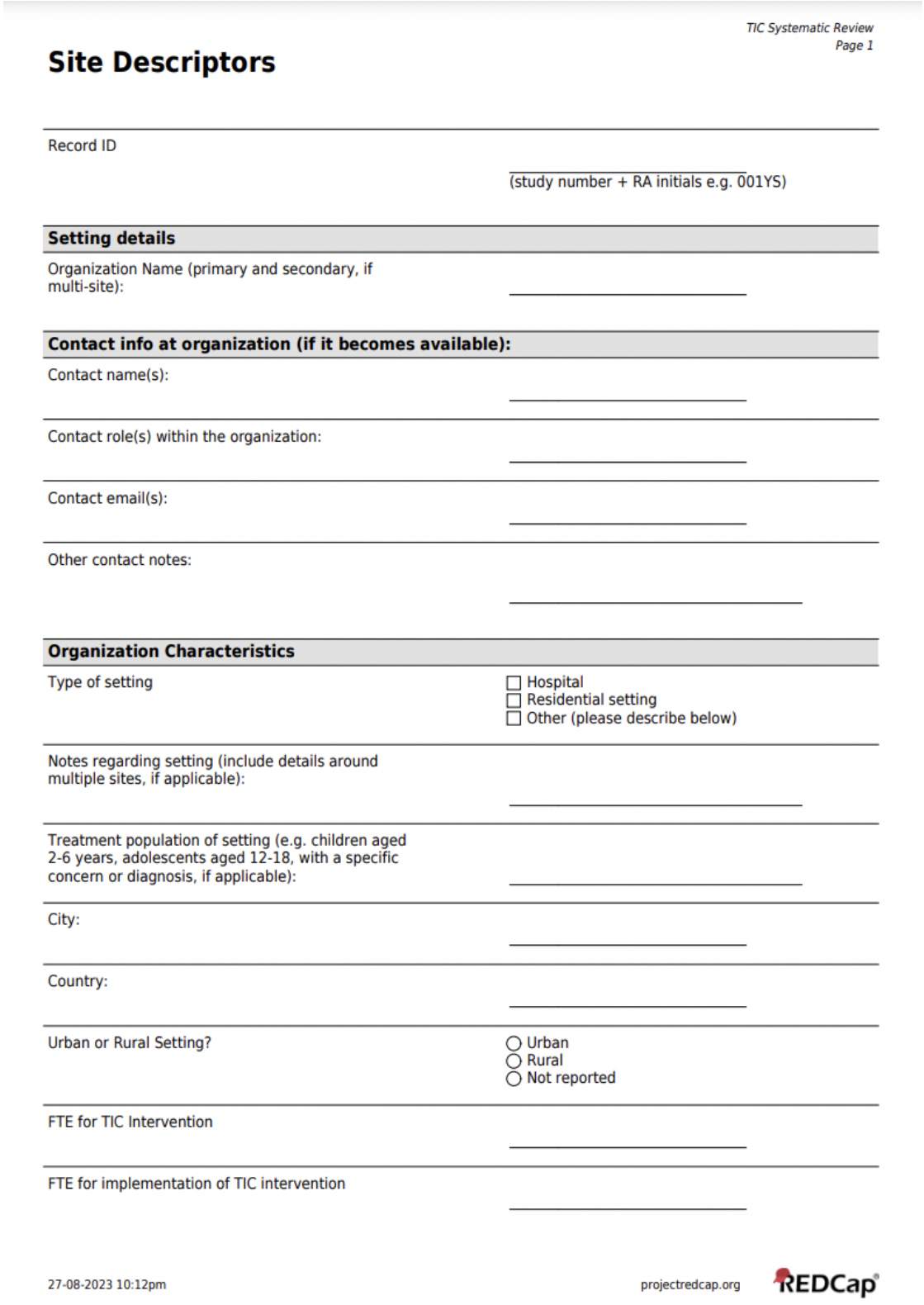
Additional Sources (If applicable)

Additional sources of information (e.g. model website, interviews)

_____

Figure C.2

Study Site Descriptors



TIC Systematic Review
Page 1

Site Descriptors

Record ID _____
(study number + RA initials e.g. 001YS)

Setting details

Organization Name (primary and secondary, if multi-site): _____

Contact info at organization (if it becomes available):

Contact name(s): _____

Contact role(s) within the organization: _____

Contact email(s): _____

Other contact notes: _____

Organization Characteristics

Type of setting
☐ Hospital
☐ Residential setting
☐ Other (please describe below)

Notes regarding setting (include details around multiple sites, if applicable): _____

Treatment population of setting (e.g. children aged 2-6 years, adolescents aged 12-18, with a specific concern or diagnosis, if applicable): _____

City: _____

Country: _____

Urban or Rural Setting?
◯ Urban
◯ Rural
◯ Not reported

FTE for TIC Intervention _____

FTE for implementation of TIC intervention _____

27-08-2023 10:12pm projectredcap.org REDCap

FTE for evaluation of TIC intervention	_____
Intervention target population(s) (e.g. patients, families, staff members, all of these).	☐ Patients ☐ Families ☐ Staff members (please specify below) ☐ Other (please describe)
Specific comments regarding the target population(s):	_____

TIC Intervention and Implementation Descriptors

ARTICLE #/Author:

Intervention Name:

Reviewer Name:

Table C.1

TIC Intervention Components

AIMS (Summary) *(what are the targets or goals of the intervention)*	AIMS (Overview)	
AIMS (Detailed, cut/paste)	AIMS (detailed)	-
INGREDIENTS (Summary) *(what are the essential components of intervention)*	INGREDIENTS (brief)	
INGREDIENTS (detailed, cut/paste)	INGREDIENTS (detailed)	
MECHANISM (Summary) *(how does the intervention work; what is the theoretical rationale for the intervention)*	MECHANISM (brief)	
MECHANISM (Detailed, cut/paste)	MECHANISM (detailed)	
DELIVERY (Summary) *(how is the intervention delivered to clients/patients/caregivers)*	DELIVERY (brief)	
DELIVERY (Detailed, cut/paste)	DELIVERY (detailed)	

Table C.2

TIC Intervention Implementation Components
(add rows for each implementation strategy used)

Implementation Strategy (summary + cut/paste) *(what are the essential components of intervention)*	ERIC Categories	Implementation Strategy Goal (cut/paste) *(what are the targets or goals of the implementation strategies)*	Implementation Strategy Goal Category: *1. Increase Knowledge/ Awareness,* *2. Inform/Change Attitudes* *3. Inform/Change Behaviour* *4. Inform/Change Practice* *5. Inform/Change Policy* *6. Increase patient/ family involvement* *7. Increase Staff involvement* *8. Inform/Support Implementation* *9. Embed the model* *10. Other:*	Mechanism (cut/paste) *(how do the strategies work; what is the theoretical rationale for the strategy)*

Identified Barriers to implementation:	
Identified facilitators to implementation:	
Suggested/hypothesized barriers/facilitators:	
Was an implementation framework used? (Y/N): If yes	
• Framework name:	
• Involved any community stakeholder engagements or partnerships?	
• Research questions or hypotheses related to the implementation framework?	
• Did the implementation framework inform the design of the implementation project? (e.g., logic model, presumed mechanisms of change)	
• Did the implementation framework inform the evaluation design of the implementation strategies? (e.g., study design, data collection processes, data analyses processes)	
• Did the implementation framework inform which determinants (barriers and facilitators) were studied of or interest in the implementation?	
• Based on the selected implementation framework(s), the barriers and facilitators and mechanisms of change prioritized, which strategies were selected for this implementation project and how were they tailored?	
• Did the implementation framework(s) inform tailoring and adaptation of the TIC clinical intervention to be implemented?	

Appendix D: PhD Study 2 Standards for Reporting Qualitative Research (SRQR) Checklist

Table D.1

*SRQR Checklist**

http://www.equator-network.org/reporting-guidelines/srqr/	**Page**
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	155
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	156-157
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	158-160
Purpose or research question - Purpose of the study and specific objectives or questions	159-160
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	160
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	160-161
Context - Setting/site and salient contextual factors; rationale**	159-161
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	161-163

Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	165, 331-335
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	163
Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	163, 325-330
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	165-166
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	163-164
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	164-165
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	164-165

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	165-185
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	165-185

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	186-200
Limitations - Trustworthiness and limitations of findings	199

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	No conflicts

Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Acknowledgements

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

Appendix E: PhD Study 2 Recruitment Materials*

Figure E.1

Recruitment Poster for Youth

Figure E.2

Recruitment Poster for Caregivers

Figure E.3

Recruitment Poster for Staff

E.1 E1 Recruitment Email for Community Partners

Good day!
CHEO is inviting current and former patients, and caregivers of patients, who have been admitted to 6East since 2014 to participate in focus group interviews to assist with the selection and planning of a trauma-informed care (TIC) model for 6East. Please see the attached poster and contact TICstudy@cheo.on.ca for inquiries and interest. High school youth are eligible for volunteer hours and each participant will receive a $5 gift card to everythingcard.ca! We would like to hear from you!

Thank you,

Dr. Dhiraj Aggarwal, Yehudis Stokes, and the 6E TIC Steering Committee

E.2 E2 Social Media Message Included with Posters

Exciting news! CHEO is preparing for a new trauma-informed care (TIC) model for 6East, and we want to hear from you! We are inviting current and former patients, and caregivers of patients, who have been admitted to 6East to participate in focus group interviews to assist in planning this change. Each participant will receive a $5 gift card to everythingcard.ca!
Please contact TICstudy@cheo.on.ca for details. Thank you!

E.3

E.4 E3 Recruitment Email for Staff

Hello!
We are inviting any staff who have worked on 6E in any capacity between 2014-2021 to participate in Zoom focus group interviews to assist with the selecting and planning of a new trauma-informed care (TIC) model. You will be compensated for your time and receive a $5 gift card to everythingcard.ca. Please see the attached poster for details. Contact TICstudy@cheo.on.ca with any inquiries.

Thank you,

Dr. Dhiraj Aggarwal, Yehudis Stokes, and the 6E TIC Steering Committee

** Depending on recruitment timelines for the various target groups, REB approved recruitment materials encompassed the timeline of 2014-2020, 2014-2021, or 2016-2022. The approved full study protocol (2020) stated that participant eligibility included: "the last six years".*

Appendix F:PhD Study 2 Socio-Demographic Questionnaires

Table F.1

Youth Socio-Demographic Questionnaire

Socio-demographic variable	Description
a. Age*	Ratio
b. Gender identity (optional)	Man, Woman, "My gender is: [free text]_____", prefer not to say.
c. Year of most recent admission to 6E*	Year
d. Race/Cultural Identity (optional)	Free text
e. Live in a rural or urban setting?	Rural/urban

*Required field

Table F.2

Caregiver Socio-Demographic Questionnaire

Socio-demographic variable	Description
a. Age of child/youth at last admission to 6E*	Ratio
b. Year of most recent admission to 6E*	Ratio
c. Gender of youth	Man, Woman, "My gender is: [free text]_____", prefer not to say.
d. Race/Cultural Identity of youth	Free text
e. Role as caregiver (e.g. parent, foster parent, sibling, other caregiver)	Parent, Foster Parent, Sibling, "Other caregiver: [free text]"
f. Caregiver age	20 or under, 21-30, 31-40, 41-50, 51-60, 61 and over
g. Caregiver gender	Man, Woman, "My gender is: [free text]_____", prefer not to say.
h. Caregiver race/cultural Identity	Free text
e. Live in a rural or urban setting?	Rural/urban

*Required field

Table F.3

Staff Socio-Demographic Questionnaire

Socio-demographic variable	Description
a. Number of years worked on 6E*	Ratio
b. Role on 6E	Direct Care (RN/CYC), Clinical Care (MD, Psychologist, OT, SW), Security, Manager, Non-direct care (including admin assistant, housekeeping, food services), prefer not to say
c. Gender	Man, Woman, "My gender is: [free text]_____", prefer not to say.
d. Age	20 or under, 21-30, 31-40, 41-50, 51-60, 61 and over
e. Race/Cultural Identity	Free text
e. Live in a rural or urban setting?	Rural/urban

*Required field

Appendix G: PhD Study 2 Interview Guides

G.1 G1 Youth Interview Guide

1. **Trauma-informed care:**
    a. What do you know about trauma-informed care?
    To promote discussion, facilitator will present a cluster of definitions of trauma-informed care, including SAMHSA's four Rs: Realizing the prevalence of trauma, Recognizing the impact of trauma, Responding to trauma, Resisting retraumatization, and SAHMHSA's six principles of: Safety; Trustworthiness and Transparency; Peer Support' Collaboration and Mutuality; Empowerment, Voice, and Choice; Cultural, Historical, and Gender Issues
    b. What does trauma-informed care mean to you?
    c. What would trauma-informed care look like on 6East?
    d. How would we know if we were 'getting there'/moving in the right direction towards trauma-informed care? What differences would we see?

2. Present overview of candidate model(s), including essential ingredients and delivery**.**
    a. Do you think this model can address trauma-informed care on 6East? (linking back to specific definitions and principles).
    b. Are there parts of this model that already fit with current experiences on 6E?
    c. Do you think any adaptations to the model would be needed or beneficial to address trauma-informed care on 6East?
    d. Are there race, culture, and gender considerations to incorporate in this model on 6E?
    e. What are the pros and cons that you see in this model?
    f. If presenting more than one intervention: Would one work better then another from a patient perspective? How so?

G.2 G2 Caregiver Interview Guide

1. **Trauma-informed care:**
    a. What do you know about trauma-informed care?
    To promote discussion, facilitator will present a cluster of definitions of trauma-informed care, including SAMHSA's four Rs: Realizing the prevalence of trauma, Recognizing the impact of trauma, Responding to trauma, Resisting retraumatization, and SAHMHSA's six principles of: Safety; Trustworthiness and Transparency; Peer Support' Collaboration and Mutuality; Empowerment, Voice, and Choice; Cultural, Historical, and Gender Issues
    b. What does trauma-informed care mean to you?
    c. What would trauma-informed care look like on 6East?
    d. How would we know if we were 'getting there'/moving in the right direction towards trauma-informed care? What differences would we see?

2. Present overview of candidate model(s), including essential ingredients and delivery**.**
    a. Do you think this model can address trauma-informed care on 6East? (linking back to specific definitions and principles).
    b. Are there parts of this model that already fit with current experiences on 6East?
    c. Do you think any adaptations to the model would be needed or beneficial to address trauma-informed care on 6East?
    d. Are there race, culture, and gender considerations to incorporate in this model on 6E?
    e. What are the pros and cons that you see in this model?
    f. If presenting more than one intervention: Would one work better then another from a caregiver perspective? How so?

G.3 G3 Staff Interview Guide

1. **Trauma-informed care:**
    a. What do you know about trauma-informed care?
    To promote discussion, facilitator will present a cluster of definitions of trauma-informed care, including SAMHSA's four Rs: Realizing the prevalence of trauma, Recognizing the impact of trauma, Responding to trauma, Resisting retraumatization, and SAHMHSA's six principles of: Safety; Trustworthiness and Transparency; Peer Support' Collaboration and Mutuality; Empowerment, Voice, and Choice; Cultural, Historical, and Gender Issues
    b. What does trauma-informed care mean to you?
    c. What would trauma-informed care look like on 6East?
    d. How would we know if we were 'getting there'/moving in the right direction towards trauma-informed care? What differences would we see?

2. Present overview of candidate model(s)**.** Include break down the intervention into 'who will do what, to whom, where, and when'.
    a. Do you think this model can address trauma-informed care on 6East? (linking back to specific definitions and principles).
    b. Are there aspects of this model that already align with current practice?
    c. Do you think any adaptations to the model would be needed or beneficial to address trauma-informed care on 6East?
    d. Are there race, culture, and gender considerations to incorporate in this model on 6E?
    e. What are the pros and cons that you see in this model?
    f. If presenting more than one intervention: Would one work better then another from a staff perspective? How so?

Appendix H: PhD Study 2 Approvals

H.1

Figure H.1

CHEO REB Approval

CHEO

CHEO REB
Letter of Approval

REB Protocol No: 21/103X

ROMEO File No: 20210285
Principal Investigator: Dr. Dhiraj Aggarwal
Protocol Title: CHEOREB# 21/103X - Identifying, Measuring, Implementing, and Evaluating TIC in Practice

Protocol Status: Active

Approval Date: December 06, 2021
Approval Expiry Date: November 15, 2022

The CHEO REB has conducted a delegated review and determined that the conditions of approval have been satisfied for the above-named study. Approval is valid for the period indicated above. This research study is to be conducted by the investigator noted above. Annual renewals or study closures must be completed before the expiry date noted above.

REB members involved in the study do not participate in the review, deliberations, or decision.

Documents Approved:

Document Name	Comments	Version Date
Questionnaire/Survey	Demographics Survey clean	2021/09/01
Recruitment Materials	Appendix A: Updated recruitment posters and invitations.	2021/09/06
Questionnaire/Survey	Appendix F: Adapted Patient Engagement in Research Scale	2021/07/12
Questionnaire/Survey	Appendix D: Interview Guides Set 1	2021/07/12
Questionnaire/Survey	Appendix E: Interview Guide Set 2	2021/07/12
Consent Form	Consent form B1 clean	2021/11/25
Consent Form	Consent form B2 clean	2021/11/25
Protocol	Protocol Clean	2021/11/30

Documents Acknowledged:

Document Name	Comments	Version Date
Investigator Response	Response to REB Feedback	2021/11/25
Investigator Response	Itemized response to REB feedback.	2021/10/30
Investigator Response	Itemized Response	2021/09/30
Investigator Response	Itemized Response	2021/09/06

Any modifications made to the study must be reviewed and approved by the REB prior to implementation, except when necessary to eliminate immediate danger or hazard(s) to study participants or when the change(s) involves administrative aspects of the study. Investigators must promptly alert the REB of any changes that increase the risk to participants or affect the safety of participants, all unanticipated and harmful events that occur, and new information that significantly impact the conduct of the study.

The CHEO REB operates in compliance with, and is constituted in accordance with, the requirements of the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans (TCPS 2); the International Conference on Harmonization Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; and Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The CHEO REB is registered with the U.S. Department of Health and Human Services (DHHS) Office for Human Research Protection (OHRP).

Please do not hesitate to contact the Research Ethics Office if you have any questions.

Best wishes for the successful conduct of your research.

Cécile Bensimon, MA, PhD
Chair, Research Ethics Board
Présidente, Comité d'éthique de la recherche

Figure H.2

University of Ottawa REB Approval

19/01/2022

Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Lettre d'approbation administrative | Letter of administrative approval

Numéro de dossier / Ethics File Number	H-01-22-7691
Titre du projet / Project Title	Identifying, Measuring, Implementing, and Evaluating TIC in Practice
Type de projet / Project Type	Thèse de doctorat / Doctoral thesis
CÉR primaire / Primary REB	CHEO / CHEO
Statut du projet / Project Status	Approuvé / Approved
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	19/01/2022
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	15/11/2022

Équipe de recherche / Research Team

Chercheur / Researcher	Affiliation	Role
Yehudis STOKES	École des sciences infirmières / School of Nursing	Chercheur Principal / Principal Investigator
Ian GRAHAM	Département d'épidémiologie et santé publique / Department of Epidemiology and Public Health	Superviseur / Supervisor
Krystina LEWIS	École des sciences infirmières / School of Nursing	Co-superviseur / Co-supervisor

Conditions spéciales ou commentaires / Special conditions or comments:

CHEO REB Protocol No 21/103X

550, rue Cumberland, pièce 154
Ottawa (Ontario) K1N 6N5 Canada

550 Cumberland Street, Room 154
Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie | www.recherche.uottawa.ca/ethics

Figure H.3

CHEO REB Minor Modification

CHEO REB
Letter of Approval

REB Protocol No: 21/103X
ROMEO File No: 20210285
Principal Investigator: Dr. Dhiraj Aggarwal
Protocol Title: CHEOREB# 21/103X - Identifying, Measuring, Implementing, and Evaluating TIC in Practice

Protocol Status: Active
Approval Date: May 4, 2022

The CHEO REB has conducted a delegated review and approved the minor modification for the above-named study.

REB members involved in the study do not participate in the review, deliberations, or decision.

Documents Approved:

Document Name	Comments	Version Date
Protocol	1b. Protocol clean	2022/04/28

Any modifications made to the study must be reviewed and approved by the REB prior to implementation, except when necessary to eliminate immediate danger or hazard(s) to study participants or when the change(s) involves administrative aspects of the study. Investigators must promptly alert the REB of any changes that increase the risk to participants or affect the safety of participants, all unanticipated and harmful events that occur, and new information that significantly impact the conduct of the study.

The CHEO REB operates in compliance with, and is constituted in accordance with, the requirements of the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans (TCPS 2); the International Conference on Harmonization Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; and Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The CHEO REB is registered with the U.S. Department of Health and Human Services (DHHS) Office for Human Research Protection (OHRP).

Please do not hesitate to contact the Research Ethics Office if you have any questions.

Best wishes for the successful conduct of your research.

[redacted]

Cécile Bensimon, MA, PhD
Chair, Research Ethics Board
Présidente, Comité d'éthique de la recherche

Figure H.4

University of Ottawa REB Minor Modification

Dear Yehudis,

Thank you for your message,

We would like to inform you that the youth/patient recruitment poster is also approved.

Please do not hesitate to contact us if you need any further assistance.

Best regards.

Safaa

Safaa Lamhoujeb

Coordinatrice à l'éthique de la recherche | Research Ethics Coordinator
Université d'Ottawa | University of Ottawa
550 Cumberland (154) Ottawa ON K1N 6N5 Canada
http://www.recherche.uottawa.ca/deontologie/index.html

Dear Yehudis Stokes,

Thank you for submitting a modification request for your research project titled "Identifying, Measuring, Implementing, and Evaluating TIC in Practice".

These modifications are now covered under the certificate of ethics approval, valid until 15-11-2022.

Participant recruitment documents: The caregiver recruitment posters have been revised to be consistent with the protocol.

If you have any questions, please contact the Ethics Office at ethics@uottawa.ca or [redacted]

You can view your project at any time by logging into eReviews .

Best regards,

Safaa Lamhoujeb
Ethics Coordinator
Chair: Daniel Lagarec
REB: Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board

This is an automated message. Please do not reply directly to this email.

Appendix I: PhD Study 2 Study Information and Consent Forms

Figure I.1

PhD Study 2: Electronic Information and Consent Form

Trauma-Informed Care Discussion: Information and Consent

Please review this electronic consent form with a CHEO staff on this Trauma-Informed Care (TIC) project team.

Appendix B-1

Informed Consent Form for Participation in a Research Study (SFG-1, PFG-1, FFG-1)

Study Title: Identifying, Measuring, Implementing, and Evaluating Trauma-Informed Care in Practice

Principal Investigator: *Dr. Dhiraj Aggarwal, Child and Adolescent Psychiatrist, CHEO*
[redacted]
Co-PI: Yehudis Stokes, RN PhD(c), CHEO, University of Ottawa
[redacted]

INTRODUCTION
You are being invited to participate in a research study to discuss the selection of a trauma-informed care (TIC) model for 6East. You are invited to participate in this study because you or your child was admitted to 6East between 2014 and 2021 or you were a staff member on 6East during that time. This consent form provides you with information to help you make an informed choice. Please read this document carefully and ask any questions you may have. All your questions should be answered to your satisfaction before you decide whether to participate in this research study.

Please take your time in making your decision. You may find it helpful to discuss it with your friends and family.

Taking part in this study is voluntary. You have the option to not participate at all or you may choose to leave the study at any time. Whatever you choose, it will not affect the usual medical care that you receive outside the study.

IS THERE A CONFLICT OF INTEREST?
There are no conflicts of interest to declare related to this study.

WHY IS THIS STUDY BEING DONE?
The purpose of this study is to obtain feedback from present and former 6East patients, caregivers, and staff regarding selecting and adapting a TIC model for 6East.

HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?
We anticipate that about 24 youth, 24 caregivers and 24 staff members from CHEO will take part in this study. This study should take 2 months to complete and the results should be known in about the spring of 2022.

WHAT WILL HAPPEN DURING THIS STUDY?
If you agree to participate, you will proceed to a short online demographic survey (approximately 5 minutes). The TIC research team at CHEO will follow up with you by phone or email (your preference) to schedule the focus group discussion or interview. There will be separate focus group sessions for patients, caregivers, and staff. The focus group or interview will last 60-90 minutes using Zoom and will focus on hearing your perspective related to the proposed TIC model(s) and how they may be adapted for 6East. After the focus group or interview, you will have the opportunity to complete a short (<5minutes) evaluation of the interview process.

We will record the focus groups and interviews and then transcribe them to a written form to ensure we do not miss any details. The recordings of the interviews will be saved on a secure sever, and deleted once transcription is complete.

HOW LONG WILL PARTICIPANTS BE IN THE STUDY?
Your participation on this study will last for about 60-90 minutes.

CAN PARTICIPANTS CHOOSE TO LEAVE THE STUDY?
You can choose to end your participation in this research (called withdrawal) at any time without having to provide a reason. If you choose to withdraw from the study, you are encouraged to contact the research team. Once anonymized data has been collected, we will not be able to remove that data from the study results.

WHAT ARE THE RISKS OR HARMS OF PARTICIPATING IN THIS STUDY?
You will be asked about your perspectives related to implementing trauma-informed care on 6East. This may cause you some distress if questions remind you of stressful events. If you do feel distressed during or after the focus groups, we will have clinical staff available to offer support. You do not have to answer any questions that make you feel uncomfortable.

WHAT ARE THE BENEFITS OF PARTICIPATING IN THIS STUDY?
You may or may not directly benefit from the results of this project. However, your perspectives and experiences shared in this study will directly inform the selection and adaption of a TIC model for 6East. We are planning to begin implementing the chosen model within the next year.

HOW WILL PARTICIPANT INFORMATION BE KEPT CONFIDENTIAL?
If you decide to participate in this study, the research team will only collect the information they need for this study. Records identifying you at this centre will be kept confidential and, to the extent permitted by the applicable laws, will not be disclosed or made publicly available, except as described in this consent document.

Authorized representatives of the following organizations may look at your original (identifiable) records, to check that the information collected for the study is correct and follows proper laws and guidelines.

- The Children's Hospital of Eastern Ontario – Ottawa Children's Treatment Centre and the Research Institute, the lead of this study
- The CHEO RI Research Ethics Board who oversees the ethical conduct of this study
- Yehudis Stokes' thesis co-supervisors at the University of Ottawa

Information that is collected about you for the study (called study data) may also be sent to the organizations listed above. Your name, address, email, or other information that may directly identify you will not be used. The records received by these organizations may contain your participant code, age, or gender identity.

The following organizations may also receive de-identified study data:

- Yehudis Stokes' thesis advisory committee at the University of Ottawa, who act as guarantors for this thesis research

This research study is collecting information on race and ethnicity as well as other characteristics of individuals so the researchers can describe the group of participants that took part. Providing information on your race or ethnic origin is voluntary.

During the focus group discussions, participants will be encouraged to refrain from using

names. If names or other identifying information is shared during the discussion, it will not be included in the written records.

The use of virtual platforms, like any internet communication or storage and retention of information, involve privacy risks around access and disclosure of information, However, there are safeguards in place to reduce these risks, (e.g., account registration, meeting passwords, disposal of records or devices on which information is stored). Communication via e-mail is not absolutely secure. We do not recommend that you communicate sensitive personal information via e-mail. The recordings of the interviews will be stored in a secure location and viewed only by members of the research team. The recordings will be kept until they have been transcribed (turned into written records), and then they will be destroyed.

If the results of this study are published, your identity will remain confidential. It is expected that the information collected during this study will be used to help the CHEO TIC research team and mental health department identify and plan the implementation of a TIC model. The results of the analyses will also be published/presented to the scientific community at meetings and in journals.

Even though the likelihood that someone may identify you from the study data is very small, it can never be completely eliminated. If you would like to review the results of the study upon its completion, please contact TICstudy@cheo.on.ca.

WHAT IS THE COST TO PARTICIPANTS?
Participation in this study will not involve any additional costs to you.

ARE STUDY PARTICIPANTS PAID TO BE IN THIS STUDY?
Each participant who begins the focus group or interview will receive a $5 gift card to: "everythingcard.ca" (https://www.everythingcard.ca/) which offer the user multiple choices of venues to use their gift cards (for the full list, see https://demo.everythingcard.ca/redeem/listings). You will still receive the gift card even if you choose to withdraw your participation after beginning the focus group or interview. Staff will also be compensated at their regular hourly rate for the focus group or interview.

WHAT ARE THE RIGHTS OF PARTICIPANTS IN A RESEARCH STUDY?
You will be told, in a timely manner, about new information that may be relevant to your willingness to stay in this study.

You have the right to be informed of the results of this study once the entire study is complete. If you would like to be informed of the results of this study, please contact the research team.

Your rights to privacy are legally protected by federal and provincial laws that require safeguards to ensure that your privacy is respected.

By signing this form you do not give up any of your legal rights against the researcher or involved institutions for compensation, nor does this form relieve the researcher or their agents of their legal and professional responsibilities.

You will receive via email a copy of this signed and dated consent form prior to participating in this study.

WHOM DO PARTICIPANTS CONTACT FOR QUESTIONS?
If you have questions about taking part in this study, or if you suffer a research-related injury,

you can talk to the research team, or the person who is in charge of the study at this institution. That person is:

Dr. Dhiraj Aggarwal, Ms. Yehudis Stokes RN PhD(c)	TICstudy@cheo.on.ca
Name	Email

If you have questions about your rights as a participant or about ethical issues related to this study, you can talk to someone who is not involved in the study at all. That person is:

CHEO Research Ethics Board	[redacted]
Name	Phone

E-SIGNATURE

- All of my questions have been answered,
- I understand the information within this informed consent form,
- I do not give up any of my legal rights by signing this consent form,
- I agree that my participation in the focus group discussion/interview will be recorded for research purposes,
- I understand that the focus group discussion/interview will be conducted using Zoom, which has privacy risks associated with its use,
- I agree to take part in this study.

First name: _____

Last name: _____

Email address: _____

Phone number: _____

Date: _____

Signature: _____

After submitting this consent form, you will be directed to a short demographic survey. The demographic information will not be linked to your identifying information in this consent form.

Appendix J: PhD Study 3 Published in the IKTRN Casebook

Figure J.1

PhD Study 3

Stokes, Y., Aggarwal, D., Cloutier, P., Graham, I.D., Tricco, A.C., Jacob, J.D., Hambrick, E., Lewis, K.B. (2022). Planning the implementation of a trauma-informed care program at a pediatric hospital: A trainee's experience using an integrated knowledge translation process (pp. 20-24). In: J. Reszel, C. McCutcheon, A. Kothari, I.D. Graham (Eds): *How we work together: The integrated knowledge translation casebook* (Vol. 6). Integrated Knowledge Translation Research Network. https://IKTrn.ohri.ca/projects/casebook/

Planning the implementation of a trauma-informed care program at a pediatric hospital: A trainee's experience using an integrated knowledge translation process

Yehudis Stokes[1,2,3], Dhiraj Aggarwal[1,2], Paula Cloutier[2], Ian D Graham[1,4], Andrea C Tricco[5,6], Jean Daniel Jacob[1], Erin Hambrick[7], Krystina B Lewis[1]

[1]University of Ottawa; [2]CHEO Research Institute; [3]Princess Margaret Cancer Centre; [4]Ottawa Hospital Research Institute; [5]University of Toronto; [6]St. Michael's Hospital; [7]University of Missouri-Kansas City

Keywords: trauma-informed care; pediatric mental health; integrated knowledge translation

INTRODUCTION

"Trauma-informed care" (TIC) is a philosophy that involves addressing the needs of individuals with histories of trauma.[1] Interest in TIC continues to expand, with attempts in Canada to integrate TIC into best practice guidelines,[2] toolkits[3] and practice guides.[4] Generally agreed upon principles of TIC include four "R"s: (1) realizing the prevalence of trauma, (2) recognizing manifestations of trauma, (3) responding appropriately to trauma and (4) resisting re-traumatization, as well as the six principles of safety, trustworthiness and transparency, support, collaboration, empowerment, and cultural and gender considerations.[1,5]

INITIATING THE PARTNERSHIP

The Children's Hospital of Eastern Ontario (CHEO) is an acute care pediatric hospital, a child and youth mental health agency and a research institute. I (the first author, a PhD candidate) began working at CHEO Research Institute in 2013 and at CHEO as a Registered Nurse in 2014. In spring 2019, given my interests in TIC, I was hired as a research assistant to co-lead a needs assessment across the mental health departments with CHEO knowledge users (Child Psychiatrist and Research Associate). As a result of this assessment, CHEO mental health leadership identified a priority of re-modelling the inpatient mental health unit within an overarching program of TIC, and I took this opportunity to contribute to CHEO's goal through my doctoral research. In partnership with mental health leadership, in summer 2019, I developed a research proposal to facilitate the selection and implementation of a TIC program. In fall 2019, I initiated meetings with leaders, clinicians and researchers from the mental health department to refine and narrow the scope of this proposal. The clinicians included physicians, psychologists, nurses, an occupational therapist, a social worker and a child and youth counsellor, each of whom either played a leadership role in developing the model of care for the inpatient mental health unit or demonstrated a particular interest in TIC. This group expanded over time as they identified other important stakeholders (leaders across the acute mental health pathway) and became the CHEO mental health TIC advisory committee. By the winter of 2020, the researchers (myself and my thesis advisory committee) and the TIC advisory committee identified our shared research aims, parts of which are components of my thesis:

- To systematically identify TIC interventions used in pediatric inpatient and residential treatment mental health settings, the implementation strategies used with these TIC interventions, the measures used to evaluate

the TIC interventions and the effectiveness of these interventions, through scoping and systematic reviews of the literature and an environmental scan.

- To facilitate the selection of a TIC intervention for the inpatient mental health unit through triangulation of the results from the reviews and through discussions with the TIC advisory committee.

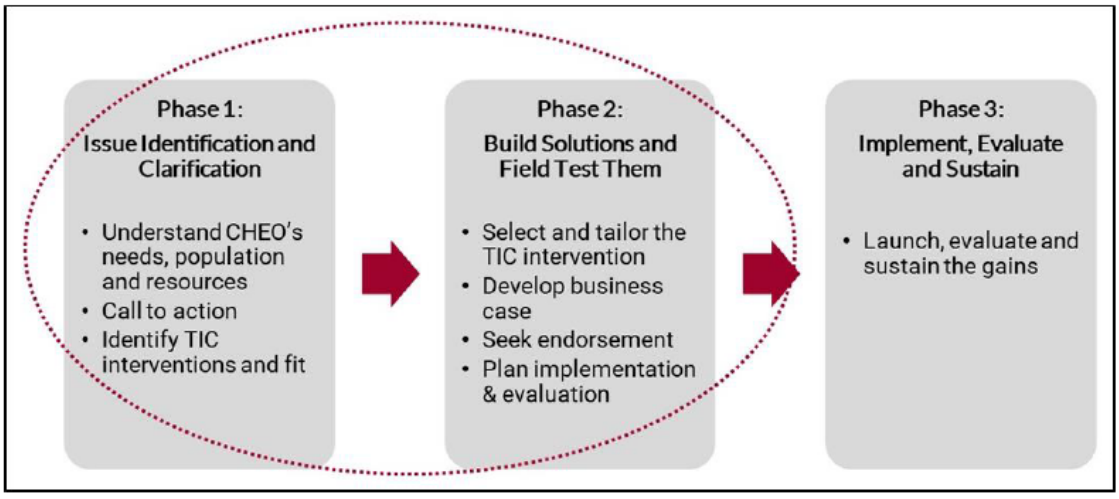
- To facilitate the tailoring of the TIC intervention to the inpatient mental health unit setting and to co-develop an implementation and evaluation plan, through focus groups with patients, caregivers and staff and through discussions with the TIC advisory committee.

MANAGING THE PARTNERSHIP

The partnership included researchers and knowledge users (the TIC advisory committee). Throughout 2021, I met with the TIC advisory committee (n= 17) monthly to consult and review project updates, with additional weekly ad hoc meetings with members with specific interests and areas of expertise. Members of my thesis advisory committee also met on a weekly or biweekly basis to support the progression of the thesis research. In the spring of 2021, when decisions were being made about the selection of a TIC intervention, two knowledge users (psychiatrist and social worker) became co-chairs of the TIC advisory committee. This transition was critical to allow the TIC advisory committee to take agency over the implementation process. It also allowed me to focus on providing evidence-based information to the TIC advisory committee and facilitating the process that aligned with my thesis aims. The TIC advisory committee demonstrated their commitment to this project through regular meetings and through dedicating funds for research assistants and for compensation of focus group participants.

Our implementation partnership followed a fluid process based on the Implementation Roadmap (Figure 1).[6] This roadmap identifies three phases of implementation: (1) issue identification and clarification; (2) build solutions and field test them; and (3) implement, evaluate and sustain. Our current project encompasses the first two phases, broken down into six steps.

Figure 1. The Roadmap to Implementation



In Step 1, we assembled evidence related to the CHEO context. I reviewed the results of the 2019 needs assessment with the TIC advisory committee to contextualize and refine this project and discussed current practices taking place on the target unit.

Step 2 involved a call to action, which was already completed through the formation of the TIC advisory committee. We continued to discuss whether the initial implementation should be limited to the inpatient mental health unit or expand beyond and what stakeholders should be involved in planning. I identified potential best practices by leading a scoping review of TIC interventions and their implementation strategies used in pediatric mental health settings. I also conducted an environmental scan of Canadian agencies that used these TIC interventions, including TIC advisory committee members in the interviews, to explore their feasibility and fit for CHEO.

Step 3 involved customizing the best practices to the local context. The TIC advisory committee identified important criteria to consider in selecting an intervention: cost, limiting redundancy in what already exists, generalizability to other areas at CHEO beyond mental health, Canadian experiences with the TIC intervention, availability of implementation support and flexibility within implementation. Based on these priorities, I presented the TIC advisory committee a narrowed list of three candidate options identified from the scoping and systematic reviews, of which the advisory committee selected one to recommend to leadership. We discussed and determined potential indicators of success for the TIC program at CHEO based on measures used in the literature and based on consultations with CHEO knowledge users (patients, caregivers, staff). The Director of Mental Health approved funding to compensate staff to participate in the focus group consultations and protected time for a CHEO project manager to support the creation of a business case. A subgroup formalized a business case to submit to the CHEO Foundation to request funds for the training costs associated with the TIC program and two full-time contract staff for 18-months to lead the implementation process.

At present, we are tailoring the selected TIC intervention to the inpatient mental health unit setting while incorporating feedback from consultations with knowledge users (staff, former patients, caregivers). In Step 4, we will assess barriers and facilitators of delivering the TIC intervention. We will conduct a second set of focus groups with unit staff,[7-9] and as part of Step 5, we will identify strategies to overcome identified barriers, based on the TIC and implementation science literature. Once the implementation plan is complete, Step 6 will include a detailed plan for piloting and field testing the TIC intervention on the inpatient mental health unit to inform an eventual hospital-wide launch.

IMPACT OF THE PARTNERSHIP

To the partnership, I brought expertise in TIC and implementation. I also identified, synthesized and analyzed the evidence, and served as an implementation facilitator. The TIC advisory committee contributed knowledge and expertise of the CHEO context on various levels, provided feedback on what evidence is useful from clinician and leadership perspectives, and offered research support and funding. Through this partnership, the TIC advisory committee increasingly recognized the value of incorporating an evidence-informed process for selecting and implementing a TIC intervention, an approach that will guide CHEO's spread of the TIC program beyond the inpatient mental health unit. Partway through the project, it became clear that a designated person would be required to see through the implementation and evaluation processes, which led to the request for two staff in the business case. Implementation of this project remains ongoing and the outcomes related to the adoption of the TIC intervention are still to come. As a trainee, I gained valuable

experience facilitating this process under the supervision of experts in implementation science and collaborating with stakeholders carrying many levels of expertise on the TIC advisory committee.

LESSONS LEARNED

1 **Leadership involvement and support is critical to provide foundational resources for the project.** Having the Operations Director of Mental Health on board from the very beginning, supporting this project conceptually and financially, was critical to progression of this work.

2 **Knowledge users' development of responsibility for decision-making is essential for progression of the project.** From the outset there were CHEO knowledge users guiding and contributing their research funds to this project. While I was the facilitator of the shared research aims, it became apparent that we still required formal knowledge user leadership on the TIC advisory committee. Once this was established, progress increased.

3 **Organizational and knowledge-user enthusiasm and perseverance is essential for implementing and sustaining the project.** By the time we established the CHEO TIC advisory committee, there was already a great deal of interest among knowledge users to proceed with the initiative. From a knowledge-user perspective, it is important to be prepared for challenges in keeping the project "on the radar" as other priority projects and unforeseen delays will arise.

Acknowledgments: *The CHEO Psychiatry Associates Research Fund provided funding for research assistant support with the scoping review and to compensate knowledge users involved in the focus group discussions. Melissa Demery-Varin, Justine Gould and Murshida Haider assisted with data collection, extraction and analysis in the scoping review. Additional members of the TIC Advisory Committee include: Sarah Bissex, Jenn Boggett, Hazen Gandy, Stephanie Greenham, Allison Kennedy, Catherine Landriault, Sonia Lavergne, Dave Murphy, Marjorie Robb, Roxanna Sheppard, Michelle Ward, Shannon Watson.*

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Appendix K: Invitation to Form TIC Advisory Committee

Figure K.1

Email Invitation

From: Stokes, Yehudis
Sent: Tuesday, May 28, 2019 4:26 PM
Subject: My PhD Plans: An invitation to join an advisory committee

Dear Colleagues,

I am currently pursuing a PhD in Nursing at the University of Ottawa and am interested in focusing my research on trauma-informed care (TIC).

"Trauma-informed care" (TIC) is an emerging concept that involves addressing the needs of individuals with histories of trauma, whether they are the ones seeking care, or providing care. While interest in TIC has grown, the theoretical and practical aspects of TIC are somewhat ambiguous; lacking a conceptual clarity and a consensus on how operationalize this ideal in practice.

I believe that my thesis research would be best guided by an advisory committee, comprising of individuals in an organization looking to integrate TIC, to help ensure that the knowledge generated is useful for practitioners who work within the environments that care for people with histories of trauma. I am currently still in the planning phases of my proposal, and would like to gauge your interest in being a part of my advisory committee of knowledge users that will inform and guide my work.

I intend to centre my PhD research (supervised by Drs. Ian Graham and Amanda Vandyk at the University of Ottawa) on furthering knowledge and understanding of the concept of TIC, how to measure TIC, and practical strategies to implement TIC. I have in mind the following objectives and I would like to explore whether these objectives are complete and make sense from your perspective.

1) To conduct a concept analysis of "trauma-informed care" from a nursing perspective, while comparing this lens to that of other disciplines, to better clarify and understand the concept of TIC and its underlying principles. The purpose of a concept analysis is to clarify the attributes of the chosen concept, based on the literature, and to subsequently propose a precise operational definition for research and practice.

2) To perform a systematic review of tools that measure aspects of TIC, including a summary of their psychometric properties.

3) To perform a broad systematic review of strategies to implement TIC. I intend to present these interventions in a manner organized by clinician, unit/team, and organizational

levels. I will summarize outcomes, the quality of the studies, and incorporate meta-analysis, if appropriate.

I want to ensure that my research is relevant and useful to knowledge users, and therefore would appreciate your involvement throughout the process. This involvement would likely include meeting approximately twice a year over the course of two years, for about two hours each meeting. Let me know if this project would be of interest to you.

Thank you kindly,
Yehudis

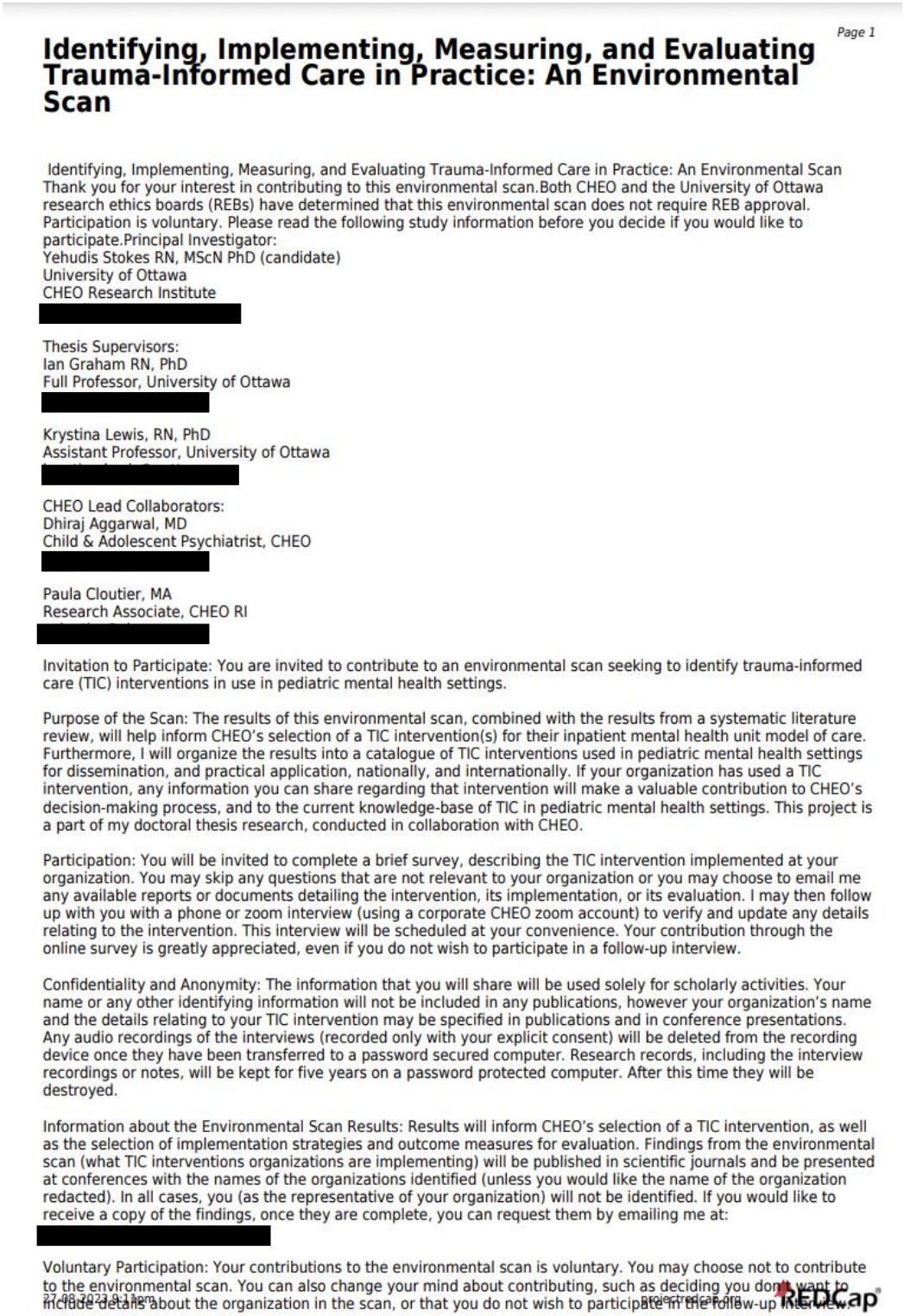
Yehudis Stokes
RN, MScN
Registered Nurse/Infirmière autorisée
Case Manager, Neurology
Children's Hospital of Eastern Ontario (CHEO)

Research Nurse/Infirmière de recherche
CHEO Research Institute
401 Smyth Road, Ottawa, ON K1H 8L1

Appendix L: TIC Environmental Scan Questionnaire

Figure L.1

Environmental Scan Questionnaire



Page 1

Identifying, Implementing, Measuring, and Evaluating Trauma-Informed Care in Practice: An Environmental Scan

Identifying, Implementing, Measuring, and Evaluating Trauma-Informed Care in Practice: An Environmental Scan
Thank you for your interest in contributing to this environmental scan.Both CHEO and the University of Ottawa research ethics boards (REBs) have determined that this environmental scan does not require REB approval. Participation is voluntary. Please read the following study information before you decide if you would like to participate.Principal Investigator:
Yehudis Stokes RN, MScN PhD (candidate)
University of Ottawa
CHEO Research Institute
[redacted]

Thesis Supervisors:
Ian Graham RN, PhD
Full Professor, University of Ottawa
[redacted]

Krystina Lewis, RN, PhD
Assistant Professor, University of Ottawa
[redacted]

CHEO Lead Collaborators:
Dhiraj Aggarwal, MD
Child & Adolescent Psychiatrist, CHEO
[redacted]

Paula Cloutier, MA
Research Associate, CHEO RI
[redacted]

Invitation to Participate: You are invited to contribute to an environmental scan seeking to identify trauma-informed care (TIC) interventions in use in pediatric mental health settings.

Purpose of the Scan: The results of this environmental scan, combined with the results from a systematic literature review, will help inform CHEO's selection of a TIC intervention(s) for their inpatient mental health unit model of care. Furthermore, I will organize the results into a catalogue of TIC interventions used in pediatric mental health settings for dissemination, and practical application, nationally, and internationally. If your organization has used a TIC intervention, any information you can share regarding that intervention will make a valuable contribution to CHEO's decision-making process, and to the current knowledge-base of TIC in pediatric mental health settings. This project is a part of my doctoral thesis research, conducted in collaboration with CHEO.

Participation: You will be invited to complete a brief survey, describing the TIC intervention implemented at your organization. You may skip any questions that are not relevant to your organization or you may choose to email me any available reports or documents detailing the intervention, its implementation, or its evaluation. I may then follow up with you with a phone or zoom interview (using a corporate CHEO zoom account) to verify and update any details relating to the intervention. This interview will be scheduled at your convenience. Your contribution through the online survey is greatly appreciated, even if you do not wish to participate in a follow-up interview.

Confidentiality and Anonymity: The information that you will share will be used solely for scholarly activities. Your name or any other identifying information will not be included in any publications, however your organization's name and the details relating to your TIC intervention may be specified in publications and in conference presentations. Any audio recordings of the interviews (recorded only with your explicit consent) will be deleted from the recording device once they have been transferred to a password secured computer. Research records, including the interview recordings or notes, will be kept for five years on a password protected computer. After this time they will be destroyed.

Information about the Environmental Scan Results: Results will inform CHEO's selection of a TIC intervention, as well as the selection of implementation strategies and outcome measures for evaluation. Findings from the environmental scan (what TIC interventions organizations are implementing) will be published in scientific journals and be presented at conferences with the names of the organizations identified (unless you would like the name of the organization redacted). In all cases, you (as the representative of your organization) will not be identified. If you would like to receive a copy of the findings, once they are complete, you can request them by emailing me at:
[redacted]

Voluntary Participation: Your contributions to the environmental scan is voluntary. You may choose not to contribute to the environmental scan. You can also change your mind about contributing, such as deciding you don't want to include details about the organization in the scan, or that you do not wish to participate in the follow-up interview.

Questions about the Study
If you have any questions about this study, please contact Yehudis Stokes or her supervisors at the email addresses mentioned above.

Thank you for your time and consideration.
Yehudis Stokes
Sept 2020

Trauma-informed care (TIC) Intervention

Has the organization used or implemented a formal or informal TIC intervention?
- ◯ Yes
- ◯ No

We'll continue with a few questions about your organization.

Organization Name: _____

What is your name, role at your organization and contact information

Your name(s): _____

Your role(s) within the organization: _____

Your email: _____

Your phone number: _____

Organization Characteristics

Type of setting
- ☐ Hospital
- ☐ Outpatient mental health site
- ☐ Residential setting
- ☐ Other (please describe)

Notes regarding setting: _____

Treatment population of setting (e.g. children aged 2-6 years, adolescents aged 12-18, with a specific concern or diagnosis, if applicable): _____

City: _____

Province: _____

Urban or Rural Setting?
- ◯ Urban
- ◯ Rural

How did you hear about this survey?	◯ Children's Healthcare Canada ◯ CMHO ◯ ONCAIPS ◯ Canadian Consortium on TIC ◯ Other, please describe
Other:	_____

Now I'll ask you about your trauma-informed care (TIC) intervention.

Intervention Characteristics:

Please describe the TIC intervention: (if you have any documents or reports describing the intervention, feel free to email me the documents at [redacted])	_____

Full time equivalent (FTE) of staff members dedicated to the TIC program:
(please state 'unsure' if not known)

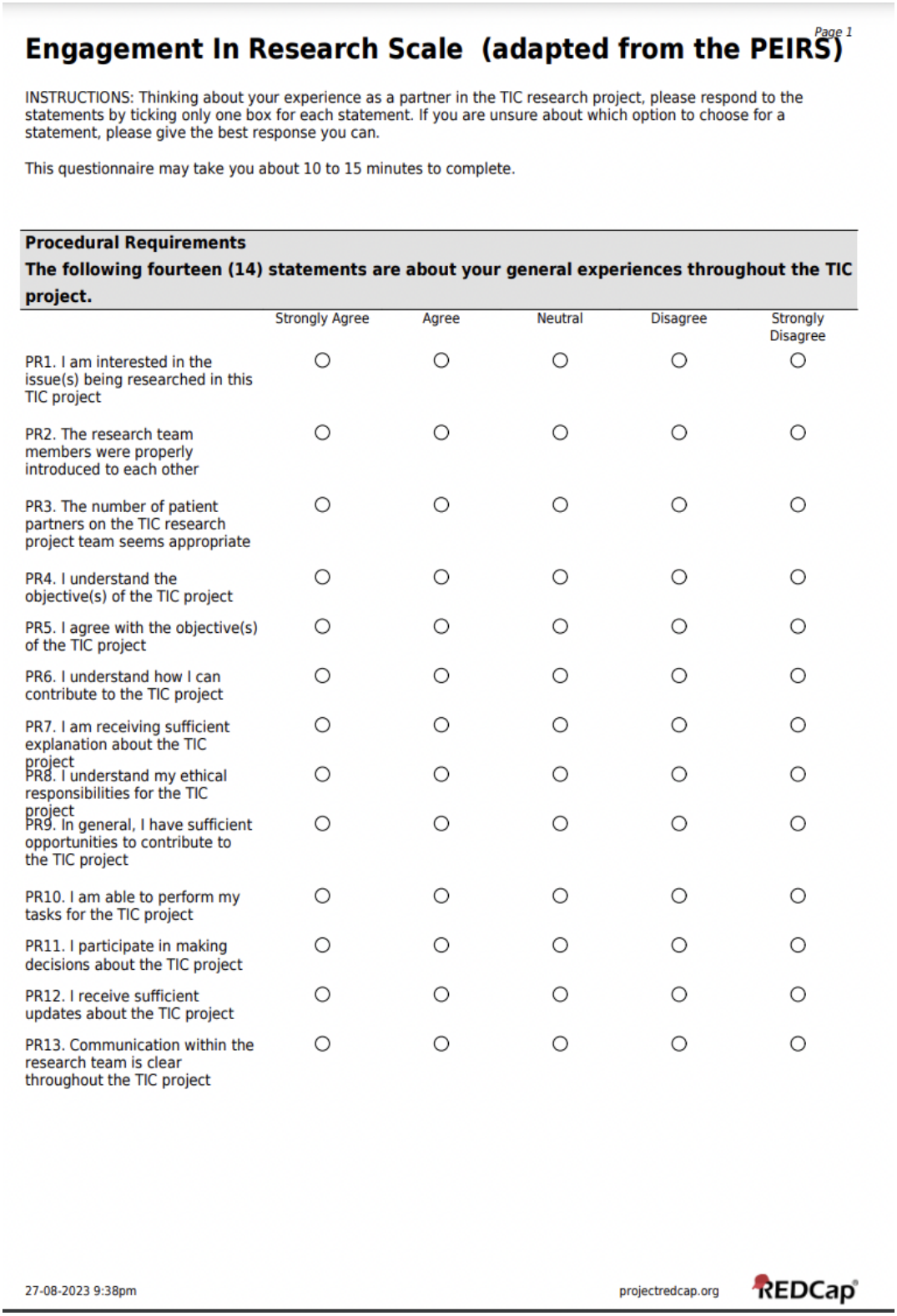
FTE for TIC Intervention	_____ (may indicate unsure)
FTE for implementation of TIC intervention	_____ (may indicate unsure)
FTE for evaluation of TIC intervention	_____ (may indicate unsure)
Intervention target population(s) (e.g. patients, families, staff members, all of these).	☐ Patients ☐ Families ☐ Staff members (please specify below) ☐ Other (please describe)
Specific comments regarding the target population(s):	_____
Is there information regarding implementation strategies used?	◯ Yes ◯ No ◯ Unsure
If yes, please describe the implementation strategies and/or implementation framework used: (if you have any documents or reports describing the implementation, feel free to email me the documents at [redacted])	_____
Is there information regarding the evaluation of the intervention(s)? (even if the evaluation was planned but not completed)	◯ Yes ◯ No ◯ Unsure

If yes, please describe your planned or realized evaluation design and/results: (if you have any documents or reports describing the evaluation, feel free to email me the documents at [redacted]	_____
Is there information regarding the outcome measures used for evaluation?	◯ Yes ◯ No ◯ Unsure
If yes, please describe the outcome measures used to measure the effectiveness of the TIC intervention: (if you have any documents or reports describing the outcome measures, feel free to email me the documents at [redacted]	_____

Appendix M: Adapted PEIRS-37

Figure M.1

Adapted PERIS-37 (from Hamilton et al., 2018)



Page 1

Engagement In Research Scale (adapted from the PEIRS)

INSTRUCTIONS: Thinking about your experience as a partner in the TIC research project, please respond to the statements by ticking only one box for each statement. If you are unsure about which option to choose for a statement, please give the best response you can.

This questionnaire may take you about 10 to 15 minutes to complete.

Procedural Requirements

The following fourteen (14) statements are about your general experiences throughout the TIC project.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
PR1. I am interested in the issue(s) being researched in this TIC project	○	○	○	○	○
PR2. The research team members were properly introduced to each other	○	○	○	○	○
PR3. The number of patient partners on the TIC research project team seems appropriate	○	○	○	○	○
PR4. I understand the objective(s) of the TIC project	○	○	○	○	○
PR5. I agree with the objective(s) of the TIC project	○	○	○	○	○
PR6. I understand how I can contribute to the TIC project	○	○	○	○	○
PR7. I am receiving sufficient explanation about the TIC project	○	○	○	○	○
PR8. I understand my ethical responsibilities for the TIC project	○	○	○	○	○
PR9. In general, I have sufficient opportunities to contribute to the TIC project	○	○	○	○	○
PR10. I am able to perform my tasks for the TIC project	○	○	○	○	○
PR11. I participate in making decisions about the TIC project	○	○	○	○	○
PR12. I receive sufficient updates about the TIC project	○	○	○	○	○
PR13. Communication within the research team is clear throughout the TIC project	○	○	○	○	○

27-08-2023 9:38pm projectredcap.org REDCap

PR14. The TIC project is worth the time I spent on it	○	○	○	○	○

Convenience

The following four (4) statements are about how convenient it is for you to contribute throughout the project.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CN1. I have the opportunity to provide input into selecting my tasks for the TIC project	○	○	○	○	○
CN2. My preferences for meetings (such as time, duration, location, and format) are considered when planning meetings	○	○	○	○	○
CN3. I have sufficient time to complete my tasks for the TIC project	○	○	○	○	○
CN4. I have opportunities to express my views	○	○	○	○	○

Contributions

The following four (4) statements are about your contributions throughout the TIC project

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CT1. I contribute by providing my perspective	○	○	○	○	○
CT2. My contributions are a good use of my time	○	○	○	○	○
CT3. I share my knowledge within the project team	○	○	○	○	○
CT4. My workload in the TIC project is manageable	○	○	○	○	○

Team Environment and Interaction

The following five (5) statements are about the research environment and interaction throughout the TIC project.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
T1. I feel accepted as a member of the research project team	○	○	○	○	○
T2. I am an equal partner in the research project team	○	○	○	○	○

T3. My interactions within the TIC research project team are positive	○	○	○	○	○
T4. There is mutual respect among the TIC research project team members	○	○	○	○	○
T5. There is trust among the research project team members	○	○	○	○	○

Support

The following three (3) statements are about the support being provided throughout the project.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SU1. I receive sufficient support to contribute to the TIC project (for example, orientation, readings, training workshops, webinars)	○	○	○	○	○
SU2. Any concerns I have are addressed	○	○	○	○	○
SU3. I am offered sufficient reimbursement for my out-of-pocket expenses (such as childcare, parking, and travel) related to the TIC project activities	○	○	○	○	○

Feel Valued

The following three (3) statements are about your feeling of being a valued member of the TIC research team.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
FV1. The TIC research project team appreciates my contributions	○	○	○	○	○
FV2. The TIC research project team is open to receiving my views	○	○	○	○	○
FV3. I am offered sufficient recognition for my contributions	○	○	○	○	○

Benefits

The following four (4) statements are about the benefits of your involvement in the TIC project

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
BE1. I enjoy being a part of the TIC project	○	○	○	○	○
BE2. I make an impact on the decisions in the TIC project	○	○	○	○	○
BE3. I see how my contributions can benefit others	○	○	○	○	○
BE4. My involvement has positive impacts on my life	○	○	○	○	○

Any further comments or feedback on this TIC project:

Appendix N: TIC Perceptions of Engagement

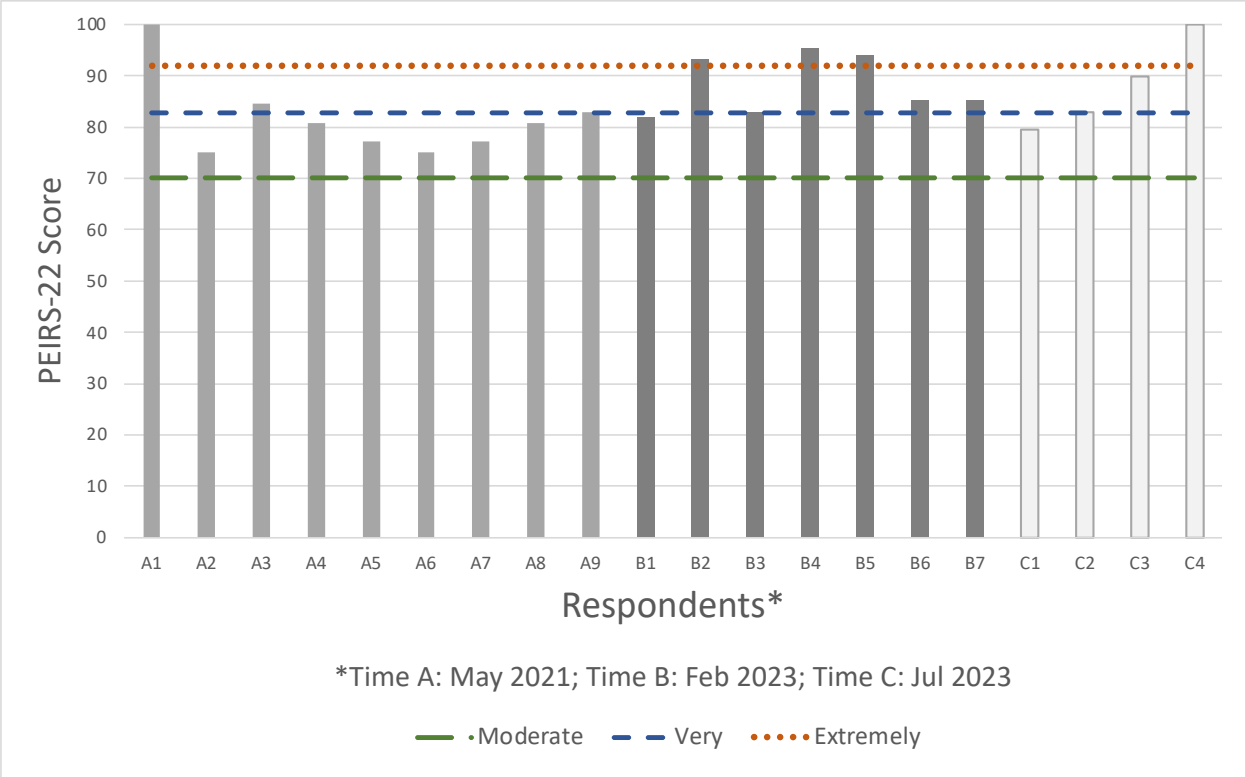
A total of 20 responses from the TIC AC to the PEIRS-37 spanned the three periods of data collection (May 2021: nine participants; February 2023: seven participants; July 2023: four participants) with a total mean (M) score of 84.97 out of a maximum of 100 and standard deviation (SD) of 7.54 (May 2021: 81.49 (7.81); February 2023: 88.20 (5.62); July 2023: 87.16 (8.18)). Individual mean PEIRS-37 scores ranged from 74.32 (May 2021) to 100 (also May 2021), and the mean item response was 3.40 (falling between 'Agree'/3 and 'Strongly Agree' /4), SD=0.66 (May 2021: 3.26, 0.67); February 2023: 3.53, 0.62; July 2023: 3.49; 0.64). The mean subdomain sums for the PEIRS-37 ranged from 3.26 (Contributions) to 3.54 (Team Environment and Interactions), corresponding to a mean range of 'Agree' to 'Strongly Agree', with one notable exception: The mean response for the Support subdomain was 2.92, falling under the 'Neutral' to 'Agree' range. This lower subdomain mean was most influenced by the responses to the third item: "SU3. I am offered sufficient reimbursement for my out-of-pocket expenses (such as childcare, parking, and travel) related to the TIC project activities" receiving responses ranging from 'Disagree' (n=1) to 'Strongly Agree' (n=2) with a majority responding 'Neutral' (n=14). In the open-ended comments section at the end of the survey, two TIC AC members specified that this item was not applicable to them, likely influencing the scores. There were two other items that received one or more responses of 1 or 'Disagree': Convenience 3. "I have sufficient time to complete my tasks for the TIC project" ('Disagree' n=1, mean=3.05, SD=0.83), and Procedural Requirements 3. "The number of patient partners on the TIC research project team seems appropriate" ('Disagree' n=6, mean=2.15, SD=0.99). The latter item is noteworthy, given six respondents disagreed, and because the importance of integrating youth and caregiver representatives into the TIC AC was discussed at ongoing meetings from in March

2021 onwards, however the TIC AC was unable to clarify the goals and nature of the representation or how they wished to proceed with recruiting youth and caregivers.

Because the PEIRS-22 currently offers instructions on interpretation of the responses, but the PEIRS-37 does not, I narrowed my analysis to the 22 items composing the PEIRS-22 for the purpose of interpretation. The overall mean PEIRS-22 score for the TIC AC was 85.18 (SD=7.74), suggesting that engagement was overall "very" to "extremely" meaningful (Hamilton, 2022). Broken down by date, the mean engagement score was 81.49 (SD=7.71, May 2021, "moderately meaningful"), 88.27 (SD=5.74, February 2023, "very meaningful"), and 88.07 (SD=9.02, "very meaningful").

Figure N.1

PEIRS-22 TIC AC Responses



Individual mean PEIRS-22 scores ranged from 77.27 (May 2021; “moderately meaningful” engagement) to 100 (May 2021, July 2023; “extremely meaningful” engagement). For the individual subdomains, the PEIRS-22 offers only cut-off scores for “low meaningful” engagement versus “non-low”. All respondents (n=20) scored above the cut-off for “low meaningful” engagement on all subdomains with the following exceptions: Convenience (n=1 below cut-off, May 2021), Contributions (n=3 below cut-off; May 2021 n=2, July 2023 n=1), Team Environment and Interaction (n=2 below cut-off, May 2021), Support (n=2 below cut-off; May 2021 n=1, February 2023 n=1), and Benefits (n=1 below cut-off, May 2021). All respondents scored above the cut-off for the subdomain of Procedural Requirements (the item asking about the whether the number of patient partners included on the project was sufficient is not an item on the PEIRS-22). Interestingly, in the third round of responses (July 2023), only one respondent scored below the cut-off on one subdomain (Contributions), with the overall lower respondent scores this subdomain attributed to one item: “CT4. My workload in the TIC project is manageable”, which received several scores of 2 or ‘Neutral’.

Of the 20 respondents, nine (45%) provided free-text comments which were overwhelmingly positive and could be summarized under the following themes: a) Value project and participation (n=3 comments), b) Feedback on facilitator (n=3 comments), and c) Feedback on the PEIRS (n=3 comments).

Table N.1

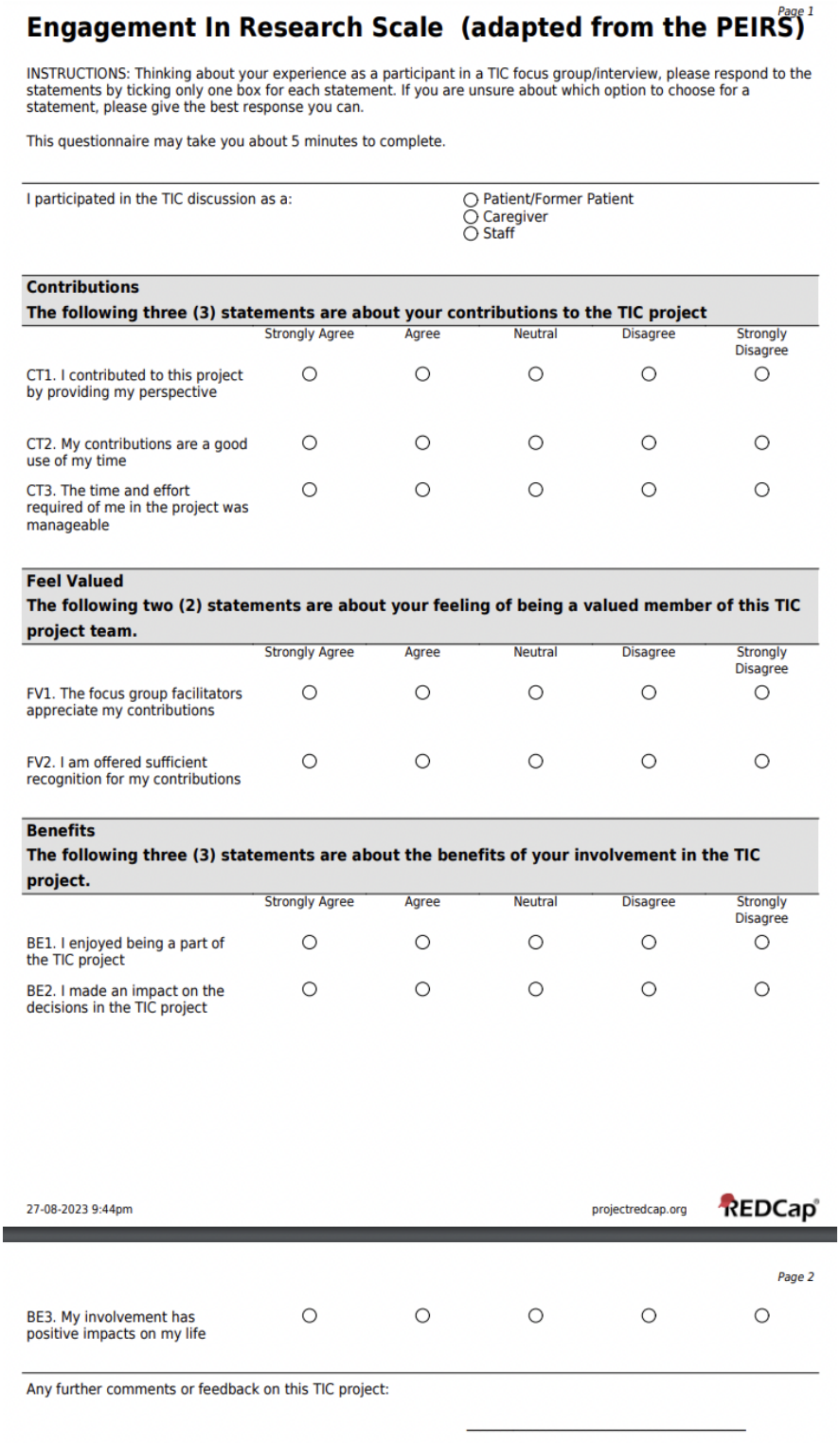
Exemplar TIC AC PEIRS Comments

Category	Date	Comment
Value project and participation		
	May 2021	*I really enjoy participating. It's hard to fit in my schedule but I do my best to attend meetings as frequently as I can.*
	May 2021	*I am very enthusiastic about this project, and I cannot wait to see how we use TIC on 6East!*
	February 2023	*Completely worthwhile project! It will have such a strong impact on patient care in the future.*
Feedback on facilitator		
	February 2023	*I have appreciated the way you have led this - you have a wonderful way of leading and bringing people together.*
	July 2023	*It's a big job to keep a project like this going. You have done an amazing job of maintaining this...I am extremely glad you will stay on as a committee member. Your contribution to this project has been huge and hopefully will be recognized both by publication of your manuscript and by funding for TIC.*
	July 2023	*You did a wonderful job leading this project.*
Feedback on the PEIRS		
	May 2021	*I'd add an N/A option as well.*
	May 2021	*SU3 needs a not applicable option.*
	July 2023	*SU3 is not applicable as I have no out of pocket expenses.*

Appendix O: Adapted PEIRS-22

Figure O.1

Adapted PERIS-22 (from Hamilton et al., 2021)



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Engagement In Research Scale (adapted from the PEIRS)

INSTRUCTIONS: Thinking about your experience as a participant in a TIC focus group/interview, please respond to the statements by ticking only one box for each statement. If you are unsure about which option to choose for a statement, please give the best response you can.

This questionnaire may take you about 5 minutes to complete.

I participated in the TIC discussion as a:

- ○ Patient/Former Patient
- ○ Caregiver
- ○ Staff

Contributions

The following three (3) statements are about your contributions to the TIC project

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CT1. I contributed to this project by providing my perspective	○	○	○	○	○
CT2. My contributions are a good use of my time	○	○	○	○	○
CT3. The time and effort required of me in the project was manageable	○	○	○	○	○

Feel Valued

The following two (2) statements are about your feeling of being a valued member of this TIC project team.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
FV1. The focus group facilitators appreciate my contributions	○	○	○	○	○
FV2. I am offered sufficient recognition for my contributions	○	○	○	○	○

Benefits

The following three (3) statements are about the benefits of your involvement in the TIC project.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
BE1. I enjoyed being a part of the TIC project	○	○	○	○	○
BE2. I made an impact on the decisions in the TIC project	○	○	○	○	○

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BE3. My involvement has positive impacts on my life	○	○	○	○	○

Any further comments or feedback on this TIC project:

Appendix P:Youth, Caregiver, and Staff Interview Participant Perceptions of Engagement

Twenty-four of the twenty-five interview participants (96%; three youth, one caregiver, and twenty staff) completed the adapted PEIRS-22 engagement scale, which consisted of three subdomains, and seven items. Responses to items ranged from 'Strongly Agree' /4 to 'Neutral' /2, with no responses or 'Disagree'/1or 'Strongly Disagree' /0. There are four degrees of meaningfulness based on the total mean PEIRS-22 scores ("Extremely", "Very", "Moderately", and "Low"), however when analyzing the subdomains (rather than the total score), there is only a cut-point for "Low" degree of meaningful engagement (Hamilton, 2022). Because I included only three of the seven subdomains from the PEIRS-22 in our adapted version for interview participants, I did not calculate total scores and only analyzed the total subdomain scores. Twenty-one participants (87.5%) scored above the cut-off of "Low meaningful" engagement on all three subdomains (Contributions, Feel Valued, and Benefits). There were three staff participants scoring below the cut-off on the Benefits subdomain. Two participants commented that they were unable to fully answer items relating to the Benefits subdomain at this time (and specifically the item, "BE2. I made an impact on the decisions in the TIC project") as it was too early to say, which explained the "low meaningful" engagement on this subdomain (see comments below). Seeing as these staff had shared in interviews their sense of discouragement relating to previous implementation initiatives on the unit (PhD Study 2, Chapter 3), and considering they did not have decision-making capacity within this TIC implementation process, it is not surprising that they expressed a cautiousness to trust the degree to which their voices would impact decisions. The overall mean item response was 3.66 (approaching "Strongly Agree, SD=0.57),

Overall, the comments reflected enthusiasm and a longing for the successful implementation of the TIC Program coupled with an interest in contributing to the process. Most expressed value and enthusiasm for the initiative (n=7 comments), while some stated appreciation for the opportunity to contribute (n=3 comments) and a desire to see the impact of their contribution on implementation as well as hope that the initiative would not be 'shelved' and forgotten (n=3 comments). Comments also conveyed a desire to remain involved this implementation initiative (n=1 comment), hope for buy-in (n=1 comment), and feedback relating to the PEIRS (n=2 comments).

Table P.1

Exemplar PhD Study 2 Participants PEIRS Comments

Category	**Participant Type (Youth=1; Staff=12)**	**Comment**
Value project, enthusiasm for initiative		
	Youth	*Well run, and I am really hoping for great changes in the future.*
	Staff	*I am very enthusiastic about this project, and I cannot wait to see how we So happy to see this as a project on 6East.*
	Staff	*I am excited to see how this initiative unfolds in CHEO.*
	Staff	*Exciting!*
	Staff	*Such important work and really thankful and glad that we are looking at this.*
	Staff	*Looking forward to implementing trauma informed care model to 6E.*
	Staff	*I really see the value in what's being asked about and I look forward to see[ing] what effects it has on day to day practice.*
Much needed Initiative		
	Staff	*It is long overdue.*
	Staff	*Much needed!*
	Staff	*Definitely needed!*
Appreciate opportunity for involvement		
	Staff	*I very much appreciated the chance to talk to the researcher about trauma informed care.*
	Staff	*Thank you for seeking staff input on this subject. All the best with your continued efforts to implement TIC on [the unit] :)*
	Staff	*The value of frontline experience is being recognized and I appreciated the opportunity to share.*

Desire to see impact of contribution on implementation/ Hopeful that project is not forgotten		
	Staff	*Looking forward to see[ing] how the discussion will affect the planning for the proposed model of care presented at the end of the group.*
	Staff	*Many times, projects such as these are relegated to the shelves of "research we've done". I really see the value in what's being asked about and I look forward to see[ing] what effects it has on day to day practice. Thanks!*
	Staff	*I am interested to see where the TIC project does for our unit and hopeful there will be follow up and that it will not be forgotten about as time passes which has been the case with other things that have been attempted to roll out on [the unit].*
Desire to remain involved this initiative		
	Staff	*I do hope to have a chance to intersect with / work in support of this initiative.*
Hope for buy-in		
	Staff	*I hope that we can roll this out with a significant buy in!*
Feedback relating to the PEIRS		
	Staff	*It is too soon to know how to answer BE2.*
	Staff	*Last two categories are marked as "neutral" because I'm not sure of the overall effects as of yet.*