

Draft Comparative Effectiveness Review

Number ##

Trauma Informed Care

Prepared for:

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. The National Institute of Mental Health (NIMH) of the National Institutes of Health (NIH) requested this report from the Agency for Healthcare Research and Quality (AHRQ) Evidence-based Practice Center (EPC) Program.

The reports and assessments provide organizations with comprehensive, evidence-based information on common medical conditions and new healthcare technologies and strategies. They also identify research gaps in the selected scientific area, identify methodological and scientific weaknesses, suggest research needs, and move the field forward through an unbiased, evidence-based assessment of the available literature. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To bring the broadest range of experts into the development of evidence reports and health technology assessments, AHRQ encourages the EPCs to form partnerships and enter into collaborations with other medical and research organizations. The EPCs work with these partner organizations to ensure that the evidence reports and technology assessments they produce will become building blocks for healthcare quality improvement projects throughout the Nation. The reports undergo peer review and public comment prior to their release as a final report.

AHRQ expects that these systematic reviews will be helpful to health plans, providers, purchasers, government programs, and the healthcare system as a whole. Transparency and stakeholder input are essential to the Effective Health Care Program.

If you have comments on this systematic review, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Key Informants

In designing the study questions, the EPC consulted several Key Informants who represent the end-users of research. The EPC sought the Key Informant input on the priority areas for research and synthesis. Key Informants are not involved in the analysis of the evidence or the writing of the report. Therefore, in the end, study questions, design, methodological approaches, and/or conclusions do not necessarily represent the views of individual Key Informants.

Key Informants must disclose any financial conflicts of interest greater than \$5,000 and any other relevant business or professional conflicts of interest. Because of their role as end-users, individuals with potential conflicts may be retained. The Task Order Officer (TOO) and the EPC work to balance, manage, or mitigate any conflicts of interest.

The list of Key Informants who provided input to this report follows:

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Technical Expert Panel

In designing the study questions and methodology at the outset of this report, the EPC consulted several technical and content experts. Broad expertise and perspectives were sought. Divergent and conflicted opinions are common and perceived as healthy scientific discourse that results in a thoughtful, relevant systematic review. Therefore, in the end, study questions, design, methodologic approaches, and/or conclusions do not necessarily represent the views of individual technical and content experts.

Technical Experts must disclose any financial conflicts of interest greater than \$5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

The list of Technical Experts who provided input to this report follows:

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Peer Reviewers

Prior to publication of the final evidence report, EPCs sought input from independent Peer Reviewers without financial conflicts of interest. However, the conclusions and synthesis of the

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scientific literature presented in this report do not necessarily represent the views of individual reviewers. AHRQ may also seek comments from other Federal agencies when appropriate. Peer Reviewers must disclose any financial conflicts of interest greater than \$5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential non-financial conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential non-financial conflicts of interest identified.

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Trauma Informed Care

Structured Abstract

Objectives: To examine how Trauma Informed Care (TIC) and its components are defined and operationalized, and to examine the state of the evidence on effectiveness and potential harms of TIC approaches, frameworks, models, and components.

Data sources: We searched Medline (Ovid), APA PsycInfo (Ovid), CINAHL (EBSCOHost), ERIC (EBSCOHost), and Scopus (Elsevier) for peer-reviewed articles published through October 10, 2023. Grey literature was also searched for contextual questions regarding TIC definitions and organizational and clinical components.

Review methods: We used methods consistent with AHRQ's EPC Methods Guide. We prepared the review protocol with input from Key Informants, a panel of Technical Experts, and a public comment period in April 2023. Using predefined criteria and dual review, we selected intervention studies that enrolled adult or pediatric patients/clients regardless of identified trauma exposure or type of trauma exposure in any healthcare or social service setting in any country. Eligible studies included randomized controlled trials and comparative nonrandomized studies of interventions. We assessed risk of bias and the strength of evidence for a prespecified list of patient/client health related outcomes.

Results: From 3976 unique references, we identified 12 eligible studies discussed in 16 publications. Study settings were varied: two studies in adult medical care settings, one in adult mental health service, one in primary prevention for children, one in adolescent medical care, four in residential child welfare, and three in non-residential child welfare. We did not combine data quantitatively due to variability of interventions. All studies were assessed as high risk of bias and evidence was insufficient to address the effects of TIC on patient/client outcomes for all settings and comparisons. Studies did not collect information on harms, adverse events, or unintended consequences of TIC. TIC models vary considerably in their socioecological components from youth to adult services across settings and disciplines. Current organizational and clinical components encompass a broad range of considerations with only some overlap within both organizational and clinical domains. A few models of TIC described specific elements of cultural competency and/or humility.

Conclusions: Evidence was insufficient on the effectiveness of TIC approaches across any patient/client health related outcome, but this does not mean the individual interventions described are not potentially useful. Rather, it means the evidence does not yet provide clear answers. Still, TIC is being widely implemented, and research on its effectiveness and potential harms seems to be neither informing nor keeping pace with implementation.

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Executive Summary

Main Points

- Evidence was insufficient to draw conclusions about the effects of Trauma Informed Care (TIC) in primary care or psychiatric hospitals for adult patients for any outcome.
- Evidence was insufficient to draw conclusions about the effects of TIC in any setting for children or youth patients/clients for any outcome.
- TIC models vary considerably in their socioecological components (cultural relevance, training, screening, system embedding) from youth to adult services across settings and disciplines. Current organizational and clinical components encompass a broad range of considerations with only some overlap within both the organizational and clinical domains.
- A few models of TIC had specific elements of cultural competence and/or humility (e.g., emphasizing a need to understand patient/client symptoms within the context of life experiences, culture, and historical issues)

Background and Purpose

Exposure to adverse and potentially traumatic experiences is common and has been associated with negative mental and physical health outcomes across the lifespan.¹⁻⁵ Healthcare and social service organizations and systems may employ approaches such as TIC to improve patient/client care, prevent trauma, and treat trauma-related needs. Although evidence-based guidelines already exist for the *treatment* of trauma-related conditions, including posttraumatic stress disorder, depression, and anxiety (such as prolonged exposure [PE], trauma-focused and general cognitive behavioral therapy [TF-CBT and CBT], eye movement desensitization and reprocessing [EMDR⁶], and cognitive processing therapy [CPT]), there is limited information on the effects of TIC-specific models and components outside of those established treatments for trauma-related conditions.

This systematic review examines how TIC and its components are defined and operationalized, and the state of the evidence on effectiveness and potential harms of TIC approaches, frameworks, models, and components. We primarily focus on studies with methods rigorous enough to measure effectiveness through causal inference. This review, funded by the National Institute of Mental Health, is intended to be used by health and social service practitioners, service-providing organizations, policymakers, researchers, and research funders.

Methods

The methods for this systematic review follow the Agency for Healthcare Research & Quality (AHRQ) Methods Guide for Effectiveness and Comparative Effectiveness Reviews. See the review protocol <https://effectivehealthcare.ahrq.gov/products/trauma-informed-care/protocol> and the full report of the review for additional details. We searched for peer-reviewed literature in MEDLINE (via Ovid), APA PsycInfo (via Ovid), CINAHL, ERIC (via EBSCOHost), and Scopus (Elsevier B.V.) to identify randomized controlled trials (RCTs) and comparative nonrandomized studies of interventions (NRSIs) published and indexed in bibliographic databases through October 10, 2023. For contextual questions, we also conducted a grey literature search of organizations. We selected studies that were study author-identified

interventions (regardless of whether any component was supported by a previously established evidence base) as trauma-informed care, approaches, or models versus any comparator and evaluated risk of bias and strength of evidence for all relevant outcomes. Regardless of how authors defined TIC vs. not-TIC, including a comparator of any kind allowed us to focus attention on comparative studies that could discuss results from TIC vs. results when TIC is not present.

Results

We identified 3976 unique references, which resulted in 12 included studies from 16 publications. Major reasons for exclusion were that studies only reported intermediate provider outcomes (e.g., attitudes, beliefs, which do not capture patient/client-important outcomes) and study design (e.g., simple pre-post design). Only four of the included studies were cluster RCTs, the remaining studies were variations of NRSIs. All included studies were assessed as high risk of bias. Study settings were varied: two studies in adult medical care settings, one in adult mental health service, one in primary prevention for children, one in adolescent medical care, four in residential child welfare, and three in non-residential child welfare. We did not combine data quantitatively due to variability of interventions. While adult settings tended to focus on racially/ethnically minoritized groups, the children and youth settings tended to be predominately white and male.

TIC models vary considerably in their socioecological components from youth to adult services across settings and disciplines. Existing organizational and clinical components encompass a broad range of considerations with only some overlap within both the organizational and clinical domains. Many models acknowledged various forms of trauma beyond typical health and human service definitions and approaches, with a few models of TIC including specific elements of cultural competency and/or humility. Evidence from the 12 included studies was insufficient to address the effects of TIC on patient/client related health outcomes for all settings and comparisons. Studies did not report harms, adverse events, or unintended consequences of TIC.

Limitations

Creating search algorithms for complex and unclear concepts that lack consensus around definitions and terminology is always challenging, and TIC was no exception. We used the broadest search terms we could identify, and avoided filters that might cause us to miss studies reported in publications that lacked structured abstracts. However, we cannot rule out the possibility of having missed some literature because of the lack of a well-indexed concept and the diffuse nature of the language researchers use for this topic. We used a screening tool that used artificial intelligence to augment the efficiency of manual screening. Given our concern for locating all relevant literature, we were generous in our screening process. We screened articles well past the point at which the artificial intelligence tool estimated we had identified all publications likely to be included.

Implications and Conclusions

Evidence was insufficient to address the effectiveness of current TIC approaches across patient/client related health outcomes of interest. Our findings of insufficient evidence do not mean that none of the individual interventions described are potentially useful, but rather that the

current available evidence cannot yet provide clear answers. Regardless of the state of the science, including how TIC is defined and operationalized, TIC is being widely implemented, yet research on its effectiveness and potential harms does not appear to be informing nor keeping pace with implementation.

TIC approaches examined in this review generally represent complex interventions nested within complex care or social service systems. Another consideration when testing a full system of TIC is the availability of a sufficient number of organizational units for randomization required for a gold-standard randomized trial. Alternative designs to consider include NRSIs, but the results of this review underscore the importance of well-conducted studies using causal inference techniques to achieve lower risk of bias. Other possibilities to consider include the array of pragmatic trials, which are intended for interventions that are optimized to test for effectiveness in real clinical practice or social service settings. Approaches such as the Multiphase Optimization Strategy (MOST) could be applied to increase understanding of how singular intervention components interact to influence key outcomes prior to efficacy testing. Such approaches may expedite the timeline from intervention development to potential implementation by crafting and evaluating interventions that are distilled to their essential components and examining evidence to inform practice and implementation.

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Chapter 1. Introduction

1.1 Background

Exposure to adverse and potentially traumatic experiences is common and may influence the health of millions of individuals. Trauma exposure has been associated with negative mental and physical health outcomes across the lifespan.^{1-5, 7-14} Additionally, trauma can result in a greater need for services from healthcare clinicians and other social service providers. Organizations and systems, including healthcare systems, increasingly recognize the potential consequences of trauma exposure and are working to improve care, prevent trauma, and treat trauma-related needs through approaches commonly called Trauma Informed Care (TIC).

Both in theory and practice, definitions and models of TIC vary. The U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) defines TIC as a set of principles that reflect awareness of trauma exposure and its impact.¹⁵ SAMHSA and others describe these approaches as infused throughout an organization's structure and service delivery; i.e., multilevel, or systems-based.¹⁵⁻¹⁷ As such, components of TIC may be directed at different people or levels of the social ecology, especially when considering social determinants of health¹⁸ (i.e., healthcare access and quality, neighborhood and built environment, social and community context, economic stability, education access and quality).

TIC components directed at patients or clients might include 1) screening for trauma exposure, 2) referral, based on exposure and/or needs identified, for various forms of additional assessment and treatment and/or interventions for preventing future trauma exposure and related health conditions, and 3) interventions for health and behavioral needs thought to be related to trauma exposures.¹⁹ Per the American Psychological Association, interventions in this regard were considered to be "any action intended to interfere with and stop or modify a process."²⁰ Components directed at service providers might include 1) education/training on how trauma exposure can affect health, and 2) education/training on how to discuss and assess/screen for current or past trauma exposures and related behavioral and physical health symptoms.²¹ Such education/training might focus on practices to prevent additional trauma exposure (including re-traumatization) or on ways to identify the need for more services. Structural components might include 1) establishing internal steering committees to guide trauma-informed change, 2) policies that trigger an administrative review whenever a potentially re-traumatizing incident occurs (e.g., seclusion and restraint, violence against staff), 3) checklists to encourage trauma-informed practice, 4) changing new employee on-boarding processes to include required TIC training, and 5) wellness programs to improve staff self-care.¹⁹

Evidence-based guidelines already exist for the treatment of trauma-related conditions, including posttraumatic stress disorder, depression, and anxiety (such as prolonged exposure [PE], trauma-focused and general cognitive behavioral therapy [TF-CBT and CBT], cognitive processing therapy [CPT], eye movement desensitization and reprocessing [EMDR⁶], and collaborative care).^{22, 23} This review will focus specifically on additional TIC models or components that are distinct from trauma-specific treatments (even if these treatments may sometimes be embedded within a TIC approach). Specific to TIC, published systematic reviews have focused on certain forms/frameworks and applications^{19, 21, 24-26} without establishing the overall effectiveness of TIC or its components and/or the conditions under which these interventions might be most likely to work.

1.2 Purpose of Review

This review examines how TIC and its components are defined and operationalized, and the state of the evidence on effectiveness and potential harms of TIC approaches, frameworks, models, and components. This review, funded by the National Institute of Mental Health, is intended to be used by health and social service practitioners, service-providing organizations, policymakers, researchers, and research funders.

Because effectiveness is a paramount outcome, the review focuses on studies with methods rigorous enough to measure effectiveness through causal inference. While the primary interest is understanding the effectiveness of TIC within healthcare settings, we include social service settings where aspects of trauma may present and impact the delivery of health and/or social services or their overlap. We also include TIC that involves systemwide, multisectoral strategies intended to meet the trauma-related needs of patients/clients.

Chapter 2. Methods

2.1 Review Approach

We followed Evidence-based Practice Center (EPC) program methodology, as laid out in the EPC Methods Guide (available at <https://effectivehealthcare.ahrq.gov/topics/er-methods-guide/overview>). This systematic review also reports in accordance with the Preferred Items for Reporting in Systematic Reviews and Meta-Analyses (PRISMA), A MeaSurement Tool to Assess systematic Reviews (AMSTAR 2).

The topic of this report was developed by the National Institute of Mental Health in consultation with AHRQ. Initially a panel of Key Informants gave input on the Key Questions (KQs) and Contextual Questions (CQs) to be examined; these KQs and CQs were posted on AHRQ's Effective Health Care (EHC) website for public comment in April 2023 for 3 weeks and revised in response to comments. A panel of technical experts provided high-level content and methodological expertise for review protocol development. We registered the protocol in PROSPERO (CRD42023400684) and posted on the EHC website at <https://effectivehealthcare.ahrq.gov/products/trauma-informed-care/protocol>.

2.2 Key and Contextual Questions

Key Questions

Restating the scope previously noted in the introduction, the KQs are focused on understanding the effect of TIC models or components that are distinct from trauma-specific treatments (even if these treatments may sometimes be embedded within a TIC approach).

TIC for Adult Patients/Clients

- KQ 1. What is the evidence of benefits and/or harms of TIC on outcomes for patients/clients?
 - ⊄ KQ 1a. Which components—e.g., education and training of providers about trauma, screening patients, delivering point-of-care interventions, referring patients/clients for various forms of additional assessment and treatment for indicated needs—of TIC models, and organizational and practice characteristics, are associated with benefits and/or harms?
 - ⊄ KQ 1b. Do outcomes vary by patient/client or clinical or organizational characteristics, including the nature, extent, and timing of trauma exposure?

TIC for Child and Adolescent Patients/Clients

- KQ 2. What is the evidence of benefits and/or harms of TIC on outcomes for patients/clients?
 - ⊄ KQ 2a. Which components—e.g., education and training of providers about trauma, screening patients, delivering point-of-care interventions, referring clients for various forms of additional assessment and treatment for indicated needs—of TIC models, organizational and practice characteristics, are associated with benefits and/or harms?

- ∅ KQ 2b. Do outcomes vary by patient/client (as well as parent/caregiver) or clinical or organizational characteristics including the nature, extent, and timing of trauma exposure?

Contextual Questions

- CQ 1. How is Trauma Informed Care (TIC) defined in theory and research and according to professional guidelines or other clinical, system, or policy-level guidance or recommendations?
- CQ 2. What are the organizational and clinical components of TIC, including components of different TIC models? Are common components of TIC found across settings, populations, conditions, and models?

2.3 Study Selection

We searched for peer-reviewed literature in MEDLINE (via Ovid), APA PsycInfo (via Ovid), CINAHL, ERIC (via EBSCOHost), and Scopus (Elsevier B.V.) through October 10, 2023. The searches included controlled vocabulary terms (e.g., MeSH), along with free-text words, related to TIC. The search strategy did not have any date restrictions but was restricted to English language studies. All searches will be updated upon submission of the report for public review. The search strategy for Medline (via Ovid) is included in Appendix A and was peer reviewed by a medical librarian.

The reference lists of relevant existing systematic reviews were scanned for additional eligible studies. Additional articles suggested to us from any source, including peer and public review, were screened applying identical eligibility criteria. For CQs, we conducted a grey literature search of relevant government agencies, national centers, professional organizations and societies for unindexed and/or unpublished literature, journal table of contents (e.g., contents from the journal Psychological Trauma) for unindexed literature. We also searched for grey literature from organizations as well as studies that were excluded at full text review. A list of grey literature sources is included in Appendix A. No additional information was supplied through the Supplemental Evidence and Data for Systematic review (SEADS) portal, posted also as a Federal Register Notice, available November 2023.

To improve efficiency and accuracy in the screening process and management of the process, all search results were uploaded to a web-based screening tool, PICO Portal™ (www.picoportal.net). PICO Portal uses machine learning to sort and present first those citations most likely to be eligible. Initially, two team members independently screened titles and abstracts of results. Any disagreement was resolved through group discussions with the review team. After the machine learning algorithm had been sufficiently trained, using an *a priori* criterion of 95 percent recall rate of eligible citations, we switched to one independent reviewer until we reached a 100 percent recall rate of all eligible articles, and the machine learning algorithm had a zero false negative rate. Screening was conducted by two team members independently at the full-text level using the same online system. Excluded studies, with reason for exclusion, are reported in Appendix B.

Studies were included in the review based on the population, intervention, comparator, outcomes, timing, setting (PICOTS) framework outlined in Table 2.1 and the study specific inclusion criteria described in Table 2.2. Briefly, we included studies explicitly labeled or described by study authors as studies examining TIC. These studies may or may not include some form of trauma treatment embedded within the larger TIC model or approach. We did not

Chapter 2. Methods

search out studies that may have been similar in nature but that would have required us to reinterpret the studies as TIC interventions. Included studies had to measure at least one outcome intended to capture direct impact of the intervention on the patients' experiences or lives.

Table 2.1. PICOTS

| PICOTS | KQ1 | KQ2 |
|---------------------|--|---|
| Population | <p>Adults 18 years and older, regardless of trauma exposure</p> <p>1b. Patient/client and clinical characteristics including type, time since, and duration of trauma exposure; gender; race/ethnicity; age; physical and/or mental health clinical condition or disorder (e.g., anxiety, depression, substance use)</p> | <p>Youth <18 years, regardless of trauma exposure</p> <p>2b. Patient/client and clinical characteristics including type, time since, and duration of trauma exposure; gender; race/ethnicity; age; physical and/or mental health clinical condition or disorder (e.g., anxiety, depression, ADHD, conduct disorder, substance use)</p> |
| Intervention | <p>TIC models/components of care (e.g., education and training of providers about trauma, screening patients/clients for trauma exposure using ACEs or other tools, as well as screening for symptoms, delivering point-of-care interventions, referring patients/clients for various forms of additional assessment and treatment for indicated needs)</p> <p>1a. single or multi-component, individual or group, targeting organizations, providers, patients/clients, caregivers, or a combination, training, screening, workload</p> | <p>TIC models/components of care (e.g., education and training of providers about trauma, screening patients/clients for trauma exposure using ACEs or other tools, as well as screening for symptoms, delivering point of care interventions, referring patients/clients for various forms of additional assessment and treatment for indicated needs)</p> <p>2a. single or multi-component, individual or group, targeting organizations, providers, patients/clients, parents/caregivers, or a combination, training, screening, workload</p> |
| Comparator | <p>No TIC model of care/usual or routine care</p> <p>Other TIC model or component(s) of care, evidence-based therapies for trauma-related conditions (e.g., prolonged exposure, cognitive processing therapy) or approaches (e.g., collaborative care)</p> | <p>No TIC model of care/usual or routine care</p> <p>Other TIC model or component(s) of care, evidence-based therapies for trauma-related conditions (e.g., trauma-focused CBT) or approaches (e.g., collaborative care)</p> |
| Outcome | <p><i>Trauma-Specific:</i> Additional or repeat trauma exposure from the point-of-care in the course of care/service delivery (e.g., re-traumatization)</p> <p><i>Process outcomes:</i> Health care outcomes/utilization/referral, provider burnout/mental health</p> <p><i>Organizational/ practice/ systems outcomes:</i> Intake and referral processes (e.g., wait times), disseminated policies, trainings, staffing (e.g., scribes), administrative requirements, access to treatment, antiracism principles, workforce diversity</p> <p><i>Patient/client-centered outcomes:</i> Physical and mental health outcomes, functioning, clinical improvement, patient/client engagement, trust, comfort or satisfaction, and strengths-based outcomes (e.g., quality of life)</p> <p><i>Harms:</i> Includes displacement of evidence-based care, worsening of symptoms or health,</p> | <p><i>Trauma-Specific:</i> Additional or repeat trauma exposure from the point-of-care in the course of care/service delivery (e.g., re-traumatization)</p> <p><i>Process outcomes:</i> Healthcare outcomes/utilization/referral, provider outcomes burnout/mental health</p> <p><i>Organizational/ practice/ systems outcomes:</i> Intake and referral processes (e.g., wait times), disseminated policies, trainings, staffing (e.g., scribes), administrative requirements, access to treatment, anti-racism principles, workforce diversity,</p> <p><i>Patient/client-centered outcomes:</i> Physical and mental health outcomes, functioning, clinical improvement, patient/client engagement, trust, comfort or satisfaction, and strengths-based outcomes (e.g., quality of life)</p> <p><i>Harms:</i> Includes displacement of evidence-based care, worsening of symptoms or health, increase in patient/client aggression, or other behavioral misconduct.</p> |

| PICOTS | KQ1 | KQ2 |
|----------------|---|--|
| | increase in patient/client aggression, or other behavioral misconduct. | |
| Timing | Any | Any |
| Setting | Routine or emergency healthcare in any setting that provides physical/mental health or human/social services, including in nontraditional settings (e.g., HIV clinics providing behavioral health care) | Routine or emergency healthcare in any setting that provides physical/mental health or human/social services, including in nontraditional settings (e.g., school-based clinics providing behavioral health care) |

Table 2.2. Study inclusion criteria

| Category | Criteria for Inclusion/ Exclusion |
|--------------------------------|--|
| Study Enrollment | KQ1: Adult patients/clients or professionals working with adult patients/clients. KQ2: Pediatric and adolescent patients/clients and parents/caregivers or professionals working with pediatric and adolescent patients/clients. |
| Study Design | Randomized controlled trials, non-randomized controlled trials, prospective cohort with concurrent comparator, interrupted time-series, and other comparative nonrandomized studies of interventions (NRSIs) using appropriate analytic techniques will be included. Single arm pre/post designs will be excluded unless they incorporate an experimental manipulation comparison within the larger pre/post design. CQs will also draw from single-arm pre/post, quality improvement, theory and conceptual papers, and other descriptive studies. |
| Study Interventions | Any intervention that was study author-identified as trauma-informed care, trauma-informed approach, trauma-informed model, trauma-informed framework, or a single component intended to be part of TIC, such as training for a trauma-informed approach. Studies of interventions of treatments for trauma without being part of a trauma-informed approach are excluded. Likewise, studies are excluded unless they describe how the intervention itself was changed to be trauma-informed. For example, trauma-awareness training prior to a yoga class does not by itself make the yoga class trauma-informed; changes to how the class is conducted would be required. |
| Outcomes | Includes outcomes in Table 2.1. Studies must report at least one patient/client-related outcome. Studies limited to implementation-related outcomes such as intervention feasibility, acceptability, uptake or adoption, and cost or sustainability are excluded. |
| Timing | There is no restriction of timing for included studies, including publication date, timeframe of intervention delivery, duration of intervention. |
| Settings | Include any healthcare or social service setting that may incorporate services intending to improve health outcomes in any country. Healthcare settings may include inpatient, outpatient, emergency or urgent care, school-based clinics, HIV clinics. Social service settings intending to improve health outcomes may serve child welfare clients, military and Veterans, refugees, and people experiencing interpersonal violence (e.g., domestic violence, human trafficking), natural disaster, trauma-processes, and other trauma events not otherwise specified. |
| Publication type | Published in peer-reviewed journals with full text available (if sufficient information to assess eligibility and risk of bias are provided). Letters and abstracts are excluded due to the inability of such short publications to provide the information needed to fully describe interventions or allow risk of bias assessment. |
| Language of Publication | English only |

2.4 Assessment of Risk of Bias

Risk of bias of included KQ studies by outcome was assessed using the Cochrane Risk of Bias Tool 2.0 for RCTs and the ROBINS-I for non-randomized studies of interventions (NRSIs).^{27, 28} NRSIs are quantitative studies that estimate a benefit or harm without randomization to receive the intervention.²⁹ Components include participant group assignment (random sequence generation, allocation concealment), masking/blinding (performance and detection bias), completeness of follow up (attrition bias), analyses and outcome reporting consistent with predefined protocols (selective reporting bias) and other issues (such as appropriateness of analytic approach).

One investigator independently assessed risk of bias for eligible studies by outcome; a second investigator reviewed each assessment. Investigators conferred to reconcile any discrepancies between assessments. Overall risk of bias assessments was classified as low, moderate, or high based upon the collective risk of bias across components and confidence that the study results for a given outcome are believable given the study's limitations.

2.5 Data Extraction

For all study designs, we extracted author, year of publication, sponsorship, setting, subject inclusion and exclusion criteria, intervention and control characteristics, sample size, follow up duration, participant baseline age, race/ethnicity, clinical characteristics (e.g., presenting concerns), and results and timing of outcomes and adverse effects. Since there is no established consensus taxonomy for TIC interventions, we used an empiric approach, noting all reported intervention components and relevant information related to who delivered components and in what frequency/intensity/dosage, mode of delivery, or any other characteristic that may distinguish how the intervention was designed and delivered. Data were extracted into standardized Excel extraction forms by one investigator and verified for accuracy by a second investigator.

For CQs, because the amount of published literature on theories and forms of empirical inquiry into TIC is vast, we focused on the studies that were excluded at full text, and relevant theoretical papers identified during the screening process.

2.6 Data Synthesis

We organized results by setting and intervention/comparison for each KQ. We did not group studies or combine data quantitatively due to variability of interventions. We present results in a narrative 'Summary of Findings' table, as well as text. Study results were reported as the direction of the reported effect based on statistical significance. If a study reported that an intervention improved outcomes, those outcomes were reported as “favors” interventions in the Summary of Findings tables. Similarly, if a study did not find a statistical difference between groups, those outcomes were reported as “no difference.” Appendix C provides detailed outcome information.

For CQs, we used a thematic approach, noting the principles and domains of the models and then cross-walking those against each other for common themes and elements. Results are provided in narrative form with supplementary tables.

2.7 Grading the Strength of Evidence

Strength of evidence assessments were determined by team consensus. We evaluated overall strength of evidence for all relevant outcomes based on five required domains: 1) study strengths and limitations (risk of bias); 2) directness (single, direct link between intervention and outcome); 3) consistency (similarity of effect direction and size); 4) precision (degree of certainty around an estimate); and 5) reporting bias.³⁰ Based on these factors, the overall strength of evidence for each intervention/comparator/outcome was rated as:

- **High:** Very confident that estimate of effect lies close to true effect. Few or no deficiencies in body of evidence, findings believed to be stable.
- **Moderate:** Moderately confident that estimate of effect lies close to true effect. Some deficiencies in body of evidence; findings likely to be stable, but some doubt.
- **Low:** Limited confidence that estimate of effect lies close to true effect; major or numerous deficiencies in body of evidence. Additional evidence necessary before concluding that findings are stable or that estimate of effect is close to true effect.
- **Insufficient:** No evidence, unable to estimate an effect, or no confidence in estimate of effect. No evidence is available, or the body of evidence precludes judgment.

2.8 Peer and Public Commentary

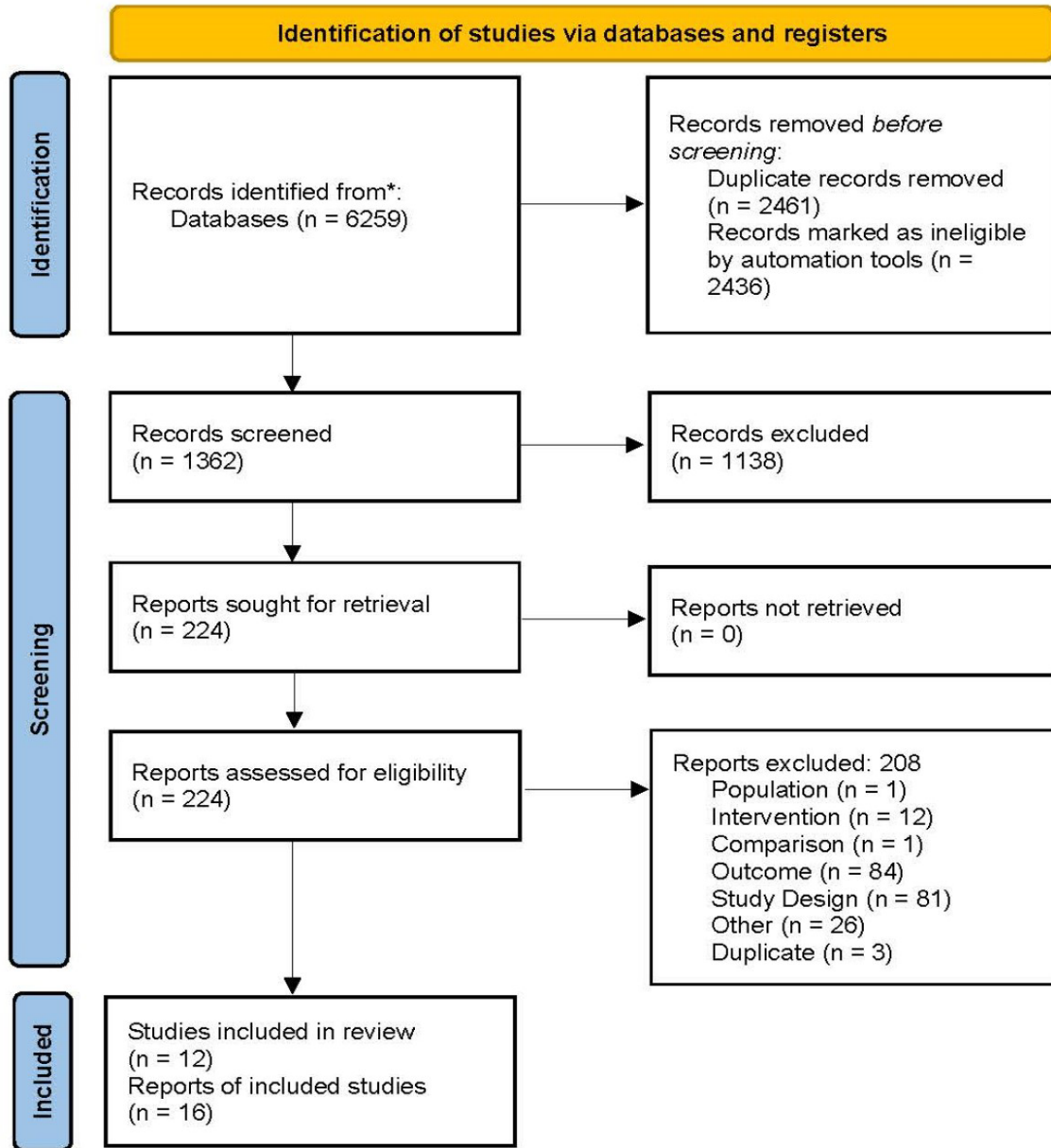
[This section will be completed at final.]

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3.1 Overview

From 1362 unique publications for screening, we identified 12 unique eligible studies discussed in 16 publications. See Figure 3.1 for details of the screening process. We list studies excluded at full text screening, by exclusion category, in Appendix B.

Figure 3.1. Literature flow diagram



The most common reasons for exclusion were issues related to outcomes or study designs. For the outcome exclusion, the vast majority were excluded for only reporting intermediate outcomes, the most common example being studies of training interventions that reported intermediate outcomes such as competency, attitudes, or intentions of a clinician or service provider. The other studies excluded for outcomes were commonly implementation studies that reported implementation outcomes such as feasibility or acceptability of an intervention but lacked patient/client related outcomes. Publications excluded for study design were largely studies of an intervention at a single site that reported only descriptive statistics, or simple comparisons of outcomes before and after the Trauma Informed Care (TIC) intervention was implemented. These single arm pre/post study designs are unable to address concerns about selection bias and other possible counterfactual explanations that could account for any observed difference and are, by definition, high risk of bias. Publications excluded for intervention examined only established treatments such as Trauma-Focused Cognitive Behavioral Therapy without additional TIC components.

We identified three studies of adult only populations for KQ1, all conducted within the United States. Settings consisted of primary care or psychiatric hospitals. Nine studies assessing youth/adolescents were identified for KQ2; studies of children and their families or caregivers were also included in KQ2. Seven of the KQ2 studies were U.S.-based, one study was in Canada, and one in Switzerland. We chose to place one study of pregnant adolescents in KQ2, even though the average age was 18, based on study author identification of the setting as an adolescent obstetric clinic. While adult settings tended to focus on racially/ethnically minoritized groups, the children and youth setting tended to be predominately white and male. Only four of the 12 included studies were cluster RCTs, the remaining were variations of comparative nonrandomized studies of interventions (NRSIs). Seven studies were funded by government agencies and the remaining were generally funded by philanthropic foundations.

Below we provide the results for the Contextual Questions, providing detailed information in tables available in Appendix D. We then follow with the results and Key Points for each Key Question and describe the included evidence as well as the summary of the findings and strength of evidence. Appendix C provides details for both KQs on evidence tables, summary risk of bias assessments, and strength of evidence for each comparison and outcome.

3.2 Contextual Questions

This section addresses Contextual Question (CQ) 1 and 2. The CQs were developed to provide information on the content and context of TIC interventions. To restate the CQs:

- CQ1. How is TIC defined in theory and research and according to professional guidelines or other clinical, system, or policy-level guidance or recommendations?
- CQ2. What are the organizational and clinical components of TIC, including components of different TIC models? Are common components of TIC found across settings, populations, conditions, and models?

We drew on publications identified from the search algorithms (i.e., articles that did not meet inclusion criteria for the key questions) as well as the grey literature. The potentially relevant research, perspective pieces, descriptions of theory-based TIC approaches, or advocacy pieces are extensive, and an exhaustive examination of the literature is beyond the scope of this review. That is, the listed models are *not* exhaustive of all TIC models, and surely many additional models exist in the extant literature. Our goal with the contextual questions is to present a comprehensive discussion and one that approximates saturation of the ideas.

3.2.1 Trauma Informed Care Definitions in Theory and Research

3.2.1.1 Key Point

- TIC definitions vary considerably, and no globally accepted definition has been adopted for TIC from youth to adult services. For instance, TIC may be referenced as principles, approaches, specific interventions, and/or frameworks. TIC was generally conceptualized on a systems level, such as by referencing programs, organizations, and cultures of care without specific operationalization. Current definitions encompass various settings and disciplines for both youth and adults.

3.2.1.2 Definitions of Trauma Informed Care

No globally accepted definition exists for TIC from pediatric to adult services, much less a globally accepted definition of “trauma.” Herein lies a core challenge with TIC, considering that many definitions of TIC rely on a certain understanding of what constitutes “trauma.” Although not all-encompassing, the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision*³¹ defines trauma as exposure to actual or threatened death, serious injury, or sexual violence through ways such as directly experiencing the traumatic event(s) and/or witnessing, in person, the event(s) as it occurred to others. The *International Classification of Diseases 11th Revision*³² defines potentially traumatic events as those with a stressor of an extremely threatening or horrific nature. These various definitions of trauma may be perceived as subjective and are difficult to operationalize, with differences even in delineating trauma as an exposure, event, or experience (internal or external).

The difficulties and confusion related to defining “trauma” carry forward to defining TIC. Authors of TIC guidelines most often credited their definitions of TIC as drawn from six key TIC principles (although noted as trauma-informed approaches) developed by Substance Abuse and Mental Health Services Administration (SAMHSA).³³⁻⁴⁴ Further, conceptualizations of what constitutes “trauma” vary, with trauma framed as both systemic and interpersonal. Example definitions of TIC originally developed by national centers and/or are commonly used include:

- “A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization.” —SAMHSA, U.S. Department of Health and Human Services¹⁵
- “the development of a culture... all of which serve goals that simultaneously create a sound treatment environment while counteracting the impact of chronic and unrelenting stress.” —The Sanctuary Institute, Andrus⁴⁵
- “... all parties involved recognize and respond to the impact of traumatic stress on those who have contact with the system including children, caregivers, and service providers. Programs and agencies within such a system infuse and sustain trauma awareness, knowledge, and skills into their organizational cultures, practices, and policies.” — National Child Traumatic Stress Network (NCTSN)⁴⁶
- “framework that extends the philosophy of person-centered care which recognizes and values the individual perspectives of care recipients and those providing care, while promoting a positive social environment. TIC further emphasizes the fundamental role of psychological trauma in shaping a person's experience of care. As distinct from trauma

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specific clinical treatment, trauma-informed services are organized in ways that engender safety for all and do not re-traumatize survivors.” —Creating Cultures of Trauma-Informed Care (CCTIC); Community Connections, Washington, DC⁴⁷

Appendix D Table D.1 provides an overview of TIC definitions from seven universal/cross-cutting models as well as 24 setting-specific models. The table lists the core principles and/or domains of each TIC model, as numerated by the model developers. As the study included in the effectiveness review on TIC for a patient-centered adolescent obstetric clinic illustrates, the “devil is in the details” wherein 37 separate “solutions” were identified and implemented to address ten problem areas across the six key principles. Many of these solutions were of themselves behavior change interventions involving some health system-level complexity.

The universal/cross-cutting models (Collaborative Care Model,⁴⁸ Creating Cultures of Trauma-Informed Care,^{37, 49-51} Creating PRESENCE,⁵² National Child Traumatic Stress Network,⁵³⁻⁵⁸ Solution-Focused Trauma-Informed Care,^{59, 60} Substance Abuse and Mental Health Services Administration,³³⁻⁴⁴ Trauma and Resiliency Informed Practice⁶¹) are intended to apply to a variety of settings and contexts, whereas the setting-specific models were developed with a particular context and/or population in mind—not that these models are constrained to only their early contexts and/or populations.

For setting-specific models for adults, we identified three TIC models on adult medical care (Fifth Vital Sign: HOUSE,⁶² Trauma-Informed Primary Care,⁶³ Trauma-Informed Treatment Model;⁶⁴), one of which focuses on emergency room physicians (Fifth Vital Sign: HOUSE⁶²); otherwise, the models were broadly intended for adult primary care and hospital settings. All models consider external factors and social determinants of health, such as housing, income, community safety, and cultural contexts that include experiences of violence. Five TIC models on adult mental health care were identified (Portal Project Model,⁶⁵ Trauma-Informed Care and Practice;⁵⁹ Trauma-Informed Care Pyramid;^{66, 67} Trauma-Informed Social Work Practice;⁶⁸ Women, Co-Occurring Disorders, and Violence Study^{69, 70}), one of which focuses on social work practice (Trauma-Informed Social Work Practice⁶⁸); otherwise, the models were broadly intended for adult mental health care settings. Although models might have been informed by findings outside of traditional psychotherapeutic contexts, such as dental work (Trauma-Informed Care Pyramid⁶⁶⁻⁶⁸), all such models were intended to be translatable to mental health settings. Further, although one model was developed for a specific community (women who use substances and identify as survivors of violence, Women, Co-Occurring Disorders, and Violence Study^{69, 70}), the model is noted to be applicable to individuals across various populations.

Regarding youth, two TIC models were developed for youth juvenile detention settings (A Developmental Trauma Informed Response for the Criminal Justice System⁷¹; Trauma-Informed Juvenile Justice⁷²), both of which discuss individual- and group-level factors. A broad range of groups and systems are mentioned, including families, agencies, cross-systems, courts, and others who have contact within the juvenile justice system. Six TIC models were identified for youth residential and inpatient treatment (Attachment, Regulation, and Competency Framework;⁷³⁻⁷⁶ Fairy Tale Model of Trauma-Informed Treatment;^{77, 78} Massachusetts Child Trauma Project;^{79, 80} National Association of State Mental Health Program Directors;⁸¹ Sanctuary Model;^{45, 82-84} Trauma-Informed Care in Residential Treatment⁸⁵), which include considerations of the child as well as their caregivers, family, and staff service providers. Sense of self, identity,

self-care, and self-regulation are emphasized along with relational aspects such as increasing connections, understanding attachment styles, and building social responsibility.

Further, there are considerations around long-term wellbeing as well as future challenges. Two TIC models were identified for youth under child protection services (Chadwick Trauma-Informed Systems Project and the Community Assessment Process;^{86, 87} Trauma-Informed Child Welfare Systems⁸⁸), both of which emphasize the importance of systems and assessments. Further, both models highlight the importance of determining the impacts of trauma and traumatic stress on the child. Lastly, there were nine TIC models in additional settings that were not encompassed in the review's inclusion criteria. These settings included approaches such as interviewing (A Trauma Informed Approach to Interviewing⁸⁹) and sites such as schools (Healthy Environments and Response to Trauma in Schools;⁹⁰ Therapeutic Crisis Intervention in Schools;⁹¹ Trauma-Informed Positive Education^{92, 93}), adult correctional care (The Four E's;⁹⁴ Trauma-Informed Correctional Care⁹⁵), neighborhood resource and recreation centers (Trauma-Informed Neighborhood Resource and Recreation Centers⁷⁶), and additional body-related or physical wellbeing arenas (Trauma-Center Trauma Sensitive Yoga;⁹⁶ Trauma-Informed Weight Lifting⁹⁷).

3.2.2 Organizational and Clinical Components of Trauma Informed Care

3.2.2.1 Key Points

- TIC models vary considerably in their socioecological components (cultural relevance, training, screening, system embedding) from youth to adult services across settings and disciplines. Current organizational and clinical components encompass a broad range of considerations with some overlap stated within both the organizational and clinical domains (e.g., incorporating psychoeducation for organizational staff as well as within patient/client treatment).
- Fewer than half of the TIC models had specific elements of cultural competence and/or humility (e.g., emphasizing a need to understand patient/client symptoms within the context of life experiences, culture, and historical issues).

3.2.2.2 Organizational and Clinical Components

Given the variability of TIC, organizational and clinical components were defined based on broad characteristics and descriptive approaches rather than firmly structured, delineated characteristics. Specifically, per the American Psychological Association, components of clinical nature were loosely defined as factors related to observation of clients/patients, diagnosing disorders, and treatment of disorders and clients/patients.²⁰ Components of organizational nature were loosely defined from the American Psychological Association as various factors within an entity that “interact to perform one or more functions.”²⁰

Nearly two dozen clinical components were identified across TIC models, with close to the same number for organizational components. The majority of identified organizational components were present primarily within their unique TIC model, with only a handful of factors found across multiple TIC models. Approximately half of the identified clinical components were present primarily within their unique TIC model, with the remaining half of the clinical components commonly found across multiple TIC models. No components were universally

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found across all examined models. Table 3.1 provides a summary of the socioecological and treatment-related components. Detailed information is provided in Appendix D, tables D2-5.

Table 3.1 Summary of models: TIC socioecological and treatment-related components

| Context | Model | Cultural-Relevant Design | Training | Screening | System Embedding | Linkage to Treatment | Treatment Within |
|---|--|--------------------------|----------|-----------|------------------|----------------------|------------------|
| Universal / Cross-cutting models | Collaborative Care Model (CoCM) ^{48, 98} | Unclear | Unclear | Yes | Yes | Yes | Yes |
| | Creating Cultures of Trauma-Informed Care (CCTIC) ⁴⁹ | Yes | Yes | Yes | Yes | Yes | Yes |
| | Creating PRESENCE ⁵² | Unclear | Yes | Unclear | Yes | Yes | Unclear |
| | National Child Traumatic Stress Network (NCTSN) ^{55-57, 99, 100} | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Solution-Focused Trauma-Informed Care (SF-TIC) ^{59, 60} | Unclear | Unclear | Unclear | Yes | Yes | Yes |
| | Substance Abuse and Mental Health Services Administration (SAMHSA) ^{33-44, 101-103} | Yes | Yes | Yes | Yes | Yes | Yes |
| | Trauma and Resiliency Informed Practice (TRIP) ⁶¹ | Unclear | Yes | Unclear | Yes | Yes | Unclear |
| Adult medical care | Fifth Vital Sign: HOUSE ⁶² | Yes | Yes | Yes | Yes | Unclear | Unclear |
| | Trauma-Informed Primary Care (TIPC) ⁶³ | Unclear | Yes | Yes | Yes | Yes | Unclear |
| | Trauma-Informed Treatment Model ⁶³ | Unclear | Yes | Unclear | Yes | Yes | Yes |
| | *Trauma-Informed Collaborative Care (TICC) ¹⁰⁴ | Unclear | Yes | Unclear | Yes | Yes | Yes |
| Adult mental health care | Portal Project Model ⁶⁵ | Yes | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Care and Practice (TICP) ⁵⁹ | Unclear | Yes | Unclear | Unclear | Yes | Unclear |
| | Trauma-Informed Care Pyramid ^{66, 67} | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Social Work Practice ⁶⁸ | Unclear | Yes | Unclear | Unclear | Yes | Yes |
| | Women, Co-Occurring Disorders, and Violence Study (WCDVS) ^{69, 70} | Yes | Yes | Yes | Yes | Yes | Yes |
| | *Engagement Model ¹⁰⁵ | Unclear | Yes | Unclear | Unclear | Yes | Unclear |
| Youth juvenile detention | A Developmental Trauma Informed Response for the Criminal Justice System ⁷¹ | Unclear | Yes | Yes | Yes | Unclear | Yes |
| | Trauma-Informed Juvenile Justice ⁷² | Yes | Unclear | Yes | Yes | Yes | Yes |

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| | | | | | | | |
|---|---|---------|---------|---------|---------|---------|---------|
| Youth residential and inpatient treatment | Attachment, Regulation, and Competency (ARC) Framework ⁷³⁻⁷⁵ | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Fairy Tale Model of Trauma-Informed Treatment ^{77, 78} | Yes | Yes | Yes | Unclear | Yes | Unclear |
| | Massachusetts Child Trauma Project (MCTP) ^{79, 80} | Unclear | Yes | Yes | Yes | Yes | Yes |
| | National Association of State Mental Health Program Directors (NASMHPD) ⁸¹ | Unclear | Yes | Unclear | Yes | Yes | Yes |
| | Sanctuary Model ^{45, 82-84} | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Care in Residential Treatment ⁸⁵ | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma Systems Therapy ¹⁰⁶ | Unclear | Yes | Unclear | Yes | Unclear | Yes |
| Youth in child protection | Chadwick Trauma-Informed Systems Project and the Community Assessment Process ⁸⁶ | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Child Welfare Systems (TICWSs) ⁸⁸ | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma –Informed Psychiatric Residential Treatment ¹⁰⁷ | Unclear | Yes | Unclear | Yes | Unclear | Yes |
| Additional settings | Healthy Environments and Response to Trauma in Schools (HEARTS) ⁹⁰ | Yes | Yes | Yes | Yes | Unclear | Yes |
| | Nurse-Led Model of Trauma-Informed Care (The Four E's) ⁹⁴ | Unclear | Yes | Unclear | Unclear | Yes | Yes |
| | Therapeutic Crisis Intervention in Schools (TCI-S) ⁹¹ | Unclear | Yes | Yes | Yes | Yes | Unclear |
| | Trauma Center Trauma-Sensitive Yoga (TCTSY) ^{108, 109} | Yes | Yes | Yes | Unclear | Yes | Unclear |
| | A Trauma Informed Approach to Interviewing ¹¹⁰ | Unclear | Yes | Yes | Unclear | Unclear | Unclear |
| | Trauma-Informed Correctional Care (TICC) ⁹⁵ | Unclear | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Neighborhood Resource and Recreation Centers (NRRCs) ⁷⁶ | Yes | Yes | Yes | Yes | Yes | Yes |
| | Trauma-Informed Positive Education (TIPE) ^{92, 93, 95} | Unclear | Unclear | Unclear | Yes | Yes | Yes |
| Trauma-Informed Weight Lifting (TIWL) ⁹⁷ | Yes | Yes | Unclear | Unclear | Yes | Unclear | |

Organizational Components

Organizational components commonly comprised staff training on trauma, which usually included modules on understanding patient/client behaviors as being influenced by trauma exposures. Expanding on increasing understanding and awareness of trauma among clients and patients, TIC organizations noted a need to focus first on patient/client-centered care rather than on other factors, such as monetary profits. Relatedly, organizational components relied on collaboration across levels, emphasizing the importance of leadership support to create a workplace culture of TIC. Given the reliance of leadership support to effect change, TIC models also commonly highlighted the importance of recognizing power and privilege (e.g., protecting autonomy and sharing power dynamics by providing choices); recognition of power and privilege extended beyond titular hierarchies by including cultural “competency” and/or cultural humility, with the latter focused on having an open stance in understanding fellow peer’s cultural experiences. Lastly, although TIC was commonly considered as an approach that needed ongoing assessment, quality assurance and framework evaluation were more so simply acknowledged rather than stringently tested.

Clinical Components as Organizational Components

A few organization components were common clinical components in TIC models. Similar to staff training noted in the “Organizational Components” section, importance was placed on synthesizing patient/client’s history and presenting concerns, including the ability to show an understanding of trauma and take a trauma lens (e.g., view situations and behavioral responses from the perspective of a client/patient who had experienced trauma). Some models note that this understanding of patient/client perspectives could be further bolstered by recognizing power and privilege in the patient/client–provider relationship and imbuing cultural “competency” and/or humility in patient/client conceptualization. Alongside provider humility (e.g., openness to others and to self-evaluation) TIC models also commonly discussed cultivating a sense of choice through patient/client empowerment, emphasizing patient/client strengths rather than deficits. Through rapport building and a focus on relationships, TIC models additionally highlighted the importance of creating an interpersonal dynamic built on trust and safety, as defined and determined by the patient/client. Across TIC models, clinical components emphasized the importance of minimizing re-traumatization in the patient/client–provider relationship and setting (e.g., sanctuary trauma)^{52, 111} while acknowledging it is impossible to eliminate the risk entirely. Although views differed on whether and/or how screening for patient/client trauma history may cause re-traumatization, such assessments were common across the TIC models, and used variably in the context of service delivery.

Less-common yet still present organizational components discussed in TIC models aligned with some TIC clinical components. These organizational components included safety; trustworthiness and transparency; collaboration and mutuality; empowerment, voice, and choice; trauma awareness in training; and developing positive working relationships among staff. Additional less-commonly discussed organizational components were offshoots of more-commonly discussed organizational components in TIC models, such as increasing understanding of cultural, historical, and gender issues (e.g., cultural relevance); incorporating data-driven incident monitoring and feedback as part of quality assurance; providing leadership and administrative support; and providing system-wide universal supports. TIC organizational

components mentioned in singular models included the idea of providing social work and clinical services to staff; developing supervision around post-crisis responses; emphasizing a “do no harm” approach; and building community partnerships.

Additional Clinical Components

Regarding clinical components, some TIC models discussed increasing psychological resources (e.g., cognitive processing, emotion regulation, identity formation, social support, empathy training). A couple of TIC models stated the clinical goal of increasing patient/client psychological resources, while a few discussed how client goals might be achieved through trauma-focused interventions to resolve trauma and consolidate loss and related memories. Similarly, some TIC models discussed approaches that were psychological in nature, such as assisting patients/clients with emotional regulation and with exploring and understanding their self-identities. A couple of models focused on building relationships outside of the patient/client–provider dynamic, with nods toward peer support and child–caregiver dynamics. Finally, the importance of empathy was briefly discussed as a clinical component in TIC models.

Treatments

Appendix D Table D.4 details TIC treatment/intervention-related descriptions for each TIC model. All seven universal/cross-cutting models discuss TIC in relation to psychotherapeutic treatment/intervention skills and/or goals. All but two of these models (Creating Presence^{52, 61}, TRIP⁶¹) include some form of psychotherapeutic treatment, whether trauma-centered or on a broader well-being scale. Of the eight setting-specific adult models, only one was silent on linkage to treatment or treatment within their TIC model (HOUSE⁶²). The remaining seven models all discussed TIC in relation to treatment/intervention, and all but one model (Trauma-Informed Care Pyramid^{66, 67}) included some form of psychotherapeutic treatment/intervention. Regarding the 10 setting-specific youth models, all but one (A Developmental Trauma Informed Response for the Criminal Justice System⁷¹) discussed TIC in relation to psychotherapeutic treatment skills and/or goals. Furthermore, all but one youth model (Fairly Tale Model⁷⁷) included some form of psychotherapeutic treatment/intervention. Of the nine models in additional settings, all but one (which focused on interviewing as a trauma-informed approach and was silent on linkage to treatment) discussed TIC in relation to psychotherapeutic treatment skills and/or goals (A Trauma Informed Approach to Interviewing¹¹⁰). Of the remaining eight models, all but the three physical wellbeing related models (Trauma Center Trauma-Sensitive Yoga¹¹², Trauma-Informed Neighborhood Resource and Recreation Centers⁷⁶, Trauma-Informed Weight Lifting⁹⁷) included some form of psychotherapeutic treatment/intervention.

Targets and Populations

Appendix D Table D.2 details TIC intervention targets for the seven universal/cross-cutting models, the models within the five specific settings (three for adult medical care, five for adult mental health care, two for youth juvenile detention, six for youth residential and inpatient treatment, and two for youth in child protection), and the nine additional settings. Nearly all models considered the health system as well as the individual as intervention targets. The universal/cross-cutting models and the adult-specific models tended not to consider family/interpersonal intervention targets whereas all the youth models considered family/interpersonal intervention targets. There did not appear to be consistency in whether community was considered an intervention target with the exception that none of the adult mental health care models included community while both youth in child protection models

included community. The universal/cross-cutting and the youth juvenile detention setting models generally included policy as an intervention target although the remaining settings generally did not consider policy.

Socioecological Components

Appendix D Table D.3 details TIC socioecological component descriptions for each TIC model. All seven universal/cross-cutting models discussed ways to embed TIC on a systems level, and near all discussed some form of training and/or screening. Two of the seven universal/cross-cutting models (CCTIC,⁵⁰ SAMHSA^{33, 35, 39, 103, 113}) examined the cultural relevance of their TIC approach with different populations. All eight adult models (3 medical and 5 mental health) discussed training as a component of TIC, and near all discussed some form of screening and/or system embedding. Three of the eight adult models (HOUSE,⁶² Portal Project Model,⁶⁵ WCDVS⁶⁹) discussed cultural relevance of their TIC approach within different contexts (e.g., housing shortages, sociopolitical environment) and/or named cultural competence as important. Near all of the 10 youth models (2 in juvenile detention, 6 in residential and inpatient treatment, and 2 in child protection settings) discussed some form of training, screening, and/or system embedding; and two of the 10 youth models discussed cultural considerations in their TIC approach, in which one named cultural competence as important (Trauma-Informed Juvenile Justice⁷²) and the other noted the importance of family and community (Fairy Tale Model⁷⁷). Of the nine additional settings that were not encompassed in the review's included literature, near all discussed some form of training, screening, and/or system embedding. Regarding consideration of cultural contexts, one of the nine additional models discussed implementing the model in under-resourced areas (HEARTS⁹⁰), and all three physical wellbeing-related models discussed tailoring the model and/or considering inequalities, power, and privilege (Trauma Center Trauma-Sensitive Yoga,¹⁰⁸ Trauma-Informed Neighborhood Resource and Recreation Centers,⁷⁶ Trauma-Informed Weight Lifting⁹⁷).

3.3 Findings for Key Question 1: TIC For Adults

3.3.1 Key Points

- Evidence was insufficient to draw conclusions about the effect of TIC in primary care or psychiatric hospitals for adult patients for any outcome.

3.3.1.1 Adult Medical Care Settings

We identified two unique studies^{104, 114} from three publications^{104, 114, 115} that examined TIC approaches in medical settings to improve patient or organizational/process related outcomes. One study used trauma-informed collaborative care (TICC) delivered to 42 African American primary care clinic patients. The enhanced usual care (EUC) arm of the study consisted of a 2-hour onsite training about PTSD and TIC for all primary care staff, and an evidence-based medicine training and medication decision aid for Federally Qualified Health Center physicians. Patients who had a provisional PTSD diagnosis were provided an information sheet adapted from patient education resources from the National Institute of Mental Health and the International Society for Traumatic Stress Studies. The TICC arm included all EUC components plus active patient education and engagement, facilitated linkages to community resources by

trained care managers (CMs). CMs also had cross-disciplinary communications with the patient/client’s providers, participated in monthly meetings, facilitated measurement-based care through an initial in-person visit and 7 follow up phone calls over 9 months to monitor care.¹⁰⁴

The other study targeted primary care physicians (17 family medicine residents and 13 community providers), with primarily low-income ethnic minority patients, to participate in Trauma Informed Medical Care (TI-Med), a 6-hour continuing medical education course adapted from Risking Connection,¹¹⁶ a trauma-focused communication training program.¹¹¹

Table 3.2 summarizes the characteristics of the literature set. Both were assessed as high risk of bias. Both studies did not describe the randomization process.²⁸⁻³⁰ One RCT (n=42 patients) had differential attrition over follow up (24 percent attrition in the intervention arm versus 5 percent attrition in the control arm), did report masking of participants to treatment allocation, and had baseline imbalance in covariates (compared to the intervention arm, the control arm had more participants with history of psychoses and less than high school education).¹⁰⁴ One cluster RCT (n=30 primary care providers) recruited 400 patients by convenience sampling, measured patient/client-reported outcomes (patient/client ratings) using a survey instrument that was not externally validated, did not report whether patients/clients were masked to provider intervention assignment, and measured posttraining and pretraining scores (patient/clients ratings) in different sample of patients/clients.³⁰

Table 3.2. Basic characteristics of literature set: adult medical settings

| Characteristics | Meredith 2022 ¹⁰⁴ | Green 2015 ¹¹⁴ , Green 2016 ¹¹⁵ |
|---------------------------------------|--|---|
| Number of participants | 42 patients | 30 primary care providers (400 patients completed surveys for outcome collection) |
| Population | African Americans in Federally Qualified Health Centers | Primarily people of low-income, ethnic minority |
| Trauma exposure | Hurricane Katrina and other exposures leading to PTSD | Interpersonal trauma exposure (both present and absent) |
| Cited basis for intervention | Empirical | Risking Connection ¹¹⁶ Relational-Cultural model ¹¹⁷ |
| Intervention label/ components | Trauma-Informed Collaborative Care: care management + measurement-based care + motivational interviewing+ linkage to community resources + integrated behavioral care + culturally adapted, 2-hour training in person, included support staff + patient education materials + environmental; Enhanced usual care: training in person, included support staff + patient education materials + environmental | I-MED (Trauma Informed Medical Care): 6-hour training in-person, interactive skill practice, included support staff |
| Outcomes reported | Patient/Client: PCL-5 score, Provisional PTSD diagnosis, Trust in provider Process: none Organizational: none Harms: NR | Patient/Client: Rapport, Partnership Process: none Organizational: none Harms: NR |
| Study design | Randomized controlled trial; head-to-head comparison | Cluster randomized controlled trial |
| Risk of bias | High | High |

Abbreviations: PCL-5=PTSD Checklist for DSM-5; PTSD=post-traumatic stress disorder

Evidence was insufficient to draw conclusions about the effects of TIC on outcomes. Table 3.3 summarizes the findings. One study reported that patients/clients with PTSD showed PTSD symptom improvement in both the trauma-informed collaborative care group and the control

group that received a minimal TIC approach,¹⁰⁴ no differences between groups were found. Another study looked at whether patients/clients’ noticed differences in provider communication between trained and untrained clinicians.^{114, 115} This study used brief screening for trauma and PTSD to establish baseline demographic characteristics and for use in the regression analysis; there was no further information regarding different care for patients/clients with high screener scores. No organizational outcomes, adverse events, or unintended consequences were collected for either study.

Table 3.3. Summary of findings: adult medical settings

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population Exposure | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|---|--|-------------------------------------|--|-----------------------|
| PCL-5 symptom score Trauma-informed collaborative care vs Enhanced usual care | 1 RCT ¹⁰⁴ (n=36) 9 months | Screened for PTSD | Inconclusive; decreases in symptoms by 26 points in the EUC arm and 36 points in the TICC arm (out of a total of 80 points), but no significant difference between groups (p=0.08). | Insufficient |
| Provisional PTSD diagnosis Trauma-informed collaborative care vs Enhanced usual care | 1 RCT ¹⁰⁴ (n=36) 9 months | Screened for PTSD | Inconclusive; 33% decrease in the EUC arm and 57% decrease in the TICC arm for diagnosis rates, but no significant difference between groups (p=0.27) | Insufficient |
| Trust in provider Trauma-informed collaborative care vs Enhanced usual care | 1 RCT ¹⁰⁴ (n=36) 9 months | Screened for PTSD | Inconclusive, decreases by 1.64 points in the EUC arm and 0.93 point in the TICC arm (out of a total of 40 points), and no difference between groups | Insufficient |
| Rapport with PCP Posttraining vs Pretraining | 1 Cluster RCT ¹¹⁵ (n=30, based on 400 patient responses) 1 month | 52% exposed to interpersonal trauma | Inconclusive; nonsignificant increase in rating by 0.02 point on a 5-point scale (SE= 0.03, p=0.56) potentially ceiling effect due to high baseline scores (average baseline rating 4.87 out of 5) | Insufficient |
| Partnership with PCP Posttraining vs Pretraining | 1 Cluster RCT ¹¹⁵ n=30, based on 400 patient responses) 1 month | 52% exposed to interpersonal trauma | Inconclusive; “no trauma or PTSD” group improved showed significantly higher ratings of partnership significantly, positive trend in the trauma exposed group. | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: n=number; PCL-5=PTSD Checklist for DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition); PTSD=post-traumatic stress disorder; RCT=randomized controlled trial; PCP=primary care provider

3.3.1.2 Adult Mental Health Service Settings

We identified one unique study that examined TIC approaches in mental health settings to reduce the use of seclusion and restraint in a large state-funded hospital.¹⁰⁵ The Engagement Model in this study including trauma informed care staff training, rules and language

intervention, therapeutic environment changes (including the addition of comfortable furniture, pleasant lighting and plants, and the removal of signs and use of terms like “security check” or “seclusion room”), and patient involvement in treatment planning using a “teamwork approach” for reducing seclusion and restraint procedures and enhancing patient safety in psychiatric settings.¹⁰⁵

Table 3.4 summarizes the characteristics of the single study in the literature set. This RCT randomized five inpatient units within the same hospital to implement the intervention and implemented a multiple baseline design with stepped rollout of intervention across units, which could lead to contamination in effect estimation. The study did not report information about nonparticipation within unit or attrition over followup, did not report information about missing data, and did not report information about masking; thus, this study had a high risk of bias.³¹

Table 3.4. Basic characteristics of literature set: adult mental health settings

| Characteristics | Borckardt 2011 ¹⁰⁵ |
|--------------------------------|--|
| Number of participants | 446 patients and 340 staff across 5 patient units |
| Population | Psychiatric hospital inpatients (details not reported) |
| Trauma exposure | Sanctuary trauma: traumatization from use of seclusion and restraints ¹¹⁸ |
| Cited basis for intervention | Bloom 1997 ¹¹⁸ |
| Intervention label/ components | Engagement model: training + changes to unit rules and language + environment changes + involve patients in treatment planning |
| Outcomes reported | Patient/Client: Use of seclusion and restraints Process: none Organizational: none Harms: NR |
| Study design | Multiple-baseline design with random assignment to order of intervention component implementation |
| Risk of bias | High |

Abbreviations: PCL-5=PTSD Checklist for DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition); PTSD=post-traumatic stress disorder

Evidence was insufficient to draw conclusions about the effects of TIC on outcomes. Table 3.5 summarizes the findings. This study reported a reduction in the rate of seclusion and restraint between the baseline phase and the follow up, postintervention phase. Environmental changes (e.g., painting walls with warm colors, decorative throw rugs and plants, new furniture, regular staff-patient group meetings) reported strongest associations with reductions. No organizational outcomes, adverse events, or unintended consequences were collected for the study.

Table 3.5. Summary of findings: adult mental health settings

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population Exposure | Conclusion Summary of Individual Study Findings | Strength of Evidence* |
|---|---|---------------------------|--|-----------------------|
| Seclusion and restraint Postintervention vs Preintervention | 1 NRSI study ¹⁰⁵ (n=446 patients, 340 staff) 3.5 years | Possible sanctuary trauma | Inconclusive; an 82.3% reduction in the use of seclusion and restraint in the post intervention phase compared to preintervention phase (p=.008) | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: n=number, NRSI= nonrandomized studies of interventions

3.4 Findings for Key Question 2: TIC for Children/Youth

3.4.1 Key Points

- Evidence was insufficient to draw conclusions about the effect of TIC in any setting for children or youth patients/clients for any outcome.

3.4.1.1 Primary Prevention for Children

We identified one study that examined TIC approaches in primary prevention settings to improve patient related outcomes.¹¹⁹ Families OverComing Under Stress-Early Childhood (FOCUS-EC) was delivered to military families through an in-home, virtual telehealth platform. FOCUS-EC is a trauma-informed, family-centered preventive intervention designed to promote family resilience and well-being, consisting of core elements delivered in 6 modules that are typically delivered over 4-10 meetings that last 60–90 min each. The core elements include (1) web-based Family Resilience Check-In (FRCI); (2) personalized trauma-informed psychoeducation, parenting education and developmental guidance; (3) development of a parental narrative timeline to support reflection, empathy, meaning making and communication; and (4) development of family resilience and parenting/co-parenting skills.¹¹⁹

Table 3.6 summarizes the characteristics of the literature set. In this study, there was greater attrition in the intervention arm (14 percent) compared to the control arm (six percent), missing data were imputed using mean scores of available data, power calculations were not reported, the quantity of missingness in data were not described, and analyses tested multiple outcomes at multiple timepoints without statistical adjusting for multiple comparisons; thus, this study was assessed as having high risk of bias.¹¹⁹

Table 3.6. Basic characteristics of literature set: primary prevention settings for children

| Characteristics | Mogil 2022 ¹¹⁹ |
|---------------------------------------|--|
| Number of participants | 194 mothers; 155 fathers; 199 children |
| Population | Military connected families (At least one parent served in post 9/11 U.S. military) |
| Trauma exposure | Military service |
| Cited basis for intervention | FOCUS ^{120, 121} existing intervention based on resiliency/ strengths-based approach |
| Intervention label/ components | FOCUS-EC delivered 6 modules by 4-10 virtual meetings lasting 60-90 minutes |
| Outcomes reported | Patient/Client: Parent psychological health (anxiety, depression, PTSD), parent-child interactions, child behavior (difficult child) Process: none Organizational: none Harms: NR |
| Study design | Randomized controlled trial |
| Risk of bias | High |

Abbreviations: FOCUS-EC = Families OverComing Stress for Early Childhood; n = number; PDS = Posttraumatic Diagnostic Scale. Evidence was insufficient to draw conclusions about the effects of TIC on outcomes. Table 3.7 summarizes the findings. This study reported that military parents showed psychological health symptom improvement in both the FOCUS-EC group and the control group that received an alternate online education program; no differences between groups was found.¹¹⁹ However, parent-child interactions and child behavior improved for the FOCUS-EC group. No organizational outcomes, adverse events, or unintended consequences were collected.

Table 3.7. Summary of findings: primary prevention settings for children

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population Exposure | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|---|---|--|---|-----------------------|
| Parent psychological health (anxiety and depression using BSI-18 score and PTSD symptoms using PDS score) FOCUS-EC vs Online parent education | 1 RCT ¹¹⁹ (n=194 mothers; 155 fathers; 199 children) 6 months | At least one parent served in post 9/11 U.S. military with children ages 3-6 | Inconclusive. Compared to parents in the OPE group, FOCUS-EC parents reported greater reduction in PTSD symptoms by 2.78 points (on a 51-point scale) over 6 months of followup (p<0.05). There were no differences in anxiety and depression over 6 months of followup | Insufficient |
| Parent-child interactions -Parental Behavior with Preschool Q-sort score FOCUS-EC vs Online parent education | 1 RCT ¹¹⁹ (n=194 mothers; 155 fathers; 199 children) 12 months | At least one parent served in post 9/11 U.S. military with children ages 3-6 | Inconclusive. At 12-months, parents randomized to receive FOCUS-EC demonstrated significantly greater improvement in Observed Parent Affect and Behavior by 0.38 point (p<0.001) during the parent-child interactions, as compared to parents in the OPE group. There was no significant improvement in parental sensitivity. | Insufficient |
| Child behavior (Difficult child) composite score from the parent-child interaction task + PSI-SF Difficult Child subscale FOCUS-EC vs Online parent education | 1 RCT ¹¹⁹ (n=194 mothers; 155 fathers; 199 children) 12 months | At least one parent served in post 9/11 US military with children ages 3-6 | Inconclusive. At 12-months, parents receiving FOCUS-EC reported significantly greater improvement in perception of difficult child by 1.43 points (p<0.05) and their children demonstrated significant improvement in affect and behavior by 0.33 points (p<0.01), compared to parent-child dyads in the OPE group. | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: BSI-18 = Brief Symptom Inventory-18; n = number; FOCUS-EC = Families OverComing Stress for Early Childhood; PDS = Posttraumatic Diagnostic Scale; OPE = Online parent education; PSI-SF = Parenting Stress Index-Short Form; RCT=randomized controlled trial

3.4.1.2 Adolescent Medical Care Settings

- We identified one study¹⁰¹ from two publications^{101, 122} that examined TIC approaches in medical settings to improve adolescent patient or organizational/process related outcomes. The Colorado Adolescent Maternity Program (CAMP) is an obstetric and pediatric medical home for pregnant and parenting adolescent girls located within a children's hospital. CAMP used the six SAMSHA key principles to identify 10 problem areas to develop 32 solutions, as shown in the table below.

Table 3.8 Ashby Trauma- Informed Care Model

| Key principle | Problem | Solution(s) |
|-----------------------------------|---|---|
| Safety | Psychological safety | <ul style="list-style-type: none"> • Pregnancy understood as potential trauma; medical care provided by same provider throughout pregnancy • Behavioral health support provided by same social worker or behavioral health clinician • Coordination and collaboration between obstetric and pediatric providers • Circumscribed roles to avoid duplication of services, particularly related to trauma Histories • Only offer annual rotations to trainees • Behavioral health staff and faculty support medical providers as well as patients • Connect patients with alternatives to public transportation |
| Safety | Physical safety | <ul style="list-style-type: none"> • Connect patients with alternatives to public transportation • Security officers in building and on campus • HIPAA: releases of information needed for communication with others • Inquiry/communication regarding restraining orders; contact police immediately when violated |
| Trustworthiness and transparency | Building and maintaining trust | <ul style="list-style-type: none"> • Every attempt made to see patient, no matter how late to appointment • Patients are not terminated based on no shows • If baby removed from parent/caregiver's care by social services, both parent/caregiver and baby are able to continue as patients • Close collaboration between providers and community agencies • Provide support and communicate with patients regarding provider transitions |
| Peer support and mutual self-help | Establishing hope; healing and recovery | <ul style="list-style-type: none"> • Opportunity for peer group involvement/participation: pregnancy classes, baby shower, pregnancy and parenting groups, cooking matters class • Peer/community events |
| Collaboration and mutuality | Leveling of power differences | <ul style="list-style-type: none"> • Support patient in choice of medical intervention (e.g., immunizations, vaginal exam, birth control) • Variety of mental health services offered: in-clinic consults, psychotherapy, medication evaluation/monitoring • Surveillance of mental health and needs until patient is ready to engage in treatment/services • Offer to advocate/collaborate with community agencies as means of support |
| Empowerment, voice, and choice | Strengthening choice | <ul style="list-style-type: none"> • Support patient in choice of medical intervention (e.g., immunizations, vaginal exam, birth control) • Surveillance of mental health and needs until patient is ready to engage in treatment/ services |
| Empowerment, voice, and choice | Promoting resilience/ recovery; strengths based | <ul style="list-style-type: none"> • Referral to community resources and family navigator to support connection with resources • Healthy Steps Program (preventative program) offered to all patients; builds on parenting skills and knowledge of child development |

Chapter 3. Results

| | | |
|---|---|--|
| Cultural, historical, and gender issues | Providing gender-responsive services | <ul style="list-style-type: none"> • Consideration of impact of gender of providers, interpreters, staff, and trainees |
| Cultural, historical, and gender issues | Moving past cultural stereotypes | <ul style="list-style-type: none"> • “Inappropriate behavior” (e.g., name calling, cursing, anger, difficulty with affect regulation) understood in its context and consequences are limited |
| Cultural, historical, and gender issues | Connection between historical trauma, racism, and poverty | <p>Minimize barriers to treatment:</p> <ul style="list-style-type: none"> • Mental health appointments coordinated with medical appointments • Utilization of free transportation service to appointments • If childcare unavailable, patients encouraged to bring children to appointments • Children/patients offered snacks and juice during appointments • No penalties (e.g., termination of services) for late arrivals or missed appointments • Connecting families to needed resources with help of family navigator (e.g., baby supplies, SNAP, WIC, Medicaid, housing, school or GED classes, crisis services) |

The clinic held weekly team meetings and regular in-services led by behavioral health staff who provided education on TIC. Two mandatory retreats were held for all providers and staff, including behavioral health staff. Psychology and psychiatry faculty also requested feedback about how the changes impacted clinical care and clinic flow and made modifications as needed. Medical providers, patient/client educators, and care coordinators attended training on motivational interviewing to improve skills and efficacy. Behavioral health providers were available in the clinic at all times to provide immediate and ongoing support to the rest of the team as TIC implemented.^{101, 122}

Table 3.8 summarizes the study. In this study, the historical control group was not selected using any matching or statistical weighting techniques, history of trauma in the historical control group was unknown, baseline differences between the intervention arm and the historical control arm were not examined except for age and race, and the univariate pre-post analyses did not address potential confounding; thus, this study was assessed as having high risk of bias. This study also conducted a comparison of changes in outcomes between Black and white and Hispanic mothers.

Table 3.9. Basic characteristics of literature set: adolescent medical settings

| Characteristics | Ashby 2019 ¹⁰¹ Norona-Zhou 2023 ¹²² |
|---------------------------------------|---|
| Number of participants | 844 patients (2012-2013) |
| Population | Pregnant adolescents enrolled in a patient/client-centered medical home adolescent obstetric clinic; 36–45% Hispanic, 28–37% Black, 3–9% other racially/ethnically minoritized group, 18–23% White (self-reported; percents vary by year) |
| Trauma exposure | Physical, sexual, or domestic violence |
| Cited basis for intervention | SAMHSA trauma-informed care approach |
| Intervention label/ components | Trauma-Informed Care model: set of “solutions” to address all six key principles of SAMHSA approach and social determinants of health |
| Outcomes reported | Patient/Client: percent of preterm birth, percent of low birth weight babies, median number of prenatal visits Process: none |

| | |
|---------------------|--|
| | Organizational: none Harms: NR |
| Study design | Comparison with historical cohort (2007-2008); subgroups by race/ethnicity |
| Risk of bias | High |

Abbreviations: SAMHSA=substance abuse and mental health services administration

Evidence was insufficient to draw conclusions about the effects of TIC on outcomes. Table 3.9 summarizes the findings. This study reported increased prenatal appointment attendance and less low birthweight deliveries for TIC versus historical controls, but no differences in preterm deliveries. Further, Black adolescent mothers receiving TIC no longer showed differences in outcomes compared with white and Hispanic adolescent mothers. No organizational outcomes, adverse events, or unintended consequences were collected for either study.

Table 3.10. Summary of findings: adolescent medical settings

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population Exposure | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|--|--|--|---|-----------------------|
| Number of prenatal appointments attended Prenatal treatment-as-usual vs trauma informed treatment | 1 Historical Control ¹⁰¹ (n= 844) 1 year | Physical, sexual, or domestic violence | Inconclusive; a median of 9 visits in the intervention arm compared to a median of 6 visits in the historical control arm (p<0.001) | Insufficient |
| Low birthweight babies Prenatal treatment-as-usual vs trauma informed treatment | 1 Historical Control ¹⁰¹ (n= 844) 1 year | Physical, sexual, or domestic violence | Inconclusive; a 4.8% decrease in the proportion of low birthweight babies between intervention vs historical control arm (p<0.05) | Insufficient |
| Prematurity Prenatal treatment-as-usual vs trauma informed treatment | 1 Historical Control ¹⁰¹ (n= 844) 1 year | Physical, sexual, or domestic violence | Inconclusive; a 2% decrease in the proportion of preterm births in the intervention arm vs the historical control arm (p>0.05). | Insufficient |
| Racial disparities in preterm and low birthweight babies Prenatal treatment-as-usual vs trauma informed treatment | 1 Historical Control ¹²² (n= 844) 1 year | Physical, sexual, or domestic violence | Inconclusive; Disparity gap narrowed in both preterm births and low birthweight. In the historical control arm, Black adolescents had significantly higher rates of preterm birth (14.1% vs. 6.4%, p = 0.011) and low birth weight (15.5% vs. 7.6%, p = 0.020) compared with all other racial/ethnic groups. In the intervention arm, Black patients did not significantly differ in either their rates of preterm birth (8.7% vs. 6.2%, p > 0.1) or low birth weight (8.3% vs. 6.1%, p > 0.1) from patients of other racial groups | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: n=number; RCT=randomized controlled trial

3.4.1.2 Residential Child Welfare Settings

Four TIC studies in residential child welfare settings that included patient focused outcomes.^{107, 123-125} One intervention targeted all youth living in two juvenile detention facilities; it included Think Trauma "train the trainer" training (2 sessions in 8 weeks) for all staff, and STAIR¹²⁶ skill-building group program for youth (3 sessions).¹²⁵ The second was set in a psychiatric residential treatment (PRT) facility for children and used Trauma-Informed PRT (TI-PRT). TI-PRT included as clinical components 24-hr provision of care, basic needs and medical care, educational services (on- or off-campus school), improving self-concept, teaching problem-solving skills, and trauma-focused individual therapy—EMDR or TF-CBT, family therapy (when feasible), psychiatric services, and family-center services. Organizational components included, trauma orientation/ongoing training, safety planning/documentation, determining program mission and shadow mission or underlying thoughts and behaviors that undermine achieving the mission, daily member (client/staff) check-ins, and family/caregiver education.¹⁰⁷ The third was a TIC staff training initiative in 44 residential units for children and youth in Canada. The training explored differences between units and type of measures used (restraints, seclusions, time-outs), for 6 months prior to and 12 months following the training.¹²³ The fourth, set in a residential treatment program in Switzerland, was mandatory for all employees and delivered over three years. Experienced professionals conducted advanced training to implement and support TIC (six 3-day trainings for management and counselors, eight 2.5-day trainings for youth welfare staff). Between trainings, institutions received supervision in implementing a trauma-informed philosophy and services, debriefing on critical incidents and support in promoting an organizational culture of well-being, permanency, safety, care, and respect toward clients and co-workers.¹²⁴

All were NRSIs with the exception of one longitudinal study.¹²⁴ Table 3.10 summarizes the characteristics of the literature set. All included studies were assessed as high risk of bias. One large study (n=14,856 juvenile participants) did not account for confounding and compared rates postintervention versus preintervention without accounting for period effect with methods such as difference in difference modeling.¹²⁵ One study (n=205 youth) employed a nonrandomized quasi-experimental design, did not measure preintervention and postintervention outcomes in the same sample of patients nor did the study use matching or statistical weighting for appropriate pre/post comparisons, did not describe missing data, and did not adequately address confounding.¹⁰⁷ One longitudinal study (n=914 children and youth) conducted preintervention versus postintervention comparisons without a control group, did not sufficiently address selection bias, confounding, or missing data, did not measure fidelity or compliance with intervention, and analyzed administrative data prone to reporting bias and misclassification of exposure and outcomes.¹²³ One nonrandomized longitudinal study (n=142 staff) had very high level of missingness in data (> 66 percent) which was not adequately accounted for in the analyses, had a very small sample size, relied solely on staff-reported subjective measures for incidents of aggressive behaviors by patients, and did not adequately address potential confounding in analyses.¹²⁴

Table 3.11. Basic characteristics of literature set: residential child welfare settings

| Characteristics | Baetz 2021 ¹²⁵ | Boel-Studt 2017 ¹⁰⁷ | Matte-Landry 2022 ¹²³ | Schmid 2020 ¹²⁴ |
|---------------------------------------|---|---|--|---|
| Number of participants | 14,856 juveniles, 473 staff | 205 youth treated and discharged from PRT programs | 914 children/youth in 44 residential treatment units in 12 regions | 142 youth welfare staff, counselors, and management |
| Population | Juvenile detention centers, average age 15, 77% male, 67% Black/African American, 28% Hispanic | Psychiatric residential treatment for children, ages 5-17, 58% male, 69.3% white | Youth residential treatment for children in Canada, ages 4-20 years, 77.8% male, 85.2% white | Residential youth welfare center in Switzerland, youth demographics not reported |
| Trauma exposure | PTSD, violence exposure | Physical abuse, sexual abuse, emotional abuse, neglect, and exposure to domestic violence. | Neglect, physical abuse, psychological ill-treatment, sexual abuse, abandonment, behavioral disturbances which may lead to seclusion and restraint | Child maltreatment and neglect, domestic violence, or emotional, physical or sexual abuse |
| Cited basis for intervention | Think Trauma ¹²⁷ | Empirical | Missouri Model ¹²⁸ | Harris 2001 ¹²⁹ via Hopper 2010 ¹³⁰ |
| Intervention label/ components | Staff “Think Trauma” training (2 sessions in 8-weeks) for staff + youth STAIR skill building program (3 sessions) | TI-PRT: Traditional PRT + trauma orientation/training + safety planning + daily check-ins + family/caregiver education+ trauma recovery group curriculum | TIC staff training: phase 1: 6-12 hours of interactive in-person sessions. phase 2: six 2-hour coaching and supervision sessions, phase 3: 4 symposium and meeting with senior managers over 12 months | Multiple staff training: six 3-day trainings for the management and counselors, eight 2.5-day trainings for the youth welfare staff |
| Outcomes reported | Patient/Client: Violent incidents (youth-on-youth assaults and altercations reported in the admin database) Process: none Organizational: none Harms: NR | Patient/Client: Change in functional impairment (CAFAS; range 0 to 240 points;), physical restraints and locked seclusion room incidents (case records) Process: length of time in care, discharge placement type Organizational: none Harms: NR | Patient/Client: Use of restrictive measures (restraint, seclusions, time outs as reported in administrative data) Process: none Organizational: none Harms: NR | Patient/Client: Prevalence of client physical aggression towards staff (staff reported) Process: none Organizational: none Harms: NR |
| Study design | NRSI | NRSI | NRSI | Longitudinal |
| Risk of bias | High | High | High | High |

Abbreviations: CAFAS=child and adolescent functional assessment scale; NRSI= nonrandomized studies of interventions; PRT=psychiatric residential treatment; PTSD=post-traumatic stress disorder; TIC=trauma informed care; TI-PRT=trauma informed psychiatric residential treatment

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Evidence was insufficient to draw conclusions about the effects of TIC on outcomes. Table 3.11 summarizes the findings from these studies. One study¹²⁵ looked at violent incidents in a juvenile detention center and found favorable results following a TIC intervention. Another study examined several outcomes in pediatric psychiatric residential treatment following a TIC intervention and found positive changes in functional impairment, mixed results on physical restraints and locked seclusion room incidents, improvement in length of time in care, and no statistical difference in discharge placement type.¹⁰⁷ A third study examined the impact of a TIC program on use of restrictive measures in a residential treatment program for children and found no statistical differences following the intervention.¹²³ Lastly, a study evaluated patient aggression toward staff following a TIC intervention and found favorable reductions in aggression.¹²⁴ No organizational outcomes, adverse events, or unintended consequences were collected for any study.

Table 3.12. Summary of findings: residential child welfare settings

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population | Review Finding Summary of Individual Study Findings Results | Strength of Evidence* |
|--|---|--|--|-----------------------|
| Violent incidents (youth-on-youth assaults and altercations reported in the admin database) Training vs no training | 1 NRSI ¹²⁵ 14,856 juveniles, 473 staff 3.75 years | Juvenile detention centers | Inconclusive; significant reduction in rates by 0.41 per 100 person-days ($p < 0.001$) in facility A and 0.43 per 100 person-days ($p = 0.006$) in facility B; however, period analyses in facility B indicate that the decrease in rate might be an effect of time rather than an effect of the intervention. | Insufficient |
| Change in functional impairment (CAFAS) TI-PRT vs traditional PRT | 1 NRSI ¹⁰⁷ 205 youth treated and discharged from PRT programs 9 months | Psychiatric residential treatment for children | Inconclusive; 15% improvement in score ($p < 0.001$) between intervention vs control arms. | Insufficient |
| Physical restraints and locked seclusion room incidents (case records) TI-PRT vs traditional PRT | 1 NRSI ¹⁰⁷ 205 youth treated and discharged from PRT programs 9 months | Psychiatric residential treatment for children | Inconclusive; rate of seclusion incidents with 59% lower odds for intervention arm vs control arm ($p < 0.001$). No difference in rate of restraint incidents. | Insufficient |
| Length of time in care TI-PRT vs traditional PRT | 1 NRSI ¹⁰⁷ 205 youth treated and discharged from PRT programs 9 months | Psychiatric residential treatment for children | Inconclusive; youth in the intervention arm spent fewer months in treatment compared to youth in the control arm (mean 6.45 months vs 10.78 months, $p < 0.001$) | Insufficient |
| Discharge placement type TI-PRT vs traditional PRT | 1 NRSI ¹⁰⁷ 205 youth treated and discharged from PRT programs 9 months | Psychiatric residential treatment for children | Inconclusive; youth discharged to community-based placement in intervention vs control arms was 93% vs 82% ($p > 0.05$) | Insufficient |
| Use of restrictive measures (restraint, seclusions, time outs as | 1 NRSI ¹²³ 44 residential treatment units | Youth residential | Inconclusive; Restraints, seclusions, and time-outs decreased by 41.82%, | Insufficient |

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population | Review Finding Summary of Individual Study Findings Results | Strength of Evidence* |
|---|---|---|---|-----------------------------|
| reported in administrative data) Training vs no training | for children in 12 regions 18 months | treatment for children | 19.91%, and 48.15%, respectively, postintervention. Despite these important declines, trajectories of restrictive measures did not change significantly from preintervention to postintervention ($p>0.05$) | |
| Prevalence of client physical aggression towards staff (staff reported) Training vs no training | 1 Longitudinal ¹²⁴ 142 youth welfare staff, counselors, and management 36 months | Residential youth welfare center | Inconclusive; prevalence of staff members reporting any incident of aggression in intervention vs control arms was 0% vs 24.1% ($p=0.03$) | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: CAFAS=child and adolescent functional assessment scale; n=number; TI-PRT=trauma informed psychiatric residential treatment

3.4.1.2 Non-Residential Child Welfare Settings

Three TIC studies (in five publications) set in non-residential child welfare settings that examined patient/client-focused outcomes.^{102, 106, 131-133} One examined Trauma Systems Therapy (TST) integration across the organization's entire continuum of care; core facets of TST were 1) repeatedly assessing children's emotional and behavioral regulation capacity and the functioning of children's social environment to determine treatment; 2) training all staff on how trauma impacts child development and how to effectively respond to children's trauma; and 3) embedding the TST model throughout an organization or system.¹⁰⁶ The second examined the Massachusetts Child Trauma Project (MCTP), which focuses on three central activities: 1) training in child welfare; 2) statewide dissemination of three trauma treatments with empirical support via community-based mental health organizations; 3) trauma-informed leadership teams to share best practices across systems and raise awareness of trauma's impact on children, create consistency across systems, and address service gaps related to TIC.¹³¹ The third study piloted a trauma-informed parenting curriculum in a private, nonprofit, specialized community mental health agency. Forty parents involved in the state child welfare system were recruited to participate. Facilitators met with parents one time per week online for a total of 3 hours over 10 weeks. Facilitators followed the Breakthrough Parenting Curriculum (BPC) manual with predetermined topics and activities. Sessions included a welcome followed by a brief icebreaker and reminder of group-established rules. Facilitators then reviewed the previous week's content before the new lesson and closed with quiet reflection.¹⁰²

Table 3.12 summarizes these studies. All were NRSI in design and were assessed as high risk of bias for the following reasons. One study (n=1499 children) employed a quasi-experimental design without a control group, analyzed administrative data prone to reporting bias, and tested multiple outcomes at multiple timepoints.¹⁰⁶ One mixed methods study (n=91,253 children) did not use validated tools for subjective self-reported outcome measurement, did not measure adherence to intervention, analyzed

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administrative data prone to reporting bias, differences between intervention and control groups were not sufficiently accounted for (leading to selection bias), did not adequately address potential confounding in analyses, and tested multiple outcomes without statistical adjustment.^{131, 132} One exploratory study (n=40 parents) employed a non-equivalent group quasi-experimental design, was likely underpowered due to small sample size, and did not adequately address selection bias, confounding, or potential bias from missing data.¹⁰²

Table 3.13. Basic characteristics of literature set: non-residential child welfare settings

| Characteristics | Murphy 2017 ¹⁰⁶ | Bartlett 2016 ¹³¹ Barto 2018 ¹³² | Stolin-Goltzman ¹⁰² |
|---------------------------------------|---|---|---|
| Number of participants | 1499 children | 91,253 children, 299 DCF workers, 201 clinicians | 40 parents |
| Population | Average age 12, 54% female, 59% white, 23% African American/Black | Average age 9.5 years, range 0-18; 50% white, 15% Black, 1.6% Asian, 0.2% American Indian/Alaskan Native, 15% unknown | Average age 35, 80% white, 75% female |
| Trauma exposure | Children exposed to parental incapacity (substance abuse, incarceration, mental incapacity), neglect, physical, emotional, and/or sexual abuse | Physical and sexual abuse, neglect, placement instability | Involved at various levels in the child welfare system |
| Cited basis for intervention | Trauma Systems Therapy ¹³⁴ | Learning Collaborative Model ¹³⁵ | SAMHSA ¹⁵ |
| Intervention label/ components | Integrated Trauma Systems Therapy (TST): 1) repeatedly assessing children's emotional and behavioral regulation capacity and the functioning of children's social environment to determine their treatment; 2) training all staff in how trauma impacts children's development and how to effectively respond to children's trauma, and 3) embedding the TST model throughout the full system. | MCTP (1) training in child welfare; (2) EBT dissemination; and, (3) systems integration through Trauma Informed Leadership Teams | NCTSN breakthrough parenting curriculum, once per week, 3 hour facilitated parenting sessions |
| Outcomes reported | Patient/Client: Functioning (CAFAS), emotional and behavioral regulation (CECI) Process: Placement stability (Administrative placement history data) Organizational: NR Harms/UC: NR | Patient/Client: post traumatic stress (YCPC), behavior problems; substantiated maltreatment, Process: Trauma screening, referral and outreach to Child Welfare, permanency Organizational: none Harms: out-of-home placements, maltreatment status | Patient/Client: Parental well-being (WHO-5), child well-being (parent reported SDQ) Process: none Organizational: none Harms: NR |

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| | | | |
|---------------------|------|------|------------------|
| Study design | NRSI | NRSI | NRSI pilot study |
| Risk of bias | High | High | High |

Abbreviations: CAFAS=child and adolescent functional assessment scale; CECI=child ecology check in; DCF=department of children and families; EBT=emotional behavioral training; NRSI= nonrandomized studies of interventions; MCTP= Massachusetts child trauma project; NCTSN=national child traumatic stress network; PRT=psychiatric residential treatment; PTSD=post-traumatic stress disorder; SAMHSA=substance abuse and mental health services administration; SDQ=strengths and difficulties scale; TIC=trauma informed care; TI-PRT=trauma informed psychiatric residential treatment; UC=unintended consequences; YCPC=young child PTSD checklist

Table 3.13 summarizes the findings from these studies. All took place in a variety of public and private child welfare organizations. The first study found favorable outcomes related to child functioning, behavior regulation, and placement stability, with mixed results in emotional regulation.¹⁰⁶ The next study was published in two articles that found favorable results related to substantiated maltreatment, permanency (adoption), child PTSD, and child behavior, mixed results with unsubstantiated maltreatment, and no statistical difference in out of home placements.^{131, 132} The final study found favorable results for both parental/caregiver and child-wellbeing following a TIC intervention.¹⁰² Evidence was insufficient to draw conclusions for all studies about the effects of TIC on outcomes. No organizational outcomes, adverse events, or unintended consequences were collected for either study.

Table 3.14. Summary of findings: non-residential child welfare settings

| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|--|---|--|---|-----------------------|
| Functioning (CAFAS) Integrated TST vs usual care | 1 NRSI ¹⁰⁶ 1499 children age 15 months | Child welfare and behavioral health organization | Inconclusive; increases in overall TST dosage (degree of fidelity with TST) over time were modestly associated with greater reductions in CAFAS scores (r for growth curve slopes=-0.37, p<0.001) | Insufficient |
| Emotional regulation (CECI) Integrated TST vs usual care | 1 NRSI ¹⁰⁶ 1499 children age 15 months | Child welfare and behavioral health organization | Inconclusive; increases in overall TST dosage (degree of fidelity with TST) over time were not correlated with reductions in CECI-ER scores (r=0.09, p=0.17). | Insufficient |
| Behavioral regulation (CECI) Integrated TST vs usual care | 1 NRSI ¹⁰⁶ 1499 children 15 months | Child welfare and behavioral health organization | Inconclusive; significant correlation between the slopes of overall TST dosage (fidelity with TST) and behavioral regulation (r for growth curve slopes=-0.17, p<0.05), indicating that increases in children's exposure to TST dosage are associated with greater reductions in CECI-BR scores over time improvements in behavioral regulation). | Insufficient |
| Placement stability | 1 NRSI ¹⁰⁶ 1499 children 15 months | Child welfare and behavioral health organization | Inconclusive; overall TST dosage significantly predicted the total | Insufficient |

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| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|--|---|---|--|-----------------------|
| Integrated TST vs usual care | | | number of placements children experienced throughout their duration in program ($\beta=-0.08$, $p<0.01$; | |
| Substantiated or unsubstantiated maltreatment MCTP vs usual care | 1 NRSI ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; intervention children who had been maltreated prior to the study period were 4% more likely than control children to go on to experience no maltreatment during the study period, compared to control children (OR=1.04, $p=.006$). Conversely, intervention children who had not been maltreated prior to the study period were 16% less likely than control children to go on to experience maltreatment during the intervention period (OR=0.84, $p<.001$). | Insufficient |
| Substantiated maltreatment Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; intervention children were 15% less likely to have a substantiated report of maltreatment compared to control children (OR=0.85, $p<.001$). | Insufficient |
| Out-of-home placements Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; (OR=1.01, $p=0.75$) | Insufficient |
| Permanency (adoption) Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; improved odds of adoption in intervention arm compared to control arm (OR=1.21, $p=0.02$). | Insufficient |
| PTSD (Reexperiencing, avoidance, arousal, overall, UCLA, PTSD-RI, Older Children) Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; a decrease in symptoms by 6.56 points ($p<0.001$). | Insufficient |
| PTSD (Adult report of older children) | 1 NRSI reported in 2 papers ^{131, 132} | Massachusetts Department of Children and Families, 2 | Inconclusive; a decrease in symptoms by 2.82 points ($p=0.03$). | Insufficient |

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| Outcomes Comparison | # Studies/ Design (n analyzed) Timing | Population | Review Finding Summary of Individual Study Results | Strength of Evidence* |
|---|---|---|---|-----------------------------|
| Integrated TST vs usual care | 91,253 children, 299 DCF workers, 201 clinicians 6 months | behavioral agencies, 2 large urban medical centers | | |
| PTSD (Functional impairment, YCPC, younger children) Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; a decrease in symptoms by 2.42 points (p=0.009). | Insufficient |
| Child behavior checklist (internalizing, externalizing, total problems) Integrated TST vs usual care | 1 NRSI reported in 2 papers ^{131, 132} 91,253 children, 299 DCF workers, 201 clinicians 6 months | Massachusetts Department of Children and Families, 2 behavioral agencies, 2 large urban medical centers | Inconclusive; an improvement of 4.09 points (p<0.001) | Insufficient |
| Parental well-being (WHO-5) Parent curriculum vs waitlist | 1 NRSI study ¹⁰² 40 children | Private, nonprofit, specialized community mental health agency | Inconclusive; greater improvement in the intervention arm vs control arm (improvement of 5.4 points vs 0.8 points, p=0.03). | Insufficient |
| Child well-being (parent reported, SDQ) Parent curriculum vs waitlist | 1 NRSI study ¹⁰² 40 children | Private, nonprofit, specialized community mental health agency | Inconclusive; a 0.1 point decrease in intervention arm vs 0.2 point increase in control arm (p=0.90). | Insufficient |

*Insufficient ratings due to study limitations and imprecision in the findings.

Abbreviations: n=number; NRSI= nonrandomized studies of interventions; RCT=randomized controlled trial

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4.1 Overview

This systematic review sought to assess the evidence base for the effectiveness of trauma-informed care (TIC) on improving trauma-specific, systems-related and patient/client-centered outcomes among adults and youth in healthcare and social service settings. We manually screened 1326 publications and identified 12 unique eligible studies discussed in 16 publications. Our assessment revealed insufficient evidence on the effectiveness of current TIC approaches for reducing future or repeat trauma exposure; improving healthcare processes and utilization as well as policies and procedures; improving patient/client-related behavioral and psychosocial wellness as well as physical health; or effecting changes in patient/client harm.

Our findings of insufficient evidence do not mean that none of the individual interventions described are potentially useful for patients/clients or healthcare or social service systems. Rather, current available evidence cannot yet provide clear answers about whether interventions offer benefits or risks, especially when considering the possibility of publication bias limiting access to studies reporting no differences or even results that favor the control. Therefore, the uncertainty of the current evidence is too high to draw conclusions, at present. Further, when the evidence overall does not find a difference between groups, uncertainty is even higher about whether the lack of difference is truly because the interventions being compared did not differ in effect, or because the studies were designed to detect *differences* rather than *no difference*.

Despite these null findings, there are still evidence-based options for providers to consider for their clients—namely, there is a range of evidence-based psychotherapeutic treatments and interventions available if a patient/client is experiencing traumatic stress symptoms. Whether one calls such an offering a TIC component or a trauma treatment or as another concept entirely, does not change that these practices (e.g., PE, TF-CBT, CPT, EMDR) have the strongest evidence base in influencing health outcomes in trauma-related contexts. Thus, regardless of whether providers choose to adopt a TIC framework—such as one evaluated in this review or another one—providers can consider evidence-based practices that do exist within trauma care.

Further, despite these null findings, our review does somewhat clarify TIC frameworks as system-wide approaches to caring for individuals exposed to and potentially affected by trauma (as seen in the universal or cross-cutting approaches identified in the Contextual Questions). TIC frameworks emphasize structures, policies, and service delivery sensitive to trauma's impacts and careful to avoid re-traumatization. Study populations for TIC often include patients/clients without trauma exposure, sometimes without measuring benefits/harms in those subgroups. Federal agencies and/or related organizations promoting TIC, including the Substance Abuse and Mental Health Services Administration and the National Child Traumatic Stress Network, focus on the system- and organizational-levels of delivery with integration across sectors through policy, common knowledge, and practices. SAMHSA's guidebook does not prescribe practices or procedures for TIC, but instead describes general principles¹⁵ (i.e., safety, trustworthiness, peer support, collaboration/mutuality, empowerment/voice/choice,

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cultural/historical/gender issues). Also, SAMHSA identifies domains for TIC practice, including governance and leadership, policy, physical environment, engagement and involvement, cross sector collaboration, screening/assessment/treatment services, training and workforce development, progress monitoring/quality assurance, financing, and evaluation. Studies of TIC in practice have been even less precise; e.g., defining TIC as a “development of culture”⁴⁵ and a “philosophy of patient and client-centered care.”⁴⁹ If TIC is considered a philosophy or style of engagement rather than a specific intervention for a specific condition or as specific, manualized processes, this would place TIC within research and practice-change approaches such as community-based participatory research.^{136, 137}

Without specific guidance on how TIC is operationalized, we examined a wide swath of published and grey literature to describe how TIC models have been approached or conceptualized. We identified common themes in 31 published TIC interventions. TIC models often targeted multiple levels of the social ecology to address trauma exposure and its impacts, most consistently individuals and health systems and frequently family/interpersonal relationships. However, the models less frequently targeted community and policy. In terms of specific domains of practice, we also found numerous models that included training, sometimes screening and frequently linkage to treatments or treatment itself embedded in the intervention.

When looking deeper into the specific content of TIC domains (e.g., what type of training, which screening instrument, which trauma-focused treatment), we found little consistency. The specific TIC strategies were remarkably diverse and varied largely based on populations and organizations served, the communities in which these populations and organizations are embedded, and available resources. More directed content was found when examining setting-specific deliveries of TIC. For example, Trauma-Informed Primary Care is one model with more prescriptive elements including identifying a clinical champion, education, screening for past trauma and immediate safety using a structured tool, and referral to trauma-informed in-house or community services. The Portal Project Model used in adult mental health settings included enhanced assessments, direct services, case conferences, consumer participation, and policy development and planning. In the juvenile detention setting, another model involved clinical services (e.g., screening, intervention, and cultural competence) embedded within an organization that furthermore included workforce development, cross-system collaboration, policies and procedures, and quality assurance. While it is important to provide for translating TIC approaches across settings, TIC’s lack of specificity has led to implementation of diverse components that have yet to be tested for their harms or benefits.

Key Informants acknowledged debate around what TIC contributes beyond what many generally recognize as “good care,” since ideas around patient/client-centered attending to the whole person are decades old. In other words, is TIC simply another form of comprehensive care, since TIC approaches in health care could be conceptualized as training, screening, linkages to treatment or services, and adjustments to organizational culture? Notably, SAMHSA asserts that TIC may expand whole-person care by taking an individual and system-wide approach using a life course perspective and an awareness

that the system itself can cause harm. Do TIC approaches increase the possibility that “good care” is delivered? How far and to what extent can health care be expected to prevent or mitigate the health outcomes of social determinants of health emerging from other sectors of society?

Prioritizing where and how to direct resources toward improving care is challenging in nuance and in practice. For instance, primary care providers currently lack sufficient time to implement guideline-recommended primary care, and time requirements remain excessive even with team-based care.^{134, 135} TIC, as a complex intervention, is challenging and expensive to implement, especially in healthcare settings. Since “good care” is very often not achieved, additions or changes to clinician or provider work processes are needed. But making changes without evidence to inform the decisions only deepens the challenge.

From our Contextual Questions, we also identified a few models of TIC with specific elements of cultural competency and/or humility considerations, such as the Trauma-Informed Treatment Model, which emphasizes a need to assess and understand patient’s symptoms within the context of life experiences, history, and culture,¹³⁸ and SAMHSA’s model addressing cultural, gender, and historical issues. Further, aligning with an equity lens, social determinants of health—such as poverty, geographic location, education, and other measures of socioeconomic status and social mobility—are also rising in consideration, which points to efforts toward eliminating power imbalances that create barriers to adequate care. Yet here too, the question of prioritizing what will help healthcare systems, and social systems in general, to generate gains in equity remains an open question. With the dearth of outcomes related to harms or other unintended consequences, potential negative impacts of TIC remain unclear.

4.2 Strengths and Weaknesses of the Review

We determined the methods for this review to best answer the question of whether TIC interventions changed a patient/client’s experiences of care and outcomes. We established inclusion/exclusion criteria to focus on study designs best able to inform causal conclusions and supplemented this approach with a rigorous approach to assessing risk of bias. This allowed a high-level assessment of the state of the science.

Creating search algorithms for complex and unclear concepts that lack consensus around definitions and terminology is always challenging, and TIC was no exception. We used the broadest search terms we could identify, and avoided filters that might cause us to miss studies reported in publications that lacked structured abstracts. Given the number of duplicate records across the bibliographic databases and the relative size of the unique records captured by the search algorithms, we are confident our searches have located the relevant literature. However, we cannot rule out the possibility of having missed some literature because of the lack of a well-indexed concept and the diffuse nature of the language researchers use for this topic.

Similarly, given our concern for locating all relevant literature, we were generous in our screening process. We screened articles well past the point at which the artificial intelligence tools estimated we had identified all publications likely to be included. We also advanced to full text many articles for which the abstracts indicated issues related to outcomes or study design to confirm whether these studies met inclusion criteria. We

initially were quite concerned that identifying TIC versus trauma-focused treatment would be difficult because trauma-focused treatment generally incorporates elements found in trauma-informed approaches. However, the studies screened were generally of trauma treatments already identified or interventions that clearly lacked trauma-informed modifications, thus recognizably met exclusion criteria.

Because our primary purpose was to examine impact on patients/clients, we excluded studies that did not measure effects on patient/client experience of care, behaviors, or health outcomes. This primary purpose and focus on patient/clients formed a core basis of the review; and thus, measures regarding patient/client, clinical, and functional outcomes were crucial. For instance, changes in knowledge and attitudes, at either individual or organizational levels are observable as early process indicators. TIC may conceivably improve organization-wide knowledge and attitudes about trauma exposure and its adverse impacts (e.g., trauma awareness of staff, providers, educators). For example, one study¹³⁹ reported an organizational climate change outcome but was excluded for its lack of connection to an outcome that a patient/client could point to as changing their experience of care and improving their health or quality of life. (We also note that organizational climate or culture change was exceedingly rarely reported.) Likewise, process measures such as patient/client referrals that potentially link patients/clients to further care are another intermediate outcome. Two examples of excluded studies,^{140, 141} captured referral rates, but these were excluded because they did not report patient/client behavioral follow-through on referrals (and thereby presumed potential health impacts).

4.3 Future Research Considerations

Despite the lack of an evidence base, our review suggests that TIC is being implemented in practice across the world, and research to establish its effectiveness is lacking. Studying the effectiveness of TIC interventions poses significant challenges due to the apparent widely variable multilevel features that are important for implementing in diverse populations and settings.

Most importantly, TIC approaches examined in this review generally represent complex interventions nested within complex care or social service systems. Especially in this small literature set, the multiple levels of uncertainty are difficult to overcome. Insufficient evidence means we could not, with integrity, say that a care approach is beneficial or harmful—which, as we have noted, is different from saying it does not work or does not cause harms. However, while low-strength evidence is a challenging bar to reach, increased study design rigor is essential and possible.

Rigorous multilevel intervention designs would help establish the effectiveness of TIC. The multilevel, nested nature of the interventions creates complications when testing impacts of an intervention's components on different levels of an organization. For example, a TIC program could be implemented in a hospital, involving leadership and policies at a top level, but also training at a staff level, and screening and treatment at the patient/client level.

While the complex delivery structure of some TIC approaches can make it challenging to test the effectiveness of the separate components, it may be practical to examine them separately in a stepwise fashion. Furthermore, knowing if there are any health benefits regardless of attribution to level of intervention in a multi-level approach would provide a foundation and rationale for further examining causality. Certainly,

research is lacking with regard to how components in complex interventions interact to influence key outcomes. This problem escalates as interventions increase in complexity due to the time, cost, and training requirements to deliver them successfully. Approaches such as the Multiphase Optimization Strategy (MOST) could be applied to increase understanding of how singular intervention components interact to influence key outcomes prior to efficacy testing,¹⁴² which would be important to consider further if/when effective TIC components are empirically found. Such approaches may help focus organizational and practice attention by crafting and evaluating interventions that are distilled to their essential components.

Testing a full system of TIC also raises the question of whether enough organizational units are available for the randomization required for a gold-standard randomized trial. Researchers recommend alternative designs such as comparative nonrandomized studies of interventions.¹⁴³ Other possibilities to consider include the array of pragmatic trials, which are intended for interventions that are optimized to test for effectiveness in real clinical practice or social service settings.

One form of this pragmatic approach is the use of dual randomized trials for a hybrid effectiveness-implementation study.¹⁴⁴ Much of TIC is fundamentally based on implementation strategies (e.g., using a trauma-informed lens, training), and understanding the differential effects of the TIC intervention itself versus adequate or inadequate implementation of TIC within systems of care is necessary to isolate the effects of the intervention itself.

More pragmatic still, because of TIC's attention to organizational change,¹⁴⁵ TIC conceptually aligns with Learning Health Systems where TIC would be embedded in systems of care that involve collaborative participation and learning to achieve organizational goals. Several TIC models described or examined in this review rely on organizational leadership to build culture, create policies, and develop cross-sector collaborations in an effort to promote care for the whole person, inclusive of possible trauma history and exposures. Training at a system level has been designed to shift attitudes toward awareness of traumas and its sequelae, especially when organizations evaluate the impact of training and engage in quality improvement around policies and processes. Altogether, these features—organizational leadership, policies, training and cross-sector collaborations—found in TIC models align with a learning health systems framework for prevention and intervention. Through multi-level, multisectoral synergy, the stated aims for TIC are to facilitate the integration of multiple, often siloed interventions (e.g., education, screening, and even treatments) into one system of care for the whole person. Conducting embedded Learning Health Systems research, addressing the components of TIC across these levels, using internal data sources for evaluation, and learning in collaboration with partners, with de-implementation plans in the event of null or negative findings, are another research approach to that could be used to understand the potential benefits or harms of TIC.

Although the present review did not include implementation research, additional methodological approaches could move beyond whether or not TIC is generally effective and examine more nuances of potential TIC effectiveness. Specifically, future consideration could seek to understand how, why, for whom, and in what contexts might TIC be effective. For instance, studies of TIC delivered in diverse communities can examine how or if equity frameworks are being imbedded within TIC to address racism,

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discrimination, and additional adversities and how or if TIC intervenes on social determinants of health that create barriers to adequate care.

All of the research considerations given above would be greatly supported by accessible training for researchers in methodologies for studying complex systems, financial and research infrastructure to accomplish the research, and allowance for the time needed to be able to observe and measure important patient and organizational outcomes.

4.4 Conclusion

This systematic review set out to examine the evidence for TIC approaches, frameworks, models, or components to establish the state of the science of its effectiveness and potential harms. There was insufficient evidence on the effectiveness of current TIC approaches across any patient/client health related outcome. Our findings of insufficient evidence do not mean that none of the individual interventions described are potentially useful or harmful, but rather that current available evidence cannot yet provide clear answers. Regardless of the state of the science, including how TIC is defined and operationalized, TIC is being widely implemented, and research on its effectiveness and potential harms does not appear to be informing nor keeping pace with implementation. Future research and investments are warranted and necessary to continue exploring the evidence base before definitive conclusions may be drawn.

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Abbreviations and Acronyms

| | |
|----------|---|
| BSI-18 | Brief Symptom Inventory–18 |
| CAFAS | Child and Adolescent Functioning Assessment Scale |
| CECI | Child Ecology Check-In |
| CIUSSS | Centre de recherche universitaire sur les jeunes et les familles of Centre intégré universitaire de santé et de services sociaux |
| CQ | Contextual question |
| CW | Child welfare |
| EBT | Evidence-based treatment |
| EPC | Evidence-based Practice Center |
| EUC | Enhanced usual care |
| FOCUS-EC | Families OverComing Stress for Early Childhood |
| FWbA | Family Well-being assessment |
| MHST | Mental Health Screening Tool |
| MCTP | Massachusetts Child Trauma Project |
| NIMH | National Institute of Mental Health |
| N | Number |
| NR | Not reported |
| NRSI | Non-randomized studies of intervention |
| KI | Key informant |
| KQ | Key question |
| KVC | Kaw Valley Center |
| OPE | Online parent education |
| PBPQ | Parental Behavior with Preschool Questionnaire |
| PCMH | Patient Centered Medical Home |
| PCL-5 | PTSD Checklist for DSM-5 |
| PDS | Posttraumatic Diagnostic Scale |
| PICOTS | Population, intervention, comparator, outcomes, timing, and study design/setting |
| PRT | Psychiatric residential treatment |
| PSI-SF | Parenting Stress Index–Short Form |
| SAMHSA | Substance Abuse and Mental Health Services |
| RCT | Randomized controlled trial |
| SDQ | Strengths and Difficulties Questionnaire |
| SL | Senior Leader |
| TIC | Trauma- informed care |

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| TICC | Trauma Informed Collaborative Care |
| TILT | Trauma Informed Leadership Teams |
| TI-PRT | Trauma-informed psychiatric residential treatment |
| TST | Trauma Systems Therapy |
| YCPC | Young Child PTSD Checklist |