Study Protocol and Statistical Analysis Plan

Study Title:
TeamTRACS Pilot (CTSI)

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Study Overview
This research study is a cluster-randomized controlled effectiveness-implementation hybrid trial of TeamTRACS. The trial will take place in 6 rural Child Advocacy Centers (CACs) in the southern United States. It will use mixed methods (quantitative and qualitative) to evaluate the effects of TeamTRACS and assess the acceptability, appropriateness, and feasibility of self-guided implementation via pre/post surveys and qualitative interviews.

The primary aims of this pilot trial are to test the effects of TeamTRACS on knowledge, skill use, and team functioning in addition to evaluating the acceptability, appropriateness, and feasibility of self-guided implementation. Six rural CACs will be randomized to TeamTRACS (n = 4 CACs) or a waitlist comparison (n = 2 CACs). Participants will be team members at participating CACs (estimated N = 25 per CAC; total N = 150). We expect team members to change during the study period and will include only current team members at each timepoint. We will evaluate the effects of TeamTRACS on learning (i.e., knowledge), transfer (i.e., skill use), and results (i.e., team functioning). Knowledge, skill use, and team functioning will be assessed at baseline and 3 months with online surveys and qualitative interviews of team members. We will also assess hypothesized long-term outcomes (i.e., team performance, workforce outcomes). Individuals involved in implementation in the 4 CACs randomized to TeamTRACS will participate in semi-structured key informant interviews during the implementation process. They will rate the acceptability, appropriateness, and feasibility of self-guided implementation at the beginning, middle, and end of the study, and we will track completion of implementation activities in each CAC.

Background
Children in rural areas are nearly twice as likely as their urban peers to experience maltreatment, increasing risk for physical/mental health, academic/vocational, and interpersonal problems. They have high rates of unmet mental health needs and experience greater impairment than those in urban areas. CACs are uniquely suited to serve at-risk rural children through effective, efficient, and trauma-informed investigations and services. Rural Child Advocacy Centers (CACs) rely on multidisciplinary team members employed by independent organizations.

Interventions that improve team functioning can improve teams' performance, strengthen the workforce, and ultimately improve service quality and outcomes for children and families. Team training is a specific type of team intervention that targets affective, behavioral, and cognitive team functioning by teaching teamwork knowledge, skills, and abilities. We recently adapted TeamSTEPPS to fit CAC multidisciplinary teams. TeamSTEPPS, developed by the Agency for Healthcare Research and Quality, is the most widely used model of team training in healthcare and a promising model for improving team functioning in other service settings. We worked collaboratively with CAC team members and leadership to adapt the format (in-person to virtual), setting/population (healthcare to CACs), personnel (internal trainer to external trainer), and content (e.g., tailoring language, reordering). Our adapted training, TeamTRACS (**Team Training in Roles, Awareness, Communication, and Support**), is designed to fit the specific needs and context of CAC multidisciplinary teams. It targets knowledge, skills, and attitudes related to team member roles, shared awareness, communication, mutual support, and goal-setting. TeamTRACS is structured, easy to use, flexible in length and intensity, and requires few

resources. We piloted TeamTRACS with one rural CAC and found high acceptability, appropriateness, and feasibility (ratings >4 on 1-5 scale).

This research study will test the effectiveness of TeamTRACS in a cluster-randomized trial in 6 rural Child Advocacy Centers. We will also partner with the National Child Advocacy Center (NCAC) to refine our implementation strategies. Rural teams serving high-need/low-resource areas may find it challenging to implement new practices. This study will use a self-guided implementation approach that requires few resources and builds local capacity for change. We will assess the acceptability, appropriateness, and feasibility of self-guided implementation in participating CACs. Self-guided implementation will allow the training to be rapidly scaled up and disseminated to CACs nationwide. Improving teamwork in CACs has the potential to positively impact service quality and outcomes for hundreds of thousands of children served by CACs.

Procedures
Randomization
CACs will be randomized to TeamTRACS (n = 4) or a waitlist comparison (n = 2) using an online randomization tool. We may stratify CACs based on team size if there is significant variability across the 6 CACs. CACs randomized to TeamTRACS will receive the intervention described below after completing the baseline survey. CACs randomized to the waitlist will receive the intervention after completing the follow-up survey.

Team Training Intervention
TeamTRACS (**Team T**raining in **R**oles, **A**wareness, **C**ommunication, and **S**upport), is a team training intervention that is adapted from TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety), which is a widely used evidence-based team training approach developed by the Agency for Healthcare Research and Quality. TeamTRACS was developed via a systematic and participatory adaptation process (see McGuier et al., 2023).

TeamTRACS targets knowledge, skills, and attitudes related to team member roles, shared awareness, communication, mutual support, and goal-setting. TeamTRACS is structured, easy to use, flexible in length and intensity, and requires few resources. It incorporates didactic instruction, discussion, and interactive activities and can be delivered virtually or in-person. Presentation slides, detailed instructor guides, and worksheets were created for each module (see "TeamTRACS Instructor Guide"). Team members are encouraged to identify specific goals for their team and make plans to use specific strategies from the training. The training will delivered in a single session and be at least 4 hours. Teams will determine the length and delivery method (e.g., in-person vs. virtual) as part of the implementation process. The training workshop will be facilitated by an experienced team trainer from NCAC; this approach is responsive to pilot data favoring use of an external facilitator and is sustainable given available resources.

All team members at each CAC will be invited to participate in the training. Prior to the start of the training, the PI will review a brief consent script and provide an opportunity for questions. A copy of the consent script will be provided to all team members. We will record team members' attendance at the training.

Baseline and Follow-up Surveys
Team members will complete online surveys (<30 minutes) before training and 3 months after training via REDCap, a secure online database. The surveys will assess knowledge and use of teamwork skills, team functioning, team performance, and team member work outcomes (see "Team Member Survey"). Team members will be sent an email with information about the study and a link to review the online consent form.

Key Informant Interviews
In the 4 CACs randomized to TeamTRACS, key informants (leadership and team members involved in the implementation process) will be invited to participate in qualitative interviews. Semi-structured interviews will be conducted approximately once a month during the implementation process to assess change over time. Questions will assess perceptions of and experiences with self-guided implementation, as well as progress through implementation phases and steps (see "Implementation Interview Guide"). Interviews will take 30-60 minutes. Key informants will also rate the acceptability, appropriateness, and feasibility of self-guided implementation at the beginning, middle, and end of the study.

Document Collection
CAC staff at the 4 CACs randomized to TeamTRACS will be asked to share documents created during the implementation process, including completed worksheets, action plans for training, team goals, and revised policies or protocols. The research team will review documents to assess fidelity to the implementation guide and completion of implementation activities. At all 6 CACs, staff will be asked to report team members' attendance at case review meetings and any changes in team members (e.g., turnover, addition of new members).

Statistical Analysis Plan
Preparatory Analyses
We will calculate survey response rates, look for patterns of missing data, and examine descriptive statistics for all measures.

Analyses of Effectiveness Outcomes
We will test changes in knowledge, skill use, and team functioning from baseline to 3-month follow-up using linear mixed models to account for repeated measures and clustering within CACs. We will also explore changes in team performance and team member outcomes. Our primary analyses are intent-to-treat analyses including all participants in each condition. We will also conduct 'per protocol' analyses testing for changes in knowledge and skill use by training attendance. This pilot study is adequately powered to detect changes in individual outcomes (e.g., knowledge of teamwork skills), but underpowered for team-level outcomes. Accordingly, after aggregating measures of team functioning and performance to the team level (assuming sufficient within-team agreement), we will plot data to visually examine team-level results.

Analyses of Implementation Outcomes
We will use rapid analysis to code qualitative key informant interviews using an a priori coding scheme focused on barriers, facilitators, and suggestions for change. We will assess the proportion of implementation activities completed in each CAC and examine descriptive

statistics for acceptability, appropriateness, and feasibility ratings. Mean ratings >4 on the 1-5 scale will indicate that TeamTRACS is acceptable, appropriate, and feasible.