

**TRAILS**

Transforming Research into Action  
to Improve the Lives of Students

# The TRAILS Dashboard: A Web Application to Measure Outcomes and Monitor Fidelity of Evidence-Based Mental Health Practices

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# Acknowledgements

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Michigan Department of Education

The University of Michigan Department of Psychiatry  
and Comprehensive Depression Center

The Prosper Road Foundation

The Mackey Family

The Ouida Family

The American Psychological Foundation

Community Foundation  
FOR SOUTHEAST MICHIGAN



# Agenda

- School mental health overview
- TRAILS program overview
- Development of the TRAILS Dashboard
- Piloting for an NIMH R01
- Future Directions



# Prevalence of Mental Illness in Adolescents

Exposure to trauma: 57%

Any mental illness: 49.5%

- Anxiety Disorders: 31.9%
- Depressive Disorders: 14.3%
- Substance Use Disorders: 11.4%

Comorbid disorders: 20%

Severe Impairment: 22.2%

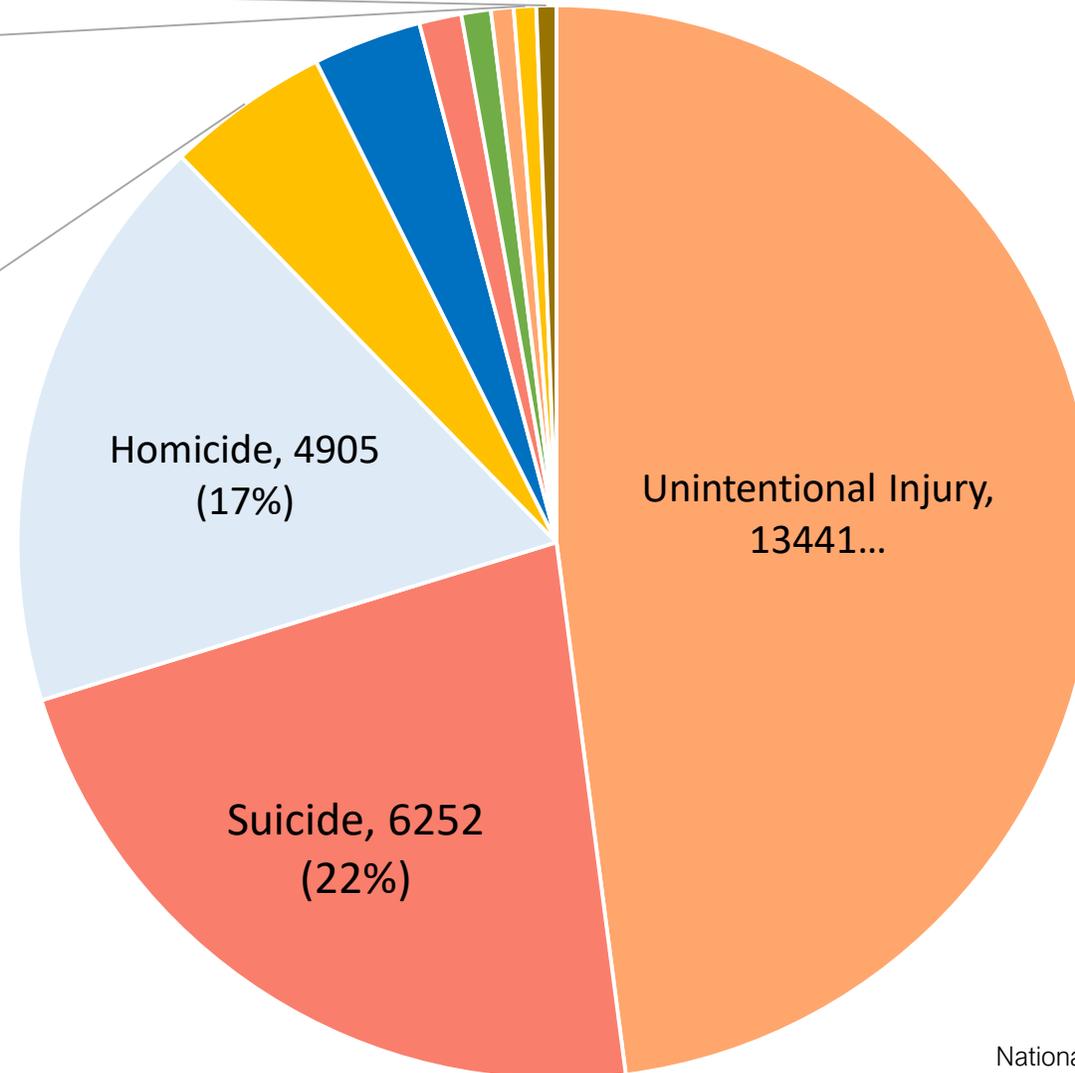
# 80% of youth lack access to care

- Few trained clinicians
- Scarce appointments
- Long waitlists
- Inadequate insurance coverage
- Lack of transportation
- Limited information among families
- Insufficient time for appointments
- Social stigma
- Low comfort in clinical settings
- Low availability of EBPs



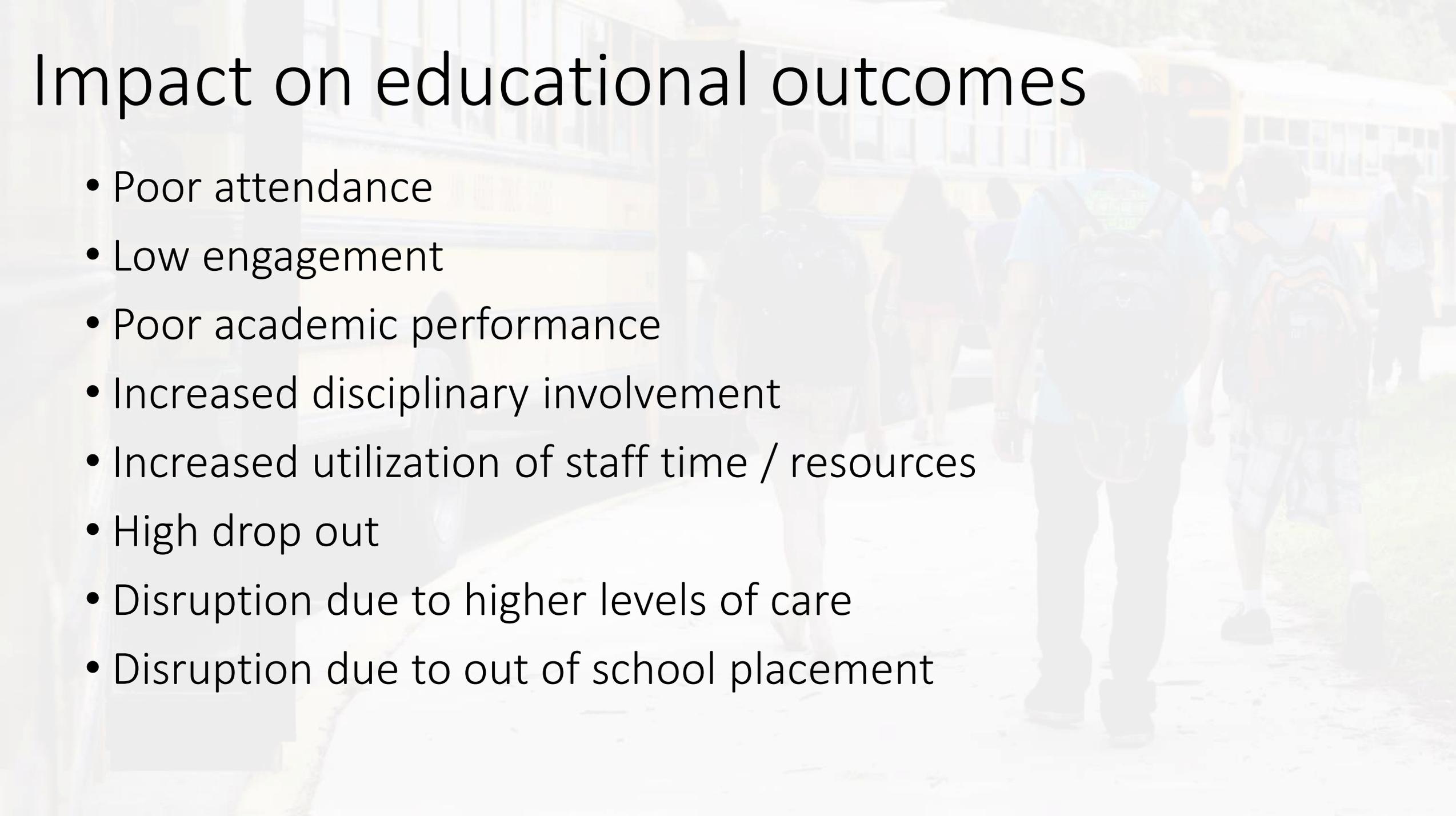
# Leading causes of death, ages 15-24

Complicated Pregnancy, 168, 1%  
Respiratory Disease, 188, 1%  
Influenza & Pneumonia, 190, 1%  
Diabetes Mellitus, 248, 1%  
Congenital Abnormalities, 355, 1%  
Heart Disease, 913, 3%  
Malignant Neoplasms, 1374, 5%



Non-fatal self-harm  
injuries, ages 15-24:  
**158,762 people**

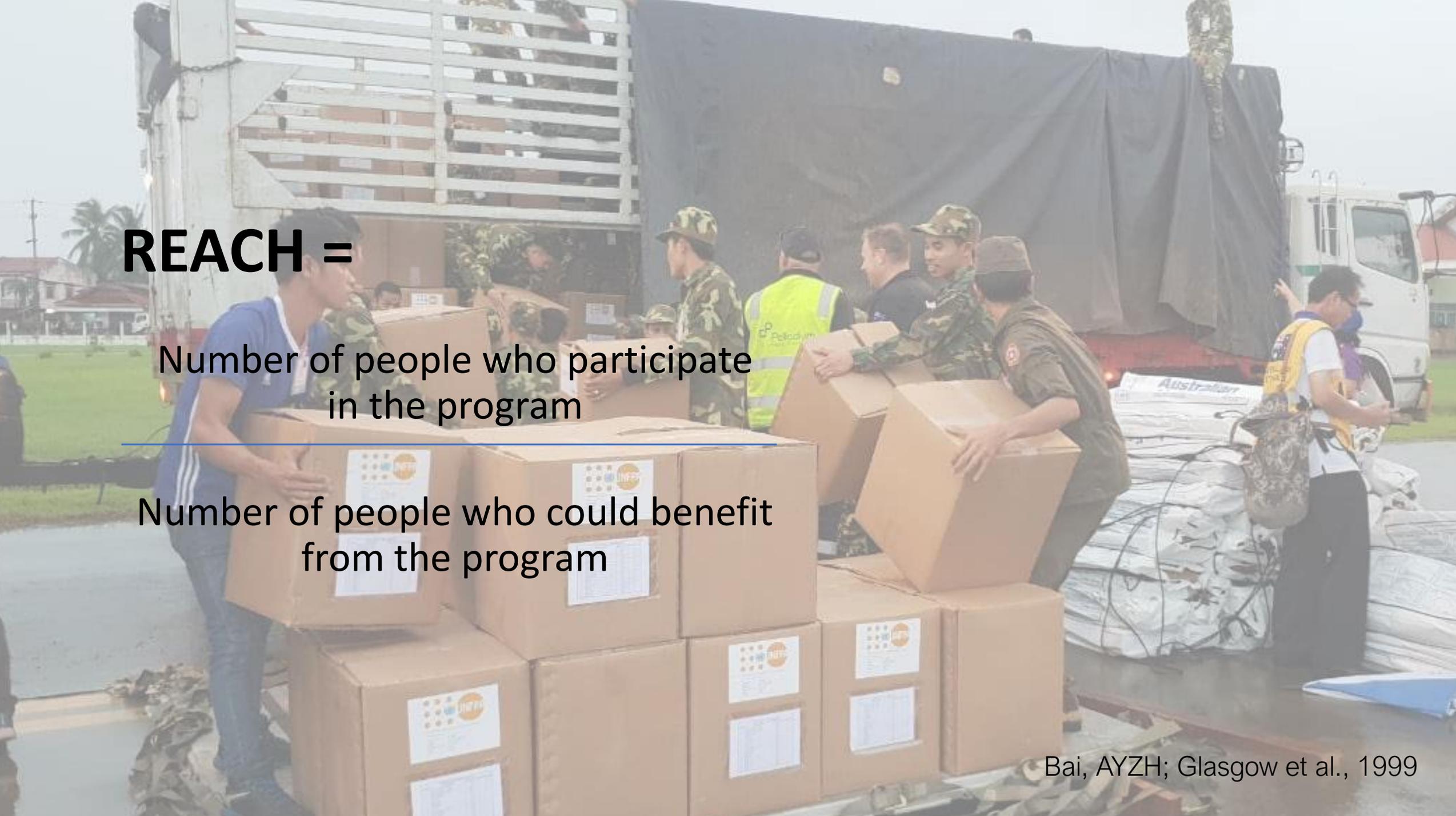
# Impact on educational outcomes



- Poor attendance
- Low engagement
- Poor academic performance
- Increased disciplinary involvement
- Increased utilization of staff time / resources
- High drop out
- Disruption due to higher levels of care
- Disruption due to out of school placement

# Evidenced-Based Practice





**REACH =**

Number of people who participate  
in the program

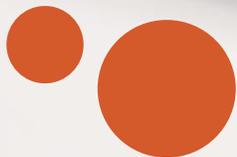
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Number of people who could benefit  
from the program

# Schools as a source of mental health services

“On the strength of the compelling evidence alone, schools have an imperative to attend not just to the academic success of students, but to their social, emotional and behavioral development as well. **Schools are a natural and logical setting in which to employ a public health framework that focuses on promoting student well-being** and healthy behaviors and preventing mental health problems before they occur. ”

-Advancing Comprehensive School Mental Health Systems, 2019



Aggression

Depression

Domestic violence

Abuse/assault

Anxiety

Homelessness

Suicidality

Gender Identity

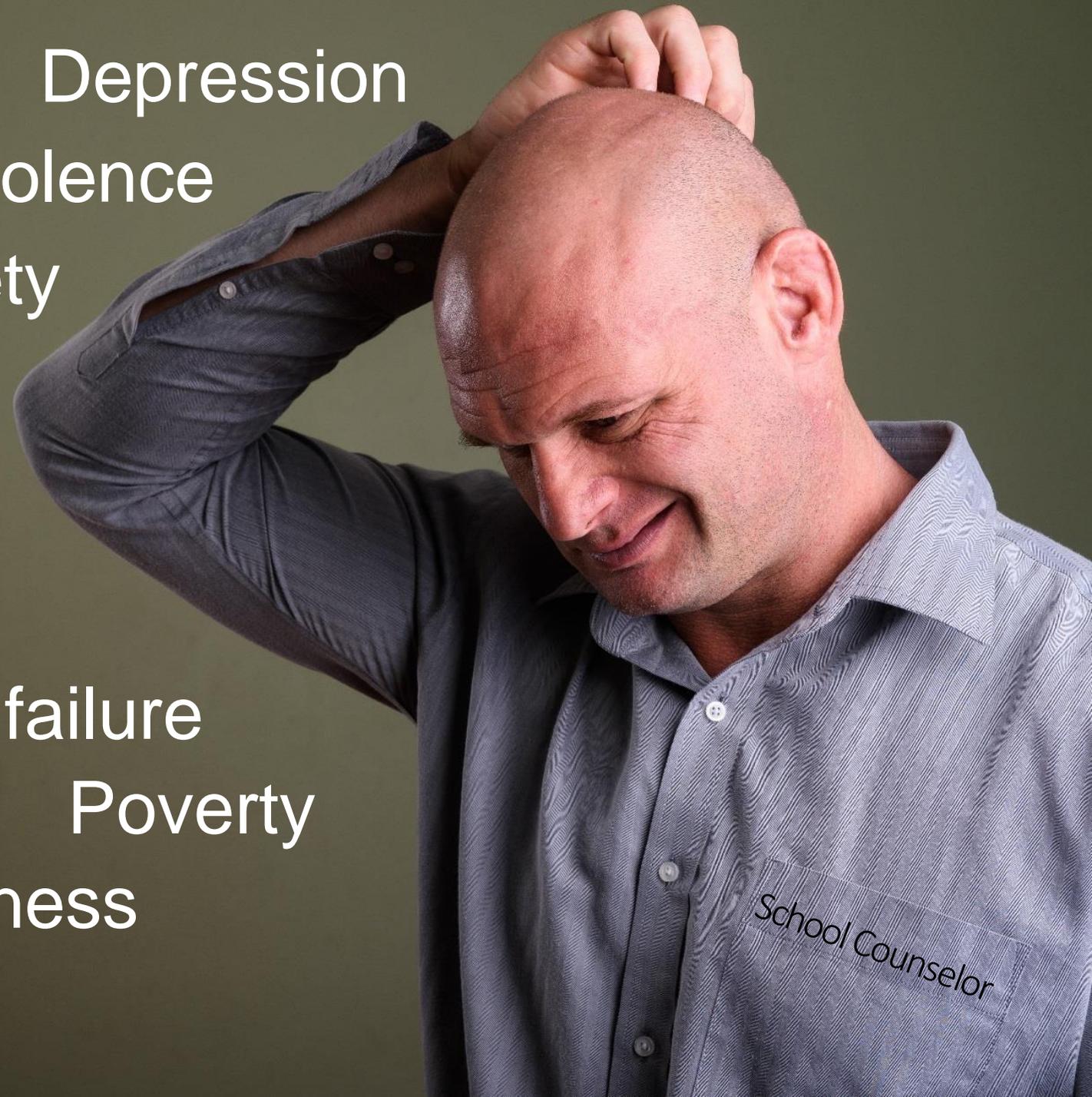
Academic failure

Self-injury

Poverty

Hopelessness

Sexuality



# Traditional model of school staff training



# Best practice models of school staff training





**TRAILS**

Effective mental  
health care,  
accessible in  
all schools.



Effective mental  
health services,  
accessible in all  
schools

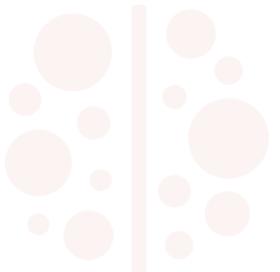
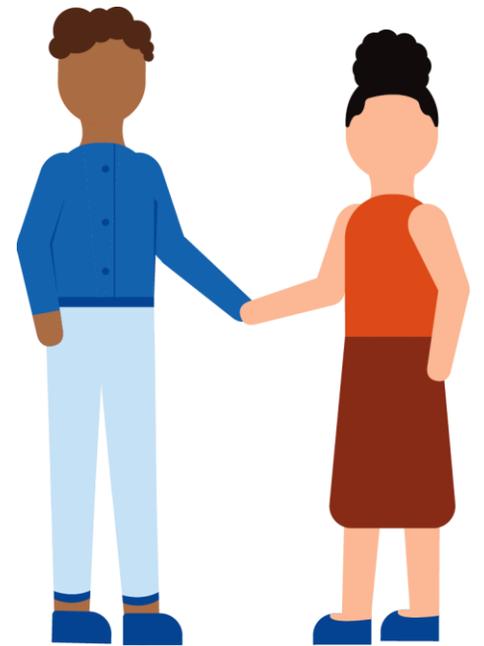


[www.TRAILStoWellness.org](http://www.TRAILStoWellness.org)

# TRAILS Coaching

- TRAILS Coaches paired with school professionals
- Collaboratively plan 10-session student skills groups
- Weekly pre-session support
- Co-facilitation of student groups
- Post-session feedback

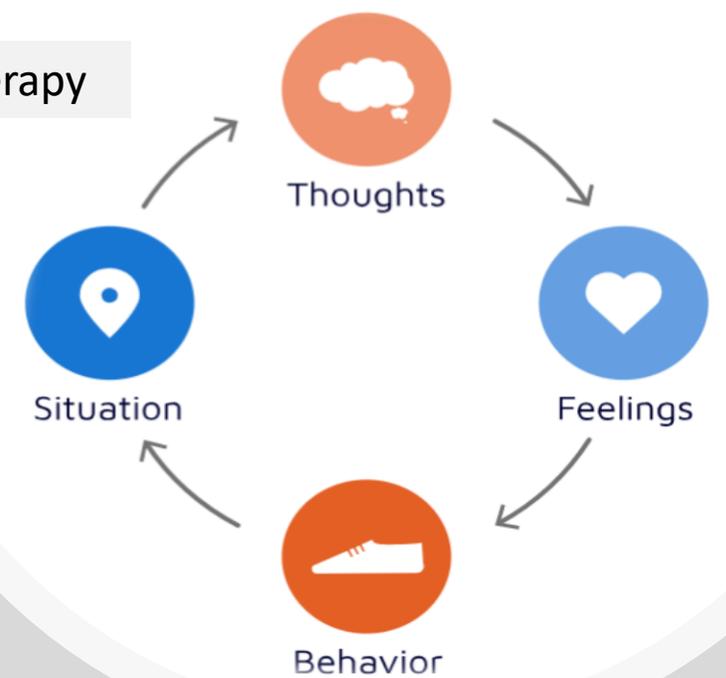
Coaches are expert clinicians and former school professionals – they get it!



# Evidence-based Mental Health Practices

- Strong empirical support
- Skills-based
- Strength and solution focused
- Impact on meaningful outcomes
  - Health
  - Social
  - Academic
  - Personal
  - Functional

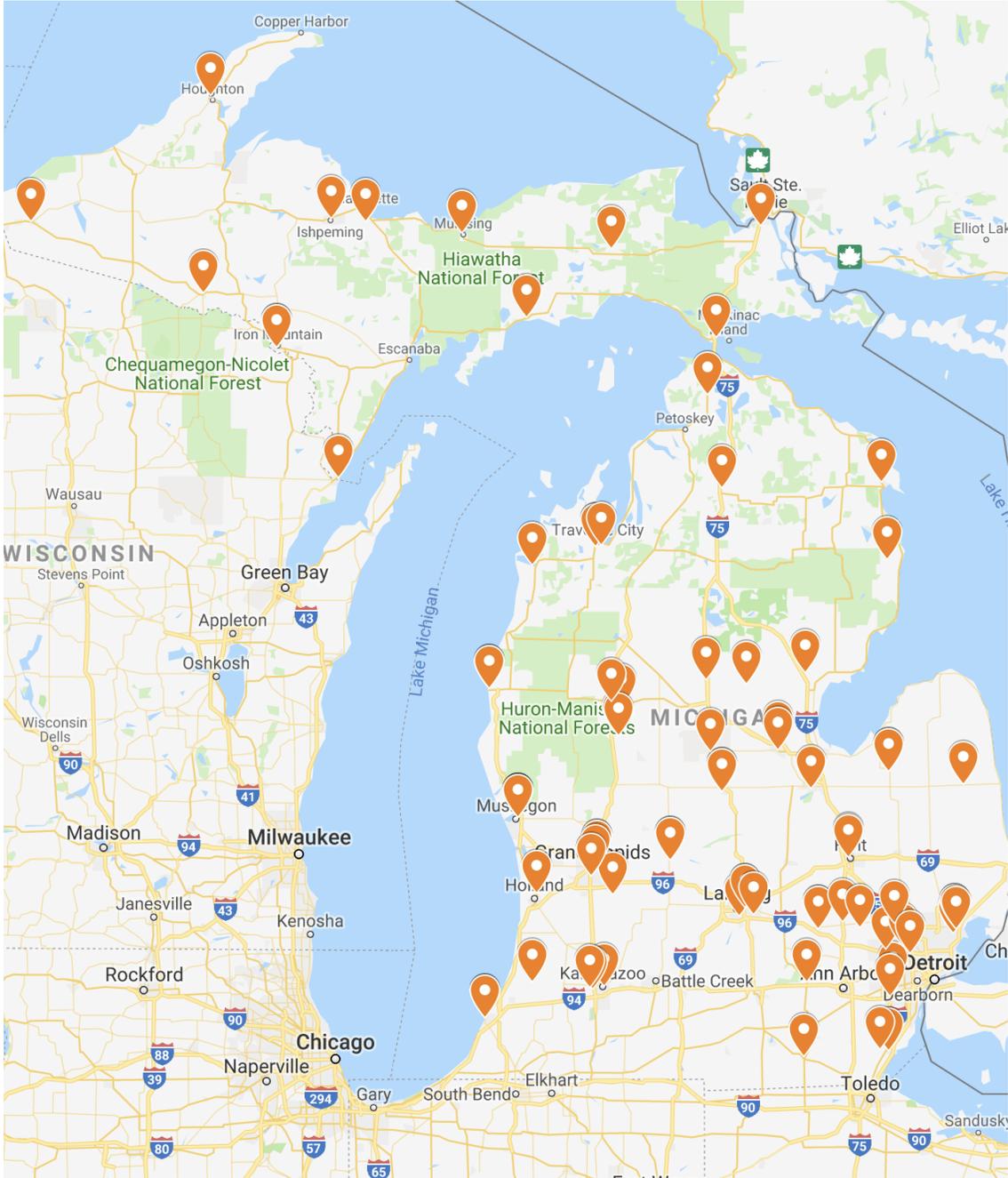
## Cognitive Behavioral Therapy



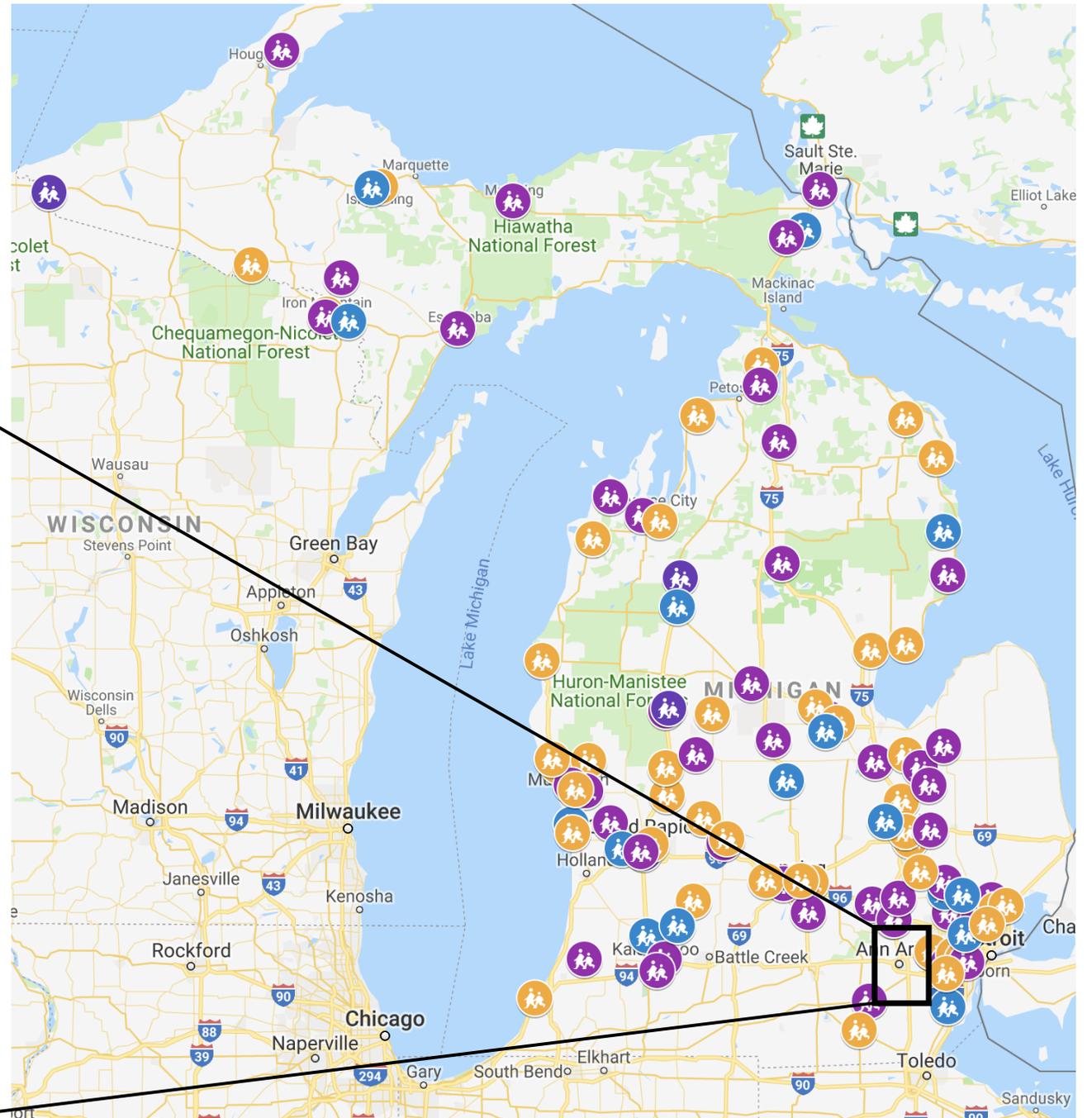
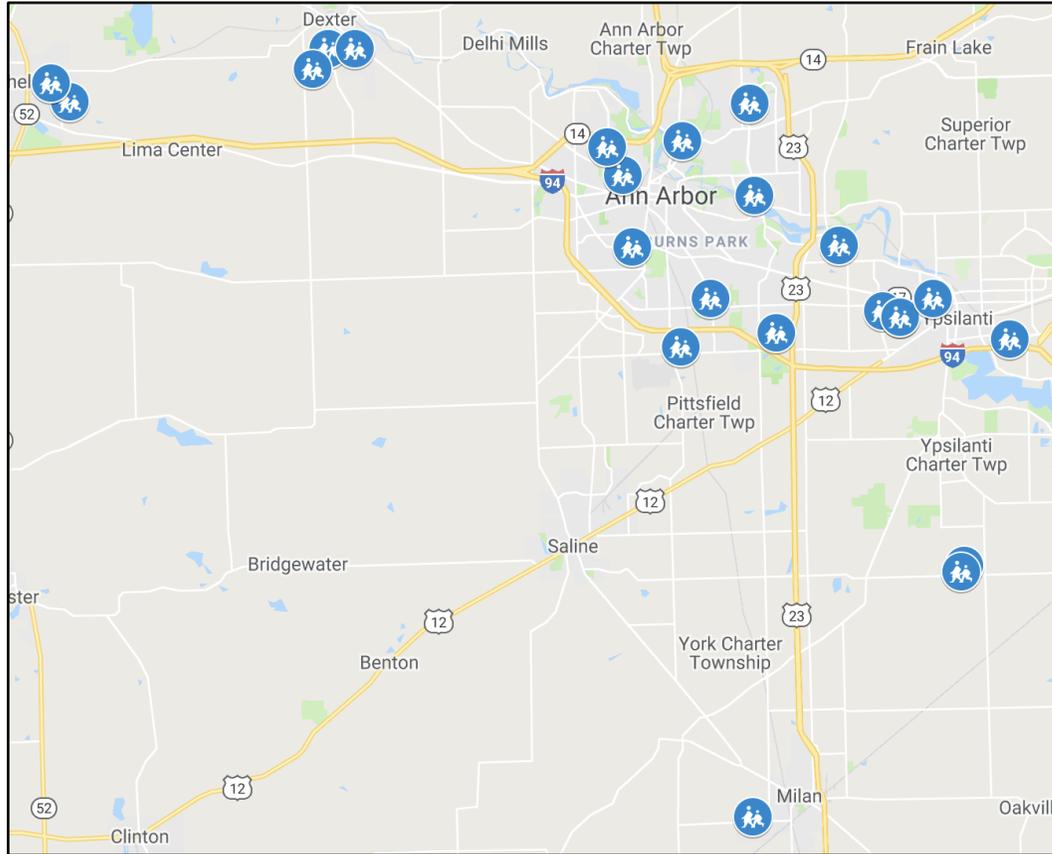
## Mindfulness



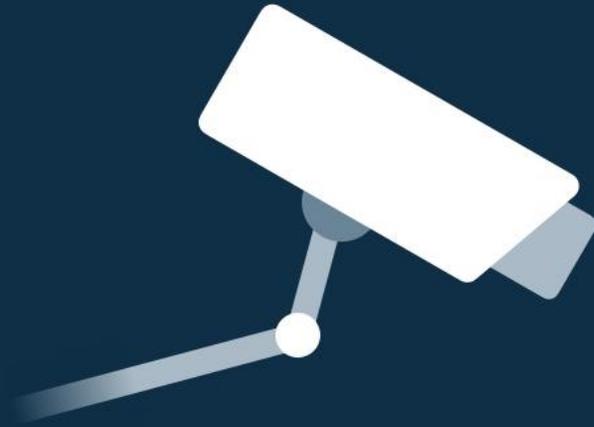
# TRAILS Coach Network 2018-2019



# TRAILS Schools 2019



# The TRAILS Dashboard: Tracking implementation outcomes



# Recommended aspects of implementation evaluation that the TRAILS Dashboard facilitates:

- Acceptability ✓
- Adoption ✓
- Appropriateness
- Cost
- Feasibility ✓
- Fidelity ✓
- Penetration ✓
- Sustainability ✓

# Implementation Models Require Data Collection

- What implementation model components are being delivered?
  - Component frequency
  - Component intensity
  - Component fidelity
- What impact are they having:
  - On school staff? (treatment deliverers)
  - On students? (treatment recipients)
- What modifications to the implementation model are needed?

# TRAILS outcomes of interest:

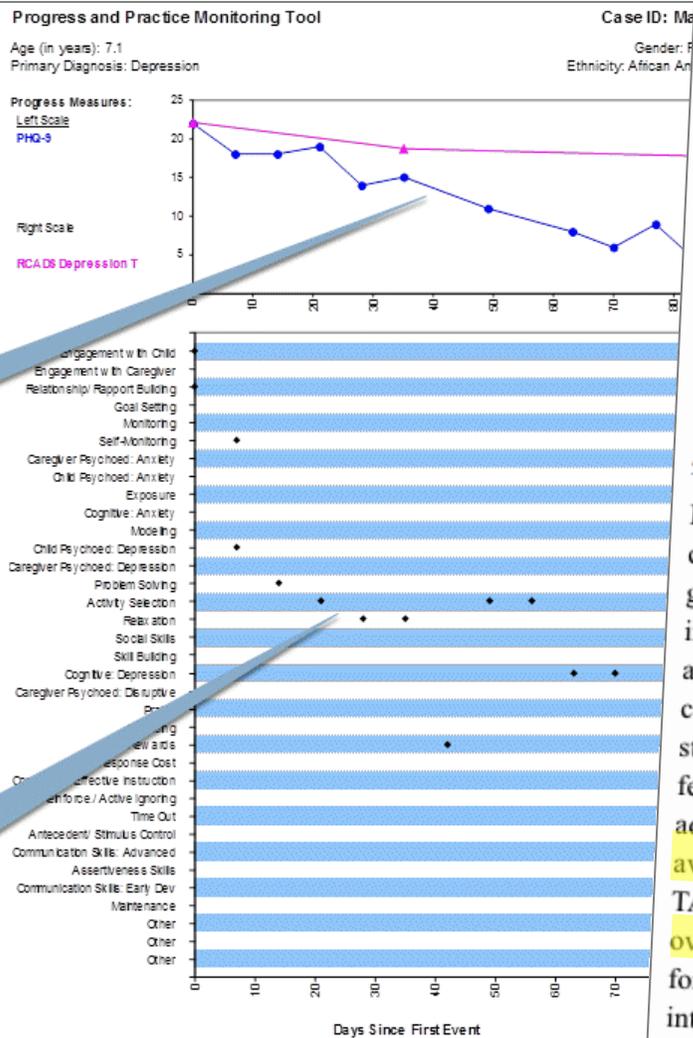
- TRAILS Coaches
  - Delivery of coaching components
- School Professionals:
  - CBT Utilization
  - CBT Fidelity
    - Content
    - Quality
  - Perceptions of CBT acceptability & utility
  - TRAILS Program satisfaction
- Students
  - Treatment access / Exposure to CBT
  - Clinical health outcomes
  - Academic outcomes

# Established Platforms

Sample  
Clinical  
Dashboard

Progress  
Ratings

Practice  
History



[Adm Policy Ment Health](#). Author manuscript; available in PMC 2016 Feb 23.  
Published in final edited form as:  
[Adm Policy Ment Health](#). 2015 Mar; 42(2): 229–243.  
doi: [10.1007/s10488-014-0548-2](https://doi.org/10.1007/s10488-014-0548-2)

PMCID: PMC4763603  
NIHMSID: NIHMS759218  
PMID: [24711046](https://pubmed.ncbi.nlm.nih.gov/24711046/)

## Validity of Therapist Self-Report Ratings of Fidelity to Evidence-Based Practices for Adolescent Behavior Problems: Correspondence between Therapists and Observers

[Aaron Hogue](#), [Sarah Dauber](#), [Emily Lichvar](#), [Molly Bobek](#), and [Craig E. Henderson](#)  
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The publisher's final edited version of this article is available at [Adm Policy Ment Health](#)  
See other articles in PMC that [cite](#) the published article.

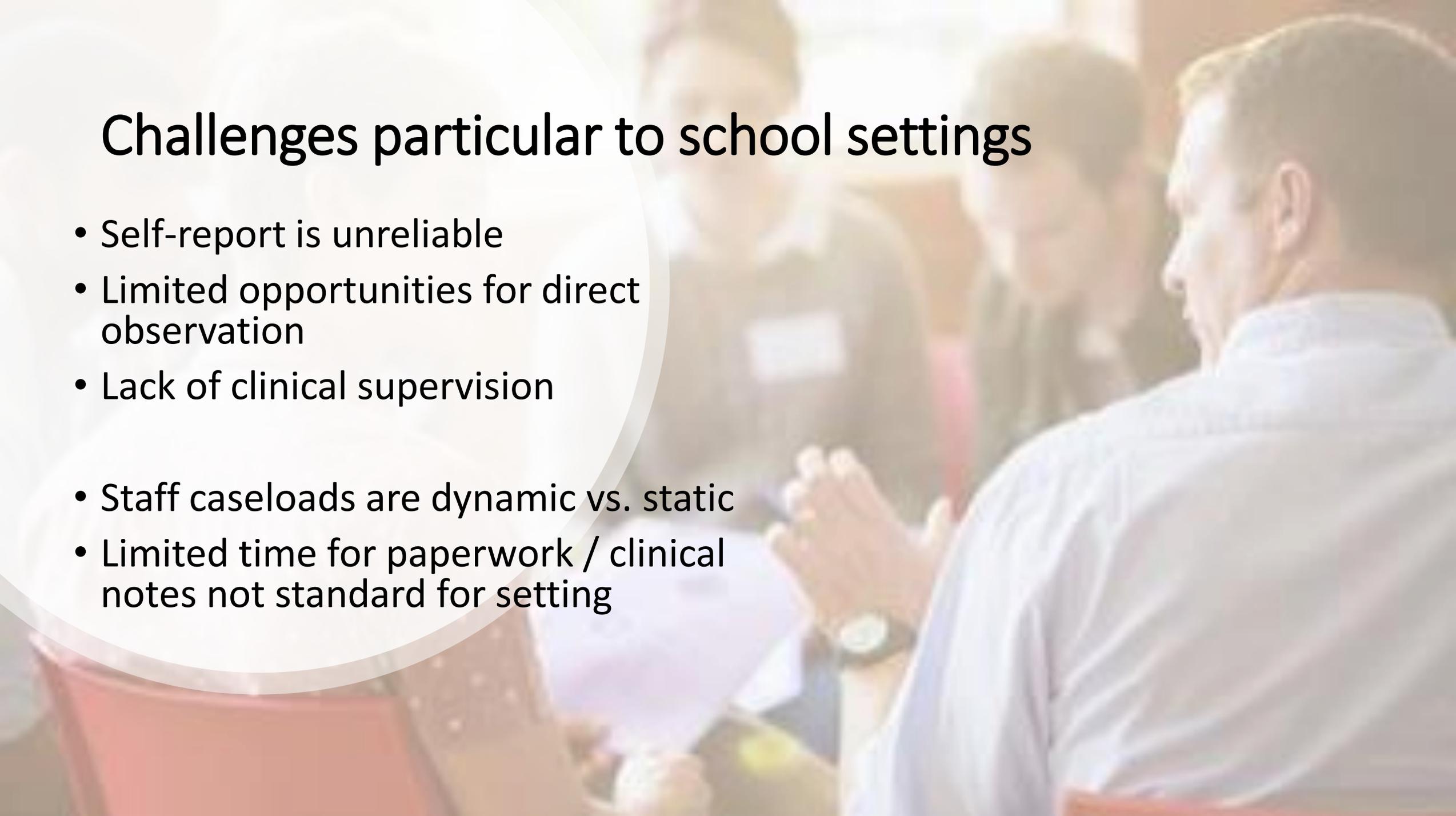
### Abstract

Developing therapist-report fidelity tools to support quality delivery of evidence-based practices in usual care is a top priority for implementation science. This study tested the reliability and accuracy of two interviewing/cognitive-behavioral therapy (MI/CBT) interventions during routine treatment of inner-city adolescents with conduct and substance use problems. Study cases ( $n = 45$ ) were randomized into two conditions: (a) Routine Family Therapy (RFT), consisting of a single site that featured family therapy as its standard of care for behavioral treatment; or (b) Treatment As Usual (TAU), consisting of five sites that featured non-family approaches. Therapists and trained observational raters provided FT and MI/CBT adherence ratings on 157 sessions (104 RFT, 53 TAU). Overall therapist reliability was adequate for averaged FT ratings ( $ICC = .66$ ) but almost non-existent for MI/CBT ( $ICC = .06$ ); moreover, both RFT and TAU therapists were more reliable in reporting on FT than on MI/CBT. Both groups of therapists overestimated the extent to which they implemented FT and MI/CBT interventions. Results offer support for the feasibility of using existing therapist-report methods to anchor quality assurance procedures for FT interventions in real-world settings, though not for MI/CBT.

**Keywords:** Therapist-report fidelity, Observational fidelity ratings, Adolescent behavior problems, Usual care, Family therapy, Cognitive-behavioral therapy, Motivational interviewing

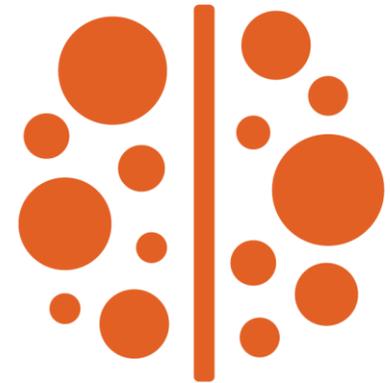
# Challenges particular to school settings

- Self-report is unreliable
- Limited opportunities for direct observation
- Lack of clinical supervision
- Staff caseloads are dynamic vs. static
- Limited time for paperwork / clinical notes not standard for setting



# Intro to TRAILS Dashboard

- Primary goals:
  - Capture quality data relevant to SPs, Students, and Program
  - Ensure relevance for school partners
  - Ensure high user-friendliness, attractiveness
  - Protect student privacy, adhere to HIPPA, FERPA



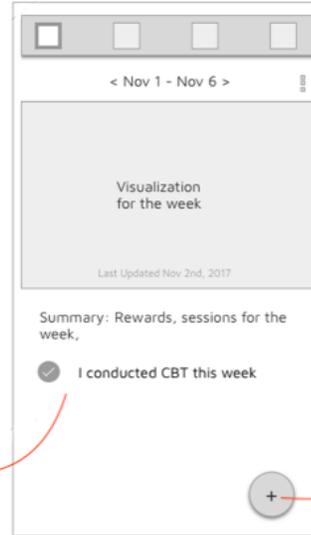
**TRAILS**

# Design Phase



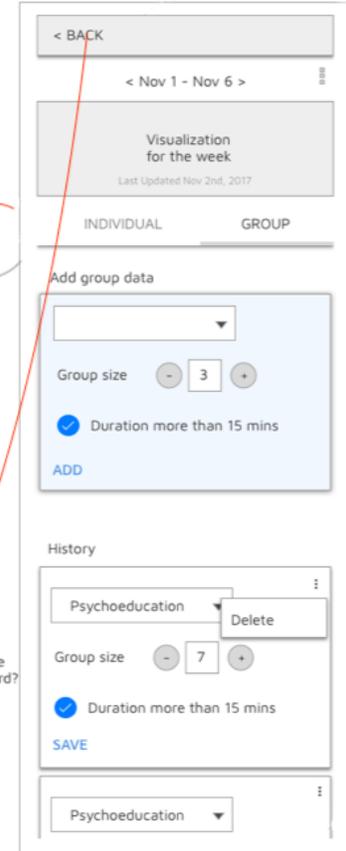
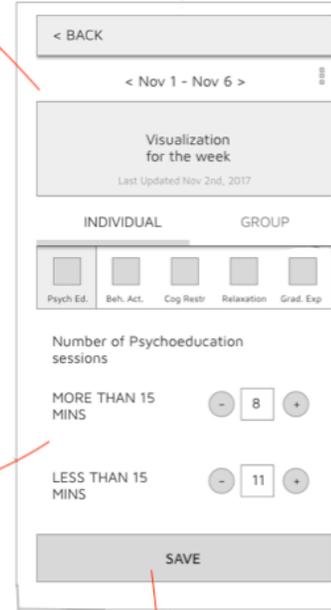
When the user opens the survey for the first time for the week

Just feedback NOT interactive

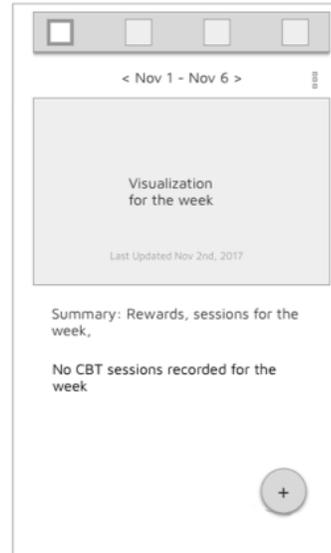


Landing page when the user has at least 1 entry

Clear all entries



Add delete for the card?



Landing page when the user has selected 'I didn't conduct CBT' in the dialog

# Development Phase

Close

Week of Nov 1 - Nov 7, 2018



### Individual CBT

Enter no. of individual sessions

Less than 15 mins  
- 10 +

More than 15 mins  
- 0 +

Components

- Psychoeducation - CBT
- Psychoeducation - Mental Health
- Relaxation
- Cognitive Restructuring
- Behavioral Activation
- Exposure

BACK SAVE AND CONTINUE

Close

Week of Nov 1 - Nov 7, 2018



### Group CBT

REMOVE GROUP

Group 1

No. of students in attendance  
- 0 +

No. of school professionals who co-facilitated  
- 0 +

Add another group?

NO, I'M DONE YES

BACK

Close

Week of Nov 1 - Nov 7, 2018



### Group CBT

Enter any component used in your group(s)

- Psychoeducation - CBT
- Psychoeducation - Mental Health
- Relaxation
- Cognitive Restructuring
- Behavioral Activation
- Exposure

BACK SAVE AND CONTINUE

Close

Week of Nov 1 - Nov 7, 2018



### Average Skill Level

Please rate your average skill level over this week for each component.

Any CBT component that you reported using in this week is listed below. Please rate your average skill level over the past week for each component.

[See definitions of ratings](#)

- Very Low:** Significant difficulty
- Low:** Limited understanding/use
- Moderate:** Basic understanding/accurate use
- High:** Good understanding/solid delivery
- Very High:** Very good skill/advanced

Psychoeducation - CBT

Very Low Low **Moderate** High Very High

Relaxation

Very Low Low **Moderate** High Very High

BACK SAVE AND CONTINUE

# Research and User Testing



## Feedback on the ASIC Dashboard

Participants had a couple of technical issues with the ASIC Dashboard, but all were able to successfully reach someone for support and had the issues resolved. This study revealed mostly positive feedback from those using the ASIC Dashboard. Some elements of the ASIC Dashboard the school professionals found particularly helpful include:

- Seeing rewards and payments on the home screen
- The FAQ section
- CBT summary
- Indicators that students have completed their surveys
- Showing how much time is required for a task/survey
- The ability to backfill some data
- Regular email reminders to log data or complete other actions within the Dashboard
- An “easy button” to enter data

When asked to rank their logging experience from very easy to very hard, most users said “easy” or “very easy.” Only one user ranked ease of use somewhere in the middle, saying, “On a scale of 1 to 10, 1 being easy, 10 being very hard, it’s a 4.”

Participants commented on a few gaps within the ASIC Dashboard including the following:

### **Being unable to seamlessly navigate between the ASIC Dashboard and the TRAILS site**

The school professionals involved in the ASIC study expressed a need to go back and forth between the ASIC Dashboard and the [trailstowellness.org](http://trailstowellness.org) website to look up resources, prepare for groups, and look at various things for reference. They would have liked a quick-access button or link to the website from within the Dashboard, the Dashboard integrated into the TRAILS website, or another easy way to have all the information together.

### **Inability to change information after specific timeframes**

Some users needed to add students after the timeframe to do so had passed. They would have preferred more flexibility over when and how they entered student information.

### **Unable to edit information in immediately locking fields**

Users also noted that fields which immediately locked after input caused some frustration if they realized they’d made a typo or some other small error. The flexibility to make small changes would’ve been preferred.

### **Lack of a way to export data for reports**

It was mentioned that it would have been helpful to be able to export the entered data for reporting purposes.

# Adaptive School-based Implementation of CBT

(ASIC, PI: Kilbourne, R01MH114203)

## Primary Aims

1. Compare the effectiveness of two adaptive implementation strategies on CBT delivery among schools: one that provides schools with REP + Coaching from the start and subsequently augments with Facilitation for schools needing additional assistance, and another that provides REP alone (control) to all schools. The primary outcome is number of CBT sessions delivered to students by SPs, with secondary examination of impact on student mental health symptoms at 18 months.
2. Lay the groundwork for more tailored adaptive implementation strategies by determining whether (a) school-level factors (size, percent free and reduced lunch eligible, and school administrator support for adoption of innovation) or (b) SP factors (employment years, perceptions of CBT) moderate the effects of augmenting REP with Coaching and/or Facilitation.
3. Estimate the costs of different embedded adaptive interventions and determine the incremental cost-effectiveness of added Coaching or Facilitation.
4. Determine whether Coaching and Facilitation improve CBT knowledge, perceptions/comfort, skills, or leadership among SPs, and which of these explain any detected increases in frequency of CBT delivery and improvement in student clinical symptoms.

# PILOT: Customizing for an NIMH R01

Data collected will inform:

- SP use of CBT with students
- SP completion of study surveys
- Student completion of study surveys
- Incentive money participants earn

## ASIC Dashboard

Log in to your account

Email address

alice.smith@trails.com

Password

LOGIN

[Forgot Password?](#)

[Coach Login](#)

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# Dashboard data collection:

- # of SPs registered / using CBT
  - CBT delivery
    - Frequency overall - group vs. individual
    - Frequency by component
    - Fidelity
      - Self - report
      - Coach rating
  - Program satisfaction
- # of students identified for study data collection
  - Clinical outcomes
  - CBT knowledge or familiarity
  - Academic outcomes
- Qualitative feedback from school partner users in ASIC
- Coaching protocol adherence / fidelity

# From the dashboard, school professionals are able to:

- log their CBT use and fidelity
- access study-related questionnaires
- view student cards
- manage their incentives

The screenshot shows a dashboard for a user named Alice. At the top, there is a dark blue navigation bar with icons for Home, Notifications (with a red badge), Students, and FAQs. Below the navigation bar, the main content area is white. A large heading reads "Welcome, Alice!". Below this, there is a notification box stating "You can still add up to 10 students. The deadline for adding students is January 23, 2019." with a "MANAGE" button. The dashboard is divided into three main sections: "CBT Summary", "Rewards", and "Surveys Available". The "CBT Summary" section shows "Week of Nov 1" and two buttons: "I USED CBT" and "I DIDN'T USE CBT", both of which are circled in orange. The "Rewards" section shows "Earned in current pay period" with a progress bar from \$3 to \$15. The "Bonus Rewards" section also shows "Earned in current pay period" with a progress bar from \$3 to \$15. At the bottom, the "Next payment" is listed as "\$26 scheduled on November 20th, 2017". The "Surveys Available" section includes a link for "School professional survey" and indicates that 0 of 1 surveys are complete.

# CBT Groups

Close

Week of Nov 1 - Nov 7, 2018

## Group CBT

REMOVE GROUP

### Group 1

No. of students in attendance

- 0 +

No. of school professionals who co-facilitated

- 0 +

Add another group?

NO, I'M DONE YES

BACK

TRAILS Home Log Group Notifications Students FAQs Resources Welcome, Katyn!

## Log Groups

### Group 1

rename group

When was the group? 16 MM / DD / YYYY

What time was the group? : : AM

How long was your group? minutes

Who attended the group?

Search

Search by student name

JV Juliana V. EB Emily B. PM Phil M. HC Hannah C.

DL David L. TC Anny C. EK Elizabeth K. CM Carolyn M.

How many school professionals attended along with you?

- 0 +

Which components did you use in group 1?

Psychoeducation - CBT  Cognitive Restructuring

Psychoeducation - Mental Health  Behavioral Activation

Relaxation  Exposure

[Explore resources for these components](#)

Rate your average skill level for each component

Any CBT component that you reported using in this week is listed below. Please rate your average skill level over the past week for each component.

[See definitions of ratings](#)

Psychoeducation - CBT

Very Low Low Moderate High Very High

Relaxation

Very Low Low Moderate High Very High

# Individual CBT Sessions

× Close

Week of Nov 1 - Nov 7, 2018



## Individual CBT

Enter no. of individual sessions

Less than 15 mins

− 10 +

More than 15 mins

− 0 +

### Components

- Psychoeducation - CBT
- Psychoeducation - Mental Health
- Relaxation
- Cognitive Restructuring
- Behavioral Activation
- Exposure

BACK **SAVE AND CONTINUE**

# Self-reported CBT fidelity

× Close

Week of Nov 1 - Nov 7, 2018



## Average Skill Level

Please rate your average skill level over this week for each component.

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- Low:** Limited understanding/use
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- High:** Good understanding/solid delivery
- Very High:** Very good skill/advanced

Psychoeducation - CBT

Very Low   Low   **Moderate**   High   Very High

Relaxation

Very Low   Low   **Moderate**   High   Very High

BACK   SAVE AND CONTINUE

# From the dashboard, school professionals are able to:

- log their CBT use and fidelity
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# Student questionnaires and incentive tracking can be accessed on the student page.



Students who indicated suicidality were linked to a fully-automated risk-management protocol, alerting their associated school professional of suicide risk, while retaining investigator blinding to student identity.

10 students whom you believe could benefit from support for symptoms... to help you register those 10 students for the study, assist students in... tracking survey completion among your set of 10 identified students

Approx. completion time: 5-8 mins

**Surveys administered** 2

**Last survey administered** May 8, 2019

**TAKE STUDENT SURVEY**

You will be logged out of the ASIC dashboard during the student survey for security purposes.

---

**Academic outcomes report**  
Approx. completion time: 5 mins

**ENTER ACADEMIC OUTCOMES**

---

**Student rewards**

- \$0 scheduled on March 29, 2019
- \$0 scheduled on May 22, 2019
- \$0 scheduled on December 6, 2019
- \$0 scheduled on May 22, 2020

All-time rewards  
\$0 of \$40 earned

OI Ow  
**Survey available**  
through Aug 1, 2018  
Academic outcomes report  
ed  
through Sept. 16, 2019  
**DETAILS**

ZZ Za Ze  
Student survey administered  
on July 31, 2018  
Academic outcomes report  
requested  
Available through Sept. 16, 2019  
**DETAILS**

# Coach Dashboard

Home FAQs

Welcome, Jane!

### Coaching Summary

Week of Jan 21 - Jan 25, 2019 ▾

LOG COACHING

NO COACHING TO LOG

### School professionals

- KK** Kevin Koala  
Saline High School
- DI** Diana Indigo  
Huron High School
- TT** Tina Turtle  
Lincoln High School

Close

Week of Nov 1 - Nov 7, 2018

### Coaching Log

Approximately how many minutes did you dedicate to coaching this week?

- 0 +

For this week, please indicate the coaching elements you provided:

- SP phone call
- Planned a group
- Directed SP to TRAILS resources
- Role-played skill
- Attended a group
- Modeled a skill
- In-person SP meeting
- Provided feedback
- Personalized training
- Scheduling

BACK SAVE AND CONTINUE

Close

Week of Nov 1 - Nov 7, 2018

### Group Attendance Log

Select the SP(s) that were present for a group

- Kevin Koala
- Diana Indigo
- Tina Turtle

BACK SAVE AND CONTINUE

Close

Week of Nov 1 - Nov 7, 2018

### Log for Kevin Koala

any CBT component that your school professional used in the past week is listed below. Please rate your SP's average skill level for each component.

[See definitions of ratings](#)

- Very low:** Minimal skill/did not attempt
- Low:** Low skill/incomplete
- Moderate:** Moderate skill/basic delivery
- High:** Good skill/solid delivery
- Very high:** Very good skill/advanced

[More information](#)

psychoeducation - CBT

Very Low Moderate High Very High

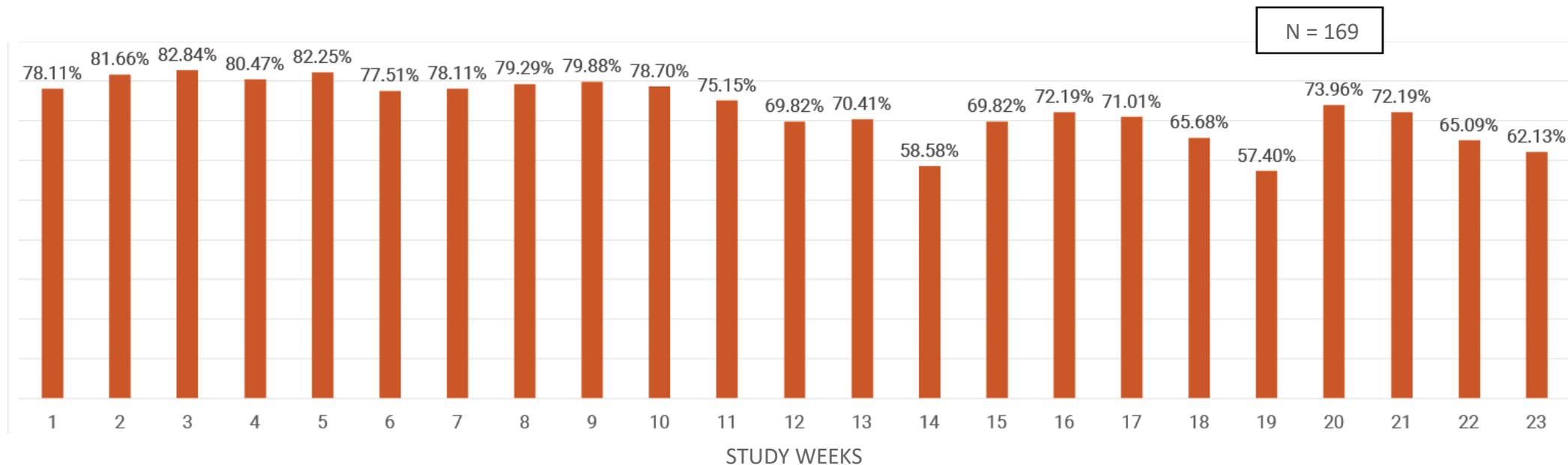
relaxation

Very Low Moderate High Very High

BACK SAVE AND CONTINUE

# Results / Primary Findings

## School Professional CBT Report Response Rate



### Study Participants

Total number of school professionals consented: 227  
Total number of students identified: 1,347



### Study Questionnaires Managed with the TRAILS Dashboard

Student questionnaire completion:  
M3: 66.74% (899 of 1347 students)  
M6: 63.46% (818 of 1289 students)

SP questionnaire completion:  
M3: 79.29% (134 of 169 SPs)  
M6: 72.78% (123 of 169 SPs)

# Current Dashboard Integration

- DPSCD
- US Dept of Ed Grant (Washtenaw)
- Wayne Co (DWMHA)



# Future Dashboard Integration

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- Customization
- User feedback
- Multiple settings (e.g., healthcare, corporate, etc.)
- Clinical “nudges” to increase treatment frequency or fidelity
- Prompts recommending specific treatment components for individual students based on acquired clinical data
- Personalized dynamic assessment and training targeting user skill deficiencies





Questions?

Thank you!

Elizabeth Koschmann

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734-232-0297