



# Innovations in Tele-Behavioral Health and Research

Connie Guille, MD – Professor, Departments of Psychiatry and Ob/Gyn  
Regan Stewart, PhD – Associate Professor, Department of Psychiatry  
Jen Dahne, PhD – Associate Professor, Department of Psychiatry

## Objectives

- Describe the role telehealth can play in supporting screening, referral, and treatment of perinatal mental health.
- Describe models for dissemination and training of evidence-based telehealth treatments (e.g., trauma-focused CBT)
- Identify opportunities for use of decentralized/remote clinical trial methods for evaluation of tele-behavioral health.

# Leveraging Technology to Improve Maternal Health and Substance Use Disorder and Screening and Treatment

Connie Guille MD

Professor, Depts. Of Psychiatry & Ob/Gyn

## Objectives

- 1) Appreciate the prevalence and impact of unrecognized and untreated maternal mental and substance use disorders.
- 2) Understand the importance of screening, identification, and treatment of maternal mental and substance use disorders.
- 3) Appreciate the role of technology in improving the screening and referral to treatment for maternal mental and substance use disorders.



# Maternal Mortality in the US is higher than any other developed country

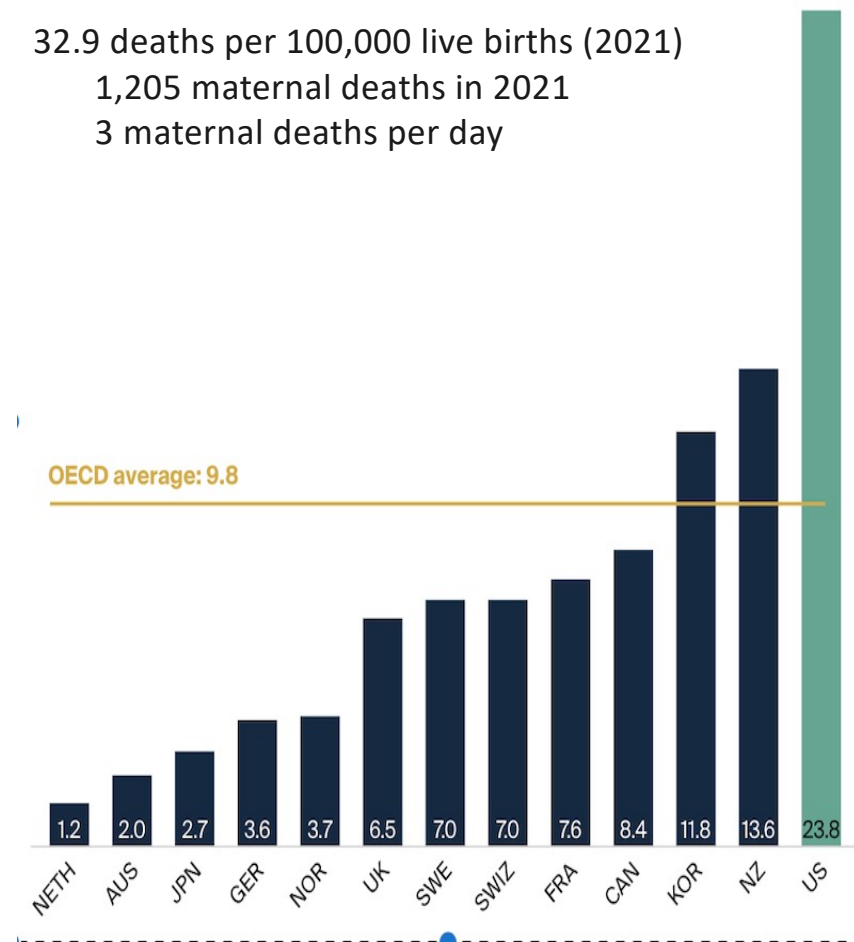
High Income Countries 2020:  
12 per 100,000 live births

United States 2020:  
23.8 per 100,000 live births

United States 2021:  
32.9 per 100,000 live births

Maternal mortality, deaths per 100,000 live births

32.9 deaths per 100,000 live births (2021)  
1,205 maternal deaths in 2021  
3 maternal deaths per day



Source: Munira Z. Gunja, Evan D. Gumas, and Reginald D. Williams II, *U.S. Health Care from a Global Perspective, 2022: Accelerating Spending, Worsening Outcomes* (Commonwealth Fund, Jan. 2023), <https://doi.org/10.26099/8ejy-yc74>

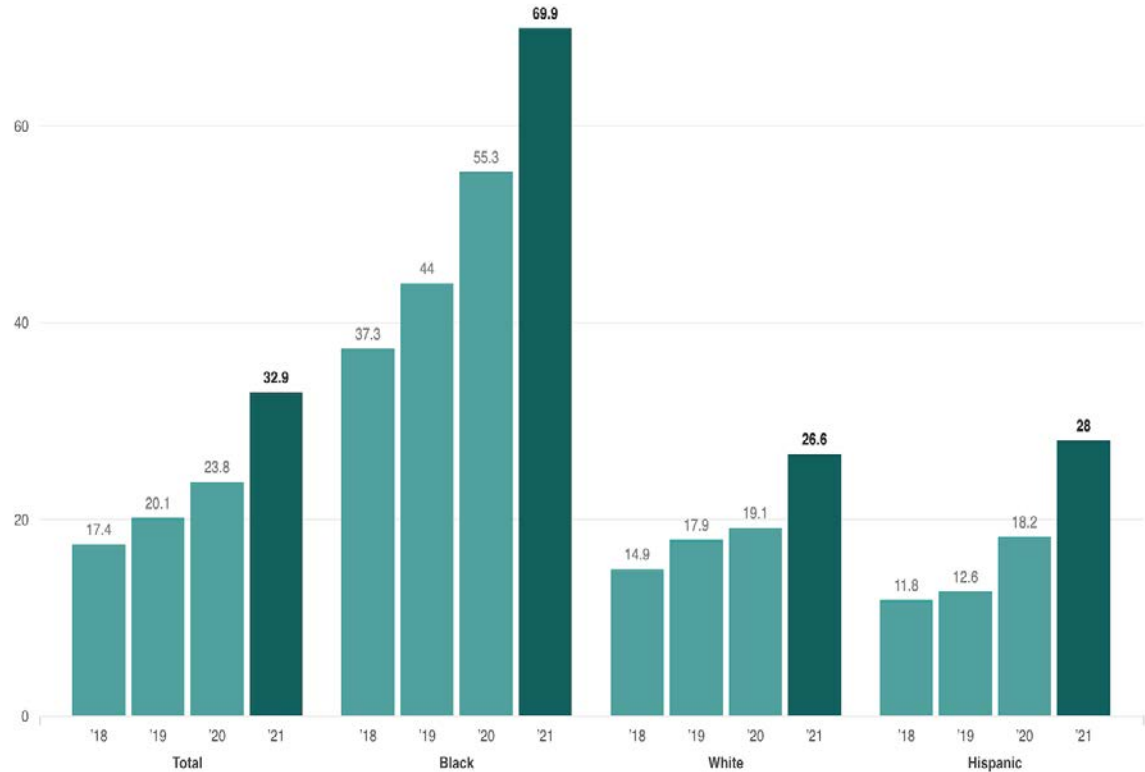
# Racial Disparities in Maternal Mortality

White 2021:  
26.6 per 100,000 live births

Black 2021:  
69.9 per 100,000 live birth

American Indian 2021:  
49.2 per 100,000 live births

## Maternal Mortality By Race 2018-2021



### Notes

The World Health Organization defines a maternal death as the death of a woman "from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy."

Source: National Center for Health Statistics, Centers for Disease Control and Prevention

## Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017–2019

Most frequent underlying causes of pregnancy-related death:

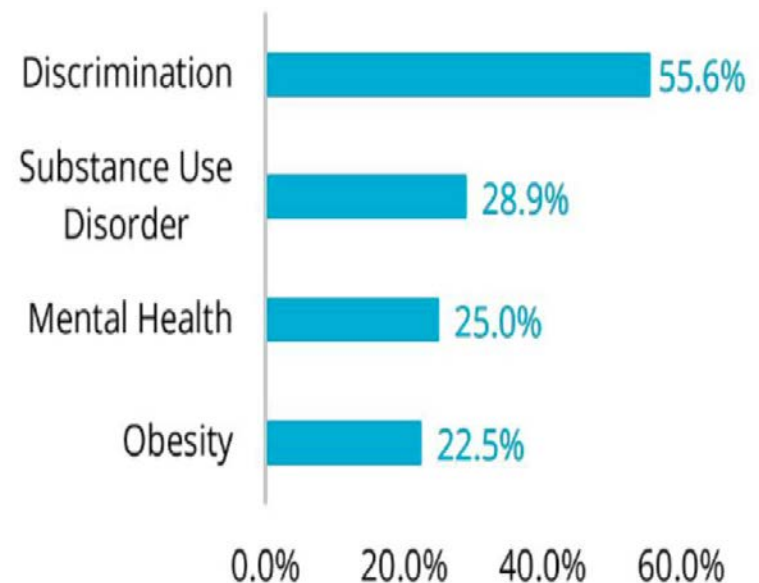
- Mental health conditions (22.7%)
- Hemorrhage (13.7%)
- Cardiac and coronary conditions (12.8%)
- Infection (9.2%)
- Thrombotic embolism (8.7%)
- Cardiomyopathy (8.5%)

**84.2% deaths  
determined  
to be preventable**

Trost SL, Beauregard J, Njie F, et al. Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017-2019. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2022.

# Maternal Mental Health and Substance Use Disorders are...

**...Most Common  
Contributor to Other  
Causes of Maternal  
Death**



# Maternal Mental Health and Substance Use Disorders are...

**...the Most Common  
Complication of  
Pregnancy &  
Childbirth**

**1 in 5**

women around the world will suffer from a  
maternal mental health complication



# Maternal Mental Health Affects Women, Children and Families

Low Birth Weight  
Preterm Birth  
NICU Admissions  
C-sections

Cognitive, Motor, Growth Delays.  
Behavioral, Academic, Mental  
Health Problems



Poor Prenatal Care  
Smoking  
Substance Use

Difficulty Bonding  
Less Breastfeeding  
More Divorce

**Many Maternal Deaths  
due to Mental Health  
Conditions are  
Preventable**

**MATERNAL HEALTH**

By Susanna L. Trost, Jennifer L. Beauregard, Ashley N. Smoots, Jean Y. Ko, Sarah C. Haight, Tiffany A. Moore Simas, Nancy Byatt, Sabrina A. Madni, and David Goodman

---

**Preventing Pregnancy-Related  
Mental Health Deaths: Insights  
From 14 US Maternal Mortality  
Review Committees, 2008-17**

Trost, SL, Beaurard, JL, Smoots, AN, Ko, JY, Haight SC, Moore Simas AS, Byatt N, Madni SA, Goodman, D. Preventing Pregnancy-Related Mental Health Deaths: Insights From 14 US Maternal Mortality Review Committees, 2008-17. Health Affairs Vol. 40, No. 10.

# Screen & Referral to Treatment [Standard of Care]

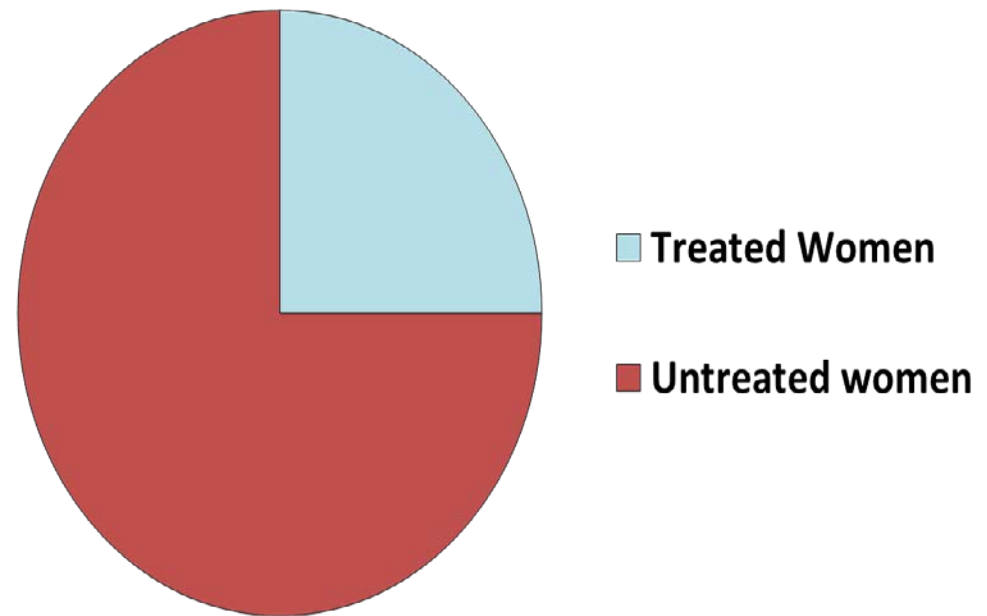
1 in 8 women  
will be screened



**The majority of mental health problems are unrecognized and untreated.**

**1 in 4 women receive treatment**

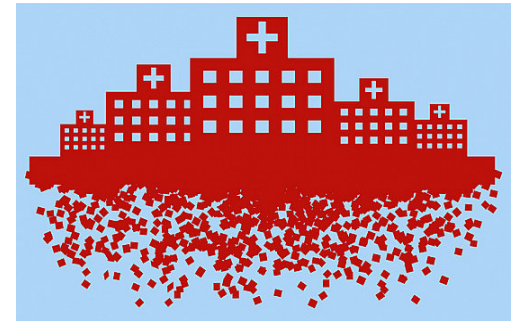
**Black women < receive treatment compared to White women**



Haight SC, Byatt N, Moore Simas TA, Robbins CL, Ko JY. Recorded Diagnoses of Depression During Delivery Hospitalizations in the United States, 2000-2015. *Obstet Gynecol.* 2019 Jun; 133(6):1216-1223.

Bauman BL, Ko JY, Cox S, et al. *Vital Signs: Postpartum Depressive Symptoms and Provider Discussions About Perinatal Depression — United States, 2018.* *MMWR Morb Mortal Wkly Rep* 2020;69:575–581.

# Barriers to Successful Screening & Effective Referral to Treatment



Patient	Provider	Healthcare System
Stigma	Insufficient time	Cost: Time & Re/Training
Fear of social/legal consequences	Lack of MH/SUD knowledge	Separation of MH/SUD care
Lack of available or accessible *MH/SUD treatment providers	Lack of available or accessible *MH/SUD treatment providers	Lack of available or accessible *MH/SUD treatment providers

\*MH: Mental Health; SUD: Substance Use Disorder

## Listening to Women & Pregnant & Postpartum People



**Text Message Based Screening**



**Brief Intervention**  
Remote Care Coordinator (MSW)

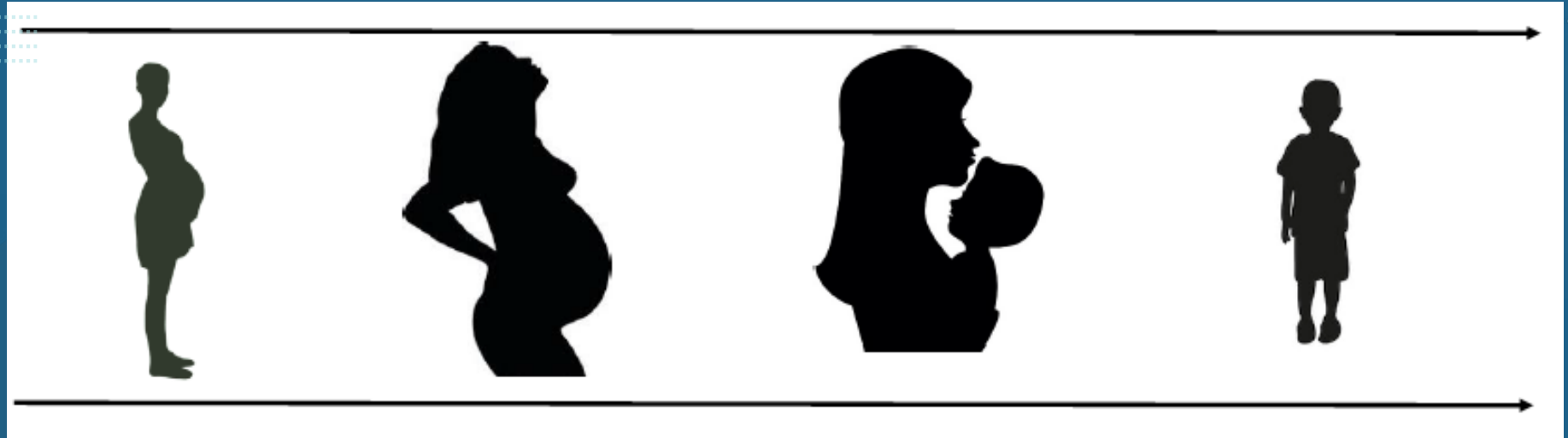


**Referral to Treatment**  
Telemedicine/ Office or Home  
Follow up



**Communicate with Ob/Peds  
Team**  
Screening information  
Referral and Tx Progress





## Screening During Pregnancy and the Year Postpartum

- Pregnancy Screens:
  - 1<sup>st</sup> Prenatal Care Visit or Anytime After
  - Each Trimester of Pregnancy
- Postpartum Screens:
  - 1 Month Postpartum
  - Every 3 Months After Delivery Until 12 Months Postpartum



## Design for Dissemination

LTWP



97% of patients have a cell phone

## Text Message Based Screening



### Brief Intervention

Remote Care Coordinator (MSW)



### Referral to Treatment

Telemedicine/ Office or Home

Follow up



### Communicate with Ob/Peds Team

Screening information  
Referral and Tx Progress

### Clinical Efficiency

- Enrollment Existing Staff
- Automated feedback
- Prioritize patients in need

### Care Coordinator, MSW

- Least expensive, most qualified
- Bill for screening, case management
- Work remotely with multiple practices



**Pilot:  
Routine Prenatal Care  
Listening to Women  
(LTW)  
Vs.  
Standard of Care (SOC)  
[In-Person Screening &  
Referral]**

**RNs Enrolled Peripartum Women in  
Listening to Women (LTW)**

- N = 98.9% [547/553]
- Jan. 2020-April, 2021

**In-Person Screening & Referral  
(SOC)**

- N=2,988
- Jan, 2017- Dec. 2019

**Determined Rates of Women:**

- Screened
- Screened positive
- Referred to treatment
- Received treatment

Guille C., et. al. (2021) A Non-Randomized Trial of In-Person Vs. Text/Telephone Screening, Brief Intervention and Referral to Treatment for Pregnant and Postpartum Women. *Psychiatric Research and Clinical Practice*. 3(4):172-183.

**Compared to SOC, LTW were significantly more likely:**

**1) Screened**

**[71.8% vs. 65.2%,  $p < 0.0024^*$ ]**

**RR 1.09 (95% CI 1.0287, 1.1608)  $p = 0.004$**

**2) Screened Positive**

**[65.4% vs. 33.3%,  $p < 0.0001^{**}$ ]**

**RR 1.89 (95% CI 1.7137, 2.1007)  $p < 0.0001$**

**3) Referred to Treatment**

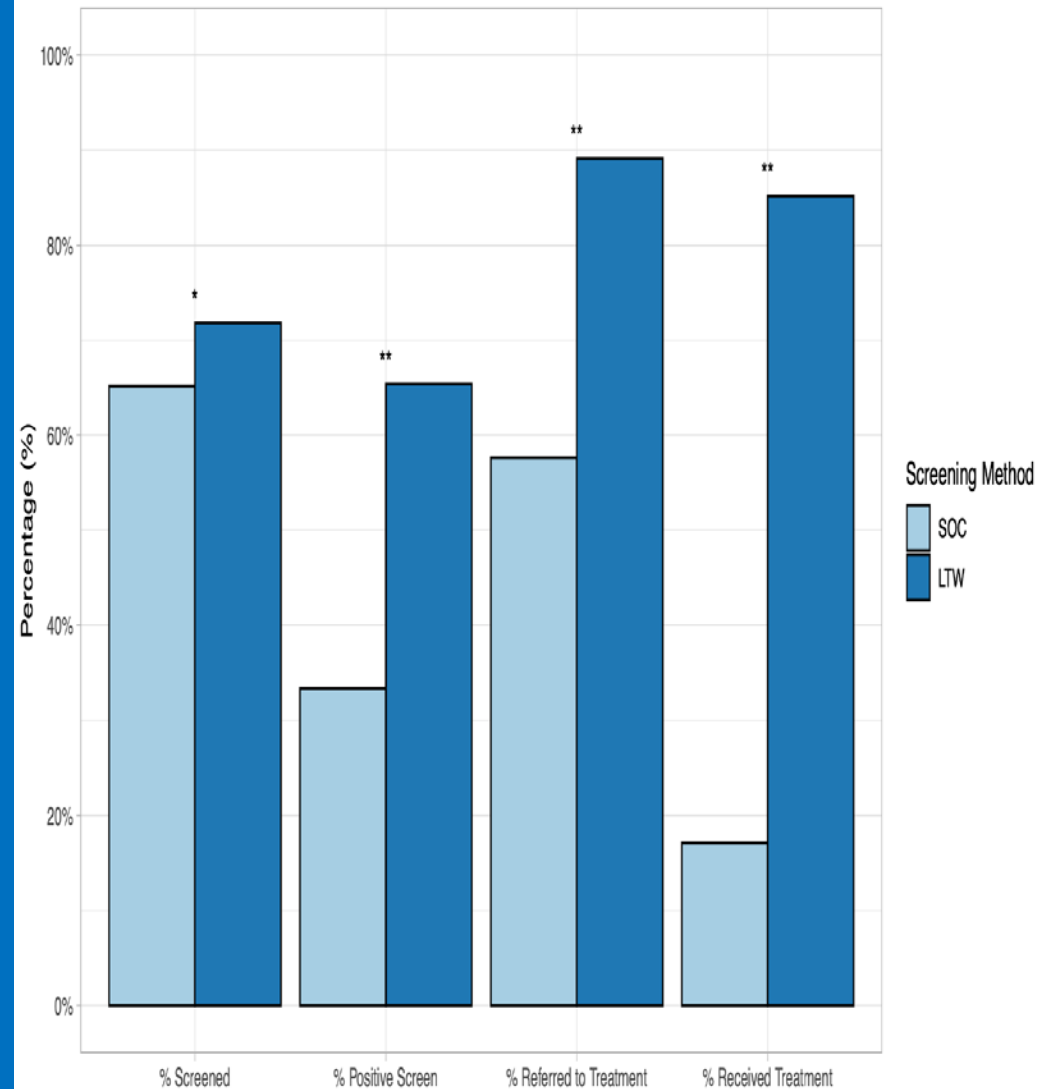
**[89.1% vs. 57.6%,  $p < 0.0001^{**}$ ]**

**RR 1.55 (95% CI 1.4264, 1.6932)  $p < 0.0001$**

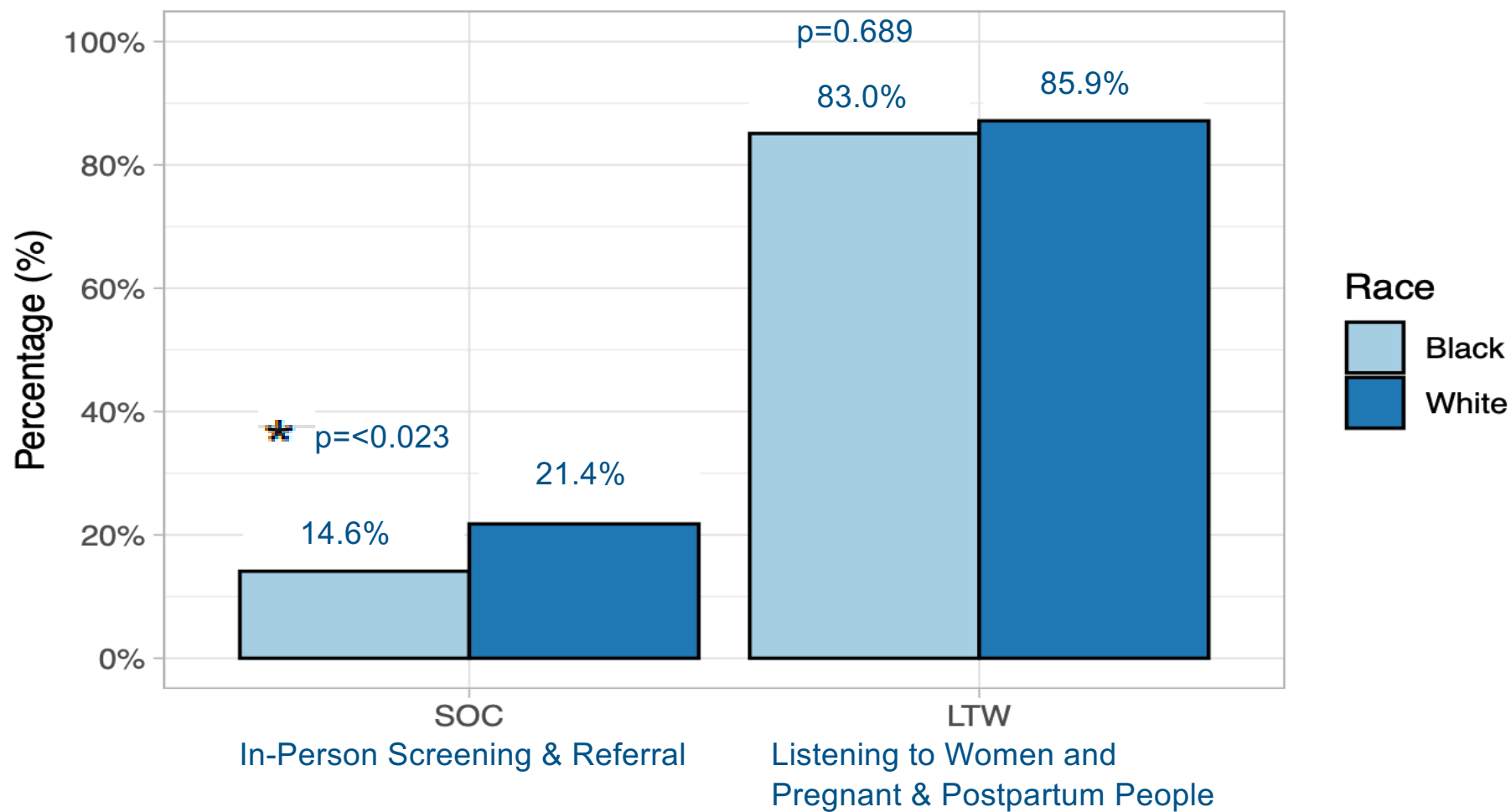
**4) Received Treatment**

**[85.2% vs. 17.1%,  $p < 0.0001^{**}$ ]**

**RR 5.00 (95% CI 3.9806, 6.3027)  $p < 0.0001$**



# **D** % Received Treatment by Screening Method and Race



## Next Steps

**Goal:** Conduct a Large Step-Wedge Randomized Controlled Trail in “13” Ob/Gyn Practices

**Study Aims:** Compare LTWP Vs. In-person screening & referral to determine differences in rates

- Treatment attendance and treatment retention [Primary Outcomes]
- Patient Reported Outcomes (PROs) (e.g., depression, substance use, maternal functioning)

### Mixed Methods Evaluation

- Implementation processes and outcomes in trial and non-trial clinics

### Exploratory Analyses

- Determine sub-group characteristics and mediators of effectiveness on primary outcomes

# Acknowledgments

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### **MUSC Telehealth Center of Excellence**

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Rebecca Beeks, BA

### **MUSC Biomedical Informatics Center**

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Erin Quigley, BA

Tomoko Gaddard, BA

Katie Kirchoff, MA

## **Women's Reproductive Behavioral Health Division**

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Kerry Blome, LISW

Edie Douglas, MPH

Courtney King, PhD

Liz Monter, MD

Amanda Sandford, MSW

## **MUSC Center for Telehealth**

James McElligott, MD

Emily Warr, MSN, RN

Peter Gardella, RN

# Telehealth Outreach Program for Traumatic Stress


Regan Stewart, PhD  
Medical University of South Carolina



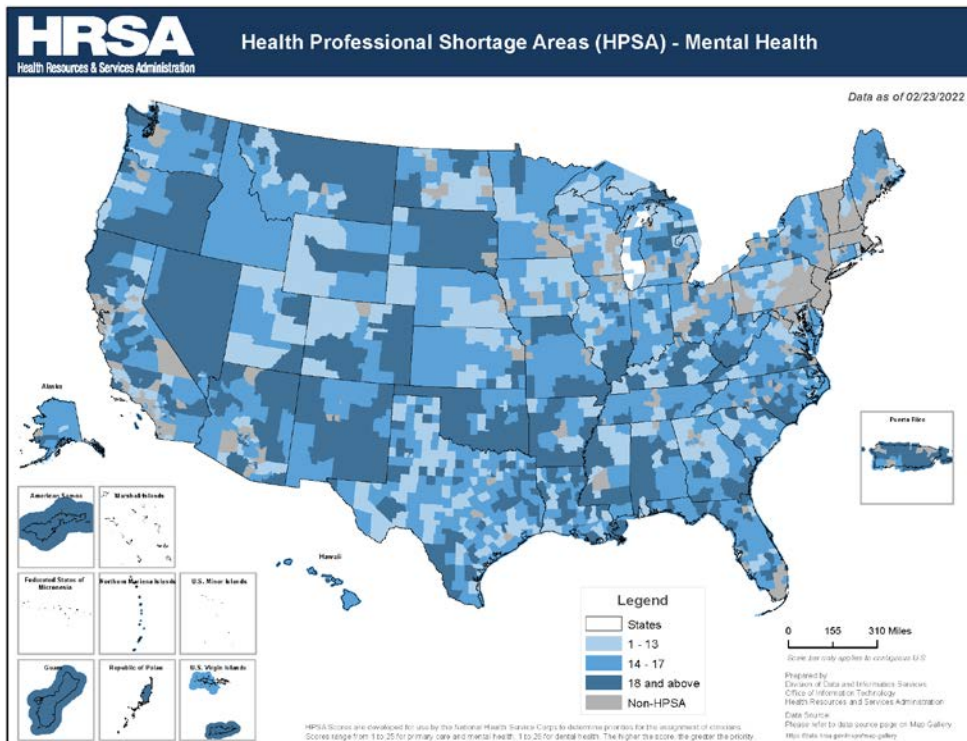
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## Very few receive services

- People don't get the services they need: Less than 1/2 of individuals with mental health problems are estimated to receive needed services (NAMI, 2021)
- Significant disparities exist for mental health access for ethnic minorities and rural populations

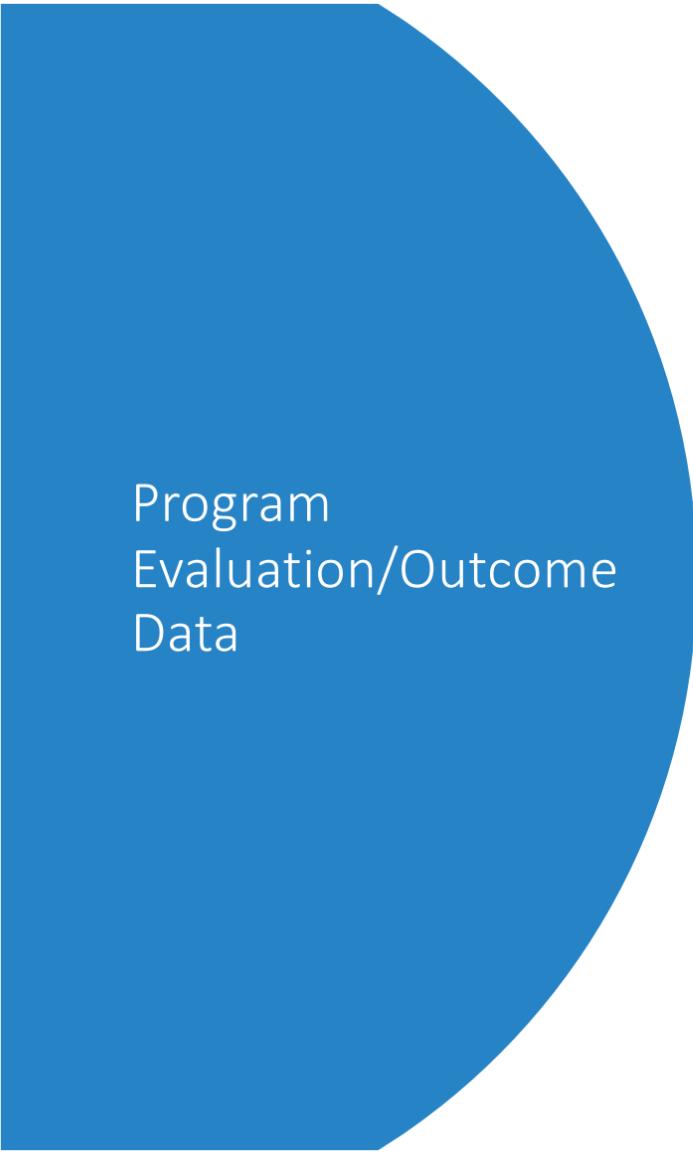
## Even fewer complete services

- High premature termination in community treatment
- 28%-75% depending on the study (de Haan et al., 2013)
- Hispanic and African American children are at greater risk for treatment dropout (Pellerin et al., 2010)

# MUSC Telehealth Outreach Program for Traumatic Stress

- Established 2015
- Evidence-based trauma-focused treatment via telehealth for children across SC
- Goal of increasing access to care for populations that are underserved by office-based mental healthcare programs
  - Especially, rural populations, and racial/ethnic minorities
- School-based & home-based





Program  
Evaluation/Outcome  
Data

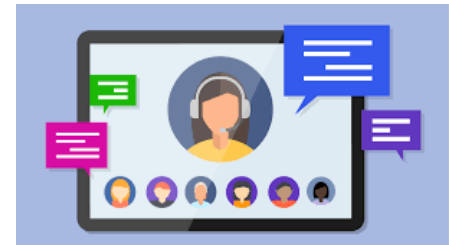
- Over **3,700 visits** with over **400 patients** in **14 counties** to date (30% of all counties in SC)
- 70% school-based, 30% home-based
- 80% treatment completion rate
- The **first ever papers documenting the feasibility, safety, and effectiveness of telehealth delivery of child trauma treatment** are published by our team at MUSC

**Bottom line: Telehealth for child trauma treatment is feasible and it works!**



# Help, I'm New to Telehealth! – Requests for Training

- Calls & emails from across the country
- Telehealth webinars & presentations

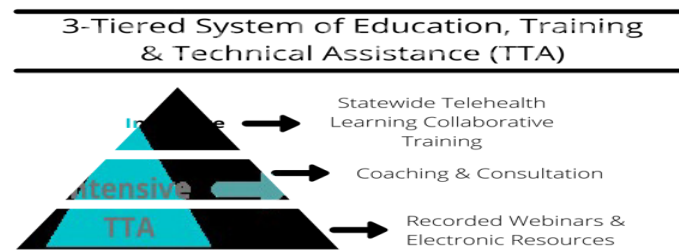


## Expansion of the TOP-TS Program

- AND THEN....we received several other grants and additional funding to expand the program



# Telehealth Outreach Program for Traumatic Stress

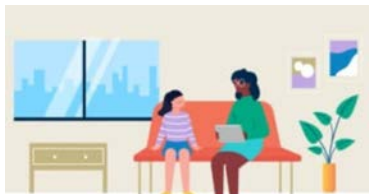


- The TOP-TS team has trained over 7,500 individuals in telehealth delivery of evidence-based trauma-informed practices in 23 U.S. states/territories and 3 countries since 2019.

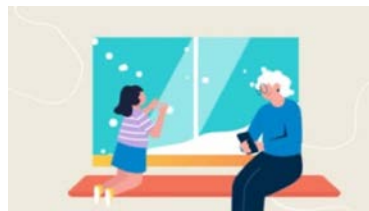
# Videos & Fact Sheets for Caregivers & Therapists

- Worked with National Children's Alliance to create fact sheets & brief animated videos about benefits of telemental health (English & Spanish)

For Caregivers



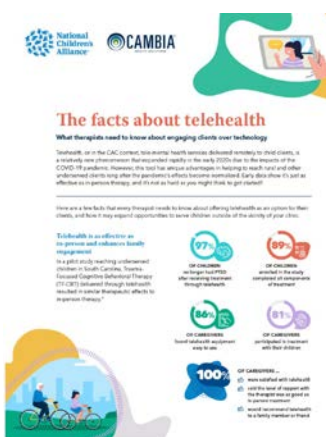
For Therapists



## For Caregivers



## For Therapists

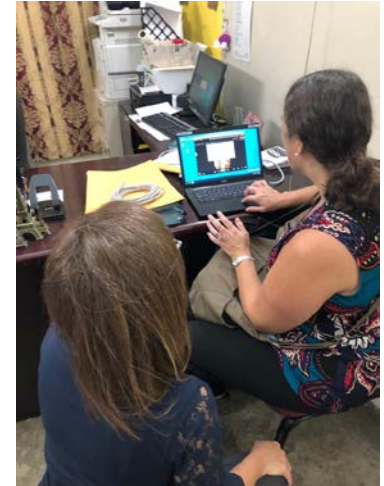


<https://learn.nationalchildrensalliance.org/telehealth>

# TOP-TS in Puerto Rico

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- Collaboration between MUSC, Puerto Rico Department of Education, University of Puerto Rico Medical Sciences Campus, Albizu University-Mayagüez Campus
- Created the first school-based telepsychiatry consultation program in Puerto Rico
- 5 under-served schools in the Mayagüez region of Puerto Rico



# School-Based Telepsychiatry in Culebra, PR



\*Keeping resources local (within PR)



- First school-based telehealth site in Puerto Rico
- Connecting to psychiatrists in San Juan, PR to Culebra, PR
- Inclusion of Community Health Worker
- Collaboration- MUSC, UPR, Escuela Ecológica, PR Public Health Trust

## Recent MUSC HRSA Telehealth COE & Southeastern Telehealth Resource Center Collaboration for Puerto Rico

MUSC review/revision of SETRC Spanish language documents

Puerto Rico Department of Health

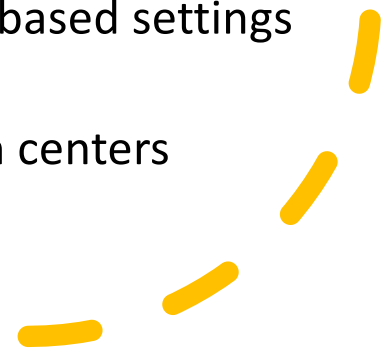
Puerto Rico Primary Care Association (FQHCs)

Puerto Rico Public Health Trust

Telehealth Conference in Puerto Rico (January 2024)

## Future Directions: Need for Telehealth Research for Child Traumatic Stress

- Currently no RCT examining child traumatic stress treated via telehealth
  - Open pilot feasibility trials (MUSC team conducted)
  - Lots of research published for adult trauma treatment via telehealth
- Tx outcome study w/2 conditions: (1) Telehealth TF-CBT vs (2) TAU In-Person TF-CBT (Randomized Effectiveness-Implementation Trial: Hybrid Type 1)
- Feasibility, acceptability & effectiveness of telehealth delivery of TF-CBT within community-based settings for underserved youth
- Puerto Rico community mental health centers



# Acknowledgements

## **Funding: HRSA, SAMHSA, MUSC Center for Telehealth**

### **MUSC Telehealth Center of Excellence**

Dee Ford, MD  
Katie King, MD, MPH  
Ryan Kruis, LISW  
Annie Simpson, PhD  
Rebecca Beeks, BA

### **MUSC Psychiatry & Behavioral Sciences**

Rosaura Orengo-Aguayo, PhD  
Virginia Green, MSW  
Katy Aviles, BA

### **MUSC Developmental Pediatrics**

Rosmary Ros Demarize

### **MUSC Center for Telehealth**

James McElligott, MD  
Emily Warr, MSN, RN  
Erin Kasubinski, RN, MHL

### **Puerto Rico Collaborators**

Tania Rodriguez, PhD (Carlos Albizu University)  
Karen Martinez, MD (University of Puerto Rico,  
Medical Science)  
APS Healthcare  
AAMSCA  
Puerto Rico Department of Education  
Escuela Ecológica Culebra  
Puerto Rico Public Health Trust



**Thank you!**

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# Remote Trial Methods for Evaluating Tele-behavioral Health Interventions

**Jennifer Dahne, Ph.D.**

Associate Professor, Department of Psychiatry and Behavioral Sciences, Addiction Sciences Division  
Medical University of South Carolina

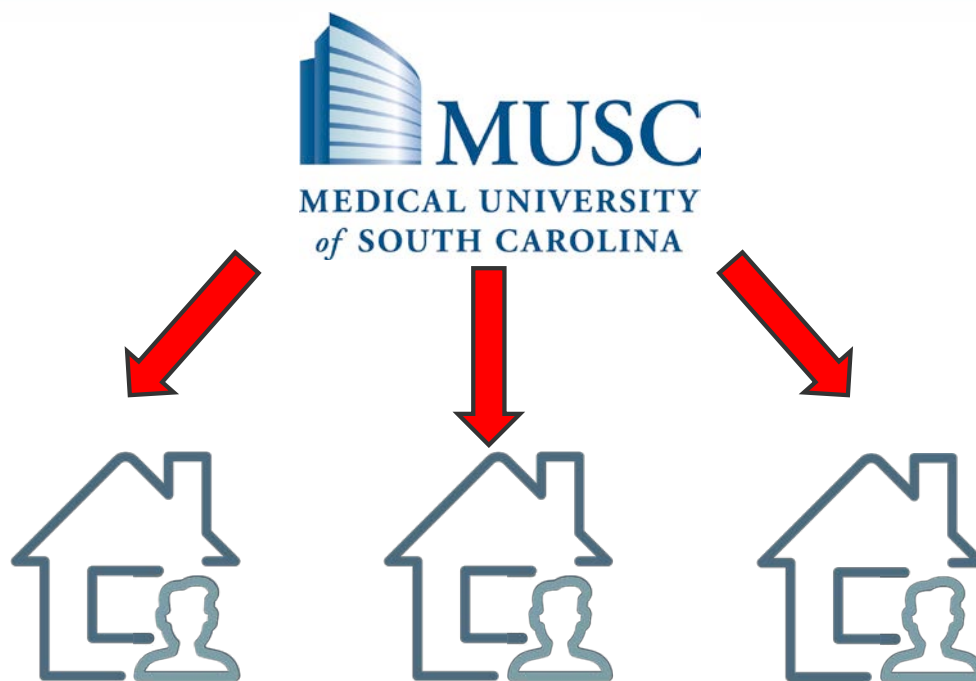


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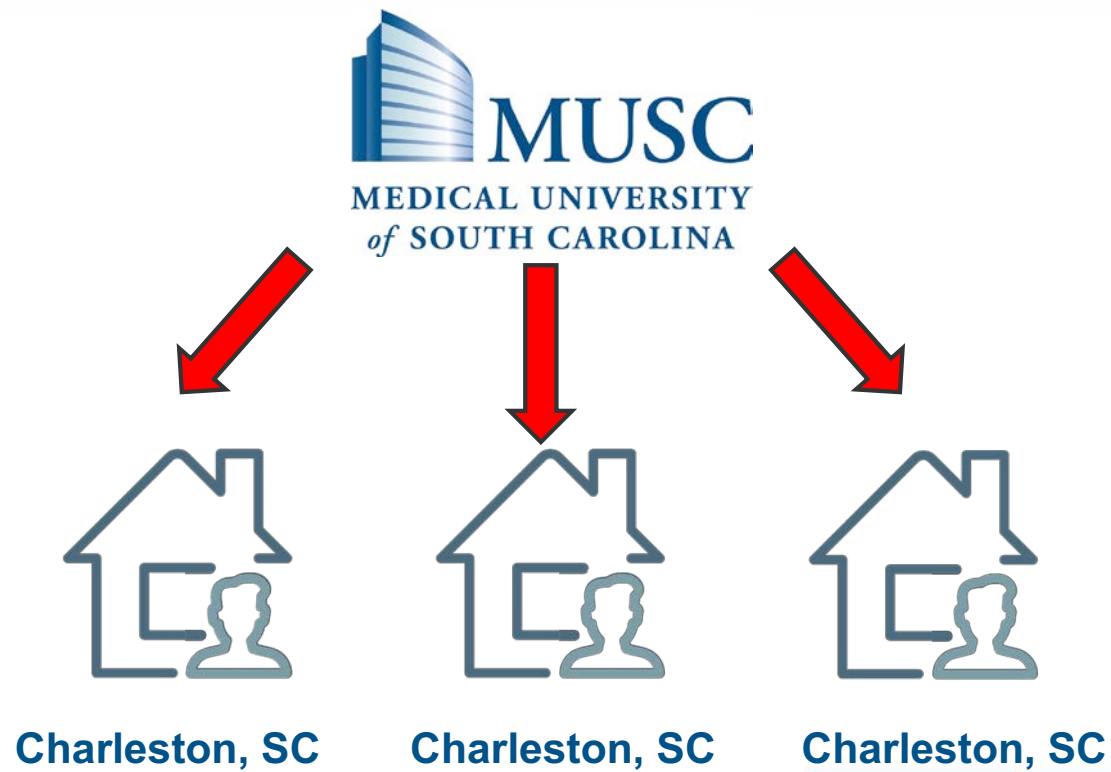


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# Remote Trials



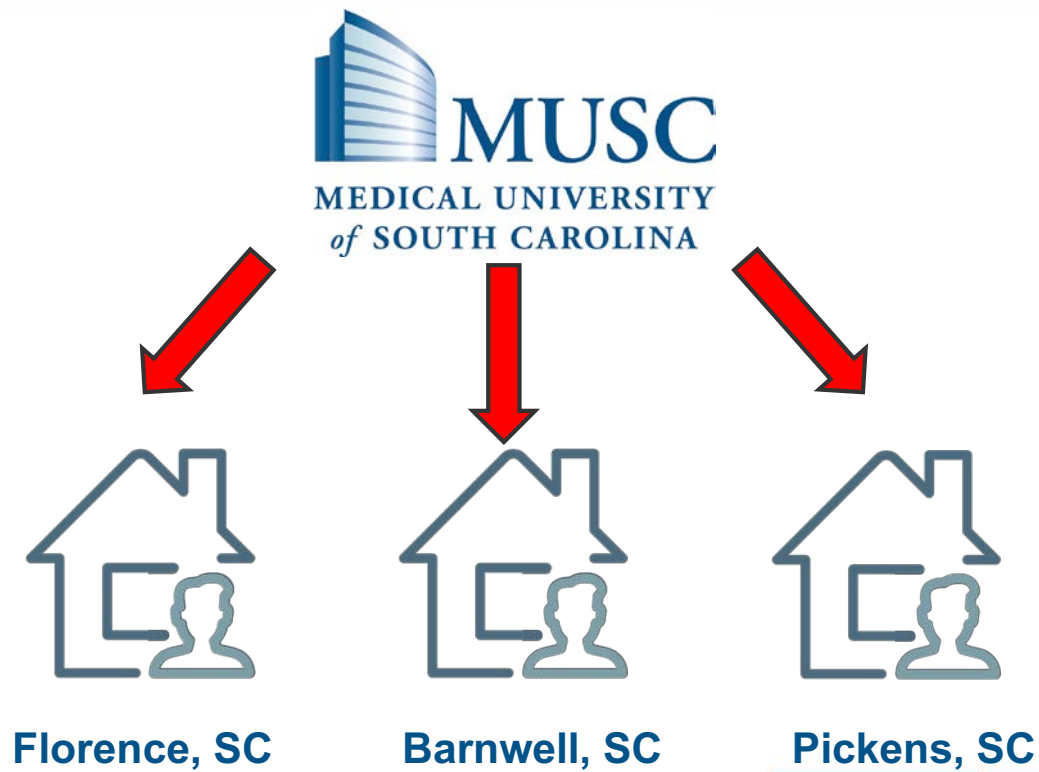
# Remote Trials



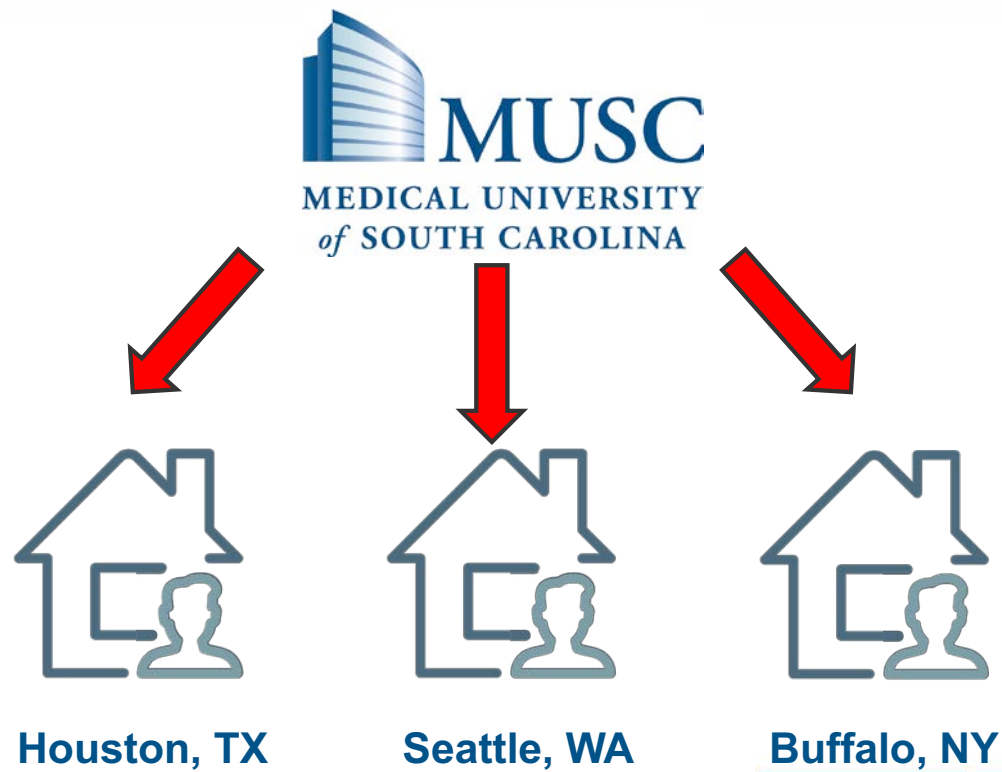
Changing What's Possible | [MUSC.edu](https://MUSC.edu)



# Remote Trials



# Remote Trials



# The Promise of Remote Trials

- **Remote trials offer several advantages over traditional in person trials:**
  - Wider participant pool, increased results generalizability
  - Reduced regulatory hurdles (e.g., vs. multisite clinical trial)
  - Reduced participant burden, critically important for ill patients
- **Heightened relevance during COVID-19, but not *only* relevant during COVID-19**
- **Remote trials are particularly relevant for evaluation of tele-behavioral health interventions**
  - Telehealth interventions can reduce barriers to care, extending intervention reach
  - They must be evaluated within remote contexts while maintaining the rigor of traditional in person trials



# The Perils of Remote Trials: Addressing the Potential for Fraud

- **Fraud:** Providing false data that misrepresents critical information about eligibility criteria or study outcomes.
- Fraud is not unique to remote trials.
- Because participants are not seen in person, remote trials *may* be more susceptible to fraud.
  - Important literature gap: Prevalence of fraud in remote vs. in person trials
- Fraud mitigation strategies *may* decrease fraud prevalence.
  - Important literature gap: Effectiveness of different fraud mitigation strategies



# Why Should We Care About Fraud?

- The case of “**Destined to Succeed**”
  - Does not have the condition (e.g., does not smoke in a cessation trial)
  - Regardless of treatment allocation, participant will appear to respond
  - 40% of participants (>1 research study per year) admit to exaggerating or feigning symptoms
  - Increased risk when trials do not include biomarker confirmation
    - Biomarker confirmation may be more difficult in remote vs. in person trials



Who You Think  
You're Enrolling



Who You Think  
You're Enrolling



Who You  
Actually Enroll



Who You Think  
You're Enrolling



Who You  
Actually Enroll



Even if treatment does not truly work at all, 50% will  
appear to have quit, which is better than all first line  
FDA-approved pharmacotherapies for cessation.



Who You Think  
You're Enrolling



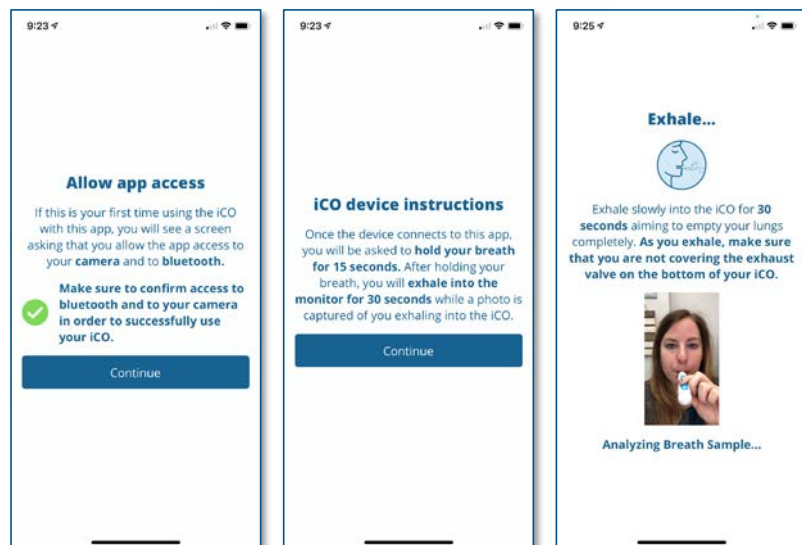
**Ineffective treatments will appear efficacious and will be disseminated, negatively impacting public health.**

Even if treatment does not truly work at all, 50% will appear to have quit, which is better than all first line FDA-approved pharmacotherapies for cessation.



# Improving Rigor with Remote Biomarker Capture: COast (NCI R21)

## Participant View



The investigator view displays the following information:

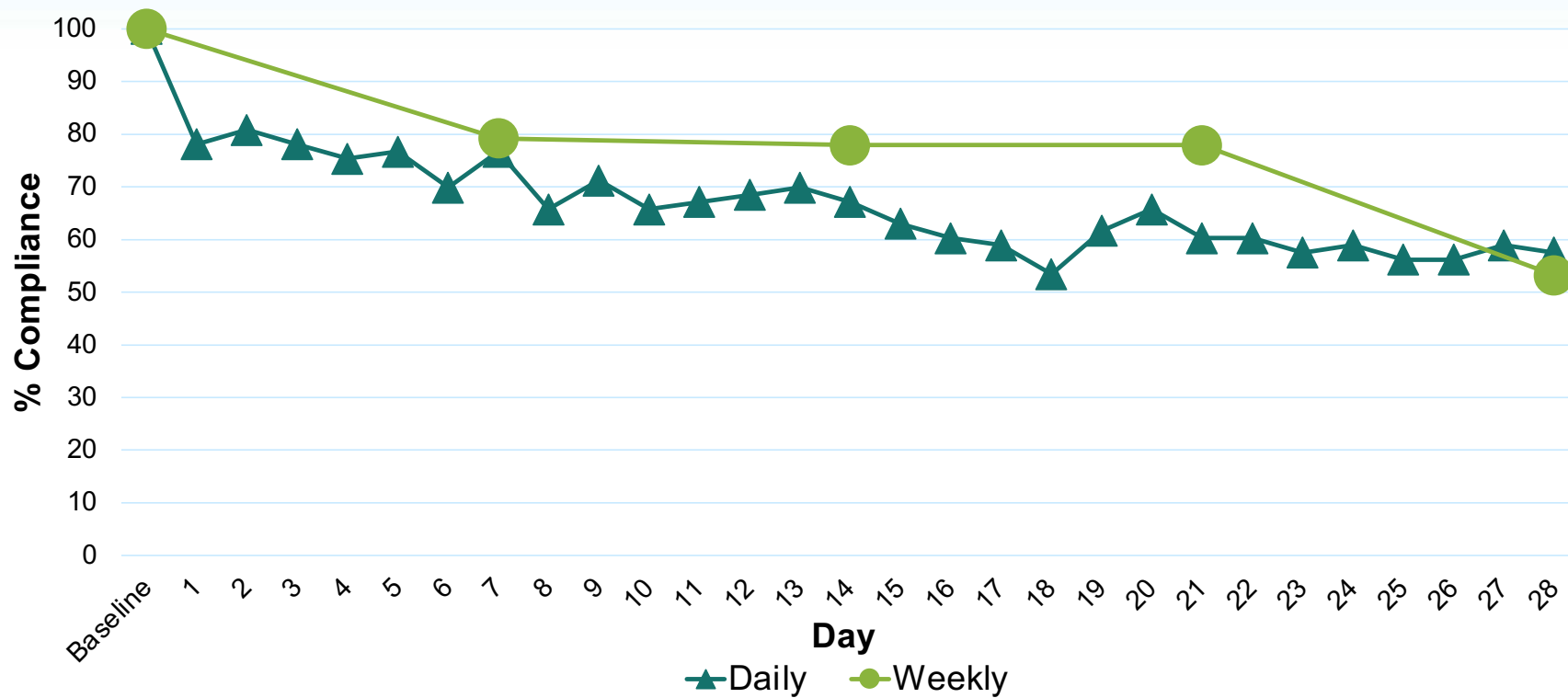
- Header:** RCT iCO Study Main Project/EMA, PID 51874. Actions: Download PDF of instrument(s), Share instrument in the Library, VIDEO: Basic data entry.
- ICO Collection All:** Survey response is editable, Edit response, Survey options.
- Status:** Response was completed on 03/31/2021 2:45pm. You have permission to edit this survey response from its original values. In order to begin editing the response, you must click the Edit Response button above. View all contributors to this response.
- Record ID 3 - Baseline (Arm 1: Daily) (SID: 1002) Wise, Reginald**
- Form Fields:**
  - Record ID: 3
  - CO value from iCO: 32
  - Temperature: 248.0
  - Max value: 32
  - Average value: 32
  - Image of participant: c6008be7-d256-4abd-8e9a-1...fb30.jpg (0.01 MB)
  - Was the participant the person using the CO Monitor?: Yes
  - Is the participant exhaling into the monitor?: Yes
  - Diary calc for daily arm: 54
  - End of survey date/time: 03-31-2021 14:45:38
  - Follow-up survey completion time: [Empty field]
  - Form Status: Complete?



## Investigator View



## Compliance with Remote CO Capture via COast



# Remote Home Spirometry

(MUSC HRSA-Funded Telehealth COE)



Editing existing REDCap ID 1 Test Apple

Event Name: **Baseline**

REDCap ID: 1

**FIRST READING**

Spirometry reading 1 7ED9B36E-EC05-492D-B8EC-6...191D6.mp4(11.36 MB)

\* must provide value

Device ID 0000302279

PEF \* must provide value 390

FEV0.75 \* must provide value 2.85

FEV1 \* must provide value 3.12

FEV10 \* must provide value 3.67

FEV1/FEV10 \* must provide value 0.85

FEF2575 \* must provide value 3.35

FEV1 Personal Best \* must provide value 0

PEF Personal Best \* must provide value 0

FEV1% \* must provide value 0

PEF% \* must provide value 0

Green Zone \* must provide value 0.95

Yellow Zone \* must provide value 0.9

Orange Zone \* must provide value 0

Year \* must provide value 22

Month \* must provide value 6

Day \* must provide value 13

Hour \* must provide value 15

Minute \* must provide value 35

Second \* must provide value 34

Good Test \* must provide value 0

0 = test did not fail QA  
1 = test failed QA resulting in the bad blow symbol (f)

SW Number 561



# MyTrials (NCATS Phase I STTR)



Participant View

**This platform can be expanded to incorporate additional remote patient monitoring devices.**

9:23 9:23 9:25

**Participant View**

**RCT ICo Study Main Project/EMA** PID: 51874

Actions: Download PDF of instrument(s) Share instrument in the Library VIDEO: Basic data entry

**ICo Collection All**

Survey response is editable Edit response Survey options

Response was completed on 03/31/2021 2:45pm. You have permission to edit this survey response from its original values. In order to begin editing the response, you must click the Edit Response button above. View all contributors to this response.

Make sure to confirm access to bluetooth and to your camera in order to successfully use your ICo.

Continue

For 15 seconds, after holding your breath, you will exhale into the monitor for 30 seconds while a photo is captured of you exhaling into the ICo.

Continue

valve on the bottom of your ICo.

Analyzing Breath Sample...

Image of participant c500bbe7-df26-4abd-8efa-1-f8c30.jpg (0.01 Mb)

Was the participant the person using the CO Monitor?  
\* must provide value Yes No

Is the participant exhaling into the monitor?  
\* must provide value Yes No

Diary calc for daily arm 54 View equation

Thank you for completing this survey. You must click SUBMIT in order for your breath sample to be saved. As a reminder, you will earn \$2 for completing your CO submissions each day. Please be on the lookout for your next survey tomorrow. Have a nice day!

End of survey date/time: 03-31-2021 14:45:38

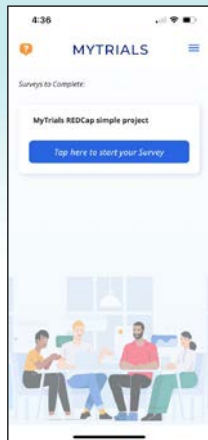
Follow-up survey completion time View equation

Form Status

Complete? Complete



# MyTrials (NCATS Phase I STTR)



Participant View



**This platform can be expanded to incorporate additional remote patient monitoring devices.**



RCT ICo Study Main Project/EMA PID: 51874

Actions: Download PDF of instrument(s) Share instrument in the library VIDEO: Basic data entry

ICO Collection All

Survey response is editable Edit response Survey options

Response was completed on 03/31/2021 2:45pm. You have permission to edit this survey response from its original values. In order to begin editing the response, you must click the Edit Response button above. View all contributors to this response.

Image of participant c500bbe7-df26-4ab0-8efa-1-f8c30.jpg (0.01 MB)

Was the participant the person using the CO Monitor? Yes No

Is the participant exhaling into the monitor? Yes No

Diary calc for daily arm 54 View equation

Thank you for completing this survey. You must click SUBMIT in order for your breath sample to be saved. As a reminder, you will earn \$2 for completing your CO submissions each day. Please be on the lookout for your next survey tomorrow. Have a nice day!

End of survey date/time: 03-31-2021 14:45:38 View equation

Follow-up survey completion time View equation

Form Status

Complete? Complete



## Further Preventing Fraudulent Study Entry: Cheatblocker

- Focus is on identifying and preventing one form of fraud: repeatedly completing study screening in an attempt to falsely gain study entry
- A REDCap module that can be installed to your institution's instance of REDCap by your REDCap administrator and then deployed within any REDCap project
- Offers investigators flexibility in how they would like to define repeat entries
  - You can use any field or combination of fields in your dataset for defining duplicates
- Initial release February 2021, currently in use at 80 different REDCap institutions



Configure Module: CheatBlocker

×

Project: New iCo Study Screener

Settings

Values

Popup title:

\* must provide value

Eligibility

Acceptance Message:

\* must provide value

Thank you for your interest in this study. Please click "continue" to proceed to the screening survey so we may determine your eligibility for participation.

Rejection Message:

\* must provide value

Thank you for your interest but it looks like you're not eligible for this study at this time. You may close your browser at this time.

Eligibility message:

\* must provide value

You may be eligible for this study. Please click continue to proceed to the screening survey to determine further eligibility.

Potential duplicate message:

\* must provide value

We may need more information from you in order to review your record. Please click submit to proceed to the rest of the screening survey.

Automatic Duplicate Check:

\* must provide value

☒

Compare Dates By:

6

Time Period:

Months

▼

1.Criteria:

+

-

Field:

\* must provide value

first\_name - First Name

▼

+

-

Field:

\* must provide value

last\_name - Last Name

▼

+

-

2.Criteria:

+

-

Field:

\* must provide value

email - E-mail

▼

+

3.Criteria:

+

-

Field:

\* must provide value

telephone - Phone numt

▼

+

Cancel

Save



Configure Module: CheatBlocker

Project: New ICo Study Screener

Settings

Values

Popup title:

\* must provide value

Eligibility

In this project, duplicate entry defined as:

- Identical first name AND last name  
OR
- Identical e-mail address  
OR
- Identical telephone number

Between entries within 6 months of one another

Potential duplicate message:

\* must provide value

proceed to the rest of the screening survey.

Automatic Duplicate Check:

\* must provide value

☒

Compare Dates By: 6

Time Period: Months

1.Criteria:

+

-

Field:

\* must provide value

first\_name - First Name

+

-

Field:

\* must provide value

last\_name - Last Name

+

-

2.Criteria:

+

-

Field:

\* must provide value

email - E-mail

+

3.Criteria:

+

-

Field:

\* must provide value

telephone - Phone numt

+

Cancel

Save

## Data from 3 Studies Using Cheatblocker

	STARS	COast	VapeX
Total Screenings Completed	468	464	166
Original Duplicates (#, %)	36 (8%)	25 (5%)	21 (13%)
Duplicate Entries (#, %)	64 (14%)	50 (11%)	36 (22%)
Total Duplicates (#, %)	100 (21%)	75 (16%)	57 (34%)
Range (duplicates per original)	1-33	1-5	1-6
Duplicated fields			
First name, last name, e-mail, and phone number	48	62	27
E-mail and phone number	8	3	6
First name, last name, and phone number	2	6	1
First name, last name	2	0	0
First name, last name, e-mail	1	0	0
Phone number	3	3	1
E-mail	0	1	1

Something was changed between entries



## Future Thinking

- What fraud prevention strategies work best, in what contexts (studies), and for which participants (types of fraud)?
  - What fields are the best to use for detecting fraud? Does fraud look different within tele-behavioral health intervention studies vs. other types of studies?
- Means of committing fraud keep advancing (masking IP addresses, sharing inclusion criteria online) and our methods of detection need to advance at a faster pace.
- Studies should include and publish (clinicaltrials.gov, manuscripts) plans for preventing/addressing fraud along with outcomes related to fraud detection.
- There are good reasons why participants may provide fraudulent responses (marginalized groups, sensitive clinical topics). How do we address fraud in those circumstances?



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  - Zachary Gavin
  - Chuck Olczak
  - Yehuda Brickman
  - Rob Sandridge



"OK, but if we work *together*... Whammo!  
Depth perception!"



If you're interested in  
using CheatBlocker or  
our device  
integrations with  
REDCap, feel free to  
contact me!

# Thank you!

[dahne@musc.edu](mailto:dahne@musc.edu)

