

## The Center for Health Enhancement Systems Studies UNIVERSITY OF WISCONSIN-MADISON









## **CHESS Framework**

- Relatedness
- Competence
- Autonomy

\*Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.





A-CHESS is a smartphone app

It is one more tool that a patient can use to help them in their recovery



Social support Discussion groups Private messaging Panic Button

Education and training Games and relaxation Tailored information & stories Healthy events/Meeting locator

Risk identifier Hi risk locater (GPS) Language analysis

Assessments EMA Scheduled assessment Tailored feedback ACHESS use

Alerts

Reminders Risk alerts Clinician alerts





#### Number of Hits per Service



#### **Overview and Testimonials**



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**Alerts** 

Reminders Risk alerts Clinician alerts

# CHESS has been tested in 15 Randomized Trials

### • PC based:

- Breast cancer (3)
- Lung cancer
- Transplant families
- Asthma parents
- Children of alcoholics
- Alzheimer's caregivers
- HIV/AIDS
- Smoking (Teens)
- Smoking (Adults)
- Menopause

- Smart phone based
  - SUD (2)
  - Colon cancer
  - Asthma (teens)
- Ongoing trials
  - Combine w MAT
  - Combine w case mgt.
  - Combine w EMA
  - Combine w CBT
  - Support older adults.
  - Multiple Chronic Conditions

### ACHESS had 57% fewer heavy drinking days Differences significant at p = .003



JAMA Psychiatry. doi:10.1001/jamapsychiatry.2013.4642. online March 26, 2014.

### The difference widens; even after ACHESS leaves (in patients w Co-occurring OPIOID use)



## Change in retention rates Opioid Addicted Appalachian Women (n=200).

### **Percent Improvement via ACHESS**



Mathews D. (2014). Combatting Addiction with Techcnology for Young Appalachian Women Using Smart Phones. Kentucky River Community Care. Hazard KY.

## Is it CHESS or the phone?

#### RCT 100 per arm



#### Effect size differences

Gustafson D, Hawkins R, McTavish F, et al . (2008). Internet-based interactive support for cancer patients:

Are integrated systems better? Journal of Communication 58(2) 238-257

# Analyze discussions: Swearing predicts relapse



## Clinician Report (Lung Cancer & ACHESS)

If CHESS shares patient status data with providers, then patients improve.

If patient reports a health status level over threshold,

& CHESS notifies the clinical team,

### Lung Cancer patients got better.

Chih M, et al. (2012). Palliative Medicine. Epub 17 Sep 2012.



% Improved

### RCT - Lung cancer patients with CHESS lived 35% longer.



Gustafson D, et al (2013). Cancer 119(9), 1744-.

# Clinician Report

### Integrating ACHESS and the Clinical Team







#### 🐣 Clinician Dashboard



# Challenges

- We know clinician report works. How to get clinicians to use?
  - No work
  - Link to EMR
- Finding accurate sensors
- Sustaining use
- Balancing human touch vs automation

## Implementation

- www.chess.health
- Together development team owns 3%
- 5500 licenses sold
- Implementation Science research
- 2017 finalist "Innovations in American Government Awards" – Harvard
- 2018 Ohio Opioid Technology Challenge