Telehealth Interventions for Pregnant and Postpartum Clients

NATIONAL MATERNAL AND INFANT NUTRITION INTENSIVE COURSE
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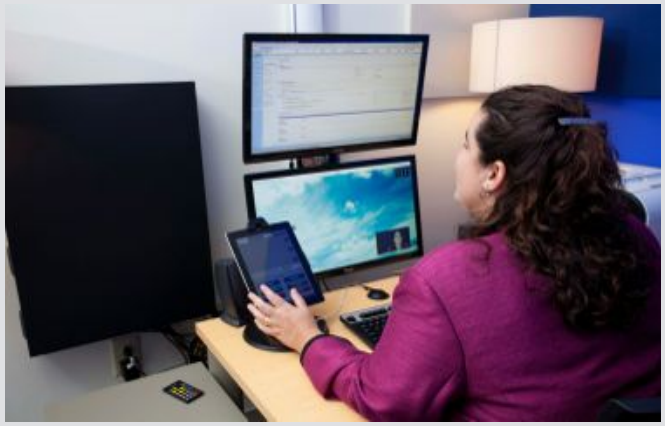
OBJECTIVES

Overview	Telehealth Interventions for Pregnant and Postpartum Clients
Describe	University of Arkansas' ANGELS Nationwide Model
Describe	momHealth approach with pregnant and parenting teens
Describe	Emerging maternal-child telehealth applications

ADVANCEMENT IN TELECOMMUNICATIONS



Has lead to options for providing healthcare at a distance

Adapted from S. Cain, 2015

Why Now? Tidal Wave of Telehealth

Many Sources of Momentum

Consumer Demand

Health Reform
-overall information technology
-patient-centered medical home
and health home
--fits shift to value, including MACRA & MIPS

Reimbursement
Reliable, Secure, Low Cost Technology Growth
Military Involvement
Investment
Telehealth Provider Networks
Association guidance and activities
Federal resources to promote telehealth
Growing opportunities: schools, in home, urban/rural

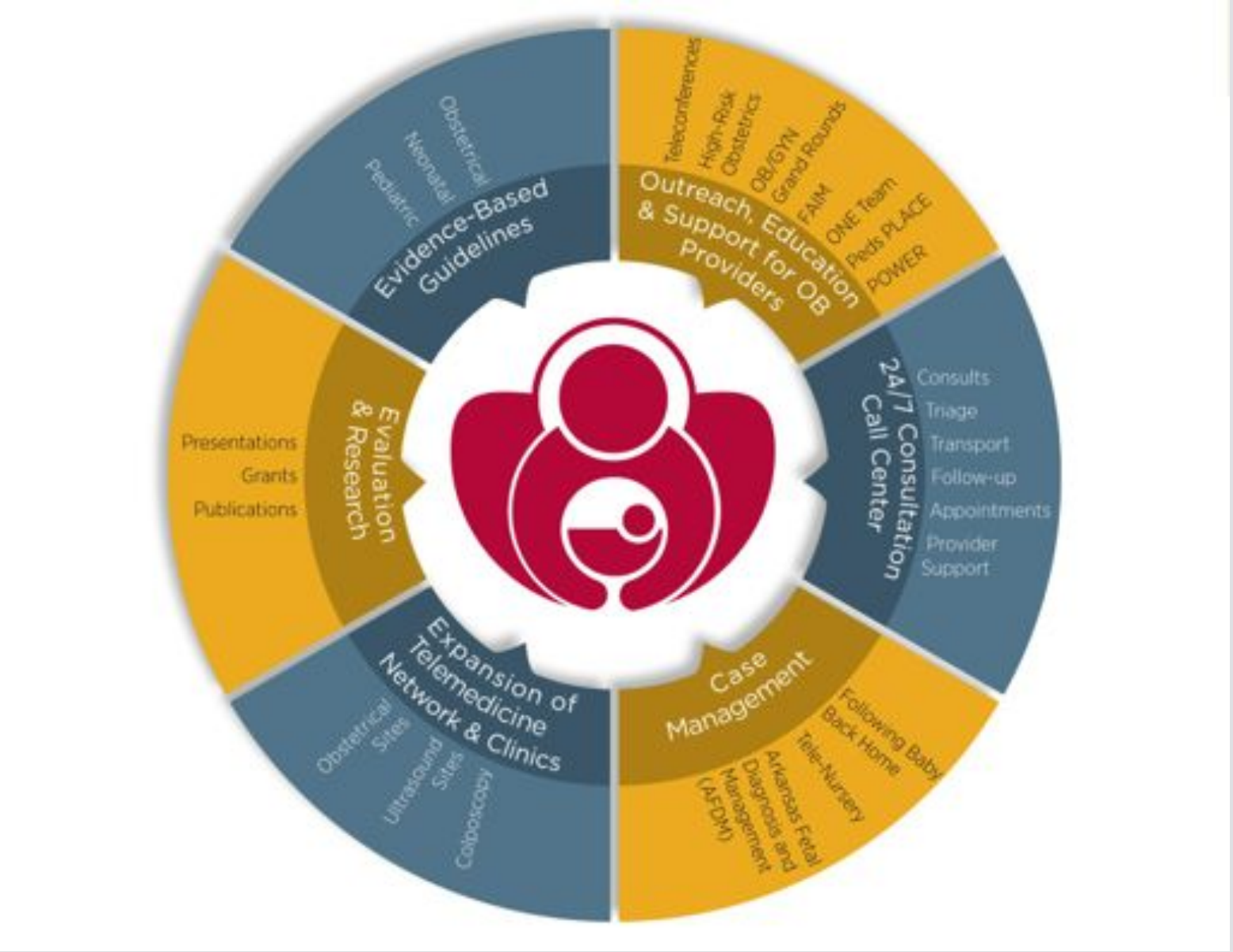
KU Center for Telemedicine & Telehealth

- Kansas is an ideal state for telemedicine
- Approximately 8,000 consults/year across 60 providers
- Most clinics utilize a traditional telemedicine model in supervised settings, with telemedicine presenters
- Behavioral consults are the most common outpatient consultation across psychiatry, psychology, and developmental medicine
- Telepsychiatry clinics since the late 1990's:
  - Rural mental health center, local schools, rural outreach clinics, urban daycare, group home associated with juvenile justice system
  - Private practice settings
- Early work in maternal-child telemedicine:
  - Healthy Steps over Telemedicine

ANGELS—UNIVERSITY OF ARKANSAS' NATIONAL MODEL

- **The Antenatal and Neonatal Guidelines, Education and Learning Systems (ANGELS)** is an innovative consultative service for a wide range of physicians including family practitioners, obstetricians, neonatologists and pediatricians in Arkansas.
- The ANGELS mission is to ensure that every woman in Arkansas at risk of having a complicated pregnancy receives the best possible perinatal care. ANGELS does this with evidence-based care guidelines, research, health care education and a 24/7 call center. Angels also offers consultation by UAMS board-certified, maternal-fetal medicine physicians using telemedicine technology.
- The only service of its kind in the nation, ANGELS is a joint program of the UAMS College of Medicine, the Arkansas Department of Human Services and the Arkansas Medical Society. This unique program is designed to be a support network for high-risk obstetric patients and practitioners in Arkansas.
- Replicated nationally and internationally

http://angels.uams.edu/clinical-telemedicine/



http://angels.uams.edu/clinical-telemedicine/

JENNIFER'S STORY FROM ANGELS FOUNDER DR. CURTIS LOWERY—7:30-16

https://www.youtube.com/watch?v=jtPL3zr2SDg

momHealth Pilot: Multiple Health Behavior Change Intervention With Pregnant And Parenting Teens Using Mobile Technology

KAREN WAMBACH, PHD, RN

ANN DAVIS, PHD, MPH

EVE-LYNN NELSON, PHD

FUNDING: MACARTHUR INTERPROFESSIONAL COLLABORATION AWARD

INNOVATION AND SIGNIFICANCE

- Multiple Health Behavior Change (MHBC)
- Mobile technology platform for intervention delivery via iPads
- Progressive work to assess need and pilot (Davis, Wambach, Nelson et al., 2014) and develop proposed intervention

ADOLESCENT PREGNANCY

- Lower rates of initiating and sustaining breastfeeding, especially exclusive breastfeeding (EBF-giving only human milk); gaining an unhealthy amount of weight during pregnancy, insufficient postpartum physical activity levels, difficulty losing weight postpartum; and higher rates of stress and postpartum depression.
- MHBC interventions bundle complementary interventions to maximize reach and cost-effectiveness.
- Pregnancy offers a unique window of opportunity

MULTI-BEHAVIOR CHANGE FRAMEWORK

- Influencing multiple behaviors through simultaneous interventions during pregnancy and early postpartum has potential for synergistic effects promoting long-term maternal and child health.
- Previous research has demonstrated associations between the targeted health behaviors in adolescent mothers: breastfeeding improves postpartum weight loss, raises awareness of need for good nutrition, and enhances mood.
- Conversely, obesity in teen mothers reduces exclusive breastfeeding, leading to shorter breastfeeding duration. Furthermore, physical activity enhances mood and weight loss, and does not adversely affect breastfeeding or infant growth.

Prochaska JJ, Spring B, Nigg CR. Multiple health behavior change research: An introduction and overview. *Prev Med*. 2008; 46: 181-188.

BREASTFEEDING

- **Breastfeeding and Adolescent Mothers.** Adolescents are less likely to initiate and sustain exclusive or any breastfeeding.
  - Nationally, 59% of mothers age 20 and under initiated breastfeeding, compared to 75% of 20-29 year olds.
  - Duration of breastfeeding to 6 months and 1 year by these young mothers was 17% and 4%, compared to 41% and 21% in 20-29 year olds. Further, adolescent mothers more frequently begin formula supplements in the hospital (34% vs 24% in 20-29 age group), and can shorten breastfeeding.
  - Because EBF is associated with heightened health benefits, it is estimated $13 billion can be saved annually in health care costs if mothers EBF to 6 months. Maternal benefits also include delay of ovulation and thus natural child spacing.
- Build upon Co-PI Wambach RCT of professional lactation and lay peer support to promote and support breastfeeding among low-income urban teenage mothers (R01 NR007773) indicated that in-person and telephone-based prenatal education and support enhanced breastfeeding initiation.
- Wambach, Nelson and Rojjanasrirat assessed the reliability and feasibility of secure videoconferencing for in-home breastfeeding support. We used 4 real-time, secure videoconferencing sessions to deliver lactation support to 10 mothers in the home. Findings established adequate inter-rater reliability of breastfeeding assessments and high technology satisfaction. Supporting quick response to adolescent lactation difficulties right at home, our convenient, tailored telehealth approach may decrease early difficulties and increase EBF.

HEALTHY LIFESTYLE

- Overweight and obesity among U.S. childbearing women has increased dramatically; 34% of women aged 20 to 39 are obese and 59% are overweight or obese.
  - Adolescent mothers, especially non-Hispanic whites and blacks, are more likely to gain excessive weight during pregnancy compared to pregnant women 20 years and older, tend to continue to gain weight after giving birth regardless of intention to lose weight
  - insufficiently physically active the first postpartum year
  - at risk for overweight/obesity as adults.
  - Maternal obesity is associated with obesity and type 2 diabetes in offspring.
  - Co-PI Davis founded a pediatric obesity program targeting health behavior change in parents and children ages 2-18. Her team also implemented a healthy eating/active living program with pregnant teens through community based Project Hope.

(PREGNANT) TEEN MOMS

- Partnership with Project Eagle Community Programs
- Sixty pregnant teens enrolled in the 3-month in-home program (6 home visits), with 51 completing all intervention components (85% completion rate). Data indicate 25% of the adolescents had a baseline pre-pregnancy BMI over 30 (obese). The intervention improved maternal fruit/vegetable intake, physical activity, and screen time ($p < .05$). Her team also used the variable, percent overweight, which is proposed here in exploratory Aim 3.
  - Teen $\underline{X}$ Age = 16.97 (1.14) years
  - Child $\underline{X}$ Age = 15.69 (13.38) months
  - 73.3% AA; 13% Hispanic
  - 93.3% Not married
  - 84% Free/Reduced lunch
- 6 in-home sessions
  - 3 teen, 3 baby

Davis, A.M., Gallagher, K., Taylor, M., Canter, K., Dreyer Gillette, M., Wambach, K., Nelson, E.L. (2013). An In-Home Intervention to Improve Nutrition, Physical Activity and Knowledge among Low-Income Teen Mothers and Their Children: Results from a Pilot Study. *Journal of Developmental and Behavioral Pediatrics, 34(8),* 609-615. NIHMS516339. doi: 10.1097/DBP.0b013e3182a509df. PMCID: PMC3835487.

DEPRESSION PREVENTION

- Adolescent mothers are at significantly higher risk for postpartum depression than adult women with rates up to 56% within the first 3 months postpartum.
- The negative impact of postpartum depression on maternal and infant health and psychosocial well-being is well supported.
  - Depression among adolescent mothers can decrease their engagement in health-promoting behaviors for their children and themselves
  - Infants of mothers with untreated depression are at higher risk of developmental delay, lower levels of social engagement, greater stress reactivity, and negative interactions compared with infants of non-depressed mothers.
  - Despite negative outcomes, there are few interventions focused on preventing postpartum depression/stress in pregnant adolescents, despite public health benefits.
  - Phipps et al completed one of the first clinical trial of depression prevention with underserved adolescents mothers similar to our target population showing significantly lowered depression rates in the intervention group.

THE EMPIRICAL EVIDENCE FOR TELEMEDICINE INTERVENTIONS IN MENTAL DISORDERS BASHSHUR, SHANNON, BASHSHUR, & YELLOWLEES, 2015

- The published scientific literature on TMH reveals strong and consistent evidence of the feasibility of this modality of care and its acceptance by its intended users, as well as uniform indication of improvement in symptomology and quality of life among patients across a broad range of demographic and diagnostic groups. Similarly, positive trends are shown in terms of cost savings.
- There is substantial empirical evidence for supporting the use of telemedicine interventions in patients with mental disorders.

Evidence-Base for Child and Adolescent Telemental Health

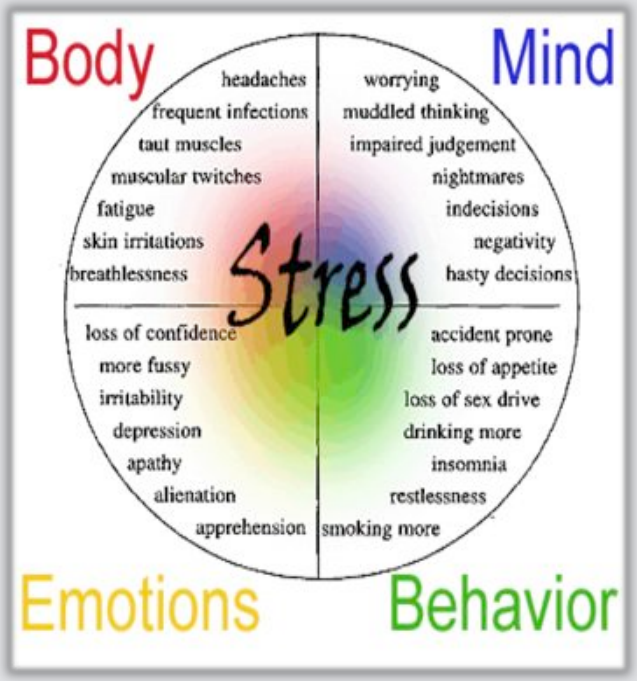
Descriptive Reports of Feasibility and Acceptability	Marcin et al. 2005, N=223	Boydell et al. N=100	Kopel et al. 2001, N=136	Myers et al. 2006, N=115	Myers et al. 2007, 2008, N=172	Myers et al. 2010, N=701
Outcome Studies	Fox et al. 2008, N=190	Yellowlees et al. 2008, N=41	Stain et al. 2011, N=11	Reese et al. 2013, N=21		
Randomized Controlled Trials RCTs	Elford et al. 2000, N=25 Diagnostic validation	Nelson et al. 2003, N=28 CBT for depression	Himle et al. 2012, N=20 Tic reduction	Xie et al. 2013, N=22 Parent training	Myers et al. 2015, N=223 ADHD Tx, including pharmaco-therapy	

Selected publications in C & A Telemental Health

Adapted from S. Cain, 2015

METHODS

- One-group quasi-experimental design
- momHealth interventions occur during the critical perinatal period; 8 weeks during the third trimester of pregnancy and 4 weeks postpartum
- Follow-up to 3 months postpartum to examine outcomes

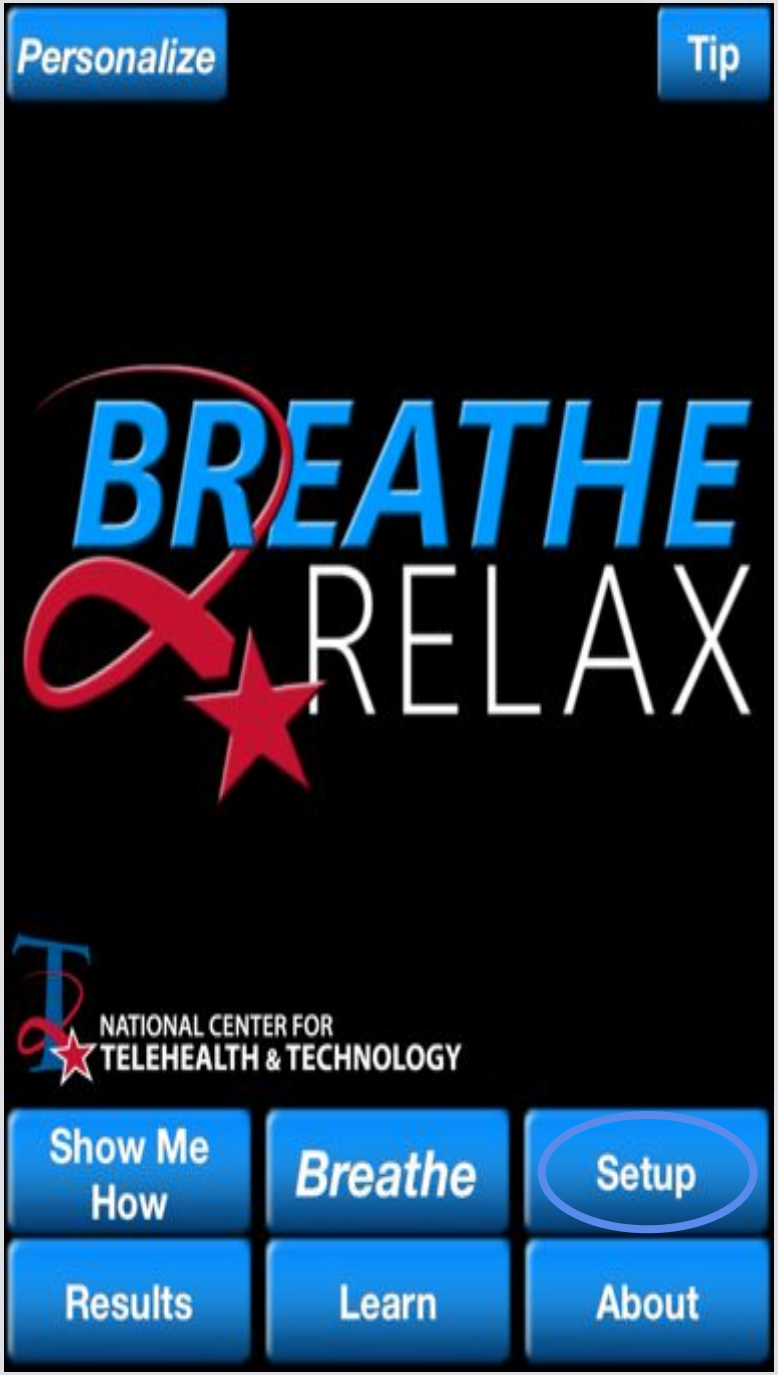


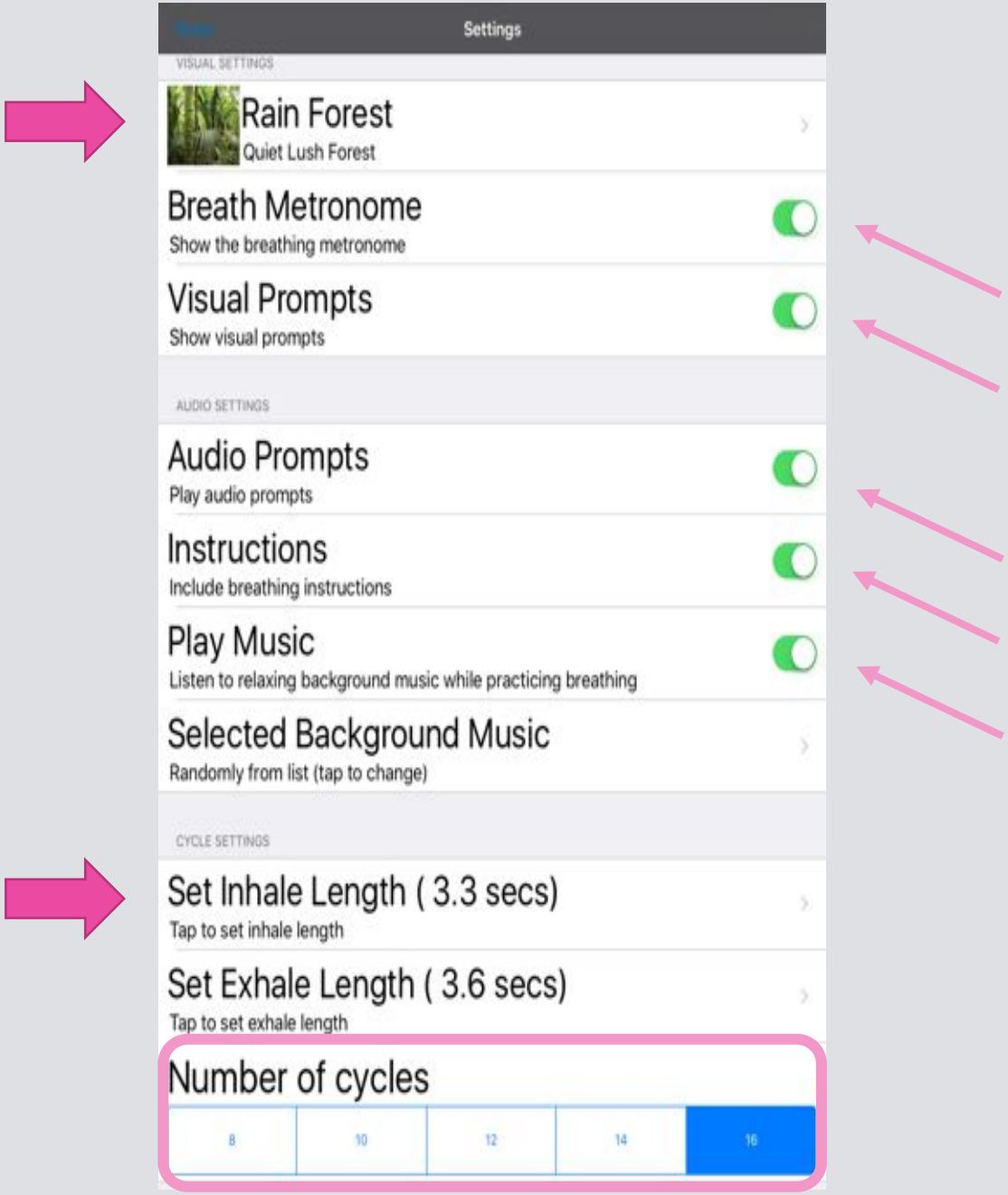
MEASURES

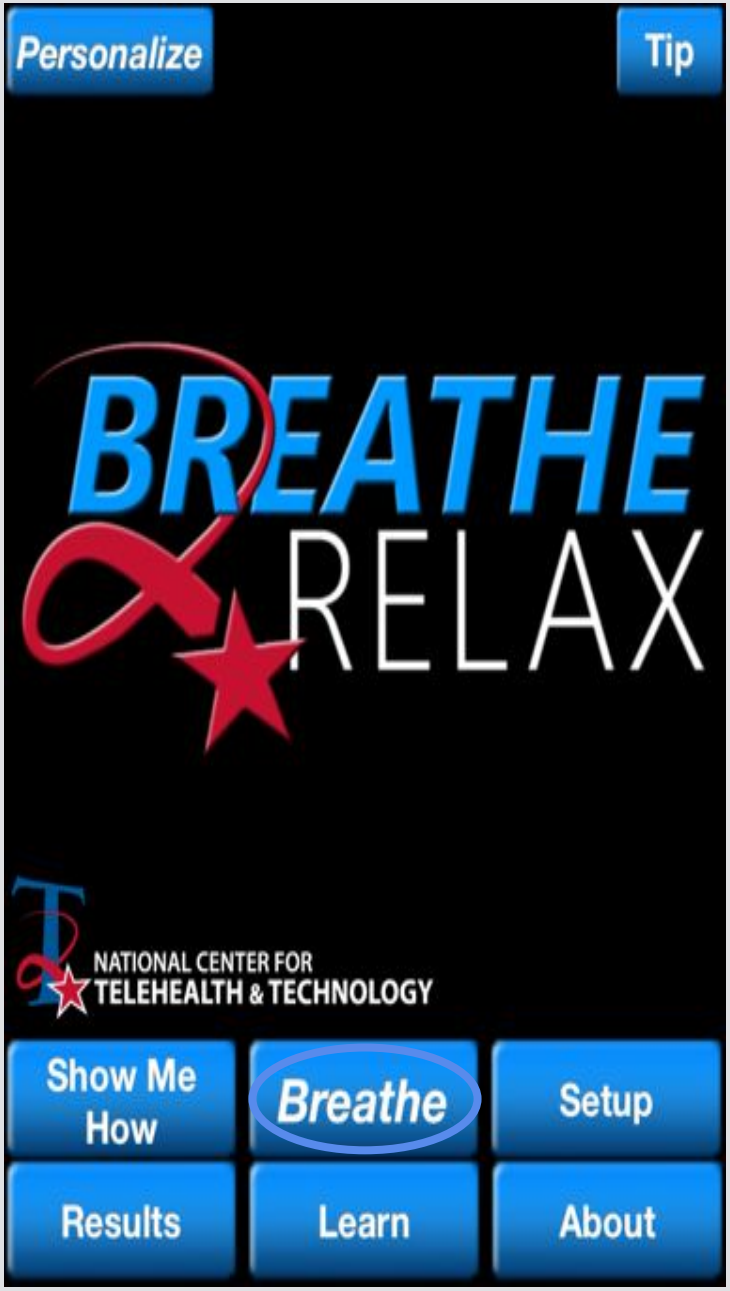
- 3 in-home assessments and data collections – baseline, 5 and 12 weeks postpartum
- REDCap™ system
- Demographic Data
- Breastfeeding Intention, experiences, and outcomes (prenatal intention, breastfeeding problems/events, breastfeeding initiation, exclusivity, duration out to 3 months)
- Dietary Data – 24-hour dietary recall X 3
- Physical Activity – ActiGraph monitor X 3 – 7 days
- Sleep (this study only) – Pittsburgh Sleep Quality X2 and sleep diary prenatal and postnatal (a.m. and p.m.) x 7days
- BMI – % Overweight
- Depression – Edinburgh Postnatal Depression Scale
- Following birth weekly short survey in each outcome area
- Post intervention interview on content, technology ease of use, perceptions on measures, and participant burden

ASYNCHRONOUS EDUCATION

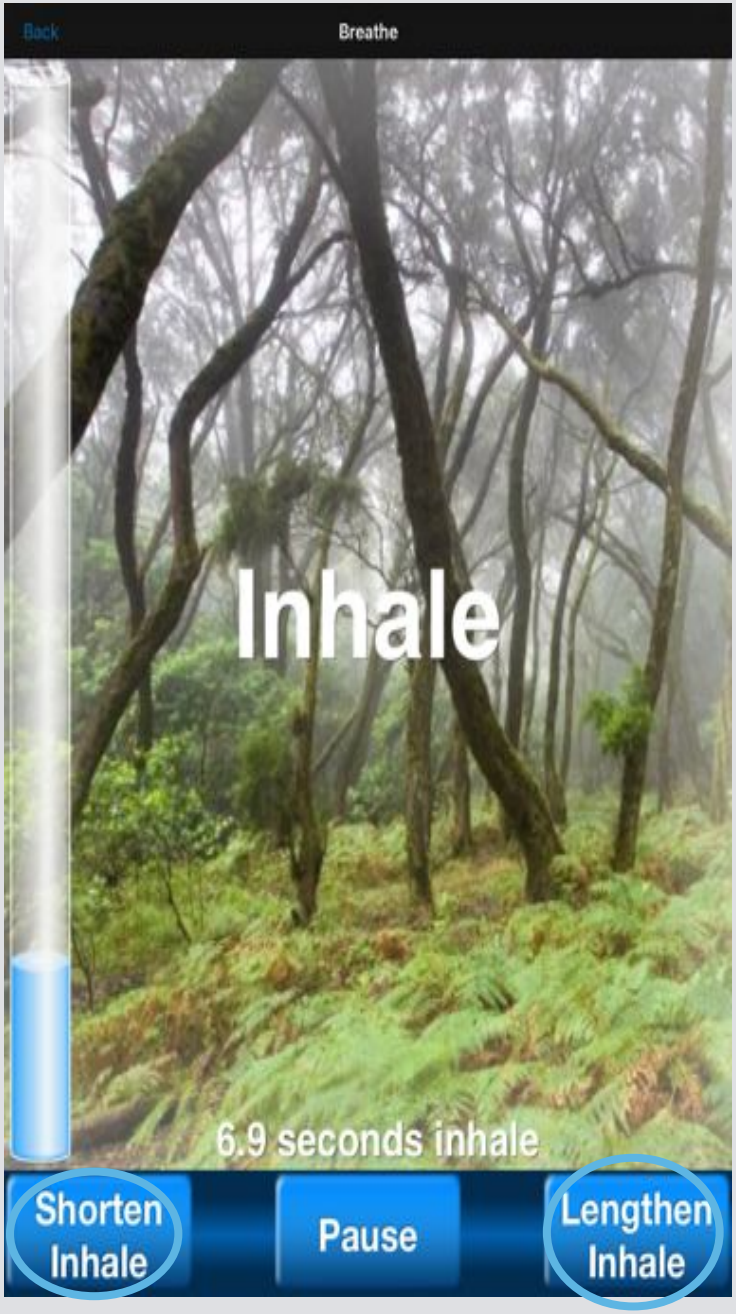
- Preloaded videos on iPad and Youtube
- Apps
- Daily text messages

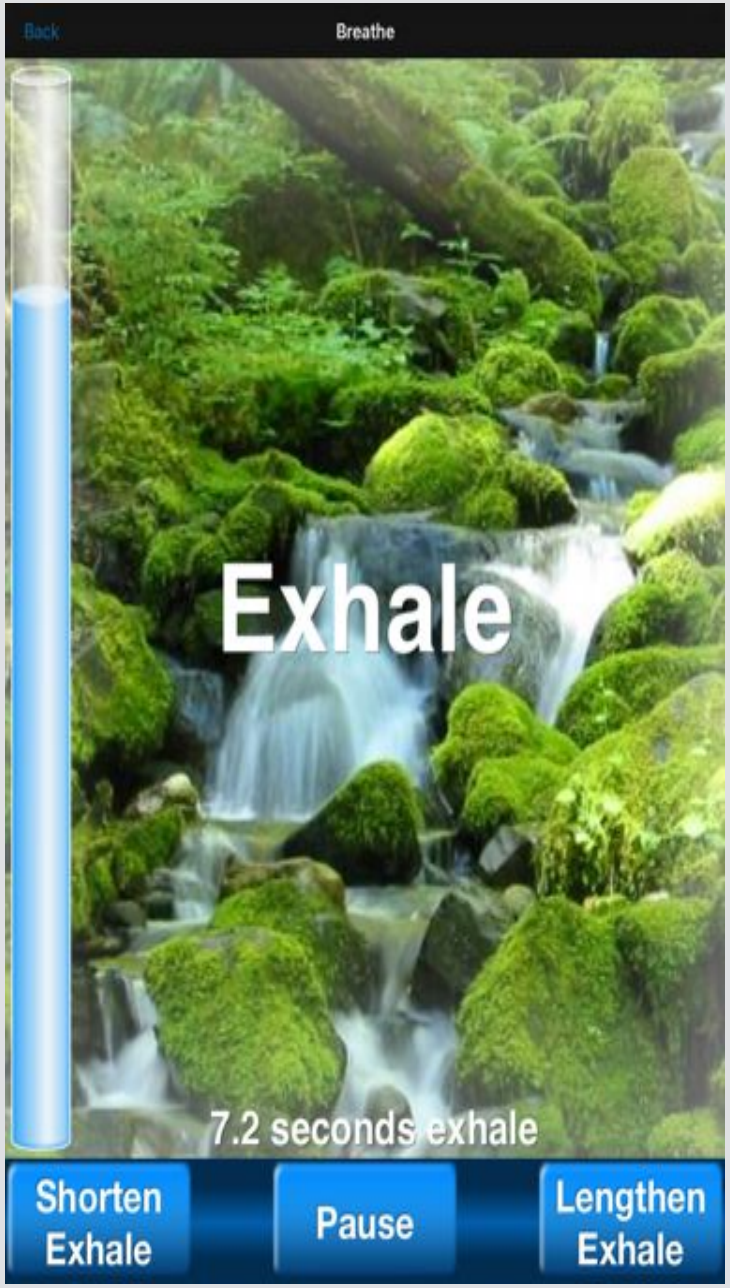

Personalize
Tip
BREATHE
RELAX
NATIONAL CENTER FOR
TELEHEALTH & TECHNOLOGY
Show Me How
Breathe
Setup
Results
Learn
About


Settings
VISUAL SETTINGS
Rain Forest
Quiet Lush Forest
Breath Metronome
Show the breathing metronome
Visual Prompts
Show visual prompts
AUDIO SETTINGS
Audio Prompts
Play audio prompts
Instructions
Include breathing instructions
Play Music
Listen to relaxing background music while practicing breathing
Selected Background Music
Randomly from list (tap to change)
CYCLE SETTINGS
Set Inhale Length (3.3 secs)
Tap to set inhale length
Set Exhale Length (3.6 secs)
Tap to set exhale length
Number of cycles
8
10
12
14
16


Personalize
Tip
BREATHE
RELAX
NATIONAL CENTER FOR
TELEHEALTH & TECHNOLOGY
Show Me How
Breathe
Setup
Results
Learn
About

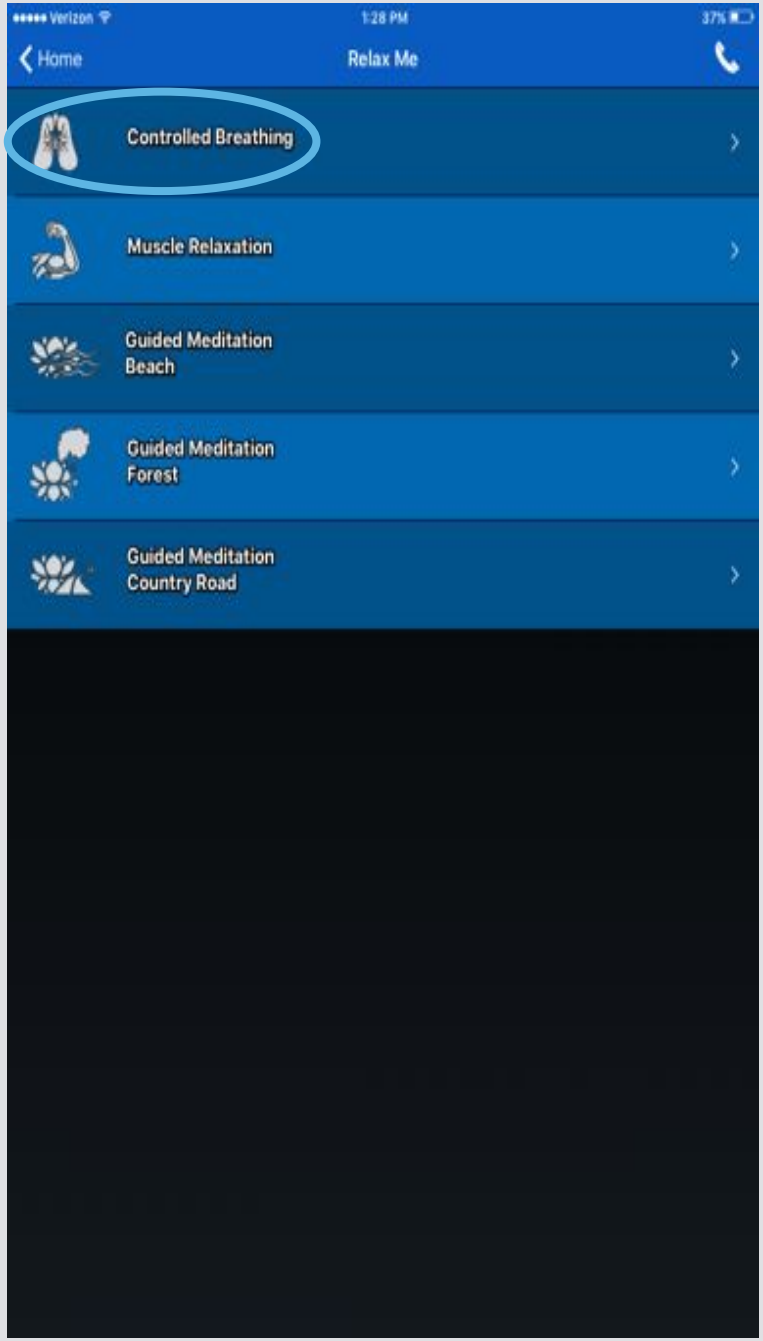

Back
Rate Your Stress
How do you feel?
Use the slider below to rate your stress. You can do this again after the breathing exercise to keep track of how breathing affects your stress.
Relaxed
Stresse
Skip
Do Not Show Again
Next


Back
Breathe
Inhale
6.9 seconds inhale
Shorten Inhale
Pause
Lengthen Inhale

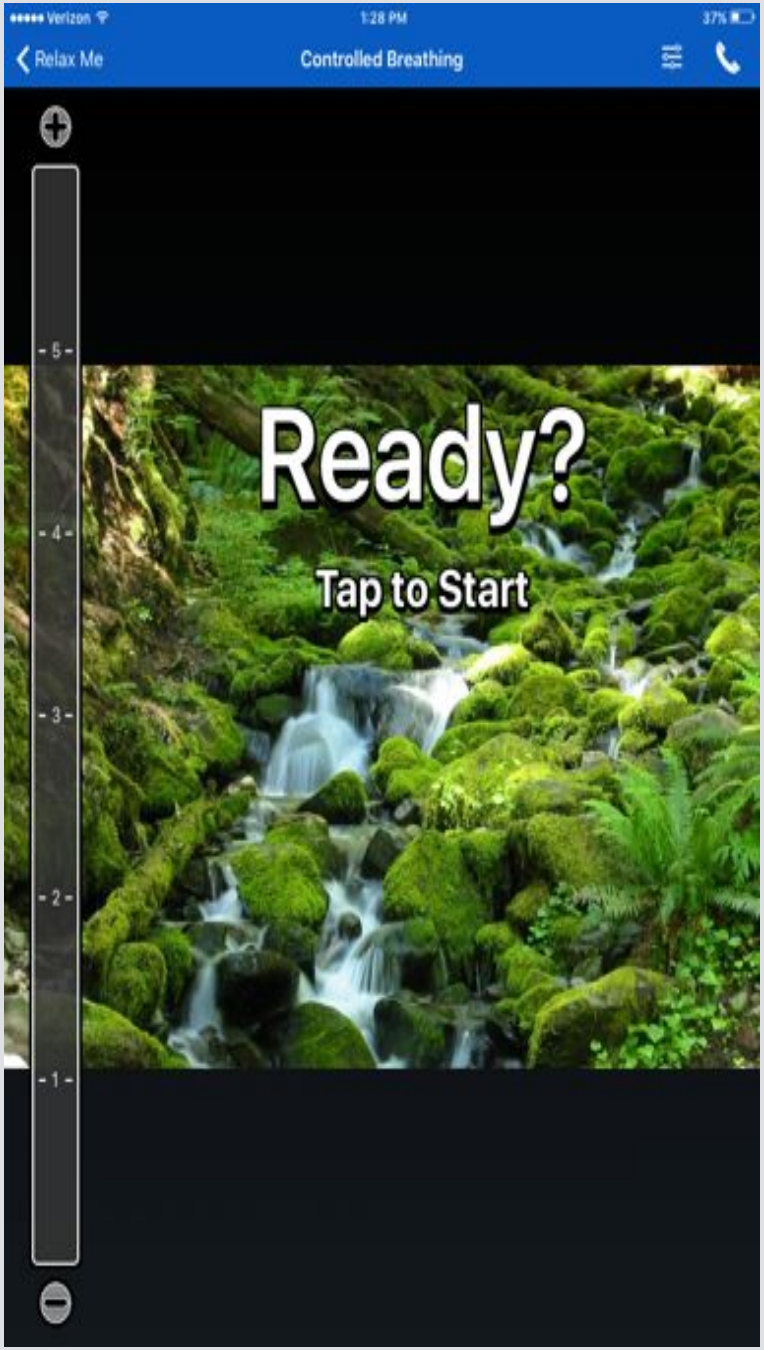

Back
Breathe
Exhale
7.2 seconds exhale
Shorten Exhale
Pause
Lengthen Exhale

VIRTUAL HOPE BOX


Verizon
1:28 PM
37%
Virtual Hope Box
VIRTUAL
HOPE BOX
Remind Me
Distract Me
Inspire Me
Relax Me
Coping Tools


Verizon
1:28 PM
37%
Home
Relax Me
Controlled Breathing
Muscle Relaxation
Guided Meditation
Beach
Guided Meditation
Forest
Guided Meditation
Country Road

Let the app guide your breathing



SYNCHRONOUS TELEVIDEO

- Individual sessions
- Group sessions
  - Building upon previous in-home support groups

WHAT WE HAVE LEARNED THUS FAR?

- 9 completers
- Highest satisfaction with the individual counseling televideo and texts
- Challenges –
  - Timely participant recruitment
  - Adherence to intervention and measures
  - Communication
- Minor technology issues: bandwidth for Zoom sessions, iPad charger malfunction, REDCap™ automated invitation glitches
- Need for flexibility

ECHO MISSION

THE MISSION OF PROJECT ECHO® IS TO EXPAND THE CAPACITY TO PROVIDE BEST PRACTICE CARE FOR COMMON AND COMPLEX DISEASES IN RURAL AND UNDERSERVED AREAS AND TO MONITOR OUTCOMES.

History of ECHO in 80 seconds:
https://youtu.be/VAMaHP-tEwk

Related ECHOS:

- University of Utah Project ECHO-OB Hemorrhage Safety Bundle
- AAP P roject ECHO Zika https://www.aap.org/en-us/professional-resources/practice-transformation/echo/Pages/AAP-Project-ECHO-Zika.aspx
- Autism ECHO, including eating/feeding difficulties

- Using ECHO to train and support rural FQHC personnel in the Behavior Checker approach

http://raisedwithloveandlimits.org/behavior-checker/

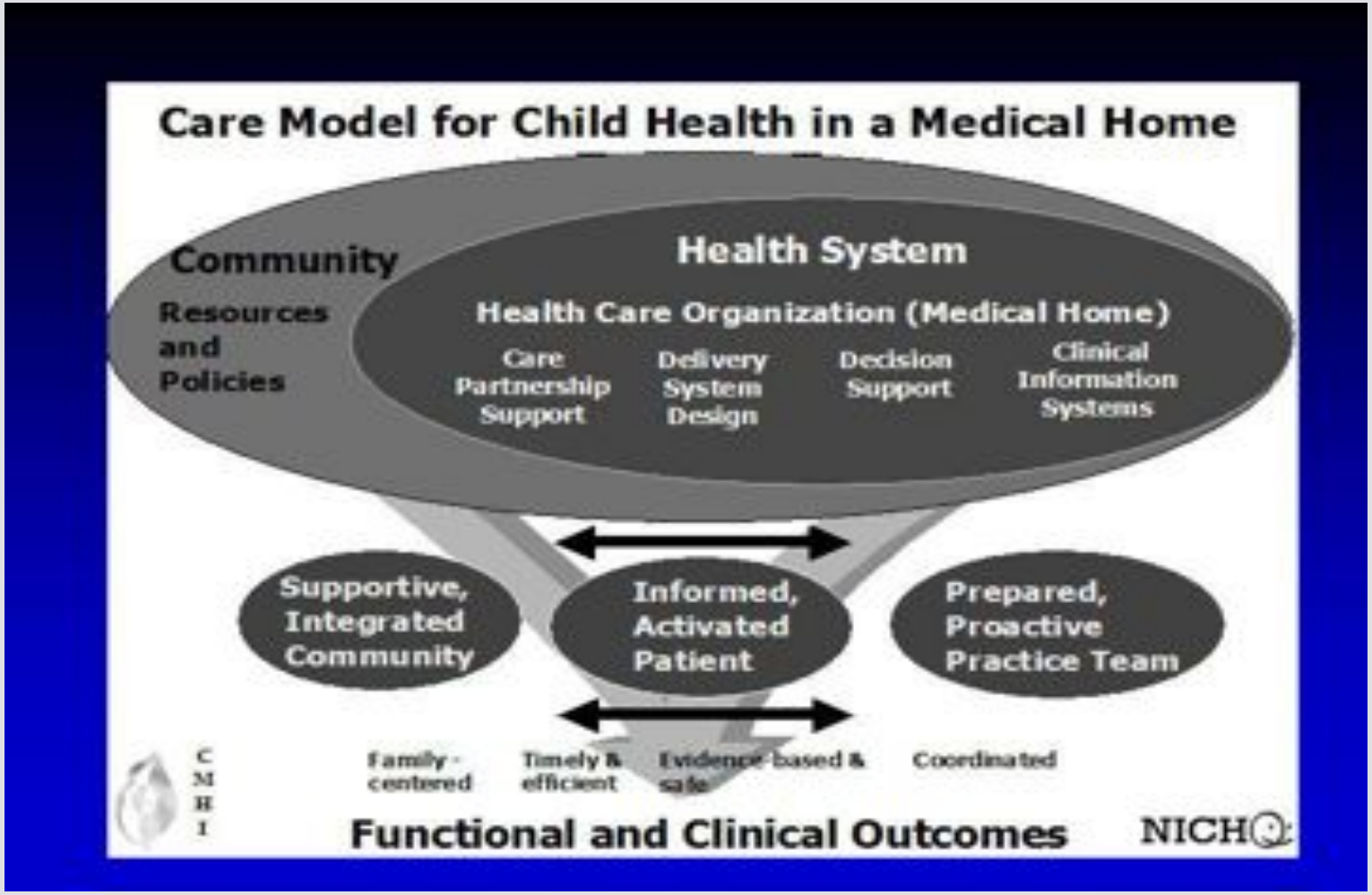
ECHO GOALS—QUADRUPLE AIM

- Improve Outcomes for Kansas patients
- Increase Access
  - Decreased wait times for access to specialty input
- Improve Quality
  - Evidence-based, guideline concordant care driven by algorithms
  - Enhanced care coordination
- Reduce Cost
  - Decreased cost of travel & testing
- Benefits to the community
  - Reduce Disparities
  - Retain Providers
  - Keep Patients Local

- Increase provider satisfaction
  - Continuing education credit – mix of work & learning
  - Professional interaction with colleagues
  - Access to interdisciplinary specialty consultation
    - ✓Tele-curbsiding
    - ✓https://www.youtube.com/watch?v=b8VKzLpxvq0

OTHER KUCTT EXAMPLES RELATED TO PEDIATRIC NUTRITION

- Neonatal home
- Feeding team
- Parents of newly diagnosed diabetes
- Pediatric obesity


Care Model for Child Health in a Medical Home
Community
Resources and Policies
Health System
Health Care Organization (Medical Home)
Care Partnership Support
Delivery System Design
Decision Support
Clinical Information Systems
Supportive, Integrated Community
Informed, Activated Patient
Prepared, Proactive Practice Team
Family-centered
Timely & efficient
Evidence-based & safe
Coordinated
CMH I
Functional and Clinical Outcomes
NICHQ

HEALTHY SCHOOLS INTERVENTION

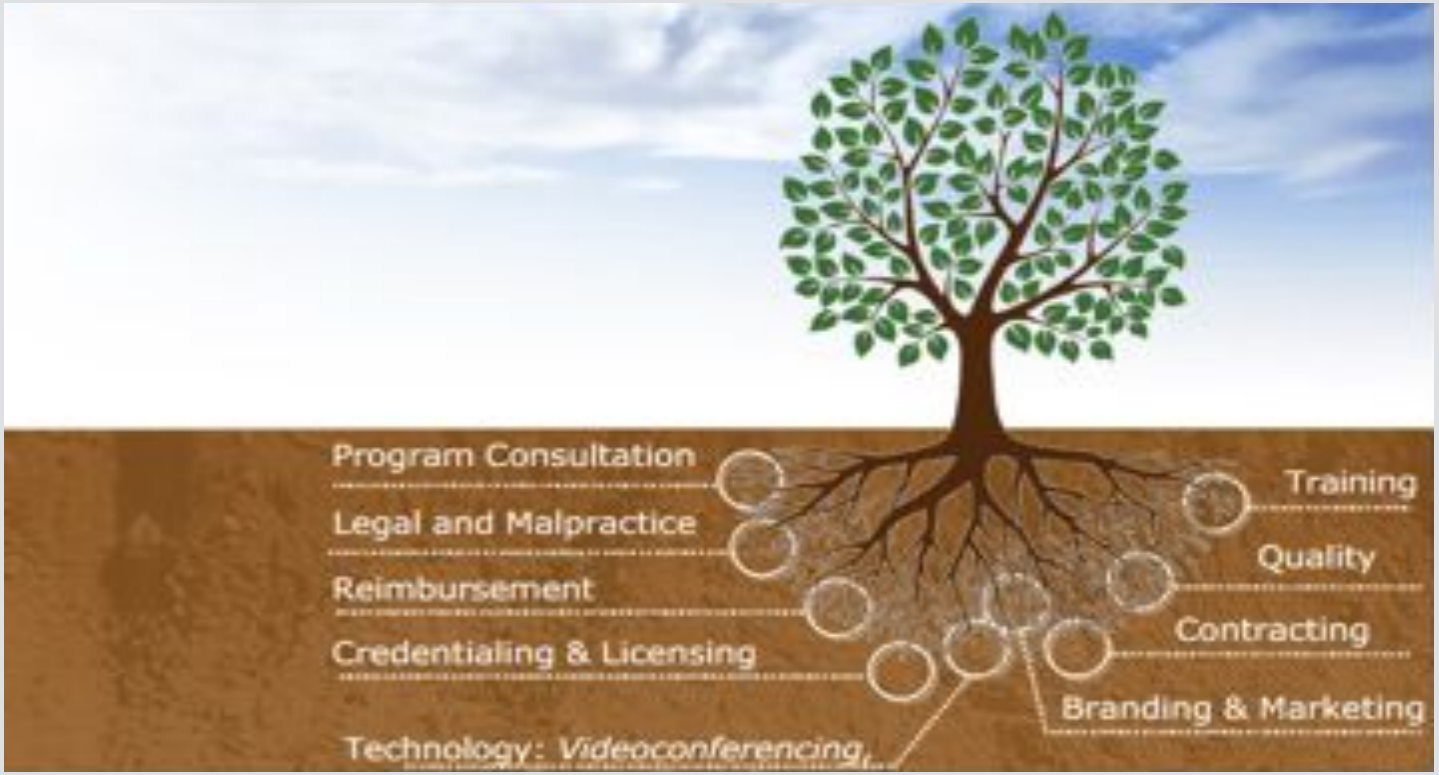
- RCT of Rurally Tailored Intervention
- N=58 (Child BMI > 85th percentile) 3rd-5th grade, rural
  - Enhanced Standard Care vs. Intervention
    - 8 weekly, 6 monthly
    - Nutrition, PA, Behavior
    - New Topics
      - Dressing for a larger body size
      - Self-esteem
      - More attention to pot luck type eating
      - Less focus on eating meals at restaurants

Davis AM, Sampilo M, Gallagher K, Landrum Y, Malone B. (2013). Treating Rural Pediatric Obesity through Telemedicine: Outcomes from a Small Randomized Controlled Trial. *Journal of Pediatric Psychology*. 38(9), 932-943. PMID: 23428652. doi:10.1093/jpepsy/jst005

FUTURE DIRECTIONS

- iAmHealthy
  - Directly into homes via iPads
    - 8 weekly and 6 monthly
    - 11 hours of "homework help"
    - 25 total = USPSTF guidelines
- 2nd – 4th
- Excluding children over 99th
- Control – newsletter control
- Typical obesity measures plus Process variables (Living in Familial Environments Coding System), more psychosocial variables (HRQOL, CDI, Schwartz Peer Victimization Scale), and large focus on cost calculations

AT THE ROOT OF TELEMEDICINE



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Telehealth Resource Center

GETTING STARTED - STEP 1

- Identify and assess unmet clinical, educational or administrative needs
- Assess organizational readiness
- Perform a technology assessment
- Identify potential telehealth opportunities
- Begin to engage stakeholders - bring a team together

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Telehealth Resource Center

GETTING STARTED – STEP 2

- Decide on the type of services to be provided – prepare a preliminary program description
- Decide on the type of telehealth program that best works for your application and prepare a preliminary program model description
- Consider assumptions, constraints, opportunities
- Create high level cost estimates
- Create a written proposal

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GETTING STARTED – STEP 2

Does the proposed project align with the organization's current vision, mission, and strategic plan?

- Does the project support the organization's vision of its desired future?
- Does the project align itself with the organization's belief of who it is, what it does, and how it serves?
- Does the project support the organization's approach to achieving its goals and objectives?

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GETTING STARTED – STEP 3

Develop Business Case

- Description of the need for the telemedicine program
- Description of how the proposed program aligns with the organization's existing mission, lines of business, and/or strategic plans;
- Description of the market and demand for the service;
- Cost estimates;
- A fiscal analysis and Return on Investment (ROI) calculated for the telemedicine program;
- Description of how program development and implementation will be structured and managed;
- Description of how the program will be promoted;
- Description of how the ongoing operations will be managed and what resources are needed (including financial);
- Projected fiscal impact of the program on the organization's; and
- Evaluation of risks and constraints.

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GETTING STARTED – STEP 4

- Detailed Program Implementation Plan
  - Protocols, Guidelines, Policies, Workflow
- Detailed Technology Plan
- Develop Performance Monitoring Plan
  - Patient/Provider Satisfaction, Monitor Benchmarks

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TELEHEALTH RESOURCE CENTERS

Federal telehealth resource centers
www.telehealthresourcecenter.org
Kansas: Heartland TRC
http://www.heartlandtrc.org/

TELEBEHAVIORAL RESOURCES

- ATA Child Guidelines

https://higherlogicdownload.s3.amazonaws.com/AMERICANTELEMED/618da447-dee1-4ee1-b941-c5bf3db5669a/UploadedImages/Practice%20Guideline%20Covers/NEW_ATA%20Children%20&%20Adolescents%20Guidelines.pdf

- AACAP, www.aacap.org
- American Telemedicine Association, Telemental Health SIG, www.americantelemed.org
- Coalition for Technology in Behavioral Science, ctibs.org
- Telemental Health Guide, www.tmhguide.org