



Welcome!



# Stress Reactivity Team

**M Northwestern Medicine**<sup>®</sup>  
Feinberg School of Medicine



- Dr. Kiarri N. Kershaw, Northwestern Principal Investigator
- Lauren Hoffer, Northwestern Project Manager
- Ann Demaree, Cardiac Insight
- Abby Massey, Cardiac Insight



# Agenda

1. Background and science
2. Overview of 7-day phone survey
3. Protocol Overview
  - Supplies
  - Skin prep
  - Participant materials
4. Certification Overview
5. Practice!



# Background and Science

Dr. Kiarri Kershaw

# Stress and ADRD Disparities

- Racial, ethnic, and socioeconomic disparities exist in cognitive function and the prevalence and incidence of Alzheimer's disease and related dementias (ADRD)
- Marginalized groups are typically exposed to more frequent and severe stressful situations in their daily lives
  - Exposure to stressors
- They also have fewer resources to manage these situations in healthy ways
  - Reactivity to stressors

# Stress Reactivity and ADRD

- Most of our knowledge as to the impact of stress on ADRD comes from animal studies and experiments in humans in controlled settings

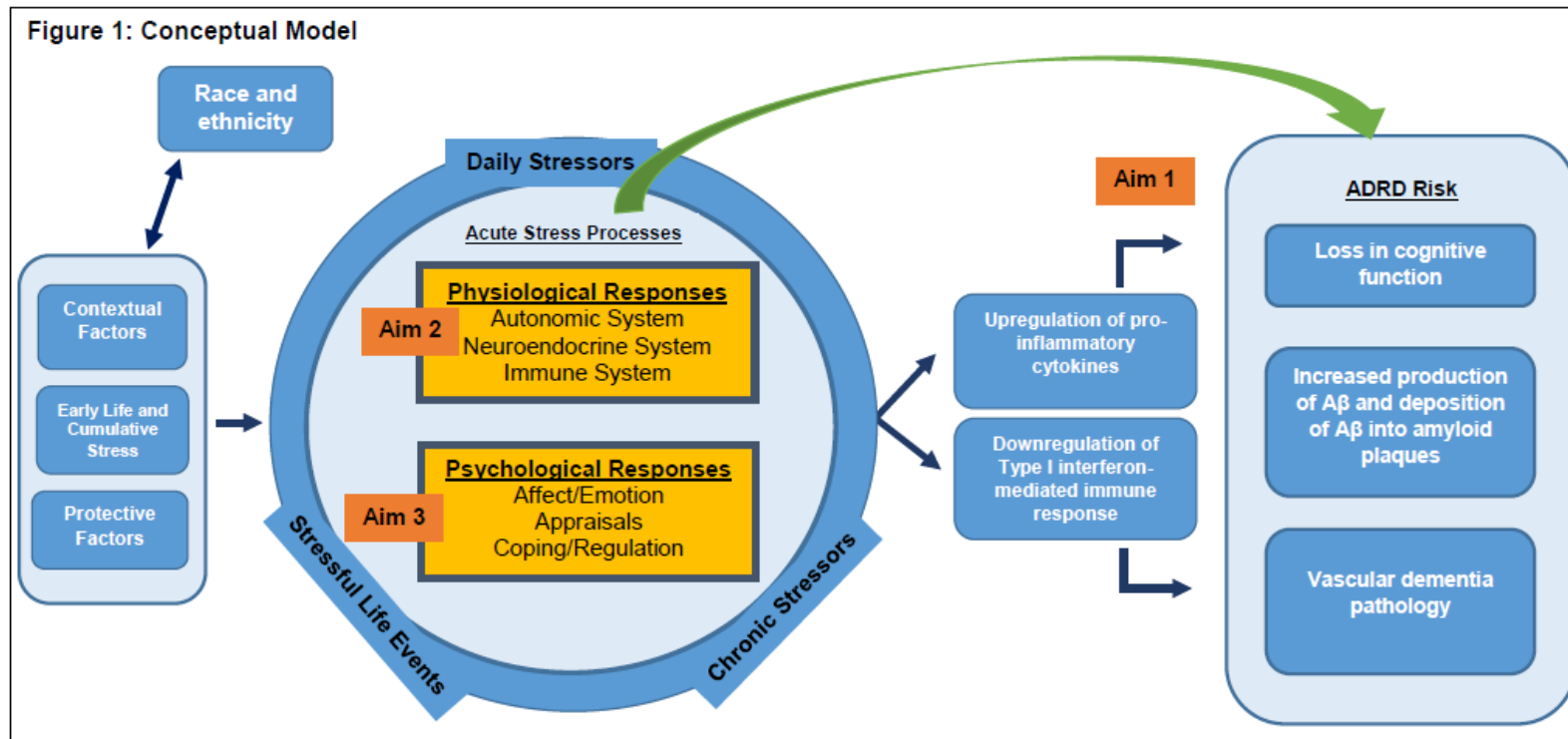


# Our Study: Measuring Stress Reactivity

- Use continuous ECG monitoring and daily surveys to measure stress reactivity in people's natural environments
- Compare changes in HRV and positive and negative mood (affect) on days when something stressful happens and days when something stressful does not happen
- Everyone's individual pattern or slope will be compared to the average pattern among all MESA participants
  - Poor reactivity: lower than average changes in HRV and higher than average changes in negative mood in response to stressful situations

# Our Study: Stress Reactivity and ADRD

- We will then see whether or not participants with poor stress reactivity have worse cognitive outcomes and ADRD biomarker levels





# Study Implications

- Begin to disentangle the pathways through which stress exposure and stress reactivity impact vascular dementia pathology and/or AD positivity
- Inform stress management interventions and precision medicine initiatives designed to prevent ADRD and/or slow its progression, particularly in marginalized groups



# Overview of 7-day Phone Survey

Lauren Hoffer



# Overview of 7-day phone survey

- *Daily stressors* and *negative affect* will be measured over the phone for 7 consecutive days.
- Twilio will automatically call participants at the same time each day (participant preferred time after 4pm).
- Participants will answer questions by pressing numbers on their phone.
- The first survey will be administered the day after the clinic visit.
- Participants will complete a demo survey during the clinic visit.

1. Since (this time/we spoke) yesterday, did you give emotional support to anyone, like listening to their problems, giving advice, or comforting them (not counting work you might do as part of your job)?
  - a. Yes
  - b. No
  
2. Did you give unpaid assistance to people who do NOT live with you? This can be informal assistance like helping a friend with shopping, or formal volunteer work with an organization like a senior center or church.
  - a. Yes
  - b. No
  
3. Did you receive emotional support from anyone or any organization?
  - a. Yes
  - b. No
  
4. Did you receive unpaid assistance or helpful advice from anyone or any organization?
  - a. Yes
  - b. No

## 5. Did you have an argument or disagreement with anyone since (this time/we spoke) yesterday?

Think of the most stressful disagreement or argument you had since (this time/we spoke) yesterday. Who was it with?

- Spouse or partner
- Parent
- Child
- Other family member
- Friend
- Stranger
- Other

When did this happen?

- Yesterday afternoon or evening
- This morning
- This afternoon or evening

How stressful was this for you?

- Not at all → **Skip to Q6**
- Not very
- Somewhat
- Very

How much control did you have over the situation?

- None at all
- A little
- Some
- A lot

How much did it risk disrupting your daily routine?

- None at all
- A little
- Some
- A lot

How much did it risk how you feel about yourself or how others feel about you?

- None at all
- A little
- Some
- A lot

Is it resolved?

- Yes
- No

13. Since (this time/we spoke) yesterday, to what extent do you feel HAPPY?

1. Not at all
2. A little
3. Moderately
4. Very
5. Extremely

14. Since (this time/we spoke) yesterday, to what extent do you feel DISAPPOINTED?

1. Not at all
2. A little
3. Moderately
4. Very
5. Extremely

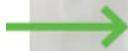
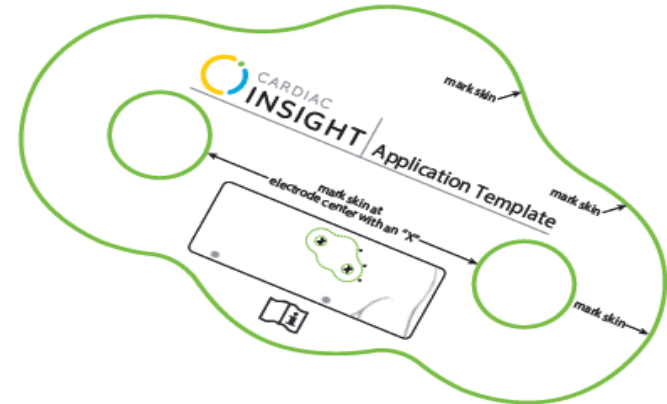
# Protocol Overview

- Supplies
- Skin Prep
- Participant Brochure

# Supplies



- \*Make sure to use TRAINING sensors today (pink label on outside of box)



Participant ID

Patient Name: Participant ID    DOB: 6/24/1949  
Date Applied: Mar 14, 2020    Time Applied: 3:45 pm  
Red Time: 11 pm    Wake Time: 6 am  
Doctor: Dr. Smith  
Remove Date:



Abrasive pads (use one)





# Skin Prep

- Good skin prep helps to ensure the *best possible data collection* when the participant is wearing the sensor
- Tips from Abby (Cardiac Insight)
- Questions for Abby?

# Participant Take-Home Materials



Tracking Number



## Reminder

You will receive a phone call from **206-775-7589** with an automated survey at the same time each evening during the 7-day study.

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Date/time of first phone survey

\*If you miss the phone call, you will receive a call back 15 min later.

### All About Cardea SOLO™ for Research Participants

Helpful tips for a successful ECG recording

## Tips for Wearing Cardea SOLO



AVOID showering during the first 24 hours



Take brief showers, facing away from the stream.



No lotions, oils or powders around Cardea SOLO



Press the marker button to note if you experience something stressful



Avoid any activity that would cause excessive sweating.

Cardea SOLO does not remotely monitor or transmit your heart rhythm.

Consult your Study Contact with any questions or concerns about wearing this study device.

If you are experiencing a medical emergency, dial 911.

## Removing Cardea SOLO

You can remove the sensor after your 7th and final phone survey.

Please remove heart monitor on:

after

Date

Time of phone survey

1. Wash and dry hands thoroughly.
2. Remove the adhesive remover pad.



**TIP:** You can also use petroleum jelly (Vaseline®) or baby oil.

3. Use the Adhesive Remover Pad to wipe around the edges of the SOLO Sensor. Gently lift and slowly peel the SOLO Sensor from your skin. Hold your skin down with your opposite hand to avoid skin injury.



4. Cleanse skin with mild soap and water to remove any remaining adhesive.
5. It is normal to have slight redness and odor on your skin after removal. It should disappear after a few days. If redness with itchiness continues or gets worse, or if you have any concerns about your skin's appearance or condition, contact: FIELD CENTER phone #



## Returning Cardea SOLO

1. After removing the SOLO Sensor, fold the two wings together under the middle.



2. Insert your folded SOLO Sensor back in its original Pouch and re-seal.
3. Place the Pouch into the pre-paid, pre-addressed **US Postal Service Mailing Envelope**. Put the envelope in any US Postal Service blue mailbox or give it to your postman.





# Exam 7

## Stress Reactivity Study Completion Form

Participant ID #: [ ][ ][ ][ ][ ][ ][ ][ ][ ]

Acrostic: [ ][ ][ ][ ][ ][ ][ ][ ][ ]

Technician ID: [ ][ ][ ][ ]

Date: [ ][ ] / [ ][ ] / [ ][ ][ ][ ]

Month

Day

Year

Cardea SOLO sensor applied?

Yes →

No

Application:

Self-applied

Applied by FC staff

↳ Technician ID: \_\_\_\_\_

Date applied: [ ][ ] / [ ][ ] / [ ][ ][ ][ ]  
Month Day Year

Time applied: [ ][ ] : [ ][ ]  AM  
 PM

Serial number: \_\_\_\_\_

Participant preferred contact time for  
daily phone surveys (after 4pm): [ ][ ] : [ ][ ]  AM  
 PM

Phone number for telephone surveys:

( [ ][ ][ ] ) [ ][ ][ ] - [ ][ ][ ][ ]

Tracking number for return envelope:  
\_\_\_\_\_

Date of first phone survey  
(day after sensor placement)

Preferred language for  
phone survey

Time Zone

Check-in call at day 1-2 after sensor placed?

- Yes →
- No

Date:   /   /

Month Day Year

Reminder phone call to return sensor (8 days after sensor placement)?

- Yes →
- No

Date:   /   /

Month Day Year

Was replacement sensor needed due to wear time less than 48hours?

- Yes →
- No

Date replacement sensor mailed to participant:

/   /

Month Day Year

Application:

- Self-applied
- Applied by FC staff

↳ Technician ID: \_\_\_\_\_

Serial number: \_\_\_\_\_





# Certification

1. *Cardea SOLO University Skin Prep 101 quiz*  
(completed in pre-work)
2. *Demonstrate sensor placement* on practice participant.
3. Follow MOP and *give all participant instructions* correctly.



# Practice (~70 minutes)

- Review MOP (updated yesterday) and pre-work slides/video.
- Practice skin prep and sensor placement on a practice participant.
- One technician from each field center will demonstrate skin prep and sensor placement in front of Abby+Ann for feedback to complete their certification
- Practice phone survey: call **206-593-2595**

# Practice Schedule

- 10 minutes → Johns Hopkins
- 20 minutes → Columbia
- 30 minutes → Minnesota
- 40 minutes → UCLA
- 50 minutes → Wake Forest
- 60 minutes → Northwestern
- 70 minutes → Whole group Q&A





Questions?



# Thank you!

Additional questions?

Email: [lauren.hoffer@northwestern.edu](mailto:lauren.hoffer@northwestern.edu)