

**OHI/O – 2015 Hackathon**  
**OSU Wexner Medical Center – ResearchKit Challenge**

**INTRODUCTION**

Working in the field of medicine, it is not uncommon for physicians to work long shifts. For example, an anesthesiologist may need to work an 18-36 hour shift. What is the short term impact to the physician?

Researchers like Dr. Saadat at Nationwide Children’s Hospital have received approval from an Institutional Review Board (IRB) to conduct such a study to show the “Effects of Partial Sleep Deprivation on Mood, Cognitive Tasks and Speed in Anesthesiologists”. The results were very telling and Dr. Saadat has been asked to expand her study for other sites. But current data collection methods are too labor intensive and require expensive lab equipment. So we would like your help to redesign our study to leverage Apple’s new ResearchKit.

**CHALLENGE**

Use Apple’s ResearchKit and HealthKit to develop an iOS “straw-man” application that includes:

**Task 1.      Consenting the Participant (using ResearchKit’s Informed Consent Module)**

- a. Explain the research study (example text provided below)
- b. Collect: Confirmation that the participant understands the study
- c. Collect: First Name & Last Name
- d. Collect: Signature

**Task 2.      Collect basic information (using ResearchKit’s Survey Engine)**

- a. Collect: Participant’s Role
- b. Collect: Location (example: select list)

**Task 3.      Measure the participant’s level of fatigue (using ResearchKit’s Active Tasks)**

- a. **Provide the participant at least two options for measuring levels of fatigue** (Examples include: Spatial Memory, Tapping Speed, Gait and Balance, etc.)
- b. Collect: Numerical data from Active Task

**Task 4.      Present Results in a Dashboard**

- a. Display: Data collected for current participant
- b. Display: Data for total study (average of multiple participants)

**Task 5.      Collect the data in a central database**

- a. Upload: Data to a central repository

**JUDGING A WINNER**

A team will be selected based on the completeness of Tasks 1-5, with additional bonus points added for creativity. Unfortunately only one team may be selected as the winner of this 2015 Hackathon challenge. But all teams will be given the opportunity to present their work at a future meeting with Dr. Saadat, Wexner Medical Center Information Technology, and College of Medicine Leadership.

**HELPFUL LINKS**

ResearchKit Developer Info:	<a href="https://developer.apple.com/researchkit/">https://developer.apple.com/researchkit/</a>
HealthKit Developer Info:	<a href="https://developer.apple.com/healthkit/">https://developer.apple.com/healthkit/</a>
Raywenderlich ResearchKit tutorial:	<a href="http://www.raywenderlich.com/104575/researchkit-tutorial-with-swift">http://www.raywenderlich.com/104575/researchkit-tutorial-with-swift</a>
ResearchKit General Email address:	<a href="mailto:researchkit@apple.com">researchkit@apple.com</a>