

Improving Drug Adherence Using mHealth and Behavioral Economics in Adolescents with Epilepsy

The scope of work outlined below focuses on the following overarching areas related to the design, development, and evaluation of a novel mHealth social norms intervention: (1) visual design of two adherence report templates, one of which incorporates individualized feedback, the other of which incorporates individualized feedback and social comparison data, (2) collaborative design (in conjunction with PIs and Cincinnati Children's BMI group) of a web-based portal to house adherence reports, (3) extended usage evaluation of mHealth social norms intervention, (4) modifications to social norms intervention, as needed, after the extended usage evaluation, (5) general leadership and expertise relative to technologies used in the social norms intervention (e.g., automated digital reminders, adherence reports).

Visual design refinements of two adherence report templates.

During year 1 of the grant, Dr. Schmidt led the design of adherence report templates. Two templates were designed, one of which incorporates individualized feedback, the other of which incorporates individualized feedback and social comparison data. In the event that further design is needed, Dr. Schmidt will continue to lead this design effort.

Collaborative design (in conjunction with PIs and Cincinnati Children's BMI group) of a web-based portal to house adherence reports.

Dr. Schmidt, in collaboration with PIs and the BMI group at Cincinnati Children's Hospital, began collaborating on the design, development, and evaluation of a web portal for providing adherence reports during year 1 of the grant. In the event that further design, development, or evaluation is needed, Dr. Schmidt will continue to collaborate with PIs and the BMI group during year 2 of the grant. Dr. Schmidt will collaborate with PIs and BMI to support ongoing operations of the web portal for the duration of the grant.

Extended usage evaluation of mHealth social norms intervention.

Design of the web-portal and adherence reports was based on patient-centered user experience design techniques that were employed in other NIH grants that Dr. Schmidt was involved in, including Epilepsy Journey (R21HD083335-01) and a novel self-management program for youth with mild traumatic brain injury mHealth intervention project (R21HD087844). An extended usage evaluation was conducted in year 1 using the following study design:

- Total number of participants: 10
- Duration of evaluation: 2 weeks per participant
- Data collection method: Revised Website/mHealth tool Evaluation Questionnaire and System Usability Scale

In year 2, Dr. Schmidt will collaborate with PIs to analyze data collected during the extended usage evaluation and report findings.

Modifications to social norms intervention, as needed, after the extended usage evaluation.

Problems identified during the extended usage evaluation will be discussed with PIs and prioritized using Nielsen's 4-point scale. High priority usability problems will be addressed in year 2 of the grant.

General leadership and expertise relative to technologies used in the social norms intervention (e.g., automated digital reminders, adherence reports).

In year 2 of the grant, Dr. Schmidt will provide leadership and expertise in the areas of technology design and evaluation specifically tailored to the implementation and evaluation of the technologies that will be used in the current grant (e.g., automated digital reminders, smart phone integration, app development).