

Diabetes Journey: From Systematic Screening to Intervention
Dr. Kimberly A. Driscoll, Ph.D., and Dr. Matthew Schmidt, Ph.D.

Kimberly A. Driscoll, Ph.D., multiple PI and Associate Professor of Pediatrics will be responsible for overseeing all work conducted as part of this proposal at the Barbara Davis Center. She will coordinate all study procedures, protocols, and intervention materials with Dr. Avani Modi at Cincinnati Children's Hospital Medical Center. Dr. Driscoll will supervise and train her staff in the ethical recruitment of adolescent participants from our large patient population, and the process of thoroughly obtaining consent and assent from them for this research study. During Phase 1, we will implement the standardized procedures for integrating assessment of patient-reported outcomes as part of routine clinical care. Simultaneously, Dr. Driscoll will provide her expertise about type 1 diabetes as she works with colleagues at Cincinnati Children's Hospital Medical Center to adapt Epilepsy Journey into Diabetes Journey. During Phase 2, she will monitor completion of study visits and provide supervision to the post-doctoral fellow who will implement the intervention. Finally, Dr. Driscoll will attend regularly scheduled research meetings to provide oversight of the study and collaboration with colleagues. Finally, she will be involved in the analyses of data, writing manuscripts, and presentation and dissemination of findings at conferences.

Dr. Matthew Schmidt, Ph.D., Co-Investigator, will work with principal investigators to modify approximately 7 learning modules that were previously developed for youth with epilepsy and executive functioning deficits. These existing modules will be revised and custom-tailored for youth with type 1 diabetes. This revision process includes: (1) a document review of the current set of learning modules, (2) identification of specific content that needs to be revised, omitted, or retained, (3) identification of gaps in content, and (4) support subject matter experts crafting of specific learning objectives to address those gaps, and (5) support subject matter experts development of learning content and materials to address those gaps. All module learning content will be incorporated by subject matter experts with the support of Dr. Schmidt into a master document (e.g., Google Docs, MS-Word), which will serve as the basis of the instructional content for the intervention.

Development of multimedia materials. Dr. Schmidt will lead the design and development of educationally focused multimedia materials. Multimedia materials include interactive activities. Examples of interactive multimedia activities include drag-and-drop activities or click- and tap-based interactions. Each learning module will include at least one interactive multimedia element.

Incorporation of learning modules into learning management system. Dr. Schmidt will lead the development of a Wordpress-based learning management system (LMS). This Wordpress instance will be hosted on LiquidWeb. The Sensei learning management system Wordpress plugin will be used to provide required functionality. Wordpress and Sensei will enable cross-platform compatibility (e.g., Windows, MacOS, Android, iOS) as well as cross-hardware compatibility (e.g., PC, laptop, tablet, smartphone). All modules will be incorporated into the Wordpress-based LMS.

Usability evaluation of the learning modules in learning management system. The design of the learning modules and the learning environment will be based on patient-centered user experience design techniques that have been recently employed in NIH grants, including Epilepsy Journey (R21HD083335-01) and a novel self-management program for youth with mild traumatic brain injury mHealth intervention project (R21HD087844).

Technology support (e.g., upgrades, updates) for the learning management system. Updates and upgrades will be performed for the duration of the funding period via LiquidWeb for Wordpress and plugins.