

## Multimedia Appendix 2. Technology opportunities for teens in their transition to independence

Transition stage/ Ecosystem	Early	Mid	Late
<b>Teen- caregiver communication</b>	<p>Has a collaborative checklist that caregiver and teen can adjust depending on what transition phase they are in.</p> <p>Shows proof of medication compliance, therapy and school tasks to caregiver.</p> <p>Enforces grounds rules (e.g. for ADHD, turn off tech at bedtime).</p> <p>Connects and gives reminders through a smartwatch and/or something like voice activated device.</p> <p>Has a positive reinforcement reward system customized to child's motivation style.</p>	<p>Create goals toward independence and milestones to achieve.</p> <p>Logs therapy tasks and sends report to HCP.</p> <p>Shows milestones for stages of transition to independence.</p> <p>Teen users can expand their care network and find other teens with similar or same condition.</p> <p>Shows task completion, including countdown.</p> <p>User can log in goals they've achieved.</p> <p>Users can track the building of routines.</p>	<p>Teen can add friends or other family members to the care network.</p> <p>Monthly report on mood, school and friends.</p> <p>Time management tool for teen to manage therapy and other responsibilities.</p>
<b>Education and tracking</b>	<p>Learn about body, the disease and how the condition is affecting them.</p> <p>Have short videos teen can share with peers to minimize myths and bullying.</p> <p>Tools to identify triggers and how to avoid complications.</p> <p>Monitor symptoms and triggers at night time which can alert caregiver if something goes wrong.</p>	<p>Learn about medications and side effects.</p> <p>Log and send symptom tracker info to HCP or caregiver.</p> <p>Scenario building feature to help teens think ahead for new situations.</p> <p>Provides coping skills and tips.</p> <p>Provides job management and career</p>	<p>Algorithm sees trends in tracking data over time and can give advice on triggers and symptoms.</p> <p>Shows spikes and patterns in symptoms for the HCP and caregiver to create new strategies.</p> <p>The technology becomes a coach for the teen.</p>

	<p>Gives caregiver support when to set up appointment with HCP based on severity or new symptoms.</p> <p>Review testimonies or stories of successful management of other people.</p>	<p>advice from someone with the same condition.</p>	
<b>Teen/Caregiver + HCP bridge</b>	<p>Has reminders for doctor's appointments.</p> <p>Caregivers asks relevant questions to HCPs wherein they can tag the urgency level.</p> <p>Gets auto authorization for medicine changes from HCP.</p> <p>Makes it easy to transfer info to a school nurse (e.g. changes in treatment plan, medication, mood changes).</p> <p>Caregivers can send notes about the child's condition to a teacher, substitute teacher, school nurse, or coach. Have ability add or remove care team members.</p> <p>Sends medication interaction alerts between HCPs.</p>	<p>Allows teens to login at 16 or 17 yrs old.</p> <p>Has Facetime/text for quick assistance with HCP so student doesn't miss school.</p> <p>Prepares teen/caregiver for appointments. Tool allows teen to input questions and update before the appointment and start communications directly with HCPs.</p> <p>Reminder to make appointments via integration with voice activated devices and hospital apps.</p> <p>Shows synced calendar views and time options for caregivers and doctor to select appointment time.</p>	<p>Teen sets up appointments and can do independent check-in with HCPs and get medication refills. Sends summary reports to caregiver if teen does independent HCP appointments.</p>
<b>Emergency support system</b>	<p>In emergency situations, displays contact information for caregiver.</p> <p>Prompts questions to hinder impulsive decision making by teen.</p> <p>Connects person(s) in care network automatically during a crisis.</p>	<p>Provides early alerts on symptoms so person has time to stop what they are doing and get to a safe place.</p> <p>Transfers all medical information to emergency responder system.</p>	

	When teen is having a sudden medical event (e.g. seizure/hypoglycemic incident) it plays a video (on watch or phone) so bystanders know what to do		
<b>Supply management system</b>	<p>Has a medication countdown system.</p> <p>Is organized by each child in the family.</p> <p>Sends auto refill notifications to the pharmacy.</p> <p>Includes delivery service for medication, including the specialized medicines from NCH.</p> <p>Connected to school supplies system to track the medication supplies they may need.</p> <p>Connected to personalized concierge service to help with the insurance, financial and legal support.</p>	<p>Teaches the teen about medications names, uses and interactions.</p> <p>Notifies teen when medicine is running low, which increases awareness of the importance of supply management.</p>	Can transfer administrative access to teen at age 18 to manage the system and take over when they leave home for college.