INTEGRATING MOBILE APPLICATION TRAINING INTO INPATIENT HOSPITAL STAYS: IMPROVING MANAGEMENT OF HEALTHCARE, EDUCATIONAL CONNECTEDNESS, AND EASING TRANSITION FROM HOSPITAL TO HOME

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ABSTRACT

Background: Mobile technology is a powerful tool in all aspects of daily life. Mobile devices, and their applications, can be an efficient, cost-effective strategy for meeting the needs of those who are experiencing an extended inpatient hospital stay. Specifically, children who are admitted to the hospital often experience difficulty remaining socially connected to peers and remaining on track with educational goals. The families and/or guardians of the children have their own set of difficulties including: staying informed and managing the child's ever evolving healthcare, as well as helping the child transition from the hospital back into their home, school and community life. The mobile technology world is incredibly large, somewhat complex and easily overwhelming. Resources exist that could positively impact the hospital experience and the post discharge life of both the child and the families. This study examined the gap between existing resources and families who need them.

Objective: The objective of this study was to evaluate the effectiveness of a mobile device technology-training program, designed by BridgingApps in collaboration with Texas Children's Hospital. The training program for caregivers had three main intents: manage and maintain up to date healthcare information for the child, support social connectivity and ease the transition from hospital back into the former educational setting.

Materials and Methods: BridgingApps created a customizable five session training program addressing 1) Using mobile devices safely, 2) Exploring Healthcare and Organization Apps, 3) Exploring Apps for Social Support, 4) Apps to Enhance Educational Outcomes and 5) Going home: Apps for the future. Subjects completed a pre-survey, discharge survey and one month post-discharge survey that examined whether there was any decrease in concern regarding educational progress, increase in social support, increase in a caregiver's ability to manage the child's healthcare, or increase in mobile device proficiency. The Institutional Review Board for Baylor College of Medicine and Affiliated Hospitals (H-40234) approved this study.

Results: There was a decrease from 50% to 27% of caregivers reporting "very concerned" regarding the academic progress of their patient after the training. Similarly, there was an increase in ability to remain socially connected following the training program. Thirty-seven percent of caregivers reported the hospitalization had at least moderately impacted their social connectedness at baseline; however, upon discharge, only 18% reported the hospitalization had at least moderately impacted the social connectedness, while 36% reported their social connectedness had not been impacted at all by the hospitalization of the child, with using resources learned. Lastly, 88% of caregivers reported being engaged in the medical care plan at baseline, but this increased to 100% feeling engaged in the care plan upon discharge. Caregiver smartphone perceived proficiency increased from 63% to 90% very proficient.

Conclusions: The survey results showed the following trends: the concern regarding educational progress was reduced, caregivers and children had increased ability to remain connected to peers for social

support, caregivers felt more empowered as part of the healthcare team, and smartphone device proficiency was increased for both caregivers and children.

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INTRODUCTION

In 2012 there were 5.9 million hospital stays for children in the United States. The mean length of a hospital stay for children age zero to 17 was 3.9 days.[1] Undoubtedly, there are stresses that go along with a child being hospitalized, even for a short time. Hospitalization has been shown to have a number of varied effects upon the child and his or her family members to include stress. Studies of caregivers of children hospitalized for a range of conditions demonstrate higher perceived levels of stress and anxiety resulting from the "condition" of the hospitalization itself, rather than the seriousness of the illness. Stress has been shown to increase significantly with additional days of hospitalization and was higher in parents, brothers and sisters of the child in the hospital, regardless of the age of the child, and for the child as well. Parents and siblings experience a loss of control and confusion along with physical disturbances, suggesting that the manifest stress is a global response of the person.

A number of factors surrounding hospitalization of the child have been shown to impact the level of stress experienced by both parent and child to include: 1) falling behind in academic settings, 2) struggling to remain connected to family and peers, and 3) difficulty understanding and remaining up to date with ever changing medical information.[2,3]

Illness with or without hospitalization has been shown to produce disequilibrium within the family structure. Efforts to assist the parent caregiver and the hospitalized child adjust to the disruption have focused on open visits, in-hospital schooling and other creative educational

activities. How to best accomplish efforts related to family communication and ongoing educational activities for the child have more recently turned to the use of technology at the bedside and in the home to accomplish these goals.

The world today is dependent on mobile technology. There is even concern regarding excessive dependence on these devices.[4] Computers, tablets, and smart phones are nearly necessary to function in the society. These mobile devices are used in so many realms and are widely available and accessible. Toddlers use tablets and phones to view video programming, either educational or for entertainment. A school age child is given a tablet in the classroom to perform tasks related to the educational curriculum and development. A teenager uses a laptop computer for many purposes as well as a smart phone for functions such as driving directions, Internet searching, entertainment, communicating with family and friends, video chats and more. Adults rely on mobile technology including tablets and smart phones daily. Two billion people use smartphones around the globe.[5] It is estimated the average American uses a smart phone for 5.05 hours each day.[5] Smart phones and tablets alike are bought preloaded with application stores, with which a user can search for a desired application. There are 2.2 million applications available for Apple devices and 2.8 million applications available for Android devices.[6] There is no shortage of resources already engineered, developed and available. It seems there are vast resources at the fingertips of patients and families, which could be the solution to the above problems, encountered frequently in the hospital setting.

There was a study conducted in 2011 by Vawdrel et al at Columbia University and New York- Presbyterian Hospital which claimed to conduct the first study evaluating the effectiveness of using tablets and mobile applications to improve patient care and satisfaction.[7] This study

distributed a tablet to five patients in a surgical cardiology unit and found that this intervention greatly increased patient satisfaction as related to improving their medical understanding and engaging them in the process of care. [7] Cumbler et al conducted a separate study which reported 90 percent of hospitalized patients desired to review their inpatient medications, however, only 28 percent reported having seen this list. [8] The study by Vawdrel et al, at Columbia University, designed an application corresponding to the New York- Presbyterian Hospital patient portal including expanded educational information tailored to the cardiovascular system. The application was also synched with the electronic health record, so the patients were able to view, in real-time, care provider decisions related to activation and discontinuation of medications. The results were encouraging as patients reported increased satisfaction resulting from being able to review, at a later, more convenient, and less stressful time, the health information that was verbally communicated during the hospitalization. Patients reported liking access to the medication list, to be able to verify they were receiving their regularly scheduled home medications as usual. The participants in this study offered several points of improvement including wanting the ability to message the providers, and the ability to coordinate follow up appointments after discharge. This study proved that unmet educational needs existed related to the medical condition faced by patients in the inpatient hospital setting and stated there is a need for further research to occur addressing the inpatient information needs, patient-provider communication and patient satisfaction. [7]

In 2015, Levingston with Journal- News wrote regarding a similar trial at Butler County Hospital where patients admitted overnight were provided with a tablet that could be used to access the app, MyChart Bedside. [9] The trial began in the surgical department with the intention

to expand the study to other hospital department settings. This app provided patients the ability to view test results, leave questions for their provider, and allowed for direct communication with the nursing staff [9]. The goal was to reduce readmissions and improve the quality of care by keeping the patient informed and engaged. This app also allowed patients to transition smoothly back to home life with a related MyChart app which provided access to the medical records. This strategy proved useful to providers who saw the patients in follow up appointments, as the patients were more informed about what had occurred by accessing their medical record. This increased the effectiveness of follow up appointments and led to improved continuity of care. [9] Patients in this trial also cited the tablet as a source of entertainment to keep them occupied during long rest and down times. Epic cited MyChart Bedside as helping patients become an active member of the team. [9]

The three studies discussed above were conducted using adult patients. The challenges become even greater when a child is hospitalized. As discussed earlier, both the child and caregiver face stresses related to staying connected to other family members and peers, remaining up to date with school responsibilities, and keeping pace with the evolving healthcare being provided to them. With the vast numbers of hospitalizations occurring every year, in the millions, and the vast resources available at one's fingertips, it is crucial to connect the two. A hospitalization would be a difficult time to search through over 2 million available applications to find one capable of keeping the child connected to the progressive educational goals. Secondly, hospitals often have rules regarding visitor age limits and times of visitation. This puts a burden on the child and the caregiver with the child, as the remainder of the family cannot continue with their usual daily interactions. Further, an in-hospital stay results in seeing many

faces of the nursing staff, social work staff, medical care providers, dietary staff, and others. It can be difficult to keep up to date with who is who and who is available when a question comes to mind. An application, which tracks all of this for the patient, would reduce the stress of identifying every care team member. Lastly, it is a challenge to properly follow discharge instructions after an extended hospital stay as there are often multiple changes made. This becomes a safety issue as patients go home with new medications, but have no idea what the medicine is used for or how to properly take it.[10] The discharge process is a high- risk period for confusion and medication errors when going home. The solution is a team approach with more effective communication. This is especially true for the hospitalist who needs to communicate with outpatient care providers to guarantee the continuity of care for the good of the patient. [10]

It is clear and unarguable that there are challenges faced when a child is placed in the hospital for any amount of time. The medical team is focused, as it should be, on the medical needs and healing of the child. However, the child is more than a physical being. The child has social, educational, mental and emotional needs. Helping children stay connected with regular academic activities and family and peer support has been shown to help them cope with hospitalization, reduce difficulties during school re-entry and improve long-term physical, social and educational outcomes. [11] BridgingApps, a program of Easter Seals Greater Houston, has designed a customizable program to meet this need. BridgingApps is a program originally focused on bridging the gap between technology and persons with disabilities. However, it has expanded to reviewing and recommending applications for all ages, skill levels and needs. The applications are reviewed and tested by therapists, teachers, parents, doctors, disabled persons and technology professionals. BridgingApps then produces supplemental information to aide

users in making informed decisions on which apps would be useful for themselves and/or their patient. BridgingApps is a resource for narrowing down the choices available on the application stores. This study will look at the use of low-cost, commercially available mobile device applications and training designed by BridgingApps to: 1) as a tool to improve the social and educational connection of children who are hospitalized, 2) as a tool to improve the social connectedness and support for the caregiver and 3) bridge the medical-educational gap and empower the child and caregiver to be an active part of the healthcare team.

Objective

The purpose of the study was to measure the impact of touch- based mobile devices and applications by caregivers who have children hospitalized for an extended period. The areas of impact measured were: 1) the ability of the child to regain, maintain or progress with educational goals, 2) the child and caregiver's feeling of remaining socially connected to peers and family during the hospitalization, 3) the child and caregiver's feeling of being empowered members of the healthcare team and 4) mobile device proficiency.

METHODS

Study Design

This was a cross-sectional study of caregivers who had a child hospitalized for greater than two weeks at Texas Children's Hospital Inpatient Rehabilitation Unit during the three-month period October 2015- April 2016. Participants included in the study were caregivers of children with a chronic illness or condition that were treated on the unit that required greater than a two-week inpatient stay and who were currently in school, including homeschool, and who were physically capable of using a touch based device either independently or with assistance.

Exclusion criteria only included those caregivers of children unable to show purposeful engagement with a mobile device, or those unwilling to participate. Forty-four subjects were approached for the study based on recruitment efforts and those patients meeting the inclusion criteria. The Institutional Review Board for Baylor College of Medicine and Affiliated Hospitals (H-40234) approved this study and informed consent was obtained.

This study included children, ages three-17, although the vast majority of the study was conducted solely with the caregiver. While children are considered vulnerable subjects, this IRB-approved study was classified as risk category 1: not involving greater than minimum risk. Children and their parent/caregiver were taken to a private room to discuss the study and give consent to participate. Children and caregivers were allowed to ask questions and/or withdraw at any time if so desired.

Enrolled subjects completed a pre, post and one-month post intervention survey. Each subject served as its own control given the vast variety in age, socio-economic status, education level, medical condition, and individual needs. The independent variable was a five-session training program conducted by a digital educator. The dependent variables analyzed were: 1) the child's ability to meet educational goals, 2) the child and caregiver's ability to remain socially connected to family and peers during hospitalization, 3) the caregiver's ability to manage the child's healthcare both now and in the future and 4) mobile device proficiency. Pre-survey respondent data included demographics, length of hospitalization, baseline proficiency with mobile devices, feeling of inclusion as a member of the healthcare team, and perceived impact of the hospitalization on educational progress and family/ peer connectedness.

The participants then completed five sessions of training using mobile devices and their applications. The sessions addressed: 1) Using mobile devices safely, 2) Exploring Healthcare and Organization Apps, 3) Exploring Apps for Social Support, 4) Apps to enhance educational outcomes and 5) Going home, Apps for the future and BridgingApps.org as a resource. All training sessions were completed while the child was hospitalized. Just prior to patient discharge, a post-survey was completed by the caregiver that asked about: the impact of using technology to meet educational goals, perceived increase in social connectedness, ease of the management of the evolving healthcare needs, the perceived increase in mobile device proficiency. A follow-up survey was administered to participants one-month post hospital discharge. This survey sought data about how helpful the study was in meeting educational goals for the child, and improving connections with peers and the medical care team.

Statistical Analysis

Descriptive statistics comprised using means, ranges, frequencies, and proportions were used to describe each subject's data and to summarize the decrease in concern regarding educational progress, increase in social support, empowerment as part of the healthcare team, and perceived increase in mobile device proficiency. A z-score was calculated to determine if there were statistically significant correlations between the intervention and any perceived increases in mobile device proficiency, social support, and engagement with the healthcare team/care plan and decrease in concern regarding educational progress. A confidence interval of 0.05 was used to determine significance.

RESULTS

Of the 44 subjects identified, 16 consented and completed the baseline survey, five training sessions and the discharge survey. Only four of the original 16 subjects completed the one-month post discharge follow-up survey. Fincham has suggested that multi-mode surveys generate a higher response rate, generally upwards of 70%. [12] A multi-mode approach consists of using both mailed and e-mailed surveys allowing the participant to choose the most convenient option and therefore producing a greater likelihood of response. This study utilized this approach offering the survey in either mail or email format, however, the response rate remained low.

There was a wide variety of ethnicities represented with 50% of the subjects Caucasian, 25% Hispanic, 10% African American, 10% Asian, and 5% American Indian or Alaskan Native. The caregivers' ages ranged from 26 to 61 years of age with a mean age of 34.4 years. The socio-economic status of the participants ranged from $0-$70,000 annual gross income, with a mean income of $29,943. In terms of device ownership, 94% of caregivers owned a smartphone and 56% owned a tablet or laptop computer, the most used devices during the training sessions.

The children had a mean in-hospital stay length of 22 days (range 0-90 days) and a mean number of missed school days due to illness or hospitalization of 13 days (range 0-43 days). All (94%) but one child who was homeschooled, were enrolled in the public school system. Fifty percent were in Elementary (kindergarten- grade 5), 19% were in Middle School (grades 6-8) and 19% were in High School (grades 9-12). Two of the children (12%) were in the pre-school age category.

Educational Progress

Baseline data indicated that 38% of respondents reported "yes" when asked whether their child's academic progress had been hindered due to the hospitalization. When asked the same

question at the time of discharge, 80% of respondents answered "yes". This is a statistically significant increase in concern (p-value of 0.023). Subjects were asked to rate their level of concern regarding the academic progress of the patient. At baseline, 50% reported "very concerned", but at discharge, only 27% reported "very concerned." This result is not statistically significant (p-value of 0.24). Some 6% reported "not at all" concerned at baseline with 27% of the respondents reporting "not at all" when asked to rate the level of concern regarding academic progress upon discharge (p-value 0.13) (Figure 1). This result is also deemed not statistically significant.

Social Connectedness and Peer Support

When asked about whether hospitalization had an impact on social connectedness, 37% of caregivers reported the hospitalization had at least moderately impacted their social connectedness at baseline. At the time of discharge, only 18% reported that the hospitalization had at least moderately impacted their social connectedness (p-value 0.28), while 36% reported their social connectedness had not been impacted by the hospitalization of the child. Participants also reported on the impact of the hospitalization on their child's social connectedness. Some 81% of caregivers reported that their child's social connectedness had been at least moderately impacted. However, at the time of discharge those that previously reported at least a moderate impact had decreased to 63% (p-value 0.31), with the remaining 27% reporting only a slight impact (Figures 2 and 3). There was no statistically significant increase in perceived social connectedness for caregiver or child after completing the training program, although the trends were positive.

Ability to Manage Child's Healthcare/ Empowerment as part of Healthcare Team

Baseline survey data found that 88% of caregivers felt engaged in the health plan of the patient. During discharge, 100% reported they did feel engaged in the health plan of the patient (p-value 0.22) (Figure 4). There was no statistically significant increase in feeling of engagement with the health plan or the medical team.

Mobile Device Proficiency/ App Usage

At baseline 29% of children were reported as being very proficient in smart phone use, while 35% were reportedly "still learning". At discharge, 33% were reported very proficient (p-value 0.82) with only 11% still learning (p-value 0.19), the remaining 56% were graded as "somewhat proficient" (Figure 5). The caregivers reported 63% very proficient at baseline and 90% very proficient in smart phone use at discharge (p-value 0.09). Similarly, tablet use was rated 53% of caregivers were very proficient at baseline, and 82% of them were very proficient by the time of discharge (p-value 0.13) (Figure 6). There was not a statistically significant increase in either smartphone or tablet device proficiency of caregivers following the training program.

Per the baseline survey, caregivers reported the most useful applications were those which assisted in managing the child's healthcare, assisting with educational goals, assisting with therapy goals, and those enabling them to stay connected to family and friends. Upon discharge, the most helpful applications were in descending importance: apps which help educational goals, those which enable them to stay socially connected, and those which help manage the child's care. Also upon discharge, 63% of the subjects had reported using the BridgingApps resources to

decide which applications to download, while no one had previously reported using this resource (Figure 7).

DISCUSSION

The child has social, educational, mental and emotional needs. Helping children stay connected with regular academic activities and family and peer support has been shown to help them cope with hospitalization, reduce difficulties during school re-entry and improve long-term physical, social and educational outcomes.[11] Eighty percent of respondents reported the hospitalization had impacted the patient's academic progress. That is a statistically significant proportion and raises the question of what can be done to alleviate this negative impact. However, there was no statistical significance found regarding reducing the concern of missing school while hospitalized after the training program. However, a trend noted was that the highest level of concern decreased, and the lowest level of concern increased following the training program. BridgingApps has been successful at identifying apps and training caregivers to utilize and find these apps in order to reduce the burden that a hospitalization has on a child's academic progress and educational continuity. With a greater sample size, the results would likely reach statistical significance.

With regards to social connectedness, it is unarguable that an inpatient hospitalization has a negative impact on family and peer connectedness. This survey, confirmed that suspicion. There was a decrease in perceived impact of social connections, however the statistical significance did not hold. The session designed by BridgingApps training program was successful at improving the social and peer support and connectedness throughout the hospitalization, as the percentage of those moderately impacted decreased and the number of

respondents with no impact at all increased. With a larger sample size, it is predicted the results would show a statistical significance.

As discussed previously, the three studies referenced in the introduction of this paper, proved a positive impact on patient satisfaction and experience when an application was utilized to increase the communication and accessibility of records during an inpatient stay. This survey produced similar results in that the baseline survey revealed only 88% of caregivers felt engaged in the health plan of the child. This is unacceptable, as the patient and/ or caregiver during a minor person hospitalization, should be the leader of their medical team. During discharge, 100% reported they did feel engaged in the health plan. There was an increase in the proportion of subjects whom reported feeling engaged as part of the medical team; it is an improvement, although not statistically significant, as essentially all subjects found themselves empowered to serve as an active and important member of the medical team after undergoing the training sessions and learning to utilize applications in order to reach this level of proficiency in medical knowledge and organization.

The surveys were clear that the training program conducted by a digital educator served to greatly increase proficiency in smartphone and tablet use of both the caregiver and child. Although, this was not stated formally as an intended measure of this study, the finding was important. There was a statistically significant increase in perceived proficiency of both smartphone and tablet usage. This alone is a significant finding; as stated above, the world is dependent on mobile device technology. However, it must be noted that the digital educator found that most caregivers overrated their proficiency. This caused a challenge when delivering the training as the digital educator had to review basic device operations before moving onto the

intended content. The implications of what the subjects learned throughout the five sessions goes far beyond health management, social connectedness, and educational progress. This training has lifelong implications in improving the efficiency and ability of these people to function at the highest level in and with society. Eshet- Alkalai wrote "digital literacy involves more than the mere ability to use software or operate a digital device; it includes a large variety of complex cognitive, motor, sociological, and emotional skills, which users need in order to function effectively in digital environments." [13] This type of learning and skill set was achieved to an extent resulting in the perceived increase in proficiency found in this study.

In addition, 18 staff members (therapists, nurses and patient care assistants) completed a baseline survey, however only three also completed the end of program survey. The baseline surveys revealed eighty-three percent of staff members agreed there is a therapeutic value in using mobile devices with patients and caregivers during therapy sessions. Eighty-nine percent of staff also saw at least a moderate potential for improved patient outcomes when using mobile devices to enable patients and caregivers to manage healthcare information. Similarly, over eighty percent of staff saw at least a moderate potential for improved patient outcomes when using mobile devices to enable patients and caregivers to remain socially connected with family and peers. The staff members working day in and day out on the inpatient rehab unit reported a potential for therapeutic value and improved patient outcomes using mobile devices with both patients and caregivers. Unfortunately, due to only 3 staff members completing the post training survey, it is not feasible to draw conclusions on the impact of the training program from the staff members; however, it seems the staff see value in implementing this type of training program.

This training program was successful at achieving its goals, in a practical sense. However, due to the small sample size, the vast majority of results did not prove statistically significant. This study was obviously limited in size as it was a pilot study with only 16 participants completing the initial survey, training sessions and discharge survey. This is the most compelling reason for the lack of statistical significance found in the results. Similarly, the study was limited in its scope of patients as it was conducted only on the Inpatient Rehabilitation Unit. So, by default, all patients had some degree of disability that must be considered when analyzing the results.

CONCLUSION

Regardless, the data is clear in that the training program implemented which provided five sessions of technology training to the caregivers, produced trends showing a decrease in concern regarding hindrance of academic progress, an increase in social connectedness and peer support, a perceived increase in the ability of the caregiver to be an active player on the medical care team and an increase in device proficiency. There are plans to reproduce this study on a larger scale on a different and more varied inpatient hospital unit at Texas Children's Hospital. One change that will be considered for the next phase of this study is incorporating a basic device operations review before initiating the content training. The long-term intent of this study is to confirm the effectiveness of this adaptable training program in order that it may be offered to other organizations to implement, to cater to the social, emotional and educational needs of children and caregivers who spend time in an inpatient hospital setting.

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TABLES AND FIGURES

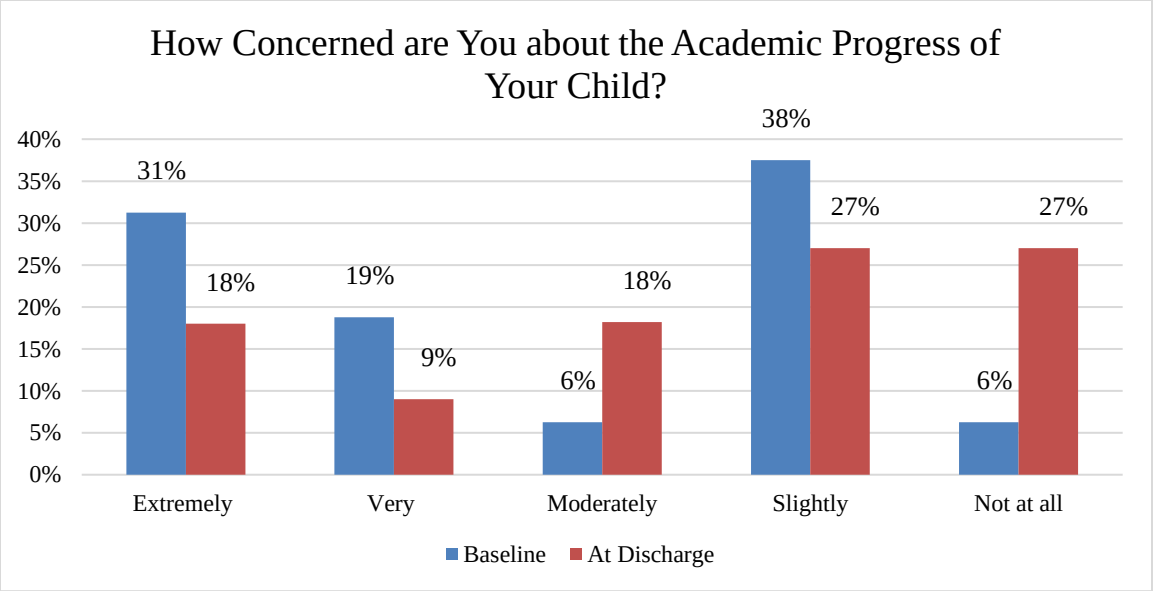

Figure 1. Caregiver Concern regarding Child's Academic progress during Hospitalization at Baseline and Discharge

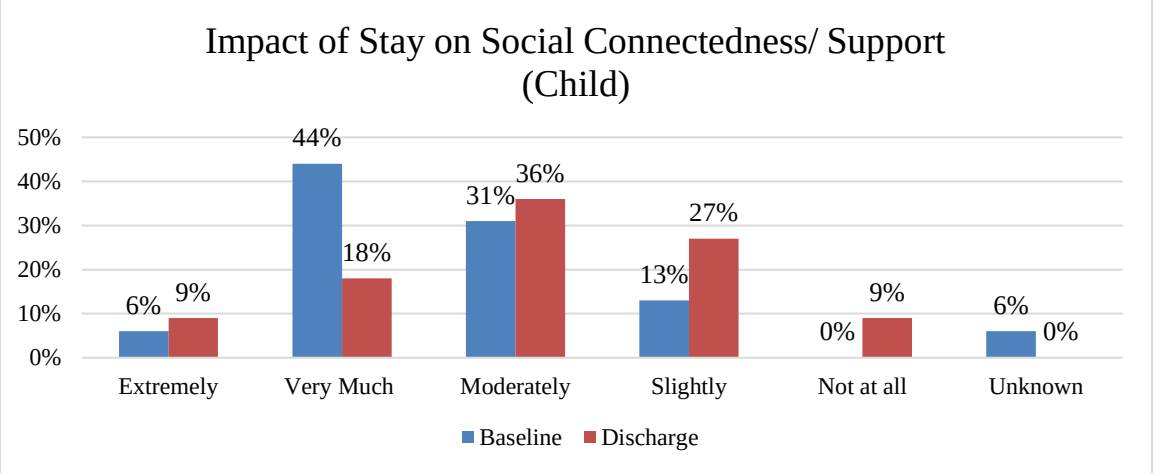

Figure 2. Child Perceived Impact of the Hospital Stay on their Social Connectedness/ Peer Support at Baseline and Discharge

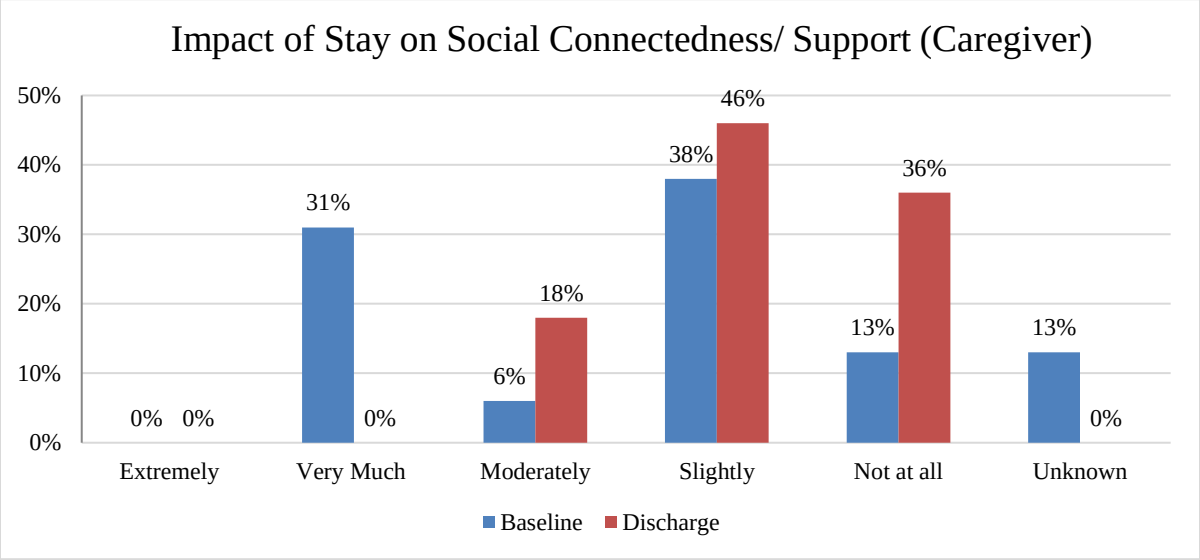

Figure 3. Caregiver Perceived Impact of the Hospital Stay on their Social Connectedness/ Peer Support at Baseline and Discharge

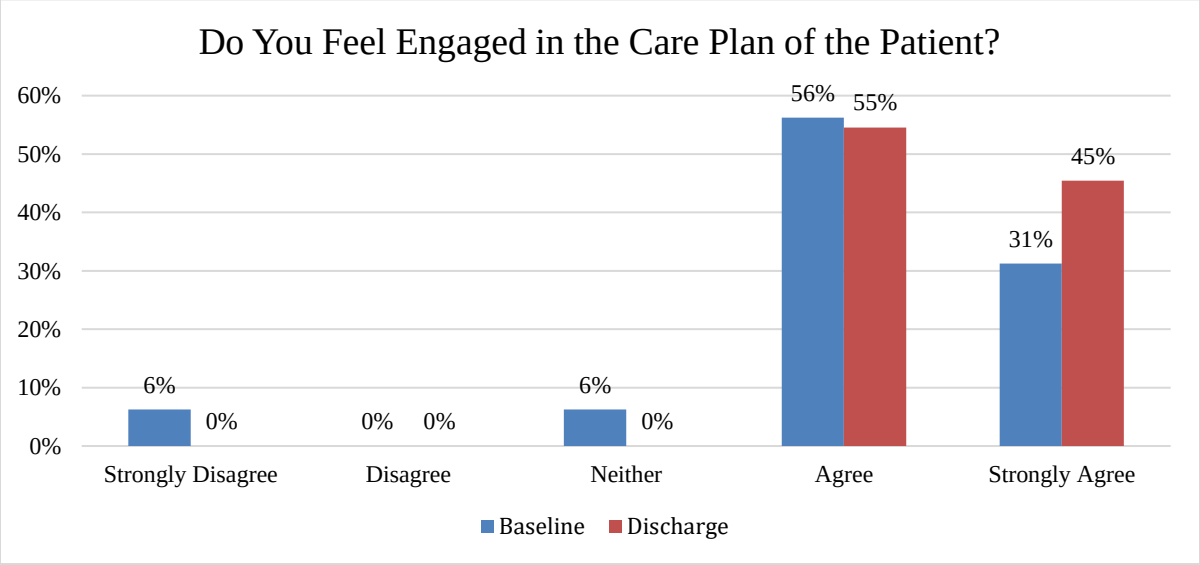

Figure 4. Perceived Caregiver Ability to be Engaged in Healthcare at Baseline and Discharge

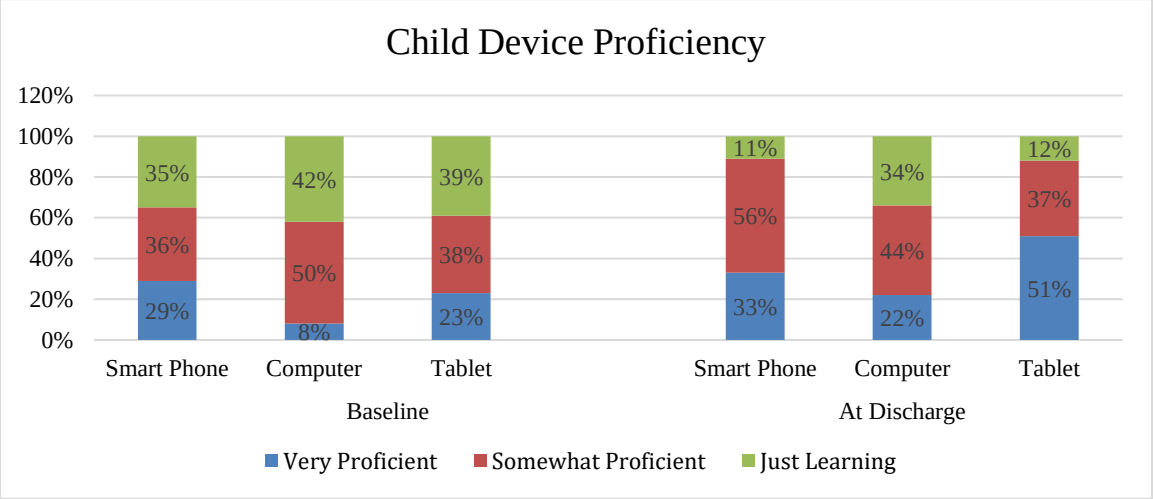

Figure 5. Perceived Patient (Child) Device Proficiency at Baseline and Discharge

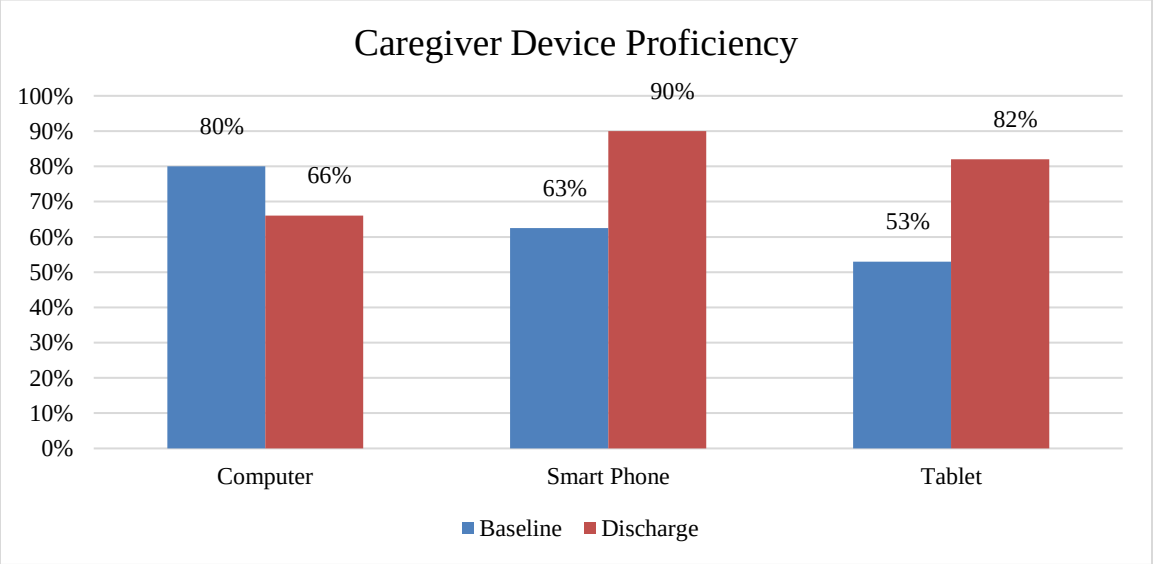

Figure 6. Perceived Caregiver Device Proficiency at Baseline and Discharge

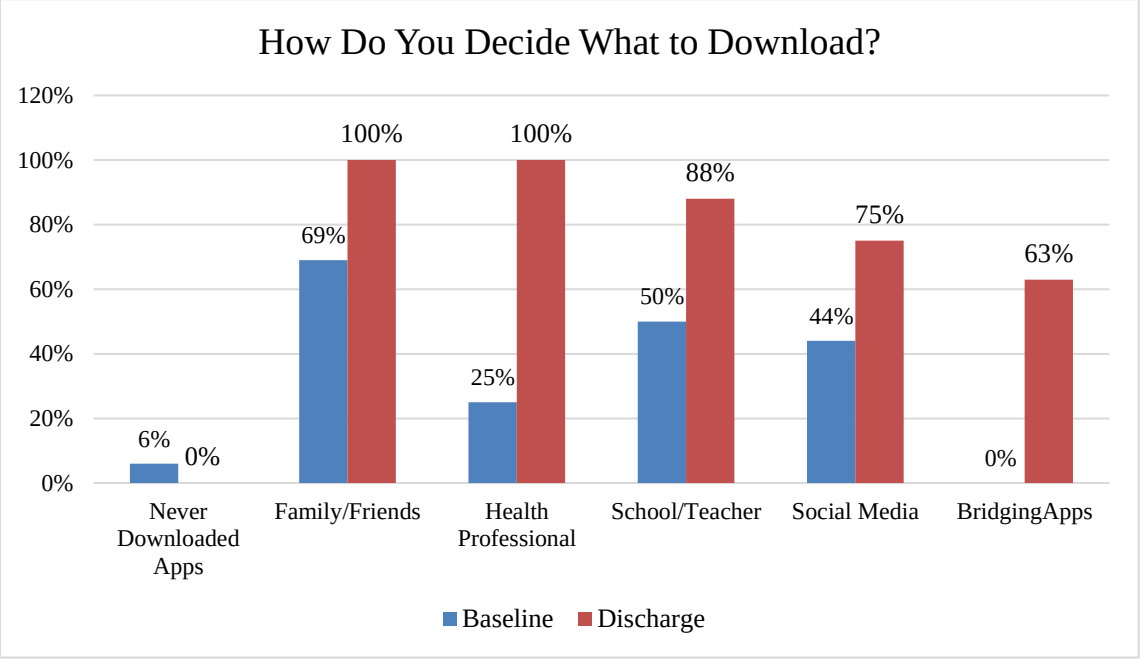

Figure 7. Resources Used by Caregivers to Determine Which Apps to Download at Baseline vs. Discharge

APPENDIX

Curriculum Designed by BridgingApps

Session One: Introduction to Mobile Devices, Apps, and Digital Safety

Goal 1.1: To introduce mobile device technology and mobile device applications to the family/caregiver and their child.

> Objective 1.11: The family/child will utilize a currently owned mobile device or be distributed a BridgingApps mobile device to use as a tool for managing and enhancing health, educational, and social goals.
>
> Objective 1.12: Digital device integrity and digital literacy/competency of the parent/caregiver will be determined. * (Screening/assessment tool recommend administered not self administered)
>
> Objective 1.13: The family/child will demonstrate basic mobile device operation skills including relevant ID and password, on/off, volume control, charging, connecting to Wi-Fi, accessing the app store, and opening an application.
>
> Objective 1.14: Any mobile device and application accessibility needs and issues of the family/caregiver and the child/patient will be identified.
>
> Objective 1.15: The family/child will be given adaptability information addressing any physical, cognitive, visual concerns specific to the previously identified needs of their child/patient.

Goal 1.2: To introduce digital safety with mobile devices and application principles and responsibilities to family and patient/child.

> Objective 1.21: The family/child will identify personal safety guidelines for use with mobile devices and applications including protecting individual privacy and information security.
>
> Objective 1.22: A digital technology and safety agreement contract will be presented to the family/caregiver for use with their child/patient if they so choose.

Goal 1.3: To communicate and coordinate with the Inpatient Rehabilitation Unit (IRU) team information about session one.

Objective 1.31: The project staff will collect FIM/therapy goal information and potential device accessibility issues from the IRU team and medical records prior to session if deemed necessary.

Objective 1.32: The project staff will share the results of session one with the IRU team including device used by family, device integrity, digital literacy/ competency level, device accessibility findings, and other general visit feedback.

Materials:
*Family/Child's mobile device
*Bridging Apps/Easter Seals example devices (both iPad/tablet and iPhone/android)
*Handouts:

1. Project Overview Handout: Overview of Sessions and BridgingApps Contact Information

2. Session One Handout: "Getting Started" (includes personal project goals)

3. BridgingApps Mobile Loaner Device Contract (if borrowing device)

4. Parent/child Digital Safety Contract

*Reference website link: Common Sense Media website for parent reference:
https://www.commonsensemedia.org

*Reference website link: BridgingApps website for parent reference:
http://bridgingapps.org
Follow up tutorial videos and readings for parents:
http://bridgingapps.org/how-to-videos/
http://bridgingapps.org/setting-up-the-ipad-for-the-first-time/
http://bridgingapps.org/setting-up-the-android-for-the-first-time/
http://bridgingapps.org/category/gettingstarted/accessibility/

*Internet access
*Digital needs assessment screener tool - including device needs, device "integrity", and digital literacy/competence.
*Rehabilitation unit staff communication summary form

Procedures:
1.Review with family:

a. project overview

b. participant responsibilities

*Estimated time: 5 min

2. Answer any participant (parent/caregiver/child) questions.
*Estimated time: 5 min

3. Conduct Device and Digital Needs Assessment (screening/assessment tool):
a. Determine device that the family/caregiver/child will use (ideally their own device).

b. Assess device integrity and usability and if needed solve issues effecting use (available memory, any proper backups and storage, screen integrity, updated operating system/functional device?). Screener tool. Recommend interview style administration.

c. Distribute loaner device and collect completed loaner contract if applicable

*Estimated time: 15 min

4. Getting Started- demonstrate basic device functions:
a. External features: power button, home button, volume buttons, dock connectors, camera, battery icon, Wi-Fi icon, home screen, apps. on/off

b. First steps: turning on/off, unlock, passcode lock, charging, change volume, rotation lock, icons/folders

c. Setting Up: Wi-Fi connection, privacy settings, back up, contacts, notifications, and accessibility features (address any needs here tailored to family)

d. Exploring Apps: Camera, calendar, reminders, contacts, facetime, email, maps, internet browsing, and app store (including demo obtaining a starter third party app). First introduction of BridgingApps website with app search tool.

NOTE: May need to create participant email account or solve issues related. May need to create participant Google Play account or Apple ID.

e. Device Safety: Establish family rules, protect personal information, practice positive digital etiquette, understand location services, be aware of in-app purchases, and determine restrictions/allowed content. Present "Digital Technology and Safety Agreement" contract.

*Estimated time: 30 min (extremely variable depending on digital competency level).

5. Create family/patient tailored project goals.
*Estimated time: 5 minutes.

6. Homework for family and for child
a. Family: interact and practice with the starter apps and download one app (recommend a scanner app and one child friendly app)

b. Child: interact with the child selected demo app if desired.

c. Make "appointment" for Session Two (write on Session One handout)

7. Complete session summary form. Share with the Inpatient Rehabilitation Unit (IRU) team in manner they prefer.
*Summary should include information about device chosen, further device accessibility findings, family determined project goals, and general session feedback.

Session Two: Introduction to Health Care Management and Organization Apps

Goal 2.1: To introduce parents/caregivers to a medical record related app/patient portal used by organization (ex. MyChart).

Objective 2.11: The parents/caregivers will access the medical record related app/patient portal for their child's via the organization's approved app (MyChart).

Objective 2.12: The parents/caregivers will practice using the MyChart app and features including messages and immunization records.

Goal 2.2: To introduce BridgingApps website app search engine and app review system as a resource for locating apps to fit family needs.

Objective 2.21: The parent will practice app search on the BridgingApps website for general health management apps and/or single purpose health apps.

Objective 2.22: The parent will access an app review through BridgingApps website.

Objective 2.23: The parent will select and download health care management app(s) and/or single purpose health management apps that fits their family needs.

Goal 2.3: To demonstrate use and functions of a selection of general health management, single purpose health management apps, and general organization apps.

Objective 2.31: The parents/child will download and practice using selected general and/or single purpose health management apps.

Objective 2.32: The parents/child will scan and save a health related document.

Objective 2.33: The parents/child will enter information into a health management and/ or organization app (continued as "homework").

Goal 2.4: To communicate and coordinate with the Inpatient Rehabilitation Unit (IRU) team information about session two.

Objective 2.41: The project staff will complete the session summary form.

Objective 2.42: The project staff will share the results of session two with the IRU team including apps demonstrated and/or download/accessed by family and other general session highlights if the team requests.

Resources/Materials:
*Family/child mobile device
*Bridging Apps/Easter Seals staff demo device
*Handouts:

1. Session Two Handout: Introduction to Health Care Management and Organization Apps

2. Example of single purpose health apps: article on children with diabetes. http://bridgingapps.org/2016/03/keeping-cool-mobile-technology-tools-kids-diabetes/

*Website link for app search:
http://bridgingapps.org

*Reference website link for app search tutorial:
http://bridgingapps.org/how-to-search-for-apps/

*Internet Access
*Rehabilitation unit staff communication summary form

Procedures:
1. Review:

a. Session one concepts. Reinforcement and practice of skills including quality app search and accessing app store occur each session.

b. Discuss device usage since last session. Discuss experience using starter apps since session one. Address any issues or questions.

*Estimated time: 5 min

2. Begin training on how to search for and research about apps. Use session theme of health care management and organization apps for demo searches.

a. Introduce BridgingApps website with custom search tool and professional reviews. http://bridgingapps.org . *Demo search features. *Access reviews.
Reference resource: http://bridgingapps.org/how-to-search-forapps/

b. Conduct general web based searches and reviews using general search engine. i.e. “Google”. Discuss concept of professional and non-profit organization reviews as source of potential reliable information.

c. Demonstrate iTunes Stores or Google Play Store search. Highlight reviews section with points to consider: reliability of reviews, how often and timeliness of last developer update, in-app purchases, demo “lite” free versions vs. full versions, etc.

*Estimated time: 10 min

3. Discuss Medical Record Centered/Based Apps (Provider based and third party)

a. Features: access to actual records (though can be selective) from clinics, doctors, hospitals. Access to easy doctor/clinic email communication, access to provider selected lab/test/imaging results and summaries, immunizations records, and prescribed medications.

b. Examples include: *Provider based: ex. MyChart App *Third party/ independent from health care system: ex. CareSync (record gathering/ attainment and personal ownership of records).

c. Download My Chart App (***parent needs TCH sign up code, their account id and temporary password from TCH). Explain that their other outpatient clinics and doctors may also use MyChart (Epic based).

*Estimated time: 10 min

4. Discuss General Health/Medical Management Apps:

a. Features: easy access to heath data with record keeping, multi profiles for each family member, organizes notes, record/track various data, stores medication information, stores loose paperwork including referrals, POA and Insurance cards, accesses calendars including shared calendars, stores any journal keeping or notes.

b. Examples include CareZone, CareSync (note this is free part of app, medical record retrieval/ownership component explained above), Caring Bridges.

c. Download CareZone and/or CareSync. Demo each examples for participant to decide which is preferred. Show goal setting in CareSync.

5. Single Purpose Health Apps:

a. Features: assists with managing specific and focused and sometimes very specialized health data/needs. Can be a tutorial, reference and support tool for specific health condition. Can ease monitoring burden, track symptoms/data, ordering supplies, and communication to physician and health care team. Can encourage independence and involvement in older child/teen if they use on their own device.

b. Examples include: Pump Partner, Pill Boxie (medication), Pumps for Kids (DM), BP Companion, Counting Carbs with Lenny (DM), Clue (for menstruation), Seizure Tracker, etc. Reference article for example: http://bridgingapps.org/2016/03/keeping-cool-mobile-technology-tools-kids-diabetes/

c. Identify a couple specialized apps parent may like to include in session if interested/applicable.

6. Homework for Family and/or Child

a. Family: practice using health management apps by entering information and data (recommend start with medications, some upcoming appointments, and even family birthdays in calendar app), scanning and storing, and/or sending a message to a health care provider. Can create and store therapy goals as well as therapy schedule and child's routines.

b. Explore the BridgingApps website, search for apps, and watch any tutorial videos as follow up to session.

7. Complete session summary form. Share with Inpatient Rehabilitation Unit (IRU) team. Collect any information from team on issues to address in next session.

Session Three: Keeping Connected- Apps and Device Features for Social Connection and Support

Goal 3.1: To determine social support system needs for the family with a child experiencing an extended hospital stay

> Objective 3.11: The parent/caregiver will identify social connections including those with family, friends and peers of their hospitalized child that have been affected by an extended hospital stay.

Goal 3.2: To demonstrate use and functions of mobile device technology and apps that can address some of the identified social support needs of the family and child experiencing an extended hospital stay.

> Objective 3.21: The parent/caregiver will practice app search on the BridgingApps website for apps designed for with features to connect them to their social support and connections outside the hospital environment.
>
> Objective 3.22: The parent/caregiver will access a variety of apps and device features that are supportive in maintaining a connection to those outside the hospital environment.
>
> Objective 3.23: The parent/caregiver will be introduced to peer to peer support systems available for their family via mobile device app features.

Goal 3.3: To communicate and coordinate with the Inpatient Rehabilitation Unit (IRU) team information about session three.

> Objective 3.31: The project staff will complete the session summary form highlighting family identified social support connections.
>
> Objective 3.32: The project staff will share the results of session three with the IRU team including apps, features of apps and device features demonstrated and/or downloaded by the family to promote and maintain social connections to family, friends and peers.

Materials:
*Family/child mobile device
*BridgingApps/Easter Seals staff demo device
*Handouts:

1. Session Three Handout: "Keeping Connected: Apps and Device Features for Social Connections, Skills, and Support"

*Website link for app search:
BridgingApps website: http://bridgingspps.org/

*Internet access
*Rehabilitation unit staff communication summary form

Procedures:
1. Review:
a. Session one concepts of device general usage for reinforcement of skills.

b. Session two concepts of utilizing health management apps and discussion of any use since last session.

c. Address any issues or questions.

*Estimated time: 5 minutes.

2. Determine the family, friends and other social support wants and needs of the family and hospitalized child as well as how currently connecting.
*Estimated time: 5 minutes

3. Discuss, search via BridgingApps app search tool, and demo apps designed with features that facilitate connections to family, friends, and peers outside the hospital environment or from a distance.
a. General apps/device features: text, email, phone, and video chat. Examples: Facetime, Tango, Skype, What's App, Snap Chat. Reinforce digital safety concepts of privacy settings and parental controls.

b. Family and friend support and communication. Examples: Carely app, Caring Bridges, Facebook, CareZone (shared calendars), Family Reach Give.

c. Peer to Peer Support. Examples: Facebook closed support groups such as "Parents of Proloquo2Go users", Parenting Special Needs Magazine group, and caregiver based groups. Apps such as Cancer Stories, and My MSTeam.

d. Creative connections via apps: Examples: Create A Card app, Phone Tree Broadcast app, Tango (play games at a distance). Swaha (photo sharing with audio captions), Imagistory, USTyme (storytelling app), Other multiplayer game apps.

*Estimated time: 20 minutes.

4. Homework for family and child:

a. Utilize device feature or app to connect with someone outside hospital environment before next session.

b. Make "appointment" for Session Four (write on Session Handout)

5. Complete session summary form. Share with the Inpatient Rehabilitation Unit (IRU) team. Collect any information from team on issues to address.

Session Four: Not Just For Games: Engaging Apps to Enhance Education Outcomes

Goal 4.1: To determine the current goals/plan for school/education while the child is absent from their classroom or learning environment.

Objective 4.11: The parent/caregiver will identify their child's pre-hospitalization academic setting and indicate if there is an Individualized Education Plan (IEP) or 504 modifications in place.

Objective 4.12: The parent/caregiver will identify whether there is a plan or qualification for their child to receive educational services, including general or special education, in the hospital or home during and after hospital stay

Objective 4.13: Any technology services, equipment and apps utilized by the child for academic purposes both in the school environment and those personally owned will be documented

Objective 4.14: Current communication between teacher(s) and classroom environment and the hospitalized child/family will be identified.

Goal 4.2: To demonstrate use and functions of mobile device technology and apps that can address some of the identified and future education needs and goals of the child experiencing an extended hospital stay and absence from their academic environment.

Objective 4.21: The parent/caregiver will practice app search on the BridgingApps website for apps that are in line with education goals and concerns of the child. (Note: BridgingApps app search filters such as grade level, skill, category, Common Core subject, age, and app lists. Mastery Common Core app currently an example of resource for parents to learn expected K-12 grade academic standards).

Objective 4.22: The parent/caregiver will access two apps that are in line with their child's identified education goals.

Objective 4.23: Accessibility features on a mobile device that can be beneficial to the hospitalized child such as assistive touch, switch control, guided access, speech to text, voiceover/speak screen, etc will be demonstrated.

Goal 4.3: To communicate and coordinate with the Inpatient Rehabilitation Unit (IRU) team information about session four.

Objective 4.31: The project staff will complete the session summary form highlighting family identified education concerns.

Objective 4.32: The project staff will share the results of session four with the IRU team including apps, features of apps and device features demonstrated and/or downloaded by the family to enhance education outcomes.

Materials:
*Family/Child's mobile device
*BridgingApps demo device
*Parent's copy of child IEP or 504 modifications if available.
*Handouts:

1. Session Four Handout- "Not Just For Games: Mobile Device Features and Engaging Apps to Enhance Education Connections and Outcomes"

*Website link for app search: BridgingApps website- www.bridgingapps.org

*App for reference and demo of Common Core Standards (Mastery Common Core): https://insignio.bridgingapps.org/apps/368bb108-b168-ab4b-1385-246d13ac978a?page=NaN&query=common%20core

Procedures:
1. Review:

a. Discuss family general use of device since last project session.

b. Session two and three concepts with any device/app usage since last session.

c. Address any issues or questions.

*Estimated time: 5 min

2. Discuss and gather hospitalized child's education/academic plan and determine potential for device/features/apps to address.

a. Pre-hospitalization academic information- school environment, accessibility, grade level, overview of any IEP or 504 modifications, learning issues.

b. Current and post-hospitalization education plans- new deficits, new cognitive concerns, new physical accessibility, in place or in development with any new or emerging concerns from incident or reason why hospitalized..

c. Parent/caregiver education goals and concerns for their child.

d. School and family communication situation to stay connected to classroom and learning including maintaining a social presence and peer engagement during absence? Any technology used? Reinforce concepts from session three for use in academic environment.

3. Lead and demo app search via BridgingApps app search tool utilizing the parent identified education goals and concerns.

a. Perform app search with filters/terms such as grade level, skill, category, Common Core subject, age, and app lists.

b. Demo Mastery Common Core app as a reference now and in future to learn what core knowledge base educators' expect child to know K through 12th grade. Use appropriate listed standards to guide search for apps to match standard.

c. Download at least two apps addressing academic/education needs of child.

*Estimated time: 30 min.

4. Homework for family/child:

a. Engage in two apps for focusing on academic/education goals. Reminder to utilize guided access if necessary for child.

b. Continue to utilize mobile device and family selected apps for health care management and social connectivity.

5. Complete session summary form: Share with the Inpatient Rehabilitation Unit (IRU) team.

Session Five: Going Home- More Apps to Help and the The BridgingApps

Community

Goal 5.1: To complement hospital written discharge/transition recommendations by providing mobile device technology based solutions based on child and parent/ caregiver needs, risks and issues.

> Objective 5.11: The health care and medical record management key points from session two will be reemphasized with focused discussion on maintaining a personal system in place to store, organize and access the child's health information including discharge instructions, home exercise programs and medication management.
>
> Objective 5.12: Mobile device apps that assist with emergency preparedness, first aid, and medical identification will be demonstrated.
>
> Objective 5.13: Mobile device apps that can serve to assist with other potential needs of the child and family will be demonstrated including apps for transportation, support systems, continued therapy/educational/cognitive goals, communication, nutrition/feeding/tube feeding, etc.

Goal 5.2: To determine where mobile device technology and apps can support recreation, respite, and fun for parents/caregivers and the hospitalized child after their transition back to their home and community.

> Objective 5.21: Apps will be demonstrated and/or discussed that meet hobbies and interests of the child and family. Examples include: Geocaching, physical activity/exercise, reading, movies, music, crafts, photography, family games, etc.

Goal 5.3: BridgingApps, a program of Easter Seals of Greater Houston, will serve as a continued resource for families as they transition to their home and community.

> Objective 5.31: Families will be given information to stay connected with and receive continued support and updated app review information from the BridgingApps staff and community including email, telephone, Facebook group, Twitter, Pinterest, community classes, and open labs hours.

Goal 5.4: To communicate and coordinate the results of session five with the Inpatient Rehabilitation Unit (IRU) team.

> Objective 5.41: The project staff will complete the session summary form and summarize family experience in program including identified apps to help with transition back to their home and community.

Materials:
*Family/child mobile device
*BridgingApps/Easter Seals staff demo device
*Internet access
*Handouts:

1. "Session Five: Going Home- More Apps to Help and The BridgingApps Community"

*Rehabilitation unit staff communication summary form
*End of program participant evaluation

Procedures:
1. Review:
   a. Session four concepts of apps for education/academic support.

   b. Address any device and app issues.

2. Reinforce family health/medical information system principles from session two.
   a. Address any user issues

   b. Include storage of discharge instruction information including medications, physician office contact information, home exercise and stretching programs either scanned or in video/photo format.

   c. Outpatient appointments scheduled recorded.

3. Demonstrate quality and reliable apps for assistance with emergencies.
   a. Emergency preparedness- such as American Red Cross Emergency (and disaster specific apps), FEMA, and weather notification apps.

   b. First aid resources- American Red Cross First Aid app, ParentAdvice Center Texas Children's Pediatrics app

   c. Medical identification apps such as Medical ID, Smart 911 wallpaper, ICE4Autism

4. Demonstrate apps for transportation, support and other special identified needs of family/child (Uber, Hail a Cab, Instacart, Favor, cookbook/recipe apps including child centered, etc).

5. Discuss and search/demo apps for family fun, exercise, respite, recreation and entertainment (Simply Being, Geocaching, Yoga Studio, MapMyFitness, Super StretchYoga for Kids, We Cook It, MealMakeover, Netflix, Shazam, etc.).

6. Provide family with BridgingApps contact information for future reference and resource: email, telephone, Facebook group, Twitter, Pinterest, community classes, and open labs hours.

7. Evaluation: Distribute and collect Program Participation Evaluation Form

8. Complete the session summary form and summarize family/child program participation evaluation. Share with the Inpatient Rehabilitation Unit team.

Caregiver Surveys: Baseline, Discharge, 1 Month Post-Discharge

Easter Seals Houston/Texas Children's Hospital
Parent/Caregiver Survey
Baselin

1. What is your relationship to your child who is the Texas Children's Hospital patient?
   - Parent
   - Guardian
   - Grandparent
   - Other (please specify)

2. Which race/ethnicity best describes you? (Please choose only one.)
   - American Indian or Alaskan Native
   - Asian / Pacific Islander
   - Black
   - Hispanic
   - White / Caucasian
   - Multiple ethnicity / Other (please specify)

3. What is your primary language?
   - English
   - Spanish
   - Other (please specify)

4. What is your child's primary language?
   - English
   - Spanish
   - Other (please specify)

5. What is your level of comfort with English?
   - Uncomfortable
   - Slightly uncomfortable

I'm neither uncomfortable nor comfortable
Pretty comfortable
Extremely comfortable

6. How old are you?

7. What is your annual (yearly) household income?

8. What is the highest level of school you have completed or the highest degree you have received?

Less than high school degree
High school degree or equivalent (e.g., GED)
Some college but no degree
Associate degree
Bachelor degree
Graduate degree

9. Do you own any of the following? (check all that apply)

A "smart" phone.
If checked, what kind? _____
A "tablet' device.
If checked, what kind? _____
A Kindle or other electronic book.
A lap top computer.
A desk top computer.
No, I do not have any of the above.

10. Does your child have any of their own of the following? (check all that apply)

A "smart" phone.
If checked, what kind? _____
A "tablet" device.
If checked, what kind? _____
A Kindle or other electronic book.
A lap top computer.
A desk top computer.
No, my child does not have any of the above.

11. How would you rank YOUR proficiency in using the following?

	I do not own	Afraid to turn it on	Just Learning	Somewhat Proficient	Very proficient
Smart Phone					
Tablet					
Laptop					

Desktop					

12. How would you rank your CHILD'S proficiency in using the following?

	I do not own	Afraid to turn it on	Just Learning	Somewhat Proficient	Very proficient
Smart Phone					
Tablet					
Laptop					
Desktop					

13. How would you rate your comfort level in using mobile device technology with your child?

Uncomfortable
Slightly uncomfortable
I'm neither uncomfortable nor comfortable
Pretty comfortable
Extremely comfortable

14. If YOU have a smart phone or tablet, what types of apps are most useful to you?(Please check as many answers that apply)

Organization/time management/calendar
Entertainment apps (video, movie, sports related)
Game apps
News apps (local news, national headlines, technology announcements, etc.)
Social networking apps (Twitter, Facebook, Instagram, etc)
Weather apps (local forecasts, natural disaster updates, etc)
Educational apps
Health and medical apps
Exercise and fitness apps
Other (please specify)

15. If your CHILD has a smart phone or tablet, what types of apps are most useful to them? (Please check as many answers that apply)

Organization/time management/calendar.
Entertainment apps (video, movie, sports related)
Game apps
News apps (local news, national headlines, technology announcements, etc.)
Social networking apps (Twitter, Facebook, Instagram, etc)
Weather apps (local forecasts, natural disaster updates, etc)
Educational apps
Health and medical apps
Exercise and fitness apps
Other (please specify)

16. What are some of your child's favorite hobbies, interests, and activities?

17. In the past two weeks before your child's current hospitalization, have YOU used your mobile device (e.g. smartphone, tablet, etc.) to do any of the following activities? (Please select all that apply.)

- Send or receive email
- Text
- Make or receive a phone call
- Manage social media accounts (e.g. Facebook, Twitter, LinkedIn)
- Stream audio content (e.g. music, news, podcasts)
- Stream video content (e.g. movies, television, news)
- Purchase a product or service online
- Research a product or service
- Research health related information
- Participate in a video call or chat
- access or manage a calendar
- Access internet
- Access a search engine
- Access personal health care information from a hospital, clinic or doctor's office
- Communicate with any of your child's doctors, hospital or clinics
- Log any health information or data for yourself or any family members
- Record or log physical activity
- Manage medications for you or any of your family members
- Conduct personal banking or access bank account
- Read a news story
- Read a book or magazine
- Use navigation or location-based information
- Use a ride-sharing application (e.g. Lyft, Uber, Sidecar)
- Control a household device (e.g. thermostat, television, house alarm, etc.)
- Record video or sound
- Take a picture
- Play a game
- I do not do any of the above activities and/or do not own a mobile device
- Other (please specify)

18. In the past two weeks before your child's current hospitalization, has your CHILD used their mobile device (e.g. smartphone, tablet, etc.) to do any of the following activities? (Please select all that apply.)

- Send or receive email
- Text
- Make or receive a phone call
- Manage social media accounts (e.g. Facebook, Twitter, LinkedIn)
- Stream audio content (e.g. music, news, podcasts)

Stream video content (e.g. movies, television, news)
Purchase a product or service online
Research a product or service
Research health related information
Participate in a video call or chat
access or manage a calendar
Access internet
Access a search engine
Access personal health care information from a hospital, clinic or doctor's office
Communicate with any of your child's doctors, hospital or clinics
Log any health information or data for yourself or any family members
Record or log physical activity
Manage medications for you or any of your family members
Read a news story
Read a book or magazine
Use navigation or location-based information
Use a ride-sharing application (e.g. Lyft, Uber, Sidecar)
Control a household device (e.g. thermostat, television, house alarm, etc.)
Record video or sound
Take a picture
Play a game
I do not do any of the above activities and/or do not own a mobile device
Other (please specify)

19. How do you determine which apps to download on your mobile device (phone or tablet)? (please check all answers that apply)

Not applicable, I do not own a mobile device
I have never downloaded or added any apps on my mobile device
Because of recommendations from family and/or friends
Because of recommendations from health care professionals
Because of recommendations from my child's teacher or school
From learning about the app from a social media site
From learning about the app in a newspaper or magazine

20. In the past year from today, about how many days did your child spend in the hospital?

21. In the past year from today, about how many days of school did your child miss due to hospitalizations?

22. In the past year from today, about how many days of school did your child miss because of illness or medical reasons (not counting the absences due to hospitalizations)?
If yes, please explain

23. Has your child's academic progress ever been hindered due to hospitalization?
    No
    Yes
    Please explain what these concerns are:

24. How concerned are you about your child's academic progress during this current hospitalization?
    Extremely concerned
    Very concerned
    Moderately concerned
    Slightly concerned
    Not at all concerned

25. What are some challenges your child is experiencing during this hospitalization related to their progress with education goals?
    Please explain further:

26. Please describe your child's academic setting:
    Public school
    Private school
    Charter school
    Home school
    My child is not of school age yet
    Please explain further:

27. Please describe your child's academic level:
    My child is not in an academic setting
    Preschool
    Elementary school
    Middle school
    High school
    College
    Please explain further:

28. Please describe your child's academic setting:
    General education
    Partial inclusion
    Resource
    Life skills
    Behavioral
    My child is not in an academic setting

29. Does your child have an Individualized Education Plan (IEP) or 504 modifications in place with his/her school?

- No
- Yes
- If yes, Please explain the impact further:

30. Has your child's medical condition impacted YOUR connection to family and friends?

- Extremely impacted
- Very much impacted
- Moderately impacted
- Slightly impacted
- Not impacted at all
- Please explain the impact further:

31. Has your child's medical condition impacted THEIR connection to family and friends?

- Extremely impacted
- Very much impacted
- Moderately impacted
- Slightly impacted
- Not impacted at all

32. In what ways does your child stay connected to or interact with family that live in town during hospitalizations?

33. In what ways does your child stay connected to or interact with family that live out of town during hospitalizations?

34. In what ways does your child stay connected to or interact with their school during hospitalizations?

35. In what ways does your child stay connected to or interact with their friends during hospitalizations?

36. I feel like I have an active role as part of the TCH Inpatient Rehabilitation Team

- Strongly Disagree
- Disagree
- Neither Disagree Nor Agree
- Agree
- Strongly Agree
- Comment:

37. I feel engaged in and understand my child's Inpatient Rehabilitation Unit care plan:
    Strongly Disagree
    Disagree
    Neither Disagree Nor Agree
    Agree
    Strongly Agree
    Comment:

38. Do you have rehabilitation goals for your child?
    Yes, they are the same as the goals written in the IRU care plan.
    Yes, they are goals I made for my child.
    Yes, they are the goals my child made for him/herself.
    No, but I'm interested in making our own rehabilitation goals for my child.
    No.
    Comment:

39. Does your child have his or her own rehabilitation goals?
    Yes, they the same as the goals in the IRU care plan.
    Yes, they are the goals I made for my child.
    Yes, they are goals my child made for him/herself.
    No, but my child would be interested in making his/her own goals.
    No.

40. What do you see as potential challenges or barriers for you and your child in their transition from this hospitalization to home (if any)?

41. What do you see as potential challenges or barriers for you and your child in their transition from this hospitalization to their education environment (if any)?

42. In what ways do think a mobile device and apps can help with the health care management of your child?

43. Which areas, if any, would you like the research team to provide technology training to you and your child (please check all that apply):
    To help with my child's educational goals.
    To help my child stay connected to their school.
    To help with my child's therapy/rehabilitation goals.
    To help my child stay connected to their family and friends.
    To help manage my child's health.
    To help manage my family's health.
    Please list any other use that technology might be helpful for you or your child:

Easter Seals Houston/Texas Children's Hospital
Parent/Caregiver Survey
At IRU D/C
Please explain your answer. It is very helpful information for us.

1. Do you feel as a result of participating in this project you will be better able to managing your child's health?

Yes
No
Unsure
Please explain further. It is very helpful to us.

2. Do you feel as a result of participating in this project you will be able to find apps that will help your child with their education goals?

Yes
No
Unsure
Please explain in what ways:

3. Do you feel as a result of participating in this project you learned ways you can use mobile devices and apps to connect to your child's family and friends?

Yes
No
Unsure

4. How would you rank YOUR proficiency in using the following?

	I do not own	Afraid to turn it on	Just Learning	Somewhat Proficient	Very proficient
Smart Phone					
Tablet					
Laptop					
Desktop					

5. How would you rank your CHILD'S proficiency in using the following?

	I do not own	Afraid to turn it on	Just Learning	Somewhat Proficient	Very proficient
Smart Phone					
Tablet					
Laptop					
Desktop					

6. How would you rate your comfort level in using mobile device technology with your child?
- Uncomfortable
- Slightly uncomfortable
- I'm neither uncomfortable nor comfortable
- Pretty comfortable
- Extremely comfortable

7. If YOU have a smart phone or tablet, what types of apps are most useful to you?(Please check as many answers that apply)
- Organization/time management/calendar
- Entertainment apps (video, movie, sports related)
- Game apps
- News apps (local news, national headlines, technology announcements, etc.)
- Social networking apps (Twitter, Facebook, Instagram, etc)
- Weather apps (local forecasts, natural disaster updates, etc)
- Educational apps
- Health and medical apps
- Exercise and fitness apps
- Other (please specify)

8. If your CHILD has a smart phone or tablet, what types of apps are most useful to them? (Please check as many answers that apply)
- Organization/time management/calendar.
- Entertainment apps (video, movie, sports related)
- Game apps
- News apps (local news, national headlines, technology announcements, etc.)
- Social networking apps (Twitter, Facebook, Instagram, etc)
- Weather apps (local forecasts, natural disaster updates, etc)
- Educational apps
- Health and medical apps
- Exercise and fitness apps
- Other (please specify)

9. During your child's current hospitalization, did YOU use your mobile device (e.g. smartphone, tablet, etc.) to do any of the following activities? (Please select all that apply.)
- Send or receive email
- Text
- Make or receive a phone call
- Manage social media accounts (e.g. Facebook, Twitter, LinkedIn)
- Stream audio content (e.g. music, news, podcasts)

Stream video content (e.g. movies, television, news)
Purchase a product or service online
Research a product or service
Research health related information
Participate in a video call or chat
access or manage a calendar
Access internet
Access a search engine
Access personal health care information from a hospital, clinic or doctor's office
Communicate with any of your child's doctors, hospital or clinics
Log any health information or data for yourself or any family members
Record or log physical activity
Manage medications for you or any of your family members
Conduct personal banking or access bank account
Read a news story
Read a book or magazine
Use navigation or location-based information
Use a ride-sharing application (e.g. Lyft, Uber, Sidecar)
Control a household device (e.g. thermostat, television, house alarm, etc.)
Record video or sound
Take a picture
Play a game
Other (please specify)
I do not do any of the above activities and/or do not own a mobile device

10. During your child's current hospitalization, did your CHILD use their mobile device (e.g. smartphone,
tablet, etc.) to do any of the following activities? (Please select all that apply.)

Send or receive email
Text
Make or receive a phone call
Manage social media accounts (e.g. Facebook, Twitter, LinkedIn)
Stream audio content (e.g. music, news, podcasts)
Stream video content (e.g. movies, television, news)
Purchase a product or service online
Research a product or service
Research health related information
Participate in a video call or chat
access or manage a calendar
Access internet
Access a search engine
Access personal health care information from a hospital, clinic or doctor's office
Communicate with any of your child's doctors, hospital or clinics

Log any health information or data for yourself or any family members
Record or log physical activity
Manage medications for you or any of your family members
Read a news story
Read a book or magazine
Use navigation or location-based information
Use a ride-sharing application (e.g. Lyft, Uber, Sidecar)
Control a household device (e.g. thermostat, television, house alarm, etc.)
Record video or sound
Take a picture
Play a game
No, they did not do any of the above activities and/or do not own a mobile device
Other (please specify)

11. How do you determine which apps to download on your mobile device (phone or tablet)? (please check all answers that apply)

Not applicable, I do not own a mobile device
I have never downloaded or added any apps on my mobile device
Because of recommendations from family and/or friends
Because of recommendations from health care professionals
Because of recommendations from my child's teacher or school
From learning about the app from a social media site
From learning about the app in a newspaper or magazine
From Google Play or iTunes Stores
From the BridgingApps Search tool on their website

12. About how many days did your child spend in the TCH Inpatient Rehabilitation Unit?

13. Was your child's academic progress hindered due to this hospitalization?

No
Yes

14. While your child was a patient in the TCH Inpatient Rehabilitation Unit was there any communication
with their school or teacher? (pleases check all answers that apply)

Yes, but just between myself (parents) and the school.
Yes, but just between my child and the school.
Yes, both my child and myself (parents) communicated with their school.
Yes, someone from TCH communicated with my child's school.
No, there was not any communication between my child and their school.
If there was any communication please explain in what format (phone, email, video type chat, text messages, with an app, etc):

15. How concerned are you about your child's academic progress after this current hospitalization?
- Extremely concerned
- Very concerned
- Moderately concerned
- Slightly concerned
- Not at all concerned
- Please explain what these concerns are:

16. What are some challenges your child experienced while hospitalized related to their progress with
education goals?
Please explain further:

17. Is your child's academic setting changing after going home from the TCH Inpatient Rehabilitation Unit?
- No, my child is returning to the same academic environment as before
- Yes, to a public school
- Yes, to a private school
- Yes, to a charter school
- Yes, to home school
- My child is not of school age yet
- Please explain further:

18. Please describe your child's academic setting:
- General education
- Partial inclusion
- Resource
- Life skills
- Behavioral
- My child is not in an academic setting
- If yes, please describe:

19. Does your child have an Individualized Education Plan (IEP) or 504 modifications in place with his/her school?
- No
- Yes
- Please explain the impact further:

20. Has your child's current hospitalization impacted YOUR connection to family and friends?
- Extremely impacted
- Very much impacted
- Moderately impacted
- Slightly impacted

Not impacted at all
Please explain the impact further:

21. Has your child's current hospitalization impacted THEIR connection to family and friends?
Extremely impacted
Very much impacted
Moderately impacted
Slightly impacted
Not impacted at all
Please explain the impact further:

22. In what ways did your child stay connected to or interact with family during this hospitalization?

23. In what ways does your child stay connected to or interact with their friends during this hospitalization?

24. I felt like I had an active role as part of the TCH Inpatient Rehabilitation Team during my child's stay.
Strongly Disagree
Disagree
Neither Disagree Nor Agree
Agree
Strongly Agree
Comment:

25. I felt engaged in and understood my child's Inpatient Rehabilitation Unit care plan:
Strongly Disagree
Disagree
Neither Disagree Nor Agree
Agree
Strongly Agree
Comment:

26. Do you have rehabilitation goals for your child for when they are home?
Yes, they are the same as the goals written by the IRU therapy team
Yes, they are goals I made for my child.
Yes, they are the goals my child made for him/herself.
No, but I'm interested in making our own rehabilitation goals for my child.
No.
Comment:

27. Does your child have his or her own rehabilitation goals?

Yes, they the same as the goals as the IRU therapy team.
Yes, they are the goals I made for my child.
Yes, they are goals my child made for him/herself.
No, but my child would be interested in making his/her own goals.
No.

28. Which areas, if any, do you think technology can help you and your child (please check all that apply):
With my child's educational goals.
With keeping my child connected to their school.
With my child's therapy/rehabilitation goals.
With keeping my child connected to their family and friends.
With managing my child's health.
With managing my family's health.
Please list any other use that technology might be helpful for you or your child:

29. What kind of additional training on technology would benefit you?
My suggestions:

30. Do you have any suggestions for improving the project for future families that are in the inpatient
rehabilitation unit?
Yes, and my suggestions are below:
No
Unsure

31. We would like to send you one final survey in about a month. We can email you the survey or send it in the mail.
Address
City/Town
State/Province
ZIP/Postal Code
Country
Email Address

BridgingApps/Texas Children's Hospital Project
1 Month Post Discharge

1. There are five sessions in the BridgingApps/TCH Project. Which of the following sessions did you
complete? (Please check all that apply)
Session One: Getting Started- Introduction of Mobile Devices, Apps, and Digital Safety.

Session Two: Introduction of Health Care Management and Organizations Apps.
Session Three: Keeping Connected- Apps and Device Features for Social Connections and Support.
Session Four: Not Just For Games- Mobile Device Features and Apps to Enhance Education Outcomes
Session Five: Going Home- More Apps to Help and The BridgingApps Community.

2. Do you feel that what you have learned in the BrigdingApps/TCH project has helped you manage your child's and/or your family's medical care?
Not at all
A little bit
Somewhat
Quite a bit
A tremendous amount

3. What apps have you loaded on your device and are using to help you manage your child's and/or
family's medical care and health?

4. Do you feel that what you have learned about apps in the BrigdingApps/TCH project has helped
you stay connected to your child's doctors and medical team now that you are home?
Not at all
A little bit
Somewhat
Quite a bit
A tremendous amount

5. Do you feel that what you have learned about apps for mobile devices in the BrigdingApps/TCH project has helped your child receive or maintain social support or connections with others?
Not at all
A little bit
Somewhat
Quite a bit
A tremendous amount

6. What apps have you loaded on your device and are using to help you or your child connect with other friends and family?

7. Do you feel that the BridgingApps/TCH project has helped you find apps that can help your child with academic or education goals?
Not at all

A little bit
Somewhat
Quite a bit
A tremendous amount

8. What apps have you loaded on your device to help your child academically?

9. Did you receive a loaner device (ipad or tablet) when you participated in the BridgingApps/TCH Project?
Yes
No
Other (please explain):

10. After being discharged from the Inpatient Rehabilitation Unit at Texas Children's Hospital, where did your child transition to?
To our home.
To another unit at Texas Children's Hospital
To another inpatient care facility (please explain further in comment section below)
To a temporary housing situation (please explain further in comment section below)
Other (please explain further below):

11. What other apps have you loaded on your device while at TCH or now since you've been home?
Please include all apps including any for fun, hobbies, emergency/first aid, transportation, exercise, etc.

12. If you have installed any new apps on a device for your child since they have been home from the hospital, how did you learn about the app(s) you installed?
Through the iTunes store or the Google Play store
The BridgingApps website including the app search tool and app reviews
Through recommendations from a family member or friend
Through recommendations from a health care professional
Through recommendations from a teacher or school personnel
Other (please specify)

13. What apps have you put on your device(s) while your child was in the Inpatient Rehabilitation Unit at
TCH?

14. What apps have you put on your device(s) since you and your child have been home from your stay at
TCH?

15. Have you install any new apps on a device for your child since s/he has been home from TCH?

Yes
No

16. Have you accessed the BridgingApps website since you have been home from your stay at TCH?

Yes
No

17. What apps that you learned about in the BridgingApps/TCH project were most useful or helpful to you as a parent/caregiver?

1.
2.
3.
4.
5.

18. If you were to list your five favorite apps what would they be?

1.
2.
3.
4.
5.

19. If you were to list your CHILD's (who was a patient at TCH) five favorite apps what would they be?

1.
2.
3.
4.
5.