



Case Study:

IPP Team Develops Rehabilitation Transition Plan for High School Student Following a Traumatic Brain Injury

SIG 2: Neurogenic Communication Disorders

Summary

Kai, a 16-year-old high school junior, was in a motor vehicle accident that resulted in mild traumatic brain injury (mTBI) and multiple orthopedic injuries. His treatment team developed an interprofessional plan to support his physical, sensory, cognitive-communication, and social-emotional needs so that he and his family could successfully navigate his return to school and community as well as his preparation for college entrance exams. The medical and school-based teams both recognized the importance of proactive, coordinated communication and integrated management to facilitate attainment of these goals and functional outcomes. By the third quarter of his junior year, Kai had transitioned back to school full time with a 504 plan that addressed necessary accommodations, and he was preparing to take his SATs.

Continue for more 

Patient Info



KAI
16 YEAR OLD

Current Diagnosis:
Mild TBI

Meet The Team

Rehabilitation-Based Team

Kai and His Family
Physiatrist
Brain Injury Case Manager
Audiologist
Speech-Language Pathologist
Occupational Therapist
Physical Therapist (Inpatient & Outpatient)
Neuropsychologist
Education Specialist/School Liaison
Clinical Psychologist

School-Based Team

Kai and His Family*
School Administrator*
School Speech-Language Pathologist*
School Guidance Counselor*
School Psychologist
School Nurse*
Classroom Teachers*
SAT Coordinator

*mTBI Management Team Members

Background

Kai is a 16-year-old right-handed high school student who was a backseat passenger involved in a motor vehicle accident during the fall semester of his junior year. He sustained multiple leg and facial fractures as well as an mTBI with brief loss of consciousness. Kai has no memory of the accident or the events immediately leading up to it. His MRI was negative for any overt brain bleed. However, he required several orthopedic and plastic surgeries and was hospitalized for 3 weeks before being transferred to an inpatient rehabilitation facility for 4 weeks to address his physical strength, balance, mobility, and ongoing symptoms of mTBI.

Planning for Kai's return home and return to school began soon after his admission to the inpatient rehabilitation facility. Staff from Kai's high school, including members of its previously established mTBI management team, were invited to the inpatient interprofessional rehabilitation team meetings, which Kai's supportive family also attended. This helped to ensure that everyone was on the same page about Kai's plan of care and progress. During the last 2 weeks of his rehabilitation stay, Kai began to keep up with some of his studies (as much as he was able to tolerate) with the help of the facility's education specialist, who communicated with Kai's teachers and school counselor.

Although concerned about how he would navigate the school environment, academic demands (e.g., new learning, reading textbooks, listening while writing notes, test-taking), social interactions, and extracurricular activities, Kai and his family were looking forward to his return to high school. He initially returned to school part time while attending outpatient therapies, and he gradually transitioned to a full day of academics and an eventual discharge from outpatient services.

Kai has no pre-existing attention, learning, or sensory disabilities; no history of depression/anxiety; and no prior brain injuries. He does have a history of migraines. Kai is most concerned about the impact his injury will have on his ability to complete all the requirements for his junior year and take his SATs so that he is on track for high school graduation and college as planned. Kai's family and friends are extremely supportive and have been instrumental in helping him implement strategies, remain compliant with medical appointments and medications, and get to and from therapy sessions and school on time.

How They Collaborated

Prior to Kai's return home, teachers, support personnel, and administrators from Kai's high school attended an educational session by the rehabilitation staff to learn more about mTBI and Kai's specific physical, cognitive, and communication profile. Strategies to support and accommodate Kai in the home, school, and community environments were discussed at length with his extended family and closest friends who would be taking part in his recovery, as well as with the school staff. Collaborative goal setting occurred through motivational interviewing with Kai and his family to identify challenges and to develop meaningful goals for his return home and to school.

Upon discharge from inpatient rehabilitation 7 weeks post-injury, Kai continued to experience leg weakness from his fractures and symptoms of mTBI—including fatigue, headaches, sensitivity to light/noise, sleep disturbances, irritability, poor concentration, slower recall and processing, and executive dysfunction. The interprofessional teams from the inpatient rehabilitation facility and the school, including Kai and his family, decided that he would begin outpatient therapies (working with a physical therapist [PT], speech-language pathologist [SLP], and clinical psychologist) while initially attending school on a part-time basis per a well-defined, graduated mTBI return-to-learn protocol. Through a 504 plan, the school team also put into place formalized academic accommodations and environmental modifications based upon all therapists' recommendations and team discussions. Kai agreed to be responsible for monitoring his own symptoms and sharing any challenges, successes, and revised goals as they arose. All involved were aware that intervention strategies would require modifications over time based on Kai's progress (e.g., as symptoms flared or resolved, and as school demands increased). The high school's SLP consulted with the school-based mTBI management team to monitor the effectiveness of the return-to-learn plan, developing and assisting with implementation of new strategies, assistive technologies, or accommodations moving forward.

Outcome

Initially, Kai's return to school was part time, with graduated introduction of classwork and homework, and with extra breaks during the day as he steadily increased his tolerance for all academic activities and caught up on his learning. Kai's return-to-learn process also included independent daily check-ins and symptom reporting with the school nurse and/or his guidance counselor, along with regular classroom observations and monitoring by various members of the school-based mTBI team to verify his self-report.

When Kai was discharged from outpatient PT and SLP services, he was ready to return to school full time with his full academic schedule. Following discussions between the medical and school-based interprofessional teams, all team members determined that Kai's 504 plan was meeting his needs and that no referral for evaluation for full special education support was warranted. He was nearly independent in the use of assistive technologies and other strategies to help with his organization, time management, and other cognitive communication needs and was walking without a cane. Kai's balance and coordination were improved to the point that he was able to navigate the school halls safely while using a backpack. He had learned to incorporate accommodations and to self-advocate for environmental modifications as needed. Kai continued to work with his physician as well as his outpatient and school-based psychologists and counselors to address management strategies for headaches, sleep, and anxiety.

By the fourth quarter of his junior year, Kai was completing assignments on time, engaging in lectures and notetaking, maintaining his pre-injury grades, hanging out with friends, and slowly returning to extracurricular activities. He had taken his SATs with accommodations and was looking forward to applying to colleges and returning to a full-time academic schedule in his senior year.

Ongoing Collaboration

The school-based team reached out to the neuropsychologist and clinical psychologist rehabilitation team to (a) ask any questions that arose about next steps in their return-to-school protocols for adolescents with mTBI and (b) identify the best options for coordinating services and continuing care moving forward for Kai, his family, and any future students should the need arise. During early communications, the rehab team reminded school personnel that adolescents with mTBI often experience latent challenges, especially as academic and cognitive-communication demands increase; therefore, they stressed the importance of monitoring Kai over time—not just during his initial return to school—and adjusting plans accordingly.

The rehab-based SLPs and the school-based SLP remained in contact by email or phone to discuss Kai's ongoing needs. Contact was frequent at first and then was reduced to an as-needed basis to ensure successful transition to school and successful academic outcomes. The remainder of the school year, Kai's school based SLP consulted with various school staff and administrators—including the school nurse, classroom teachers, guidance counselor, school psychologist, and SAT coordinator—to discuss a team approach and adjustment to any necessary accommodations that supported Kai's return to school, SAT preparation and administration, and completion of requirements for his junior year. The neuropsychologist and "clinical psychologist" also remained in close contact, with consent from Kai and his family.

The school-based team planned to meet with Kai and his family toward the end of summer to reevaluate the need for a 504 plan during his senior year as opposed to implementing more informal academic accommodation and modification plans.

Case Rubric:

IPP Team Develops Rehabilitation Transition Plan for High School Student Following a Traumatic Brain Injury

SIG 2: Neurogenic Communication Disorders

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School Nurse*
Classroom Teachers*
SAT Coordinator

*mTBI Management Team Members

Continue for more

History and Concerns

(Share key information gathered from team)

Kai is a 16-year-old right-handed high school student who was a backseat passenger involved in a motor vehicle accident during the fall semester of his junior year. He sustained multiple leg and facial fractures as well as an mTBI with brief loss of consciousness. **Kai** has no memory of the accident or the events immediately leading up to it. His MRI was negative for any overt brain bleed. However, he required several orthopedic and plastic surgeries and was hospitalized for 3 weeks before being transferred to an inpatient rehabilitation facility for 4 weeks to address his physical strength, balance, mobility, and ongoing symptoms of mTBI.

Planning for **Kai's** return home and return to school began soon after his admission to the inpatient rehabilitation facility. Staff from **Kai's** high school, including members of its previously established mTBI management team, were invited to the inpatient interprofessional rehabilitation team meetings, which **Kai's** supportive family also attended. This helped to ensure that everyone was on the same page about **Kai's** plan of care and progress. During the last 2 weeks of his rehabilitation stay, **Kai** began to keep up with some of his studies (as much as he was able to tolerate) with the help of the facility's education specialist, who communicated with **Kai's** teachers and school counselor.

Although concerned about how he would navigate the school environment, academic demands (e.g., new learning, reading textbooks, listening while writing notes, test-taking), social interactions, and extracurricular activities, **Kai** and his family were looking forward to his return to high school. He initially returned to school part time while attending outpatient therapies, and he gradually transitioned to a full day of academics and an eventual discharge from outpatient services.

Kai has no pre-existing attention, learning, or sensory disabilities; no history of depression/anxiety; and no prior brain injuries. He does have a history of migraines. **Kai** is most concerned about the impact his injury will have on his ability to complete all the requirements for his junior year and take his SATs so that he is on track for high school graduation and college as planned. **Kai's** family and friends are extremely supportive and have been instrumental in helping him implement strategies, remain compliant with medical appointments and medications, and get to and from therapy sessions and school on time.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

Assessment planning involved two IPP teams: a medical rehabilitation-based team and a school-based team (Kai and his family are part of both teams). Prior to Kai's return home, teachers, support personnel, and administrators from Kai's high school attended an educational session by the rehabilitation staff to learn more about mTBI and Kai's specific physical, cognitive, and communication profile. Strategies to support and accommodate Kai in the home, school, and community environments were discussed at length with his extended family and closest friends who would be taking part in his recovery, as well as with the school staff. Collaborative goal setting occurred through motivational interviewing with Kai and his family to identify challenges and to develop meaningful goals for his return to home and to school.

The IPP team at the rehabilitation program was led by the brain injury case manager and included various allied health professionals—with medical guidance from the physiatrist who managed Kai's care during inpatient and outpatient rehabilitation. The IPP team from the school was co-led by their SLP and guidance counselor. Both teams included Kai and his family.

Prior to and following Kai's return home, the school-based team met with the rehabilitation team numerous times and attended educational sessions to learn more about mTBI and develop a return-to-learn plan that supported Kai's specific physical, cognitive, and communication profile.

Mutually-agreed-upon assessment roles for each team member were as follows (team appears in parentheses):

Kai/Family (Rehab and School): Share Kai's strengths, concerns, and symptoms; participate in developing goals and plans for Kai's rehab and return to school; request information about community resources.

Physiatrist (Rehab): Conducts post-TBI medical status exams, including sensory assessments and medication evaluations/management; determines the need for further testing or referral for additional services.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

Brian Injury Case Manager (Rehab): Serves as rehab team facilitator; conduct ethnographic interview/case history with Kai and his family, focusing on baseline school function, current support, and barriers/access to community and school-based services; helps Kai obtain adaptive equipment and assistive devices.

Audiologist (Rehab): Conducts comprehensive hearing evaluation, tinnitus evaluation, and vestibular evaluation; performs auditory processing screening and evaluation as indicated.

SLPs (Rehab and School)

Rehab SLPs conduct comprehensive speech and language assessment paired with measures of cognitive-communication performance (e.g., executive function) once results of audiologic assessment are obtained.

School-based SLP conducts informal assessments, including interviews with students, family, and school personnel and classroom observation (e.g., Kai's notetaking during lecture or participation in a group/social activity); compares pre- and post-injury academic work; and evaluates existing strategies and accommodations, keeping in mind the impact of any somatic complaints on his cognitive-communication and academic functioning.

OT (Rehab): Assesses fine-motor skills and determines sequencing and independence for activities of daily living (ADLs) as well as instrumental activities of daily living (IADLs); conducts visual-perceptual screening.

PTs (Rehab—Inpatient and Outpatient): Assesses gait, balance, muscle tone and strength, posture, and endurance when Kai is walking in home, at school, and in the community, when he is climbing stairs, and when he is navigating crowded environments; assesses needs for adaptive equipment and assistive devices.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

Neuropsychologist (Rehab): Assesses cognitive/intellectual and academic skills (e.g., information processing, attention, executive functioning, learning and memory, sensory and psycho-emotional functioning).

Psychologists (Rehab and School): Somatic complaints, behavior, social-emotional function, awareness, external supports, and self-help/advocacy skills; determine how these relate to academic and social outcomes. Psychologists consisted of one on the rehab team (clinical psychologist) and one on the school team (school psychologist). There was also a neuropsychologist on the rehab team (see previous entry above this one).

Education Specialist/School Liaison (Rehab): Assesses readiness to return-to-learn; reviews school files and curriculum; evaluates new learning abilities; guides family and school to identify and access proper school and community supports; coordinates with the family and with the school to initiate referral process for a 504 plan and a return-to-learn plan.

School Administrator (School): Appoints internal members of the school-based mTBI team as well as case manager(s) to ensure adequate communication and coordination within the school-based team; approves any adjustments to the academic schedule; and communicates policies upon return-to-learn.

School Guidance Counselor (School): Provides services and resources to help Kai and his family adjust to return-to-school; assesses academic requirements; and determines how schedules can be modified.

School Nurse (School): Monitors mTBI symptoms daily and over time; facilitates communication between the family, the health care provider, and the school; suggests accommodations and environmental modifications for physical symptoms; and administers medications as needed and as directed.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

Classroom Teachers (School): Provide Kai and his family with access to the curriculum and new learning as well as peer interactions; compare pre- and post-injury academic performance; assess outcomes of implemented strategies and accommodations, suggesting any modifications; and observe any changes in progress.

SAT Coordinator (School): Assesses readiness to take standardized exam; facilitates testing accommodations per 504 plan and Kai's current needs; communicates with SAT representatives as needed.

Assessment Results

(Summarize key diagnostic
results)

Approximately 2 months post-injury, all of Kai's subsequent radiologic findings were negative for any overt brain bleed or bruising and showed that his leg and facial fractures were healing as expected. However, he continued to complain of leg pain, migraines that were more frequent than his baseline, and difficulty sleeping.

Kai had no changes in his hearing post-injury, but he initially presented with tinnitus and dizziness upon admission to inpatient rehabilitation, both of which resolved before discharge. His visual-perceptual skills were intact and did not appear to be affected by his facial fractures early on. Kai's fine-motor skills were also unaffected, and he was independent in his ADLs soon after admission to the inpatient rehabilitation facility, although some of his self-care activities took longer due to his limited mobility. He was aware of the medications that he was taking and knew how to use his smartphone to communicate with friends and family.

Initially, Kai's multiple leg fractures resulted in decreased leg strength and muscle tone as well as poor balance and limited mobility, requiring a wheelchair and crutches at first due to his non-weight-bearing status. He tired and frustrated easily, missed his friends, and was worried about all that he would need to catch up on at school. Kai noticed that since his accident, it was harder for him to pay attention and sequence instructions during therapy tasks.

Assessment Results

(Summarize key diagnostic results)

The neuropsychologist and SLP had similar observations, and their assessments also revealed occasional memory and word finding problems and mildly reduced organization and problem-solving skills, especially when Kai became distracted. He also demonstrated decreased and inefficient processing of auditory and written information that was abstract, presented quickly, or of increased length and complexity.

Upon discharge from inpatient rehabilitation 7 weeks post-injury, Kai continued to experience leg weakness from his fractures and required a four-pronged cane. He also showed continuing symptoms of mTBI—including fatigue, headaches, sensitivity to light and noise, sleep disturbances, irritability, poor concentration, slower recall and processing, and mild executive dysfunction.

Although concerned about how he would navigate the school environment, academic demands (e.g., navigating new learning, reading textbooks, listening while writing notes, test-taking), social interactions, and extracurricular activities, Kai and his family were looking forward to his to return to high school. Per the educational specialist's assessment, he could initially return to school part time only while attending outpatient therapies, and he could gradually transition to a full day of academics once he was ready and discharged from outpatient services.

Kai is most concerned about the impact that his injury will have on his ability to complete all the requirements for his junior year and take his SATs so that he is on track for high school graduation and college as planned. According to the case manager and psychologists, Kai's family and friends are extremely supportive and have been instrumental in helping him implement strategies to help with his anxiety, cognition, and communication.

IPP Treatment Plan

(Discuss, reflect, and modify recommendations to develop a coordinated plan)

The medical and school based IPP teams met together to discuss Kai's assessment results and status upon discharge from inpatient rehabilitation. Based on the reported findings, both teams—including Kai and his family—agreed that he would begin outpatient therapies (working with a PT for mobility, strength, and vestibular training; working with an SLP for compensatory and metacognitive strategy training; and working with a psychologist for counseling regarding symptom management and coping skills) while initially attending school on a part-time basis per a well-defined, graduated mTBI return-to-learn protocol. The school team also put into place formalized academic accommodations and environmental modifications via a 504-plan based upon communication with inpatient and outpatient therapists' recommendations and ongoing team discussions. **These accommodations and environmental modifications included the following:**

- Allowing Kai to select and prioritize target skills
- Focusing on what Kai does well first, and then expanding to more challenging content as Kai's symptoms subside
- Allowing Kai to improve his self-regulation and organization skills by allowing him to use external aids (e.g., calendars, timers) to better manage school assignments
- Allowing more time on assignments and tests, or reducing assignments
- Allowing Kai to take breaks during longer class sessions
- Adjusting light, seating, noise, class transitions, and number of people in Kai's learning environment, as needed
- Providing handouts of class notes and allowing Kai to use a peer notetaker
- Presenting new material in an organized and sequential manner with clear explanations, using visual aids or other teaching aids
- Providing repetitions and multiple opportunities for Kai to practice new skills and flexible thinking

IPP Treatment Plan

(Discuss, reflect, and modify recommendations to develop a coordinated plan)

- Encouraging responsiveness, allowing adequate response time, and checking for comprehension
- Offering alternate methods to demonstrate knowledge
- Promoting self-monitoring and self-evaluating behavior and performance

The rehab team also met with the wider school staff to educate the staff about mTBI and to train them in some of these recommended strategies and accommodations.

Kai agreed to be responsible for his own symptom monitoring, sharing any challenges, successes, and revised goals as they arose. All involved were aware that intervention strategies would require modifications over time based on Kai's progress (e.g., as symptoms flared or resolved, and as school demands increased). The high school's SLP consulted with the school-based mTBI management team to monitor Kai's progress and the effectiveness of the return-to-learn plan, developing and assisting with implementation of new instructional strategies, assistive technologies, and accommodations moving forward.

Treatment Outcomes

(Discuss results of treatment)

Both teams used goal attainment scaling as a collaborative approach for identifying and quantifying individualized, meaningful treatment outcomes for Kai in his everyday life activities.

Initially, Kai's return to school was part-time, with graduated introduction of classwork and homework and with extra breaks during the day as he steadily increased his tolerance for all academic activities and caught up on his learning. Kai's return-to-learn process also included independent daily check-ins and symptom reporting with the school nurse and/or his guidance counselor, along with regular classroom observations and monitoring to verify his self-reporting.

At the time Kai was discharged from outpatient physical therapy and speech-language pathology services, he was ready to return to school full-time with his full academic schedule.

Treatment Outcomes

(Discuss results of treatment)

Following discussions between the medical rehab-based and school-based interprofessional teams, all team members determined that Kai's 504 plan was meeting his needs and that no referral for evaluation for full special education support was warranted. His teachers and school SLP reported that he was nearly independent in the use of assistive technologies and other strategies to help with his organization, time management, and other cognitive communication needs and was walking without a cane. Kai's balance and coordination were improved to the point that he was able to navigate the school halls safely while using a backpack. He had learned to incorporate accommodations and to self-advocate for environmental modifications as needed. Kai continued to work with his physician and outpatient/school-based psychologists and counselors to address management strategies for headaches, sleep, and anxiety.

By fourth quarter of his junior year, Kai was completing assignments on time, engaging in lectures and notetaking, maintaining his pre-injury grades, hanging out with friends, and slowly returning to extracurricular activities. He had taken his SATs with accommodations and was looking forward to applying to colleges and returning to a full-time academic schedule in his senior year.

Team Follow-Up

(Determine meetings & communication plan)

The school-based team reached out to the neuropsychologist and clinical psychologist rehabilitation team to (a) ask any questions that arose about next steps in their return-to-school protocols for adolescents with mTBI and (b) identify the best options for coordinating services and continuing care moving forward for Kai, his family, and any future students should the need arise.

During early communications, the rehab team reminded school personnel that adolescents with mTBI often experience latent challenges, especially as academic and cognitive-communication demands increase; therefore, they stressed the importance of monitoring Kai over time—not just during his initial return to school—and adjusting plans accordingly.

Team Follow-Up

(Determine meetings & communication plan)

The rehab-based SLPs and the school-based SLP remained in contact by email or phone to discuss Kai's ongoing needs. Contact was frequent at first and then was reduced to an as-needed basis to ensure successful transition to school and successful academic outcomes. The remainder of the school year, Kai's school based SLP consulted with various school staff and administrators—including the school nurse, classroom teachers, guidance counselor, school psychologist, and SAT coordinator—to discuss a team approach and adjustment to any necessary accommodations that supported Kai's return to learn, SAT preparation and administration, and completion of requirements for his junior year. The neuropsychologist" and "clinical psychologist" also remained in close contact, with consent from Kai and his family.

The school-based team planned to meet with Kai and his family toward the end of summer to reevaluate the need for a 504 plan during his senior year as opposed to implementing more informal academic accommodation and modification plans.

Acknowledgement

ASHA extends its gratitude to the subject matter expert(s) who were involved in the development of the original version of this IPP case:

Special Interest Group 2 (SIG 2): Neurogenic Communication Disorders

Citations

American Speech-Language-Hearing Association. (n.d.). IPP team develops rehabilitation transition plan for high school student following a mild traumatic brain injury.

<https://www.asha.org/practice/ipe-ipp/case-studies/case-study-21/>

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