



Case Study:

Team Uses Therapy and Smartphone App to Help a Woman Recover After a Fall

SIG 19: Speech Science

Summary

A 65-year-old woman experienced general weakness, balance issues, and speaking difficulties after a fall. A team of professionals developed a plan, which explored low-cost options for increasing intelligibility and providing strategies for communication. The team helped her use a speech intelligibility smartphone app to improve her pitch, volume, and overall intelligibility. After 4 weeks in a rehabilitation facility, the woman's communication skills returned to their previous levels.



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Patient Info



MRS. GEORGIA SMITH
65-YEAR OLD

Current Diagnosis:

Urinary Tract Infection (UTI);
General weakness impacting
speech production and speech
intelligibility

Background

Georgia was a 65-year-old woman who lived independently with her husband. She reported not feeling well during the first week of April. On April 19, she fell in her home, was found unconscious by her husband, and was admitted to a hospital. Medical evaluation revealed no broken bones. She was diagnosed with a urinary tract infection (UTI). Doctors determined that confusion resulting from the development of the UTI caused the fall. Georgia was transferred to a skilled rehabilitation facility.

Georgia's family—her husband and daughter—had never experienced this type of traumatic event before. Although they understood that the rehabilitation process was necessary, they were anxious for her to return home.

Georgia experienced pain and had severe bruising from the fall. Her family and the staff at the rehabilitation facility was especially concerned about the fall's impact on intelligibility of her speech. Two certified nursing assistants (CNAs) reported that Georgia verbally communicated very little about her wants and needs. Georgia's family members reported that she was comfortable using a smartphone to communicate with her grandchildren and to participate in social media such as Facebook.

The speech-language pathologist (SLP) knew that she needed to obtain additional information—beyond the motor speech and cognitive communication evaluations—in order to provide Georgia with a full diagnosis and treatment recommendations. However, the SLP found herself in a frustrating situation. The skilled nursing facility had no funding to support an additional assessment related to speech intelligibility. And the SLP did not want to settle for a diagnosis of "cognitive decline." The SLP decided to reach out to a speech scientist at the local university, to explore low-cost options for assessing Georgia's speech production. The goal was to increase Georgia's intelligibility and provide her with strategies for communication. The SLP shared this plan with the IPP team.

Meet The Team



Speech-
language
pathologist (SLP)



Occupational
therapist (OT)



Physical
therapist (PT)



Director of
rehabilitation
(DOR)



Skilled nursing
facility (SNF)
physician



Speech scientist



Activities
director



Certified Nursing
Assistant 1



Certified Nursing
Assistant 2



Family



Patient

How They Collaborated

The IPP team met to share the findings of their initial assessments. In general, these revealed that Georgia's receptive language and expressive language were within normal limits, as were her measures of cognition, cognitive communication, and oral mechanism. Georgia showed good skills as related to turn-taking and following instructions. During an acoustic analysis of Georgia's speech sample, the speech scientist found that there were limited performance ranges of pitch and volume that negatively impacted speech intelligibility. The OT reported that Georgia showed no difficulty with basic fine-motor skills (e.g., eating, manipulating small items), had good fine-motor sequencing, and experienced difficulty with body positioning for activities of daily living (ADL; due to pain and soreness). The PT found that Georgia's general weakness limited standing and walking to short periods of time. She had difficulty with balance but showed good awareness in following multistep directions.

After sharing their assessments, the members agreed upon a set of recommendations, all of which included the participation of Georgia and her family. The SLP and speech scientist recommended identifying and teaching Georgia to use speech intelligibility apps. These would help Georgia increase her pitch and volume for better intelligibility. The SLP would use the app as a therapy tool. The OT and PT would incorporate balance and self-help skills into their plan for Georgia, and the SLP and OT would work together to develop her fine-motor skills for using the apps.

The entire team discussed and identified activities and situations in which Georgia could use the therapy goals in optimal ways throughout the day.

Outcome

Over 4 weeks, Georgia made consistent progress on her skilled speech-language pathology, occupational therapy, and physical therapy goals. All of Georgia's skills returned to their pre-fall levels. Initially, Georgia did not want to use a smartphone because she said it would be "too hard." However, after working with the SLP and her daughter during the initial session, the IPP team reached consensus that it would be a good idea to try. After she began using the smartphone apps, Georgia's speech intelligibility improved relatively quickly.

The family was encouraged by Georgia's progress and asked for additional online resources, which included informational reading and interactive software. This would enable Georgia and her family to continue her treatment following Georgia's discharge from the facility. The SLP and the speech scientist developed a list of free online resources for the family. Both the OT and the PT provided informational resources related to balance and self-awareness.

Ongoing Collaboration

During Georgia's stay in the rehabilitation facility, the IPP team met weekly to monitor her progress and update her family about her areas of improvement. However, after Georgia met her therapy goals, she was discharged from the facility and returned home with her husband. The IPP team did not meet again after her discharge.

Case Rubric:

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Speech scientist



Activities
director



Certified Nursing
Assistant 1



Certified Nursing
Assistant 2



Patient



Family

Continue for more ↓

History and Concerns

(Share key information gathered from team)



Georgia is a 65-year-old woman who lived independently with her husband, Mr. S. She reported not feeling well during the first week of April. On April 19, she fell in her home, was found unconscious by her husband, and was admitted to a hospital. Medical evaluation revealed no broken bones. She was diagnosed with a urinary tract infection (UTI). Doctors determined that confusion resulting from the development of the UTI caused the fall. Georgia was transferred to a skilled rehabilitation facility.

Georgia's family—her husband and daughter—had never experienced this type of traumatic event before. Although they understood that the rehabilitation process was necessary, they were anxious for her to return home.

Georgia experienced noticeable pain and had severe bruising from the fall. What was not expected was a negative impact on the intelligibility of her speech, as reported by her family and the staff at the rehabilitation facility. Two Certified Nursing Assistants (CNAs) reported that Georgia verbally communicated very little about her wants and needs. Georgia reported that she felt most comfortable with Ms. G. (one of the CNAs), stating that "she waits for me to say what I need to." The family members reported that Georgia was comfortable using a smartphone to communicate with her grandchildren and to participate in social media such as Facebook.

The speech-language pathologist (SLP) knew that additional information—beyond the motor speech and cognitive communication evaluations that she will complete—would be important for a full diagnosis and resultant treatment for Georgia, but she found herself in a precarious situation. The skilled nursing facility had no funding to support additional assessment related to speech intelligibility. It was important not to settle for a diagnosis of "cognitive decline." The SLP decided to reach out to Dr. H, a speech scientist at the local university, to explore low-cost options for assessing Georgia's speech production, with the goal of increasing intelligibility and providing strategies for communication. She shared this plan with the IPP team.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

The initial team—the SLP, the occupational therapist (OT), and the physical therapist (PT)—met with the director of rehabilitation and with a physician to organize their respective evaluations. The director of rehabilitation (DOR) was chosen to facilitate the team’s meetings and recommendations for the patient. **Following a review of Georgia’s medical and family histories, the initial team developed the skilled therapy assessment plan and together agreed on the following roles and responsibilities:**



Ms. A, SLP: Cognitive communication and motor speech production



Mr. B, OT: Fine-motor skills and self-help skills during activities of daily living (ADL)



Mrs. C, PT: Balance, coordination, and strengthening techniques



Ms. D, DOR: Team facilitator



Dr. E, SNF physician: Medical evaluation

Also, at this initial team meeting, the SLP facilitated a discussion regarding the lack of resources for objective assessment and technology-enhanced treatment for speech intelligibility disorders. Collectively, the team reflected on what local resources may be available and brought in a speech scientist to help identify easy-to-use smartphone apps for perceptual measures of speech production, including pitch and volume.

Assessment Plan

(Determine roles/
responsibilities for
evaluation)

In addition, to provide a more naturalistic approach to the assessment plan, the team brought in the CNAs and the activities director to identify optimal times and locations in the facility to complete the assessments. The team asked both CNAs to identify areas of self-help with which Georgia struggled the most. Finally, the entire team met with Georgia, her husband, and her daughter to share the assessment plan and to answer any questions that the family had about the process.

In sum, the team added the following individuals:



Dr. F, Speech scientist- Technology for speech perception measurement



Mrs. G, Activities director- Determination of optimal times/locations to complete assessments



Ms. H, CNA1 and Ms. I, CNA2- Identification of self-help areas of need



Family: Georgia's husband (Mr. J) and daughter (Mrs. K) provided background information and case history



Assessment Results

(Summarize key diagnostic results)

The key results of the individual skilled therapy assessments were as follows:



SLP: Both receptive language and expressive language were within normal limits, measures of cognition and cognitive communication were within normal limits, and oral mechanism was within normal limits. Georgia showed good skills as related to turn-taking and following instructions.



Speech Scientist: Performed acoustic analysis of speech sample. Acoustic results revealed that there were limited performance ranges of pitch and volume that negatively impacted speech intelligibility.



OT: Georgia showed no difficulty with basic fine-motor skills (e.g., eating, manipulating small items), good fine-motor sequencing, and difficulty with body positioning for ADL (due to pain and soreness).



PT: Georgia's general weakness limited standing and walking to short periods of time. She had difficulty with balance but showed good awareness in following multistep directions.



Family: Georgia's plan for discharge is home.

IPP Treatment Plan

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

The IPP team shared and discussed the assessment results at a group meeting, where the members together agreed upon a set of recommendations, all of which included not only Georgia's participation but also that of her family. **The recommendations were as follows:**



SLP and speech scientist: Identify speech intelligibility apps that Georgia will find easiest to use to improve speech intelligibility.



SLP: Teach use of app to facilitate increased pitch and volume for increased intelligibility. The SLP will use the app as a therapy tool as well.



OT and PT: Incorporate balance and self-help skills for ADL.



SLP and OT: Develop planning and fine-motor skills for using the smartphone and apps.



The entire team discussed and identified activities and situations in which Georgia can use the therapy goals in optimal ways throughout the day (not just during skilled therapy).

Treatment Outcomes

(Discuss results of treatment)

Over a 4-week period, Georgia made consistent progress on her skilled SLP, OT, and PT goals. All of Georgia's skills returned to their pre-fall levels of functioning.

Initially, Georgia did not want to use a smartphone because she said it would be "too hard." However, after working with the SLP and her daughter during the initial session, the IPP team reached consensus that it would be a good idea to try. The team reflected about the value and viability of this goal, expressing multiple and diverging viewpoints. After a lively discussion, the team resolved to implement the goal and monitor progress weekly. Georgia worked with the SLP and speech scientist to identify specific smartphone apps that were more user friendly than others. One of the short-term goals that the SLP added to her plan of care was that Georgia would—with SLP assistance—"teach" the CNAs and her family how to use the apps as well as explain the purpose of using them. Regarding speech-specific goals, Georgia's speech intelligibility improved relatively quickly after she began using the smartphone apps, as evidenced by reports from both the IPP team and naïve listeners in the facility.

The family was encouraged by Georgia's progress and asked for additional online resources—including informational reading and interactive software—that Georgia and her family could access following Georgia's discharge from the facility. The SLP and the speech scientist developed a list of free online resources for the family. Both the OT and the PT provided informational resources related to balance and self-awareness during ADL.

Team Follow-Up

(Determine meetings & communication plan)

The IPP team continued to meet weekly for 4 weeks to monitor Georgia's progress and update her family about her areas of improvement. After Georgia met the short-term and long-term therapy goals of the SLP, OT, and PT (i.e., performance at prior level of function), she was discharged from the facility to return home with her husband.

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:

Douglas F. Parham, PhD, CCC-SLP
Special Interest Group 19 (SIG 19): Speech Science

Citations

American Speech-Language-Hearing Association. (n.d.). Team uses therapy and smartphone app to help a woman recover after a fall.

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