ASHA Abstract Submission 2020

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Requested Session Format: Oral Session (Seminar 2-hours)
Topic Area: Models of Academic and Clinical Education
Instructional Level: Intermediate
Abstract Type: Professional Education

Title of Proposal: A Technology-Assisted Approach to Graduate Education on Dysphagia

Session Description:

Across settings, it is the role of the speech-language pathologist to evaluate and treat dysphagia in a variety of patient populations with swallowing disorders (dysphagia). Dysphagia management skills are introduced at the graduate level, however limited opportunities are available for training and practicing these clinical skills prior to entering the field. For this reason, our team at Northwestern University has developed a technology-assisted, innovative approach to providing our students with more extensive training opportunities throughout their graduate coursework. This presentation will summarize the technology-based learning opportunities and experiences that we are providing to the graduate students in our attempt to better prepare them to enter the field confidently and demonstrate the competence to provide adequate, skill-based patient care.

Summary:

Background and Rationale:

According to the American Speech-Language-Hearing Association (ASHA, 2019), 60% of speech-language pathologists (SLPs) spend their clinical time working with adults. Recent evidence shows that nearly half of this time is spent evaluating and treating patients with swallowing disorders (dysphagia) (ASHA, 2019). Effective management of dysphagia requires adequate training and extensive experience, which begins at the graduate education level. However, dysphagia education is limited during graduate school and there are no standards that require students to take specific courses, rather the programs determine how they will provide the most appropriate opportunities for students to acquire the necessary knowledge and skills to enter the field as practicing clinicians (Standard 31.B, Council on Academic Accreditation in Audiology and Speech-Language Pathology, 2019). As a result, students often express lack of

preparation to treat patients with swallowing disorders upon graduation. Additionally, a survey conducted by ASHA's Special Interest Group (SIG 13), Swallowing and Swallowing Disorders (Dysphagia), identified that many medical SLPs do not feel competent with their dysphagia management skills (ASHA, 2019).To address this gap, we developed a technology-assisted education program that provides graduate students with a variety of opportunities to gain more experience in dysphagia throughout their graduate school education at Northwestern University. The aim of this session is to discuss the components of this program and share preliminary findings on the impact of this program on students' self-efficacy.

Components of Dysphagia Education

The Swallow Pathology and Physiology Course

The foundation of our graduate education is built during the graduate-level Swallow Pathology and Physiology course, taught by Dr. Bonnie Martin-Harris. Throughout this course, which is taught entirely web-based in the Spring Quarter of 2020, students engage in both standard lectures and small group work through a breakout lab-based session once a week. Early course lectures are framed around the Modified Barium Swallow Impairment Profile (MBSImP^{TM}) Online Training (NSS, 2018) course available through Northern Speech Services, Inc. (NSS) (detailed below), followed by material in standardized screening and assessment of dysphagia, treatment planning, and special topics in adherence, telehealth, and professional development. Each week, these topics are explored further during lab portion of the course directed by Teaching Assistants. Using an interactive, small group-based approach we delve deeper into each topic by promoting discussion between students and educators using weekly activities and group work.

Modified Barium Swallow Impairment Profile Training

The core of the program's curriculum is grounded in a standardized approach to instruction, assessment, and reporting of physiologic swallowing impairment. The MBSImP, developed and validated by Dr. Martin-Harris during a five-year National Institute of Health/National Institute on Deafness and Other Communication Disorders (NIH/NIDCD) support project, has been field tested and refined over 15 years (Martin-Harris et al., 2008, 2017). Now incorporated into 157 graduate curriculum programs throughout 23 countries worldwide, the MBSImP online training modules have served as a standardized training platform for 31,000 graduate students (NSS, 2018). These innovative web-based teaching methods were developed to utilize data driven, physiologically accurate animations and videofluoroscopic examples to facilitate learning and accuracy in the identification of complex swallowing impairment. Students enrolled in the Swallow Pathology and Physiology course complete the online training platform over 5 weeks of integrated coursework and are required to achieve $\geq$ 70% overall accuracy on the 17 physiologic components comprising the MBSImP tool. Likewise, this approach is used to teach and train students on implementation of the standardized protocol for MBSS administration, report writing, and intervention planning.

Modified Barium Swallow Study Simulation Cases

In 2014, ASHA revised the Standards for the Certificate of Clinical Competency in Speech-Language Pathology (CCC-SLP) allowing students to obtain up to 75 direct contact hours through clinical simulations provided by accredited graduate programs. The Swallowing Cross-Systems Collaborative at Northwestern University has developed a library of MBSS simulation cases to enhance graduate students' clinical knowledge and skills in the

administration and interpretation of MBSS. These web-based, clinical simulations are comprised of scripted observations of the MBSS procedure and include detailed case histories, administration protocols, assessment of the physiologic and neuromuscular underpinnings of the swallowing mechanism, guided MBSImP and Penetration Aspiration Scale (PAS) (Rosenbek et al., 1996) scoring, and intervention planning. Once students have successfully navigated through the observations, they are asked to integrate the core concepts learned from the observations and demonstrate, through a written debriefing component, appropriate clinical skills required for administration and interpretation of a MBSS. This interactive process aids development of critical thinking and decision-making skills applicable to the comprehensive rehabilitation services provided by SLPs.

Modified Barium Swallow Study Real-Life Case Studies

In addition to simulation cases, students also have the opportunity to observe MBSS conducted at Northwestern Memorial Hospital in real-time. These synchronous sessions are facilitated by TIMS Consultant (TIMS Medical, Foresight Imaging, Chelmsford, MA), an interactive video broadcaster that transmits live videofluoroscopic signals from the radiology suites at Northwestern Memorial Hospital over a secure network to the Swallowing Cross-Systems Collaborative on campus. TIMS Consultant software allows for direct, simultaneous observation of the patient, clinician, and the fluoroscopic image, all of which are then archived for off-line review and analysis. In addition, it provides a platform for interprofessional collaboration on complex cases through audio and video conferencing. This technology allows us to extend these experiences to graduate students for observation hours and exposure to tele-evaluation in an environment that is conducive to learning.

Conclusion

These novel, technology-assisted opportunities will be described in this presentation with the aim to adequately prepare graduate students for dysphagia management in their early careers as SLPs. This academic structure and the additional learning opportunities that we provide give graduate students a foundation for the ongoing collaboration, education, experience, and advanced training that is required to most effectively serve patients who suffer from dysphagia.

References/citations: (not to exceed 500 words)

American Speech-Language-Hearing Association. (2019). *2019 SLP Health Care Survey: Caseload Characteristics*. 22.

Council on Academic Accreditation in Audiology and Speech-Language Pathology. (2019). Standards for accreditation of graduate education programs in audiology and speech-language pathology (2017). Retrieved from http://caa.asha.org/wpcontent/uploads/Accreditation-Standards-for-Graduate-Programs.pdf

Martin-Harris, B., Humphries, K., & Garand, K. L. (2017). The Modified Barium Swallow Impairment Profile (MBSImP™©) – Innovation, Dissemination and Implementation. *Perspectives of the ASHA Special Interest Groups*, *2*(13), 129–138. https://doi.org/10.1044/persp2.SIG13.129

Martin-Harris, B., & Jones, B. (2008). The Videofluorographic Swallowing Study. *Physical Medicine and Rehabilitation Clinics of North America*, *19*(4), 769–785. https://doi.org/10.1016/j.pmr.2008.06.004

Northern Speech Services (NSS). (2012 & 2018). #e01, Modified Barium Swallowing Impairment Profile (MBSImP™), Web Based Learning Modules. http://www.mbsimp.com

Rosenbek, J. C., Robbins, J. A., Roecker, E. B., Coyle, J. L., & Wood, J. L. (1996). A penetration-aspiration scale. *Dysphagia*, *11*(2), 93–98. https://doi.org/10.1007/BF00417897

Time-Ordered Agenda:

5 minutes: Introductions, overview of presentation
15 minutes: Background and rationale
30 minutes: The dysphagia course and MBSImP
20 minutes: MBSS simulation cases
20 minutes: TIMS Consultant
10 minutes: Summary, recommendations for implementation
20 minutes: Q&A

Will this proposed session focus on one specific approach, product, product line, tool, technique, service or model without mention of or information about other similar approaches, products, services, techniques, tools, or models? Yes, the core of the program's curriculum is grounded in the Modified Barium Swallow Impairment Profile (MBSImP™) (Northern Speech Services, Inc., Gaylord, MI under contract with the Medical University of South Carolina Foundation for Research Development) and no other standardized approach to instruction, assessment, and reporting of physiologic swallowing impairment will be discussed. TIMS Consultant (TIMS Medical, Foresight Imaging, Chelmsford, MA) is the only interactive video broadcast network in place at the submitting institution. No other tele-evaluation tool will be demonstrated.

Keywords:
1. Dysphagia
2. Graduate Education
3. Technology
4. Telepractice

Learner Outcomes:
1. Participants will be able to understand the inconsistencies in training of dysphagia management skills at the graduate level.
2. Participants will be able to describe 3 components of the dysphagia education
3. Participants will be able to understand the future direction of technology assisted dysphagia education.