

Case Study: Collaboration Comes Standard

Radiologists partner with a speech-language pathologist to enhance modified barium swallowing studies and improve outcomes for patients with dysphagia.

By Jenny Jones

Key Takeaways:

- Radiologists are partnering with a leading speech-language pathologist (SLP) at Northwestern University to promote collaborative and standardized modified barium swallowing (MBS) studies.
- The radiologists are working with the SLP to raise awareness about the need for increased collaboration and on research to improve education around MBS studies.
- The radiologists encourage others to follow their lead and engage their specialty partners to improve patient care.

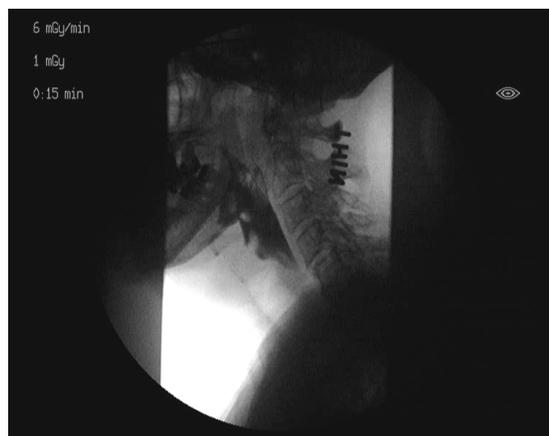
Swallowing disorders affect millions of people across the age spectrum and occur as a comorbid condition of multiple diseases, seriously affecting patients' health and quality of life. The primary method for evaluating oropharyngeal swallowing impairment is the modified barium swallowing (MBS) study.

When MBS studies were introduced in the 1970s, radiologists and speech-language pathologists (SLPs) often collaborated closely during the fluoroscopy procedures. But this cooperative approach has deteriorated over the years to the extent that many radiologists and SLPs may not even speak to one another during or after the exams — sometimes leading to substandard patient care.

In hopes of returning to the exam's collaborative beginnings, radiologists and a leading SLP have teamed up to encourage their colleagues to not only coordinate on the exams but also to standardize the studies for improved outcomes.

Cheri Canon, MD, FACR, the Witten-Stanley Endowed Chair of Radiology at The University of Alabama at Birmingham (UAB), and Douglas H. Sheafor, MD, associate professor of radiology at the Medical University of South Carolina (MUSC), are partnering with Bonnie Martin-Harris, PhD, the Alice Gabrielle Twilight Professor and associate dean of academic affairs in the Roxelyn and Richard Pepper Department of Communication Sciences and Disorders at Northwestern University, to deliver presentations and improve education in an effort to bring the specialties together to advance MBS studies.

"Radiologists are knowledgeable about oropharyngeal and cervical esophageal structures, and speech-language pathologists understand swallow physiology and pathophysiology," Martin-Harris says. "When radiologists and SLPs work together, their combined expertise optimizes outcomes and strengthens the continuity of care, leading to safer studies, fewer unnecessary exams, and more effective treatment plans. We want radiologists and SLPs to see that they bring more value to these exams when they follow a cooperative, consistent approach."



Modified barium swallowing studies are fluoroscopy procedures that radiologists and speech-language pathologists conduct to evaluate a patient's swallowing function.

Standardizing the Exams

Typically scheduled jointly through the speech-language pathology and radiology departments, MBS studies are primarily administered to patients who have damage to the nervous system or to structures of the head and neck critical for safe and efficient swallowing. During the exam, the SLP administers barium agents of varying consistencies to the patient, while the radiologist uses fluoroscopy to observe the patient's swallowing function. Often this work occurs in an unstandardized and uncoordinated way.

For instance, SLPs tend to use numerous barium agents to simulate all of the food on a patient's plate. Martin-Harris says that this approach poses infection control and aspiration risks and interferes with the validity and reproducibility of the exam results.^{1,2}

Further, she says, this practice deviates from the primary purposes of the MBS exam, which include diagnosing the nature and severity of the impairment and studying the effects of compensatory strategies. Other exam objectives include determining the cause of aspiration when present, assessing the appropriateness of oral intake, and identifying the physiologic targets for swallowing treatment.

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Bonnie Martin-Harris, PhD, professor and associate dean for academic affairs in the School of Communication at Northwestern University, encourages speech-language pathologists and radiologists to work together to standardize modified barium swallowing studies.

"We encourage use of a standardized and validated set of volumes and barium preparations that simulate liquid and food consistencies, which optimize the accuracy and reproducibility of exam results," says Martin-Harris. She has worked with a multidisciplinary team to develop [training modules](#) to help SLPs and radiologists validate standardized exams.

Just as SLPs should standardize the materials and methods of administration for MBS studies, Martin-Harris says that radiologists should use standardized fluoroscopy rates. Studies indicate that rates recorded at 30 frames per second are safe and necessary to capture the rapid sequence of swallowing events, which happen within one to two seconds, along with the occurrence and cause of aspiration.^{3,4,5}

"The dose associated with the MBS exam should be as low as reasonably achievable, and the exam should average three minutes of fluoroscopy exposure time when using a standardized approach," Martin-Harris says. "Radiologists should also include both lateral and anterior-posterior viewing planes when possible to adequately assess symmetry and function of the primary swallowing components necessary for efficient bolus movement and airway protection."

Taking a Collaborative Approach

After conducting the exam according to set standards, radiologists and SLPs should collaborate and consistently report the exam results. Unfortunately,

however, SLPs and radiologists usually file separate findings reports without conferring about the results. This uncoordinated approach can be detrimental to patient care.

"I've seen cases where the radiologist reports that the patient aspirated during the exam and the speech-language pathologist reports that the patient didn't aspirate," Martin-Harris says. "We're making really important decisions about whether the patient can eat or drink, what the patient can eat or drink, and what intervention should be applied based on these exam results, so discrepancies could have very significant consequences regarding patient safety and outcomes. We must come together to conduct these exams in a validated, reliable, and standardized way to ensure patients receive the best possible care."

Sheafor says that some radiologists have been reluctant to collaborate on the exams in part because reimbursement for MBS has declined and finding time to engage in the studies beyond pushing the fluoroscopy pedal and monitoring for aspiration is difficult. "In a volume-based situation, people tend to spend less time on low-reimbursement studies and instead focus on areas where the reimbursement is better," says Sheafor, who is also the director of abdominal imaging in the department of radiological science at MUSC. "But what we should all be focused on is doing what's best for the patient, and this is one of those studies where we can add more value if we just take the time to get involved."

Spreading the Message

Canon's team at UAB is one of a few radiology groups that has a long history of collaborating with SLPs on the studies. Conducting an average of 140 MBS exams a month, UAB's radiologists consult with SLPs before the exam to review the patient's clinical history, during the exam to ensure the study is effective, and after the exam to coordinate their findings and review them with the patient. The team has employed this approach for decades, knowing it's the right thing to do, says Canon, who is also a professor in the abdominal imaging section at UAB.

"While we still have room for improvement, we've always been very engaged with our speech pathologists; I'm afraid there aren't too many groups practicing at this level," she says. "People think the radiologist's job is to monitor whether the patient aspirates during the exam, but there's much more to it than that. The real goal is to determine what's going on with the patient's swallowing mechanism, so the speech-language pathologist can prescribe effective therapies. It's a classic example of a study that really requires a team approach."

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Cheri Canon, MD, FACR, chair of radiology at The University of Alabama at Birmingham, has partnered with Martin-Harris to educate others about collaborative and standardized modified barium swallowing studies.

Given Canon's dedication to collaborative MBS studies, it was natural for her and Martin-Harris to partner to encourage others to increase the radiologist's role in the exams. The two met when UAB's SLPs and radiologists jointly invited Martin-Harris to train them in performing standardized MBS studies.

Impressed with the training, Canon invited Martin-Harris to speak about standardized and collaborative MBS studies at a national radiology conference, a presentation that was met with an overwhelmingly positive response. "I didn't think many people would stay for the presentation, since these aren't high-revenue generating exams and most radiologists aren't sure what their role is in them," Martin-Harris says. "But the room was packed, and several people inquired about more training at the end."

Since then, Martin-Harris has invited Canon to present at SLP conferences, and the two women have presented jointly at other national and international clinical and research conferences. Canon and Martin-Harris' partnership emphasizes the message that radiologists and SLPs should work together to improve these exams. "It speaks to the interdisciplinary approach and provides an opportunity to deliver best practices to groups of people who come from different training backgrounds and experiences," Canon says. "Reaching outside of radiology to advance patient care really pushes the field forward and demonstrates our commitment to providing the type of coordinated care that we all know is essential for improved outcomes."

Improving Education

While Canon and Martin-Harris are presenting about coordinated and standardized care, Sheafor is working with Martin-Harris to research, among other things, resident education around MBS studies. As part of this work, Sheafor and Martin-Harris are surveying residents at MUSC to understand their impressions of the exams, including what they think the studies are meant to address and whether they like performing the studies. Sheafor and his team then plan to alter how MUSC residents learn about the studies in part by incorporating a video that Martin-Harris and her team made that includes key information, such as the purposes of the MBS study is and what radiologists should be looking for during the exam.

From there, Sheafor plans to share patient testimonials with MUSC resident and attending radiologists so they can learn firsthand about the impact of the studies. "The idea is to make residents and attending physicians more aware of the positive outcomes that are resulting from these studies," explains Sheafor, who makes a concerted effort to engage with the SLPs at his institution. "We want them to understand that they're doing more than stepping on a foot pedal; they're doing something important." Following these interventions, Sheafor and Martin-Harris will survey the residents again to see whether their perceptions of the exams change.

As a result of these outreach and educational efforts, Canon, Sheafor, and Martin-Harris are hopeful more radiologists and SLPs will join forces to improve MBS studies. And they invite other radiologists to follow a similar path to engage their specialty partners to improve patient care. "I urge all radiologists to reach out and partner with their clinical colleagues," Canon says. "A good first step is to schedule a meet-and-greet outside of clinical hours to discuss patients and common goals. It sounds very basic, but it's a great way to begin a positive relationship that will have a real impact on patient care and position you to provide greater value."

Next Steps

- Schedule time outside of clinical hours to talk with your clinical partners about standardizing care and collaborating more closely for improved patient outcomes.
- Deliver presentations to groups within radiology to encourage radiologists to engage more directly in patient care, and outside of radiology to show that radiologists are committed to delivering coordinated care.

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- Educate your residents and attending radiologists about the impact their work has on patient outcomes and teach them about the benefits of standardized care and how to provide more value to the care team.

Endnotes

1. Martin-Harris BM, Brodsky MB, Michel Y, et al. (2008). MBS measurement tool for swallow impairment–MBSImP: Establishing a standard. *Dysphagia*, 23, 392-405.
2. Hazelwood RJ, Armeson KE, Hill EG, et al. (2017). Identification of Swallowing Tasks From a Modified Barium Swallow Study That Optimize the Detection of Physiological Impairment. *Journal of Speech, Language, and Hearing Research*, 60(7), 1855-1863.
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