

## InFormant

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Kristen Sullivan, Editor

Paul Patinka, Assistant Editor

Dear fellow PAVA members, Each year we celebrate World Voice Day (<http://world-voice-day.org/>) as a way to share our excitement about the voice with each other and the public. The theme of this year's World Voice Day is "One World, Many Voices," which reminds me both of the many different voices that make up our own PAVA community, as well as the value of continually seeking out voices different than our own. In this spirit, this World Voice Day I encourage you to not only reach out and share a link to an event, or a voice science video, or a favorite vocal performance, but also be a good listener to the voices around you. After all, what is the point of having a voice if we are not heard? Our young organization continues to rapidly grow, but we will only do so successfully if we build upon the strong foundation built by our founding members and continue to engage with each other and listen to each others' voices. I will follow my own advice and hope to hear your voice this World Voice Day. Please contact me at [president@pavavocology.org](mailto:president@pavavocology.org) with any thoughts, concerns, or ideas you have about PAVA. I would love to hear your voice. Happy World Voice Day!

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# Science and Research

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Creative research in the field of acting and voice coaching is colorful and wide-ranging. Crafting a sensitive and porous pedagogy in dialect acquisition and modification for young actors in training, as well as seasoned professionals, is also a robust and emergent challenge. Several journals, namely *The Voice and Speech Review* and the *Journal of Voice*, have happily been catalysts in supporting and publishing innovative explorations in pedagogy, theory, and practice in voice for the professional storyteller (check out this sampling of diverse favorites from Watson & Nayak, Ginther, Armstrong, Vickers, German & Marchinko, and Oram), while also providing mentorship and opportunity to new writers, including those from a uniformly performance background. Given this trend towards the inclusion of new voices and approaches, I have incredible expectations in terms of powerful, insightful interdisciplinary ideas and data collection methods in voice and speech for stage and screen (existing and generative). My hope is that continued research will aid in expanding the audience base, addressing challenges within our niche field, as well as provide unique, cross-disciplinary pedagogical tools.

The last few years have afforded myself and my research teams the luxury of internal support and the ease of forging local collaborations within the large research environment on the Texas Tech campus (I want to note that finding such support – specifically with grants and collaborators - was more difficult when I was solely freelancing, but it's not impossible...happy to chat). I've also been fortunate to have made additional inroads and new partnerships with regional and international voice and performance researchers with the assistance of organizations like PAVA and VASTA (the Voice and Speech Trainers Association). To that end, I find myself deep within several on-going research initiatives which, unlike the slightly more traditional book or article publication, find their public engagement and data output in forms such as live performance, podcast and radio, film, and interpersonal interviewing, while seeking new ways in quantifying typically qualifiable experiences.

You Talk Funny is a podcast I am developing with several collaborators including Seth Warren-Crow (Sound Design, TTU) and Amy Chaffee (Acting, Voice & Speech, Tulane/Freelance), that playfully explores and examines biases in dialect, language, and musicality. Language and dialect/accent biases are a widely researched topic of study within the fields of language acquisition, linguistics, and the performing arts. In storytelling media, sound and language-based character elements are often used as a shorthand semiotics to engage the audience quickly. However, this has had the unintended consequence of creating an obstacle to social consciousness by relying on sociolinguistic stereotype (and is often what the paid vocal coach is asked to teach the actor, unfortunately). You Talk Funny invites the listener to play an active role in the storytelling, while exploring the nascence of linguistic biases, related current affairs, and potential progressive approaches to diverse linguistic tolerance, joining an existing small bevy of podcasts of related themes. Season One is set to be released Summer 2021.

Once a challenge within our field, other forms of research can quantify Practice as Research (PaR) initiatives, historically viewed for their qualifiable experiences (e.g. the subjective feelings one receives watching a piece of theatre or film). For example, Remember This: Integrating the Arts and Medicine to Transform Cultural Conversations is a multidisciplinary (with dance faculty Genevieve Durham DeCesaro, TTU & cognitive psychologist Dr. Tyler Davis, TTU – among others) project featuring, as its centerpiece, a performance event designed to spotlight conversations about and perceptions of dementia. Our team of Texas-based artists, psychologists, and medical clinicians worked to research and publicize the humanity, rather than solely the tragedy, of the disease by approaching it as a set of interwoven stories told through a variety of performing arts mediums including dance, short-form comedy improvisation, and scripted theatre based on interviews. Pre-COVID, Remember This continued to be invited to perform locally, regionally, and internationally in Memory Care facilities, conferences, national foundational fundraisers, and performance festivals. Its unique performance approach and subject caters to a diverse and growing audience population who are invited to contribute quantitatively to an audience attitudes survey, which is statistically capturing the direct effect this performance has on general perceptions of dementia and disease stigma. To date, we have data which suggests that those who viewed the live performance have a reduced stigma towards the disease after seeing the show than those who did not.

Finally, performing arts methodologies and health science is perhaps a newer frontier in terms of securing quantifiable data, though a very old pairing. “Ars Medicina” (the art of healing) is part of the natural human inclination to pair creative impulse, focus on partner, and sustainable support. Of considerable challenge within performance voice and speech is the craft necessary to not only sustain a character vocally for the duration of the run or shoot, but often while embodying vocal extremes (such as laughing screaming, vomiting, or dying...it wouldn't be drama otherwise), and within shifting environments.

An actor might be playing to a 50 seat house one night, then travel 100 miles to an arena seating 1000 the next afternoon, and then close their day filming a version of the show that evening. Each environment requires not only a vocal athleticism, but also an energetic savvy and a facile working memory to understand how to sustain and partner honestly and effectively within each space. There are dozens of practices within the Western world (and dozens more outside of it, equally exciting to explore) which teach professional actors how to execute this task. As a teacher of Fitzmaurice Voicework® (FV) I was drawn into, alongside colleagues Lynn Watson (Theatre, Voice & Speech, UMBC) and Dr. Tyler Davis (Cognitive Psychologist, TTU), studying the effects of the internationally recognized performance methodology on neurocognitive and behavioral functioning, performance anxiety, attentional focus, and working memory capacity. Our 2016 fMRI study with 10 FV teachers “suggest that FV could impact executive cognitive control networks in the brain, corroborating reports from practitioners, suggesting a locus for potential therapeutic effects, and securing critical pilot data necessary to support further (and larger) studies.”

These examples of my personal research initiatives are indeed reflective of a global curiosity within our field to not only seek and collect “hard data” within previously qualifiable experiences (and not at the expense of them!), but also to embrace diverse, interdisciplinary partnerships within the health sciences, engineering, psychology and beyond. I remain incredibly enthusiastic at the potential to reach new audiences, many of whom might not at all be familiar with professional theatre, while vehemently supporting my colleagues from ideation to publication, in whatever form that might take. There is simply so much to explore.

# Hands-On Vocology

## **Vocal function, swallowing, and self-perception in critical patients who received Invasive Mechanical Ventilation: A follow up.**

**Fernanda Figueroa SLP, Master's Student**

The current pandemics have not been easy for anyone, on the other hand it has helped to put on spotlight the important role of the different health professionals including Speech Language Pathologists (SLPs) in Intensive Care Units (ICU).

The project I had the opportunity to present on last Virtually PAVA aims to describe what happens to ICU patients who went under prolonged (longer than 48 hours) Invasive Mechanical Ventilation, after hospital discharge in terms of vocal and swallowing functionality.

It is known that patients who go under prolonged IMV may present anatomical alterations on the upper airway, such as intensive care unit acquired weakness (which is a generalized muscle weakness that appears during ICU stay) (Hermans & Van den Berghe, 2015) and more than half of these patients may also present a wide spectrum of acute laryngeal injuries (e.g. organic damage of the free edge of the vocal folds, granuloma, anchored larynx, stenosis, scarring, etc) that may interfere with laryngeal functions (Colton House et al., 2011; Scheel et al., 2016; Shinn et al., 2019). Also the duration of intubation has been demonstrated to indicate a higher risk of developing dysphonia (76%) and dysphagia (49%) (Brodsky et al., 2018). Voice and swallowing disorders may even persist after the hospital discharge because they were not detected on time (Brodsky et al., 2018).

The presence of swallowing disorders after IMV can be an independent predictor of mortality because of its direct relationship with aspiration pneumonia, and it is also related to the number of days under IMV and ICU stay (Scheffold et al., 2017; Zuercher et al., 2020). Inside swallowing disorders, we implemented cough assessment through the assessment of the peak expiratory flow rate (PEFR), as it is a predictor of swallowing safety (Curtis & Troche, 2020).

On the other hand, voice disorders after discharge can prevent the patients from getting a full functional recovery and thus interfere with their return to daily activities. It is also important before starting any kind of therapy to consider patients' perception regarding their health condition (González-Seguel et al., 2019). Those are the main reasons we believe it is important to assess voice, swallowing and self-perception in this population and as far as we know this is the first study to assess voice, swallowing (including cough), and self-perception on post-IMV patients.

Coinciding with other studies we found significant differences in voice (Asiaee et al., 2020; Eckel & Boone, 1981; Hirano, M., Koike, Y., & von Leden, 1968; Van der Meer et al., 2010; Yoshiyuki & Fuller, 1990) , swallowing safety (Bianchi et al., 2012; Cardoso et al., 2012; Fernández et al., 2020) and self-perception related to both voice and swallowing between a post prolonged IMV group (n=4) and a control group of healthy adults (n=17) (González-Seguel et al., 2019).

Regarding voice, we found that patients who went under IMV showed mostly altered acoustic analysis parameters and decreased vocal efficiency. This means post-IMV patients had irregularity and aperiodicity in the vibration of the vocal cords, insufficient airflow, increased noise, and signal disturbances. And what is most concerning, is that all these aspects are related to glottic closure defects (Asiaee et al., 2020; Hirano, M., Koike, Y., & von Leden, 1968; Van der Meer et al., 2010).

For swallowing we detected signs of impaired safety, such as a decreased ability to manage secretions, airway protection, etc. (Fernández et al., 2020). Regarding cough (PEFR) post-IMV patients tended to obtain lower reflex and voluntary peak cough flow, which means they had a higher risk of penetration and/or aspiration which can be related to chronic and acute respiratory disease (Bianchi et al., 2012; Cardoso et al., 2012; Rose et al., 2017).

An early diagnosis of these complications can benefit our patients reducing their mortality, ensuring an early intervention which will help them obtain a full recovery, reducing hospitalization times and the associated costs. Therefore, it is very relevant for future studies to assess diagnostic tools that allow a fast and low-cost assessment of voice and swallowing in post-IMV patients. Future studies that assess the evolution of subjects over time are also required.

I believe these findings can be helpful, especially considering the current scenario where more patients than usual are requiring IMV due to COVID-19, to identify possible sequelae in this population. These findings also put a spotlight on why it is important to have SLPs on ICU services due to the important role of the assessment and treatment of patients with the previously mentioned complications.

And under the same line of work, my colleague Adrián Castillo (who has guided me and worked with me in this project) and I are currently collecting data for a new study measuring voice and swallowing parameters in post covid-19 patients, I hope to have more information regarding this matter so I can share it with you soon.



## References

- Asiaee, M., Vahedian-azimi, A., Atashi, S. S., Keramatfar, A., & Nourbakhsh, M. (2020). Voice Quality Evaluation in Patients With COVID-19: An Acoustic Analysis. *Journal of Voice*. <https://doi.org/10.1016/j.jvoice.2020.09.024>
- Bianchi, C., Baiardi, P., Khirani, S., & Cantarella, G. (2012). Cough peak flow as a predictor of pulmonary morbidity in patients with dysphagia. *American Journal of Physical Medicine and Rehabilitation*, 91(9), 783–788. <https://doi.org/10.1097/PHM.0b013e3182556701>
- Brodsky, M. B., Levy, M. J., Jedlanek, E., Pandian, V., Blackford, B., Price, C., Cole, G., Hillel, A. T., Best, S. R., & Akst, L. M. (2018). Laryngeal Injury and Upper Airway Symptoms After Oral Endotracheal Intubation With Mechanical Ventilation During Critical Care. *Critical Care Medicine*, 46(12), 2010–2017. <https://doi.org/10.1097/CCM.0000000000003368>
- Cardoso, F. E., de Abreu, L., Raimundo, R., Faustino, N. A., Araújo, S. F., Valenti, V. E., Sato, M., Martins, S. R., & Torquato, J. A. (2012). Evaluation of peak cough flow in Brazilian healthy adults. *International Archives of Medicine*, 5(1), 25. <https://doi.org/10.1186/1755-7682-5-25>
- Colton House, J., Noordzij, J. P., Murgia, B., & Langmore, S. (2011). Laryngeal injury from prolonged intubation: A prospective analysis of contributing factors. *Laryngoscope*, 121(3), 596–600. <https://doi.org/10.1002/lary.21403>
- Curtis, J. A., & Troche, M. S. (2020). Handheld Cough Testing: A Novel Tool for Cough Assessment and Dysphagia Screening. *Dysphagia*, 35(6), 993–1000. <https://doi.org/10.1007/s00455-020-10097-z>
- Eckel, F. C., & Boone, D. R. (1981). The S/Z Ratio as an Indicator of Laryngeal Pathology. *Journal of Speech and Hearing Disorders*, 46(2), 147. <https://doi.org/10.1044/jshd.4602.147>
- Fernández, L., Cabrera, N., Fernández, D., & Olcese, L. (2020). Disfagia en tiempos de COVID-19 Dysphagia in COVID-19 times. *Rev. Otorrinolaringol.Cir. Cabeza Cuello* 2020; 80, 385–394.
- González-Seguel, F., Corner, E. J., & Merino-Osorio, C. (2019). International Classification of Functioning, Disability, and Health Domains of 60 Physical Functioning Measurement Instruments Used During the Adult Intensive Care Unit Stay: A Scoping Review. *Physical Therapy*, 99(5), 627–640. <https://doi.org/10.1093/ptj/pzy158>
- Hermans, G., & Van den Berghe, G. (2015). Clinical review: Intensive care unit acquired weakness. *Critical Care*, 19(1), 1–9. <https://doi.org/10.1186/s13054-015-0993-7>
- Hirano, M., Koike, Y., & von Leden, H. (1968). Maximum Phonation Time and Air Usage During Phonation. *Folia Phoniatria et Logopaedica*, 20(4), 185–201. <https://doi.org/10.1159/000263198>
- Rose, L., Adhikari, N. K., Leasa, D., Fergusson, D. A., & McKim, D. (2017). Cough augmentation techniques for extubation or weaning critically ill patients from mechanical ventilation. *Cochrane Database of Systematic Reviews*. <https://doi.org/10.1002/14651858.CD011833.pub2>
- Scheel, R., Pisegna, J. M., McNally, E., Noordzij, J. P., & Langmore, S. E. (2016). Endoscopic Assessment of Swallowing After Prolonged Intubation in the ICU Setting. *Annals of Otology, Rhinology & Laryngology*, 125(1), 43–52. <https://doi.org/10.1177/0003489415596755>
- Schefold, J. C., Berger, D., Zürcher, P., Lensch, M., Perren, A., Jakob, S. M., Parviainen, I., & Takala, J. (2017). Dysphagia in mechanically ventilated ICU patients (Dynamics): A prospective observational trial. *Critical Care Medicine*, 45(12), 2061–2069. <https://doi.org/10.1097/CCM.0000000000002765>
- Shinn, J. R., Kimura, K. S., Campbell, B. R., Sun Lowery, A., Wootten, C. T., Garrett, C. G., Francis, D. O., Hillel, A. T., Du, L., Casey, J. D., Ely, E. W., & Gelbard, A. (2019). Incidence and Outcomes of Acute Laryngeal Injury after Prolonged Mechanical Ventilation\*. *Critical Care Medicine*, 47(12), 1699–1706. <https://doi.org/10.1097/CCM.0000000000004015>
- Van der Meer, G., Ferreira, Y., & Looock, J. W. (2010). The S/Z ratio: A simple and reliable clinical method of evaluating laryngeal function in patients after intubation. *Journal of Critical Care*, 25(3), 489–492. <https://doi.org/10.1016/j.jcrc.2009.11.009>
- Yoshiyuki, H., & Fuller, B. F. (1990). Selected acoustic characteristics of voices before intubation and after extubation. *Journal of Speech and Hearing Research*, 33(3), 505–510. <https://doi.org/10.1044/jshr.3303.505>
- Zuercher, P., Schenk, N. V., Moret, C., Berger, D., Abegglen, R., & Schefold, J. C. (2020). Risk Factors for Dysphagia in ICU Patients After Invasive Mechanical Ventilation. *Chest*, 158(5), 1983–1991. <https://doi.org/10.1016/j.chest.2020.05.576>

# Getting Personal

To learn more about our cross-disciplinary interests, InFormant editors are interviewing various PAVA members so we can all learn a little more about the diverse fascinations housed in our organization. This past December, Paul Patinka had the honor of interviewing their mentor, John Nix, who recently served as an editor of “The Oxford Handbook of Singing” and published “Practical Science in the Studio, Part 1 and 2” in the Journal of Singing with David Meyer, Ron Scherer, and Deirdre Michael. Condensed answers from the conversation can be found below, and a full video and transcript can be found on our Vimeo page. <https://vimeo.com/500163772>

1) Can you tell us a little about some projects you are currently working on or recently finished?

I have two long overdue articles. One that Sarah Miga and I did on manually occluded vocal tract postures, and one on vocal fry with Whitney Chappell and Mackenzie Powell. I have a small study that my wife and I did where we were the subjects testing different kinds of cloth and disposable masks. I’m also working on a few articles as a part of the NATS Voice Science Advisory Committee with David Meyer, Ron Scherer, and D.D. Michael for Scott McCoy’s pedagogy column about technology use in the voice studio. My student Julieta Garcia-Reyes has a project going on right now about teaching voice to persons with disabilities.

2) What about vocalization fascinates or inspires you the most?

Voice acoustics have always been the thing that's excited me. I think that was the thing that drew me into vocology with Barbara Doscher. Acoustic information can help you with bridging registers, having an even sound, and acquiring a professionally marketable voice. And the difference that it started to make when I started applying that to working with people was huge. It wasn't just, "okay, well, this thing works for me," or "from my own personal experience." These were some guiding principles that have an impact on everybody.

3) What excites you about being a member of PAVA? How does PAVA fit into your overall career trajectory or goals?

I think the way that it brings people from all the related voice disciplines together so that we share the strengths from our sub-disciplines. It filled a big part of my professional life when I served in the early years. I think the relationships made through working with people on the board and getting those first meetings off the ground was a big part of my life. And the connections that I made in that time will stay with me for the rest of my career. I am certainly excited to see the PAVA recognized vocologist coming to fruition in the future for teachers all over the hemisphere. I certainly will be one of the people in line saying, "hey, I would like to be one of those!"

4) Do you have a mentor in your field whose work you look up to? Who is it and why?

I would say first and foremost, it was Barbara Doscher. She was my singing teacher, pedagogy teacher, and teaching mentor. I learned so much from her and still think of her every day when I'm practicing or teaching. There's a little voice in my head that says, "what would Barbara say?" And certainly, for Vocology, the line forms behind Ingo. Don Miller, of course, in terms of Voce Vista and applying voice acoustics and technology. People like David Howard and Graham Welch that I met in my work on the Oxford Handbook of Singing. Peers who've become great colleagues like Sten Ternström, who I have learned a lot from, and Eric Hunter, Lynn Maxfield, Lynn Holding, and so many others in the profession.

5) If you had unlimited resources and a year of vacation, what is something fun you would like to do with that time?

There's a couple of them. One of them would be to go to Antarctica. I always thought that would be just fascinating because it's so otherworldly. I've always had this kind of yearning to hike the Appalachian Trail. Australia and New Zealand have always been high on my bucket list. I've always wanted to have a bike and to ride across the United States. Just doing something physically challenging on an endurance level but also to see and experience the country differently.

# What Does Vocology Mean To You?

In honor of World Voice Day, we asked our membership what vocology meant to them. Below you'll see some of the responses. Join in the conversation on our social media channels.

"Vocology gives me the knowledge and tools to be the best voice teacher I can possibly be. The community is open, supportive and sharing of its knowledge and expertise." -Craig Tompkins

"Vocology is what occupies my mind 24/7. I don't spend much time on social media, but I have a lot of conversations with myself on the next steps for better understanding of human and animal vocalization." -Ingo Titze

"Being able to share the science behind our voices with my students helps them to remove a lot of the emotions that can arise during the learning process. They know that adjustments to their physiology can change the physics to result in better and healthier sound." -Nancy E. Harris

"Vocology gives me a tool box to offer a quick way to help all my students to get results and sing like they hear in their heads and their hearts." -Kaya Herstad-Carney

"Vocology exemplifies the synergy of science, art, and soul." -Adam Roberts

"Vocology is collaboration among disciplines celebrating advancements in care and nurturing of voice function." -Linda Carroll

"Vocology means tools and community for supporting voice users." -Clare McLeod

"Understanding voice in a deeper level and connecting science to clinical work." -Aramat Arnheim Sharon

"It is wonderful and most effective science and art to habilitated and rehabilitate human voice and professional voice management." -Paul Poovathingal

"It means the intersection of voice science, clinical voice, and voice pedagogy. Each field catalyzes the other, and most importantly, my patients (may) benefit from this expanded knowledge basis vis-a-vis more effective intervention." -Martin Spencer

"Vocology is the field where all disciplines of professional voice users can come together to further the field of voice. Each profession brings different perspectives and knowledge and we need one another to grow and learn!" -Ella McGaunn Geiger

"The study and appreciation of the human voice." -Elissa Weinzimmer

"Vocology is the source of my 'super power', to help others as they 'find their voices.'" -Trissa Walter

"Vocology means the evolving pursuit of evidence-based vocal training and habilitation to serve speakers and singers across the world!" -Theodora Nestorova