

# Letter to the Editor

## A Response to Dr. Jerger regarding “On Diagnostic Accuracy in Audiology: Central Site of Lesion and Central Auditory Processing Disorder Studies”

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I would like to thank Dr. Jerger for his thoughtful letter regarding my recent article, “On Diagnostic Accuracy in Audiology: Central Site of Lesion and Central Auditory Processing Disorder Studies.” I appreciate his insights into the issue of diagnostic accuracy and his suggestion to use the auditory event-related potential (AERP) as a reference standard for disorders of speech processing. We could say that this represents a neurological approach to diagnostic accuracy. The AERP would be used to identify the presence of a disorder of neurological function (target condition). Assignment of the research participants to the control and disordered groups would be made on the basis of AERP results. In Dr. Jerger’s example, a “listening to words-in-noise” (LWN) test would be used as the index test. A diagnostic accuracy study would be conducted to determine the ability of the LWN test to identify the absence or presence of a neurological disorder.

The selection of a reference standard is guided by the target disorder. For example, one could determine the diagnostic accuracy of the LWN test (index test) for the detection of a speech recognition in noise disorder (target disorder). In this case, self-report could be used as the reference standard (e.g., Middelweerd et al, 1990). The diagnostic accuracy of the LWN test (index test) could also be determined for the detection a hearing loss (target disorder). A pure-tone threshold measure would be a reasonable choice as a reference standard in this example (e.g., Koole et al, 2016).

Although the Standards for Reporting of Diagnostic Accuracy (STARD) statement (Bossuyt et al, 2003) outlines a systematic approach for the evaluation of diagnos-

tic accuracy, it does not explain how to determine the legitimacy of a target disorder. This is a very important consideration. Without a legitimate target condition, it is not possible to procure a reasonable reference standard. Vermiglio (2014) has suggested a set of criteria for the identification of legitimate target disorders in the field of audiology. These are based on the writings of physicians Thomas Sydenham and Otto Guttentag. The Sydenham–Guttentag criteria state that a target disorder (or clinical entity) is legitimate if it (a) possesses an unambiguous definition, (b) represents a homogeneous patient group, (c) represents a perceived limitation for the patient, and (d) provides a clear path to diagnosis and intervention. In the fields of medicine and psychology, many authors have presented arguments for the acceptance of new disorders as clinical entities. I would like to see similar efforts made in regard to disorders in the field of audiology. Legitimate clinical entities, as described by Sydenham and Guttentag, will provide clear guidance for the selection of reference standards for diagnostic accuracy studies.

Andrew J. Vermiglio

### REFERENCES

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