



Three Tools Audiologists Are Using in 2025 to Improve their Clinical Care

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Abstract

This article discusses three recent innovations in the field of audiology that are changing conventional clinical practices. The Nuance Audio hearing aid integrates acoustic amplification into an optical frame, offering patients aesthetic discretion and functionality for early/middle hearing losses. Until now, most patients with these small levels of hearing loss (early/middle) barely used any type of hearing aid because the stigma of using hearing aids was a bigger barrier for them than the communication difficulties caused by their incipient deafness. Now, with the use of Nuance Audio, these users have a new, aesthetically appropriate solution at their disposal, meaning they no longer have to live without a hearing aid. The Natus Otoscan 3D scanner digitally captures the morphology of the ear using laser beams to reconstruct it in 3D, facilitating the production of more accurate earmolds. Previously, ear molds were made by injecting silicone into the ear using a syringe. This posed a significant risk due to the risk of the silicone touching the eardrum. Now, thanks to Otoscan 3D, ear measurements can be taken without using silicone. We simply illuminate the ear canal with a laser to generate an accurate 3D image. The Interacoustics ACT test assesses the audible contrast threshold in noise, providing an additional parameter for adjusting advanced hearing aid features. Previously, hearing aid fittings were performed using traditional voice or tone audiometry, either in a booth or in a free field. This required simulating ambient noise, which was not standardized and varied in its definition and results. Now, with ACT, it can be quickly and accurately integrated into the test battery alongside tone audiometry.

The advantages, limitations, and potential clinical scenarios of each innovation are discussed. We conclude that these three technologies are replacing conventional uses, integrating into the audiological clinical workflow to offer more individualized and efficient fittings.

Keywords: Hearing Glasses; NuanceAudio; 3D Scanner; Otoscan; ACT Test; Audible Contrast

Abbreviations

ACT: Audible Contrast Threshold; OSPL90: Output Sound Pressure Level.

Introduction

Contemporary audiology faces the challenge of adapting hearing diagnostics and rehabilitation to individual variability, as well as to

their use in noisy environments. These three innovations combine anatomical scanning of the patient's ear, qualitative measurements of their hearing in noise, and integrated hearing aids, with particularly noteworthy results for audiologists. This article reviews the three innovations (the Nuance hearing aid, the Otoscan scanner, and the ACT test) and their current impact.

Nuance audio hearing aid

This is an optical frame that integrates microphones, amplifiers, and speakers to provide discreet hearing assistance within an eye-glass frame.

It offers directional speech amplification, background noise reduction, and personalized app-based calibration. It operates in a range of approximately 200 Hz to 5000 Hz with an OSPL90 of 110 dB. It is IP54 certified for dust and splash resistance. Its main advantages are its aesthetic discretion, its optical-auditory duality, and simple app-based calibration, making it popular among users who are reluctant to use visible hearing aids. On the other hand, it has limitations such as its use only in patients with mild or moderate hearing loss, its noise performance is lower than that of specialized hearing aids, its marketing regulations vary depending on the country (OTC), and a lack of comparative clinical studies.



Figure 1: Nuance Audio Hearing Glasses.

Otoscan 3D by natus

This is a 3D laser scanning device for digitally capturing the anatomy of the outer ear and ear canal, avoiding traditional physical silicone impressions. It generates a digital model that allows molds and in-ear devices to be manufactured with digital precision, reducing errors due to impression taking, streamlining clinical workflow, and facilitating the digital storage of files with individual anatomical copies.

Its main advantages include reproducibility, the absence of risks for the patient because silicone no longer needs to be injected into the ear canal, greater digital control of the anatomical model, and greater efficiency in digital production. Among its limitations are the fact that some anatomy may contain areas that are difficult to scan or errors due to the presence of earwax, and the high initial cost.



Figure 2: Natus Otoscan 3D Scanner.

Interacoustics ACT test

This is a clinical test integrated into audiometric equipment that measures the audible contrast threshold (ACT) in the presence of noise, rather than just the tonal audibility measurements of traditional tests. ACT provides a value in dB (nCL) that predicts the patient's functional performance in noisy environments and is

used to adjust adaptive hearing aid parameters. It is a quick test (≈ 2 min), is language-independent, and is performed using standard audiometer earphones.

Its main advantage is that it adds a dimension of “patient hearing quality in noise,” allows for personalized hearing aid adjustments, is language-independent, and is easy to implement in audiology clinics. Its drawbacks include the fact that it is still an emerging test, that it must compete with other speech-in-noise tests, that interpretation may vary among hearing aid manufacturers, and that it requires a license and compatible equipment.



Figure 3: ACT test in Interacoustics audiometry.

those used daily by audiologists. The Nuance hearing aid is useful for mild hearing losses with aesthetic demands; Otoscan improves digital anatomical accuracy; the ACT test adds a functional dimension in noise. This better positions them for use in centers with a capacity for innovation.

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Discussion

The three technologies demonstrate complementary approaches: the hearing aid acts as a discrete rehabilitation device, Otoscan improves the anatomical molding process, and the ACT test provides a functional metric in noise. Together, they can contribute to more personalized audiology focused on the patient’s real-life environment. However, the level of independent evidence and direct comparison with established standards is still limited. Clinical adoption must consider investment, workflow, patient volume, and local regulatory availability [1-5].

Conclusions

These innovations are already beginning to replace traditional methods and are currently being integrated as auxiliary tools into