OTOSCAN - 3D EAR SCANNING: THE FUTURE IS NOW!

Jackie Allen Phillips, AuD | National Account Manager, Otoscan, December 17, 2018

OTOMETRICS BACKGROUND

Product Portfolio

<table>
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<tr>
<th>Fitting</th>
<th>Hearing Ass.</th>
<th>Screening</th>
<th>Balance</th>
<th>Sound rooms</th>
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</thead>
<tbody>
<tr>
<td>AURICAL FreeFit</td>
<td>MDSSEN Astera</td>
<td>MDSSEN AccuScreen</td>
<td>ICS Chair</td>
<td>Customised project-based solutions</td>
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<tr>
<td>AURICAL Aud</td>
<td>MDSSEN Zodiac</td>
<td>MDSSEN Alpha OAE</td>
<td>ICS Impulse</td>
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Five main product lines connected by proprietary software and supported by dependable service offering

Otoscan

- Digital Ear Scanning
- Optimized HA Ordering
- Enhanced Workflow
- Increased Pt. Satisfaction

Software

- Audiology software
- Vestibular software
- EMR connectivity
- Total installed base of ~15,000

Service and Other

- Service offering
- Spare parts
- Accessories & disposables
- 3rd party products

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Learner Outcomes

- After this course learners will be able to discuss how 3D scanned ear images are used as a tool during hearing aid consultation to engage, educate, motivate potentially improve outcomes, communicate value and differentiate their practice.

- After this course learners will be able to describe how custom hearing devices could help providers differentiate and segment their offerings from over-the-counter options.

- After this course learners will be able to describe how Otoscan utilizes two different lasers to obtain a complete and accurate scan of the patients ear canal.

Why Digital Ear Scanning?
Navy Grant for 3D Scanning & Printing

Human Performance Enhancement for NATO Military Operations (Science, Technology, and Ethics)

- Office of Naval Research Warfighter Performance Department
- Karol Hatzilias
  - mechanical engineer from Georgia Tech specializing in 3D tech
  - awarded a grant by the United States Navy to develop a 3D scanning technology
  - Goal to provide hearing protection for warfighters in an effort to reduce psychological stress/PTSD.
- As a result of that he invented a way to scan small holes with a ring laser and translate that scan into a 3D model in real time.
- The Navy was looking for the **Optimal Process** for Custom Devices

Traditional Custom Product Workflow for Navy

- Silicone impression
- Impression scanning
- E-sculpting
- 3D printing

What happens if they need a remake???
OTOscan Business Model

Traditional Custom Product Workflow

- Silicone impression
- Impression scanning
- E-sculpting
- 3D printing
- Hearing aid fitting

OTOscan Business Model

Navy's Enhanced Custom Product Process

- Scanning
- OTO\textsuperscript{cloud} portal
- OTOscan images
- E-sculpting
- 3D printing

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OTOSCAN BUSINESS MODEL

Hearing Aid Clinic | Traditional Order Processing

- Hearing assessment
- Silicone impression
- Impression scanning
- E-sculpting
- 3D printing
- Hearing aid fitting

Hearing Aid Clinic | Enhanced Custom Ordering

- Scanning
- Hearing assessment
- OTOcloud portal
- OTOscan images
- E-sculpting
- 3D printing
- Hearing aid fitting

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Changes in the Industry…

CUSTOM HEARING AIDS

Hearing Aid Styles

Hearing Review Article shows:

- Decreased Customs Mix, especially in ITEs
- Decreased Tradition BTE usage
- Significant increase in RIC/RITE
- No statistics on whether custom earmolds were used

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CUSTOM HEARING AIDS

OTCs

August 18, 2017
FDA Reauthorization Act of 2017 signed by President Trump
- Includes the Over-The-Counter Hearing Aid Act
- It mandates the FDA to establish an OTC hearing aid category for adults with “perceived” mild-to-moderate hearing loss within 3 years of passage of the legislation
- FDA to pose regulations for new category by August 2020

What do we know so far?
- OTC hearing aids will use “same fundamental scientific technology as […] hearing aids”
- OTC hearing aids will be “available over-the-counter, without the supervision, prescription, or other order, involvement, or intervention of a licensed person, to consumers through in-person transactions, by mail, or online.”
- They will be for adults only (18+ years old)
- They will provide adequate amplification for mild-to-moderate hearing loss
- The user will be able to control their OTC hearing aids and customize them as they see fit
- OTC hearing aids may include self-assessment tests
- OTC hearing aids may include wireless technologies

OTOSCAN VALUE PROPOSITION

What’s occupying today’s HCPs?

FOCUS AREAS
- Stay professional
- Best possible outcomes for patients
- Excellent patient experience
- Running an efficient business
- Stay competitive

TRENDS
- Consolidation and increased competition for consumer awareness
- Baby boomers expect high quality services and individualized health care
- Over-the-counter hearing care on the rise (on-line, pharmacy…)
- ASP shrinking, efficiency must increase
- Digitization of the patient journey rapidly progressing

OTOSCAN
How can 3D scanning support the professional?

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CONTINUED
Empower our audiologists to document cases where OTC was insufficient
Jeanette Fitzke, 10/10/18
CHANGES IN THE INDUSTRY

Personalization

Brands that create a personalized experience by integrating digital technologies and proprietary data for consumers are seeing up to a 10% revenue increase.

Examples:
- Online hearing screenings
- Personalized Hearing Aid
- Custom Products?
- Utilize Otoscan in Counseling?
- Personalize components and tech in HA/Hearable?

**Personalize your offerings and Bring Back Custom Products**

Meet Otoscan

3D digital ear scanning solution from Otometrics

Developed BY hearing care professionals FOR hearing care professionals
Brief Review of Pertinent Anatomy

Area to be scanned

Key Otoscan Features

- Live In Ear View
- Live 3D Rendering View
- Insertion Depth Gauge
- Gamified Training Application
- Easy Infection Control Process
- No Disposables
Types of Lasers used in Otoscan to Scan Ear

**Ring Laser**
- *Utilize the Ring Laser to scan the ear canal and curvature of pinna*
- *The laser projects perpendicular to direction of the probe.*
- *Strobe light for ear canal but not pinna*

**Line Laser**
- *Use the Line Laser to scan the flat surfaces*
- *Think of “line-of-sight”*
How do you know scan is complete?

The border color around the holes signifies whether or not you should collect more data in that area.

Black Border = OK

Yellow Border = Incomplete

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Scan Real Ears - Contraindications

Excessive wax

- A small amount of wax is acceptable but, like with silicone impressions, a clean ear results in a better "impression"
- If excessive wax is present, either do not scan the ear or have the wax removed prior to scanning. After cleaning the ear, make sure that excessive moisture is not present prior to scanning

If the patient has undergone recent ear surgery
If there is discharge or evidence of infection

If the patient is unable to remain still

If the patient experiences a persistent cough reflex (Vagus nerve reflex)
If the patient has a history of seizures, migraines or any sensitivity to strobe light, reduce volume and have them close their eyes for the 1st portion.
The Complete Digital Solution

**Scanner System Components**
- Scanner with USB connection
- Single Application Locked-Down PC
- Session Manager
  - Patient database
  - Scanning
  - Patient-worn tracking headset

**Otoscanning Portal - Otocloud**
- Web-based Portal software
  - User / clinic admin
  - Scan management
- Accessible from any desktop / pc through dedicated user name & login
- Includes manufacturer business system

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Training of Otoscanning
Learning Curve Expectations

Learning to scan is a process
  • Just think how many ears it took you to feel comfortable w/ Silicone

Practice builds confidence and skill
  • 5-7 patients for comfort in basic scanning technique
  • 15+ patients to build a skill set for confidence scanning

Scan time (length of time to complete a scan)
  • Scan times will start out long (6+ minutes per scan)
  • Scan times will drop to less than 2 min on average

Compared to Average silicone process takes around 10 minutes

OTOSCAN COMMERCIALS

Easy onboarding and roll-out

Time management is of extreme essence in the front-line POS. Otoscan accommodates an efficient product roll-out into organizations considering introducing new routines.

1. 27 build-in lectures (video, gamification)
2. Training session (recap and transition to real ears)
3. Building patient cadence in the clinics (~10-20 patients building muscle memory)
Otoscan Training Software
Live Digital Rendering & In-Ear View

Depth Gauge
Blue = Shallow Insertion
Green = Target Depth
Red = Insertion Warning

Target Depth
Male = 16-18 mm
Female = 14-16 mm

Based on:
1) Literature Reviews on avg ear canal length
2) HIMS Recommendations

Status of Otoscan

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Otocloud Community - Partners

The goal is to on-board all of the major Hearing Instrument Manufacturers globally.

PHASE 1 TRIAL STATUS

Patient feedback

- 92% of patients reports excellent/good comfort
- 94% of patients reports scanning has a wow factor
- 74% of patients reports it better than silicone impression procedure
  - New scan operators vs experienced silicone impression takers

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PHASE 1 TRIAL STATUS

Operator feedback

- 70% success in reaching target depth and no gaps
  - Only 7% with difficulties
- 74% success in utilization of the scanning system

Ease of Use

- Excellent: 12%
- Good: 25%
- Average: 35%
- Poor: 15%
- Very poor: 2%

System Utilization

- Excellent: 4%
- Good: 30%
- Average: 21%
- Poor: 45%
- Very poor: 4%

Otoscan is the future of hearing care counseling and changes the way you provide hearing care

Otoscan gives you powerful new ways to attract and engage more clients while delivering personalized counseling and solutions in an efficient way
OTOSCAN

Revolutionize the Workflow: Please more patients

... into a strong asset

OLD
A passive delivery mechanism

WORKFLOW: HEARING TEST → PATIENT COUNSELING → DECIDE ON HEARING AIDS → SILICONE IMPRESSION IF NEEDED → WEARING THE HEARING AIDS

NEW
Engage with patients

WORKFLOW: OTOSCAN → HEARING TEST → PATIENT COUNSELING → DECIDE ON HEARING AIDS → WEARING THE HEARING AIDS

OTOSCAN BUSINESS MODEL

3D ear imaging offers a step change in hearing care

Frontloading the counseling and sales process, and modernizing the supply chain

Attract patients
Experience 3D scanning only at the true professional
Improve the sound quality in your hearing aids with a personally fitted mold
Are you a candidate for an invisible hearing aid?

Convert patients
I got professional service, I trust this professional
I know and understand my options today, and can have the solution tomorrow
It feels very good that the professional knows exactly how my ears looks, even I didn’t know

Deliver
The scan goes directly with the patient case to the supplier
Turn-around time is reduced, and deliver what was ordered
Less manual handling, and consistent digital standards for quality assurance

Operational excellence
Converting a passive “delivering mechanism” into a strong asset for counseling and sales

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Benefits of Improved Workflow

- Increase Traffic
- Deliver more Value
- Please more Patients
- Improve HA & EM Handling & Ordering Process

Facebook Events

To promote the Open Days effectively we devised and implemented an integrated strategy which included creating Facebook Events, Facebook targeted social media campaigns and email marketing. This allowed us to target the right people with the right message on the most relevant platforms.

Attract more patients

Otoscan® helps you create awareness, interest and excitement around your clinic with the latest technology within hearing care counseling. Otoscan is the first 3D ear scanning solution developed by hearing care professionals for clinicians just like you. Now you can bring the Wow Factor to your clinic and:

- Excite your patients with new digital ear scanning technology
- Reach more patients and grow your referral base through community health care events showcasing the latest innovative within hearing care
- Deliver customized hearing care and differentiate your practice

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Please more patients

Otoscan gives you more ways to engage with patients and establish stronger patient relationships. With the scanning process, you create a relevant context to begin a dialogue with your patient so you can:

- Establish a strong rapport and personalize the patient’s experience in your clinic
- Increase patient loyalty by making their experience memorable
- Help patients answer the question: “Can I get the hearing aid I want?”
- Make a professional impression by being the clinic that provides customized hearing care

Instant reward for the patient

“[The Otoscan digital image] enables us to engage with our patients on a completely new level.”

Peter D. Sederhag, Au.D., AAA, Director, Audiology Research
Kankakee, IL

Streamline processes

Otoscan® helps you deliver customized hearing care in an efficient way. Otoscan streamlines the process of producing custom in-the-ear pieces such as earmolds and hearing aids. Novel technology transforms images of the ear into 3D digital files that are uploaded to Otocloud®, a cloud service for immediate use in the production of custom products. You can:

- Save time and money on handling earmolds and hearing aids
- Secure digital patient records for easy storage, retrieval and use
- Ensure a better fit and reduce remakes and returns
- Enjoy a cleaner, safer procedure

“Our goal is to keep earmold turnaround time to a minimum. Otoscan helps us cut our shipping time and cost by fifty percent. That’s a huge time and cost savings for us.”

Peter D. Sederhag, Au.D., AAA, Director of Audiology
Hearing Rehabilitation Center, Kankakee, IL
Financials of Otoscan

Optimized Value Chain – Lower Remake rates

Otoscan has built-in features that allow for the optimization of processes by enhancing the quality of the origin of the value chain for custom hearing aids – the patient's ear.

- Insertion depth (consistently scanning 4-6 mm passed 2nd bend, with a newly trained operators).
- Video otoscopy view for safer navigation
- 3D rendering ear canal surface
- Supplemented by a thorough Sonova validation study

Moving towards that Otoscan can be used as an encouragement for making a stronger effort at securing a good scan the first time.

In a US trial (Q4 2017) the remake rate was ~8% (16 out of 196 orders, representing 425 scan images). Traditionally, remake rates range between 15-20% - significant improvement with Otoscan!

- For dispensers doing custom: freeing up time to sell more!
- For dispensers not doing customs: reducing risk in pursuing custom solutions

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Otoscans Pricing

HEARING CARE PROFESSIONAL
#1: Capital Inv.: $12,500
- Complete Otoscan System

#2: $1,250 annual subscription
- SaaS element providing access to Otocloud for storage and ordering, software updates and maintenance
- (first year is free)

OPTIONAL

Thank You

Come with us
It’s the way forward

itsthewayforward.com

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OTOSCAN
Otoscan Pricing

Otocloud®
3D DIGITAL FILES | CLIENT INFORMATION
SEND RETRIEVE

OPTIONAL

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