

Threat Hunting

Minimizing the damage of OTCs & other adversaries.

Dr. Jacqueline Scholl, The Scholl Center

Tulsa, OK

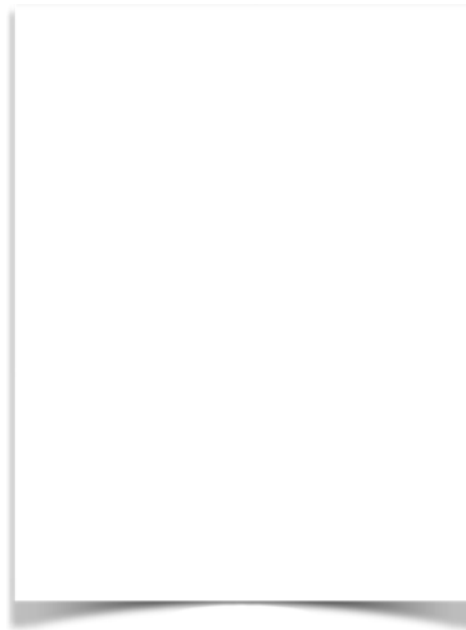




Facial Stimulation & Hypoplastic VIII Cranial Nerves

A Case Study: MEDEL Triphasic Pulse Stimulation Cochlear Implant Processor

Jacqueline R. Scholl, Au.D.
July 26, 2017



An 8-year-old girl was the first child to receive two external triphasic pulse stimulation processors by MEDEL. Activated and mapped by Dr. Reinhold Schatzer, MEDEL, Austria

Selfie Sheet



What is threat hunting?

The process of seeking out adversaries before they can successfully execute an attack. Threat hunting is a proactive technique that combines security tools, analytics, and threat intelligence with human analysis and instinct.



Threats?

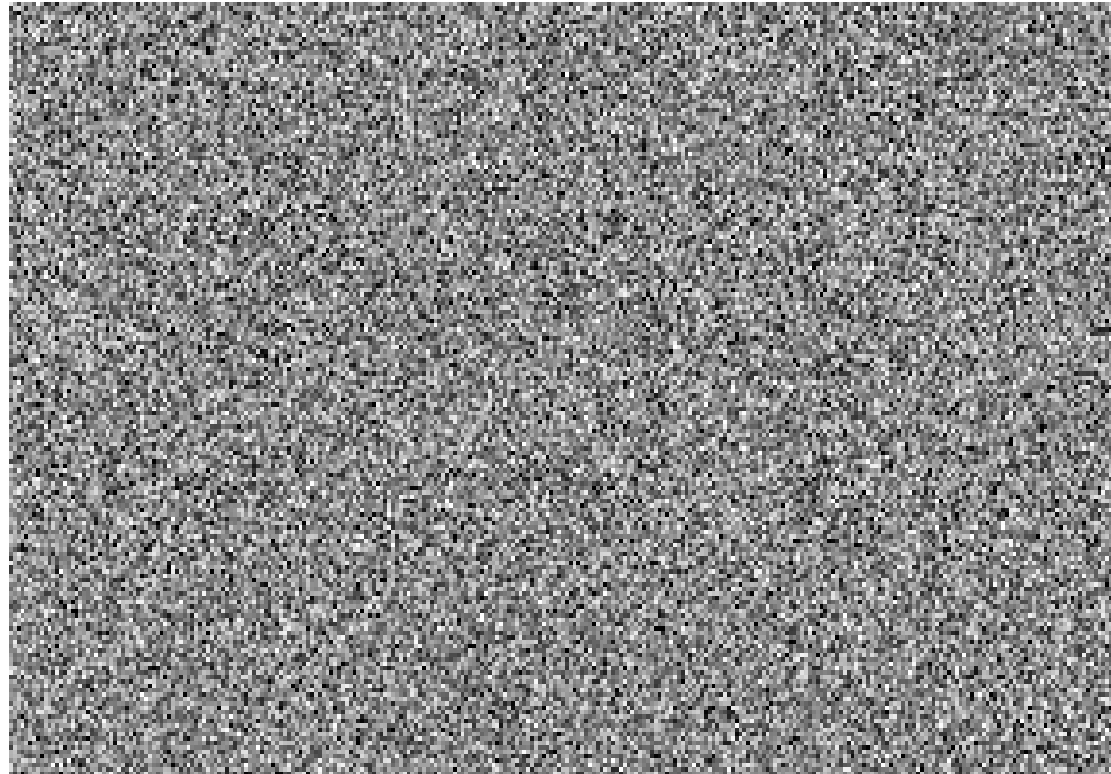
3 years

5 years

10 years

**Threat =
Disruption**

Disruption =
disturbance or problems that
interrupt an event, activity, or
process



Leaders Push Boundaries

Two Choices:

Act, or Don't

Jason Feifer

Editor, Entrepreneur

Great visionaries

Poor leaders?
Great leaders?

Live during an era of great visionaries

Steve Jobs, Apple

Salman Khan – Khan Academy

Google Cofounders – Sergey Brin & Larry Page

Bill & Melinda Gates

Starbucks Chairman & CEO, Howard Schultz

Mark Zuckerberg, Facebook

Elon Musk, Tesla

Automakers

Big 3 Auto

Tesla



Photography

“Kodak Moment”

Digital camera 1975

Online site Ofoto 2001 –
Shutterfly

Failure is an inability to truly
embrace the new business
models the disruptive change
opens up.



Medicine

CVS/Walgreens

Optometry

Hearing Aids

Drive-up Pharm

HUBBLE

The logo for CVS Pharmacy, featuring a red heart icon to the left of the word "CVS" in a bold, red, sans-serif font, with the word "pharmacy" in a smaller, red, lowercase sans-serif font below it.

Walgreens

WARBY PARKER

The logo for Costco Wholesale, featuring the word "COSTCO" in a bold, red, sans-serif font above the word "WHOLESALE" in a blue, sans-serif font, with three horizontal blue lines above "WHOLESALE".

Food

Grub Hub
Groceries

GRUBHUB™



USPS
UPS
FedX

Uber

Lyft

Next?

OTC

Virtual fittings





Case Study:

Balance Assessment =
discovery

Healthcare

Unique aspect is interpretation.

Patient XX

Symptoms: whiplash 22 years ago; PT for 2+ years for neck pain; stopped PT due to numbness in right hand; severe headaches; gluten intolerance; allergies; low blood pressure; right foot drop; dx of Raynaud's Phenomenon; first dizzy spell 6.5 years ago when got up from chair and room shifted.

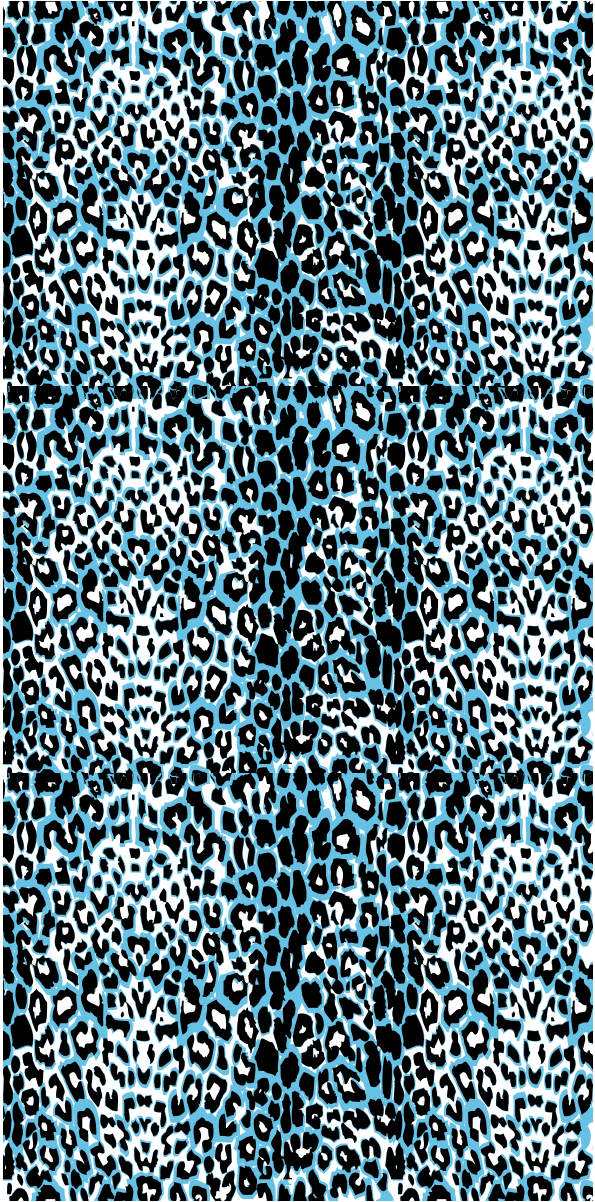
Test Results:

Normal Hearing;

Normal ABR, eCochG, oVEMP; cVEMP;

Only abnormal VNG finding was symmetrical low gain pursuit

?



Can't stop disruption and innovation

How do you counter?

Michael Lindstrom
Forensic scientist of
emotional DNA

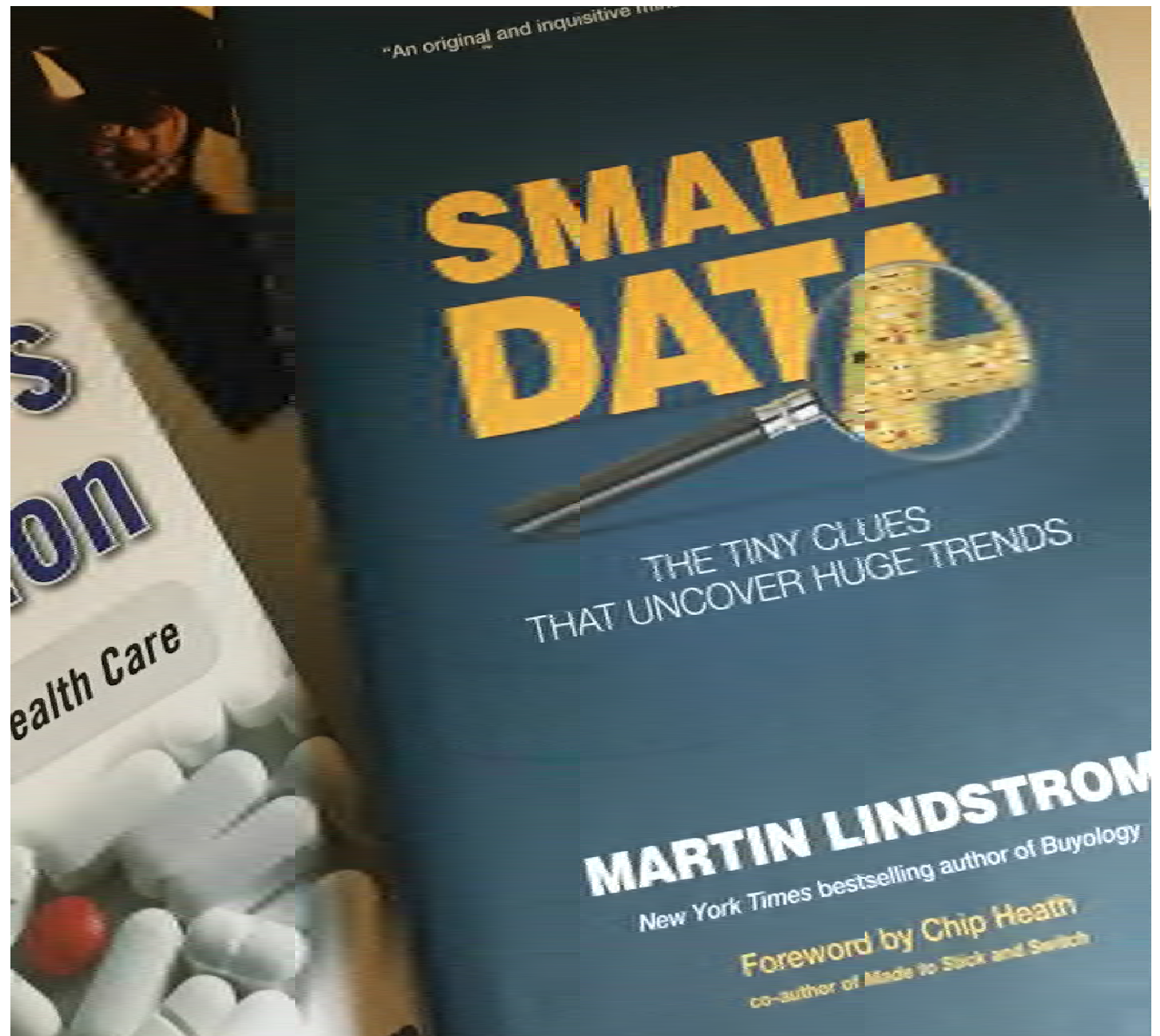
Small data



LEGOs & a pair of red sneakers



Small data



BIG Data

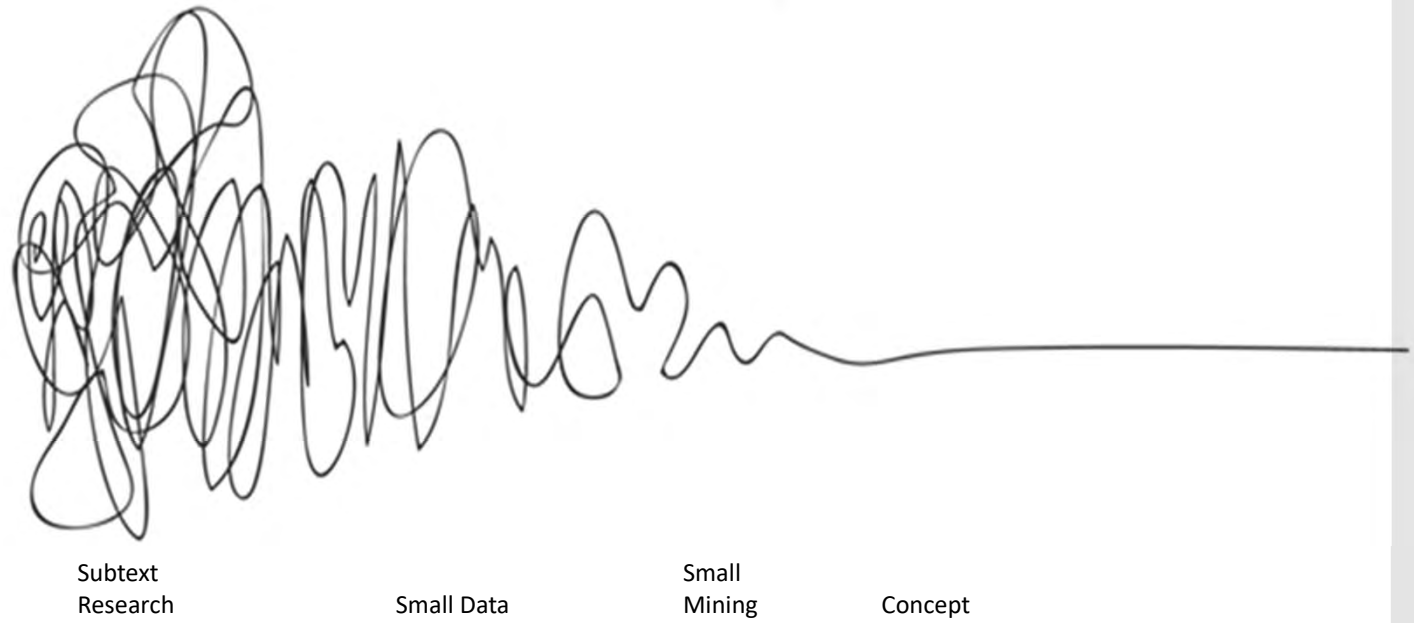
Needle in a haystack.

Doesn't spark insight

Favors analysis over emotion



Small Data Concept



Think about small data
as it relates to
audiology today



Rethink threat hunting

Dr. Google

AuD program

FREE hearing tests

Third party payers

Big box retailers

Insurance companies owning hearing aid companies

Longer wait time for insurance reimbursement

Big hospital

Self-referring big hospital

Specialists as employees



Threat hunting

More than just
OTCs!



18x18
ADA



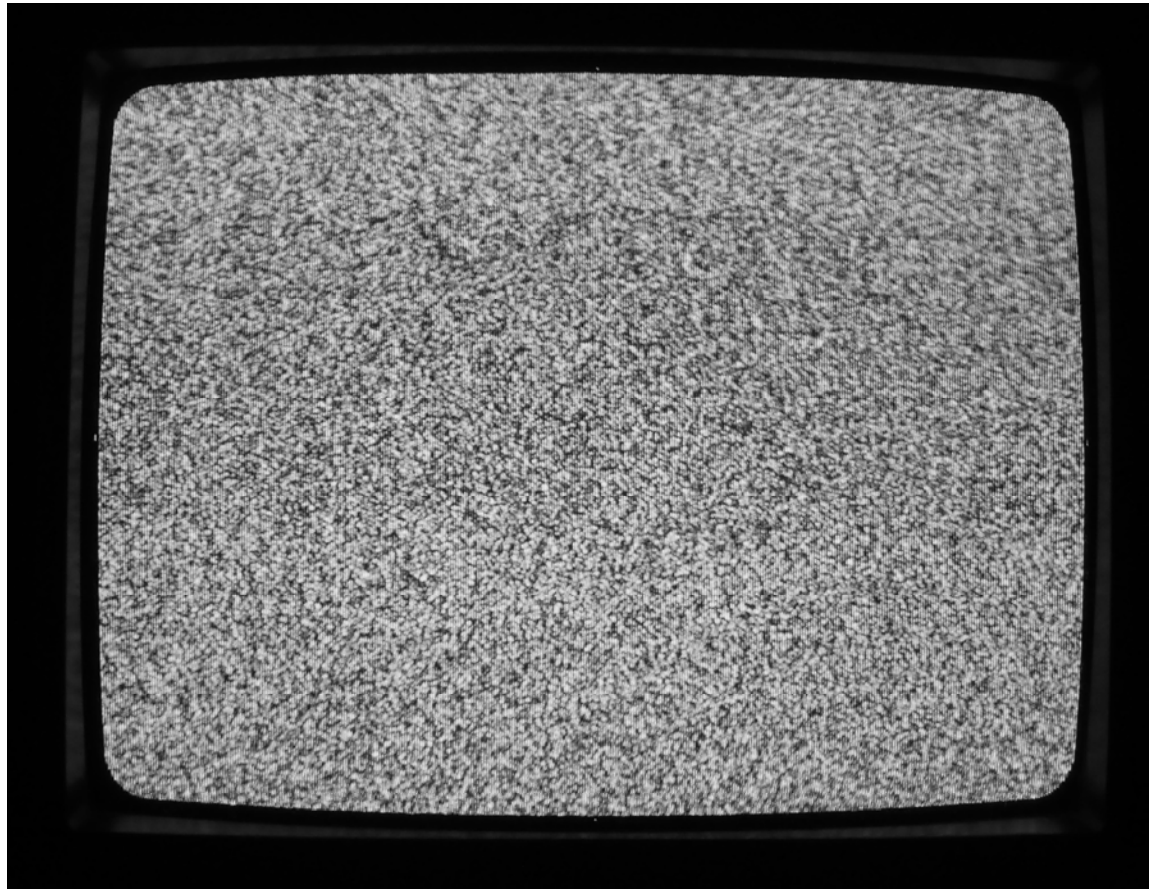


break

Part II: Sniper Tactics

NOISE

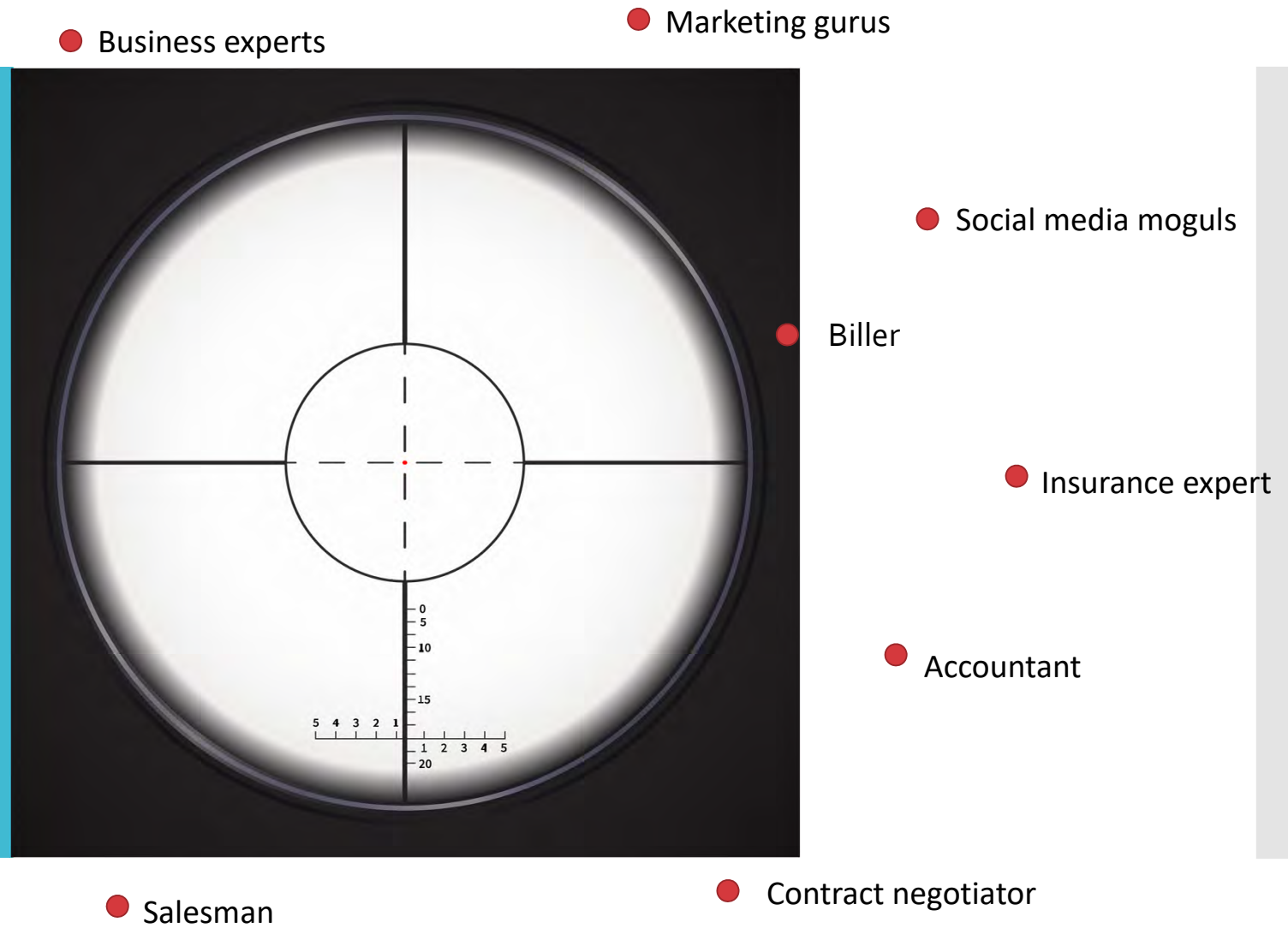
How do you get noticed?



Audiologists are the snipers of the hearing health world.



What audiologists are not...

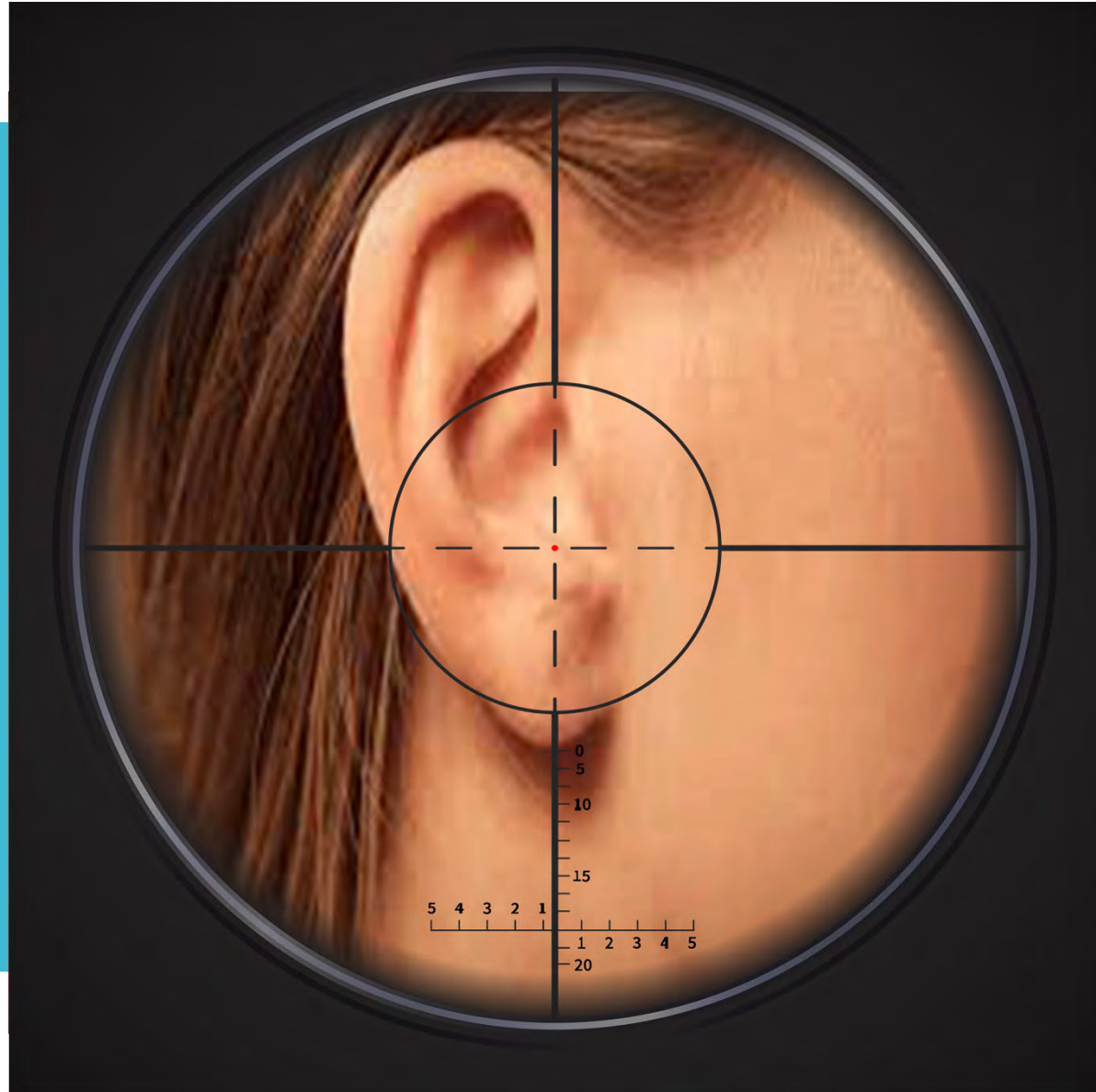


.....janitors
Maids
Landlords
Equipment specialists
Moving Service
Security
Trained mentors





Master marksmen
focus on one
thing...the target



Hire other highly skilled, reputable people to do what you don't know how to do.

- Good EMR
 - Collect good and accurate data
 - Good customer service response time
 - Changing with the environment
 - Excellent training



Some things are too important to do yourself

- 
- Accounting/Financials
 - Compliment EMR
 - Monthly/weekly reports
 - Outside billing
 - Compliment Accounting/EMR
 - Stay on top of changes
 - Advice for more efficient billing procedures

Sales/Marketing

“Integrity.
The choice between what’s
convenient and what’s right.”
Tony Dungy
UNcommon

- Books
 - Selling with Integrity:
Reinventing Sales through
Collaboration, Respect &
Serving, Sharon Drew
Morgan
- Training Course
 - Integrity Solutions.com,
Ron Willingham
- Digital Marketing
 - Read, read, read
 - Books
 - Webinars
 - Hire an expert
 - PeakEvolve



Utilize
professional
organizations



Pull your chair
up...

- Market/Partner with the primary care physician
- Send professional reports
- Team player



Oct. 25, 2018

The Scholl Center is celebrating our 10-year anniversary of providing professional hearing health care in Tulsa. We are looking forward to earning your trust and confidence by partnering with you to provide diagnosis and treatment options for hearing, tinnitus, and balance disorders.

We are excited to announce our new, easily accessible clinic location at 3105 S. Harvard Avenue. Our mission is to continue providing the best hearing health care in Tulsa specializing in adults and geriatrics. Our services include:

- ✘ Hearing care including professional hearing aid consulting and other options
- ✘ Diagnostic Balance Assessments (neurophysiology, posturography & videonystagmography)
- ✘ Cochlear Implants & other implantable technology
- ✘ Tinnitus Evaluation & Treatment

Over 1,600 physicians have referred their patients over the last 10 years and trust that The Scholl Center provides the highest standard of professionalism for their patients. We strive to partner with our physicians to provide the best outcomes possible.

All clinicians are doctorate level professionals, current with the latest research and evidence-based practices, and use state-of-the-art equipment not available anywhere else in Tulsa. We look forward to partnering with you for the next 10 fabulous years providing intelligent hearing/balance/tinnitus solutions for your patients.



Sincerely,
Dr. Jacque Scholl
owner & audiologist



The Scholl Center 3105 S Harvard Ave Tulsa OK 74135 918.508.7601 918.508.7603 fax
TheSchollCenter.com



Front & Inside

WE HOPE YOUR
HALLOWEEN SCREAMS
WITH SHIVERS & FEARS!



BUT, DON'T LEAVE HOME WITHOUT PROTECTING YOUR EARS.

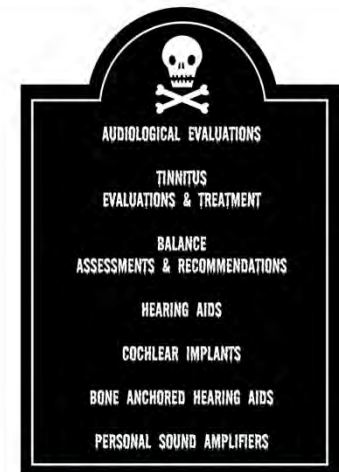
FROM YOUR FRIENDS AT



The Scholl Center

3105 S HARVARD AVE ~ TULSA ~ OK ~ 74135 ~ (918) 508-7601 ~ (918) 508-7603FAX

Back side

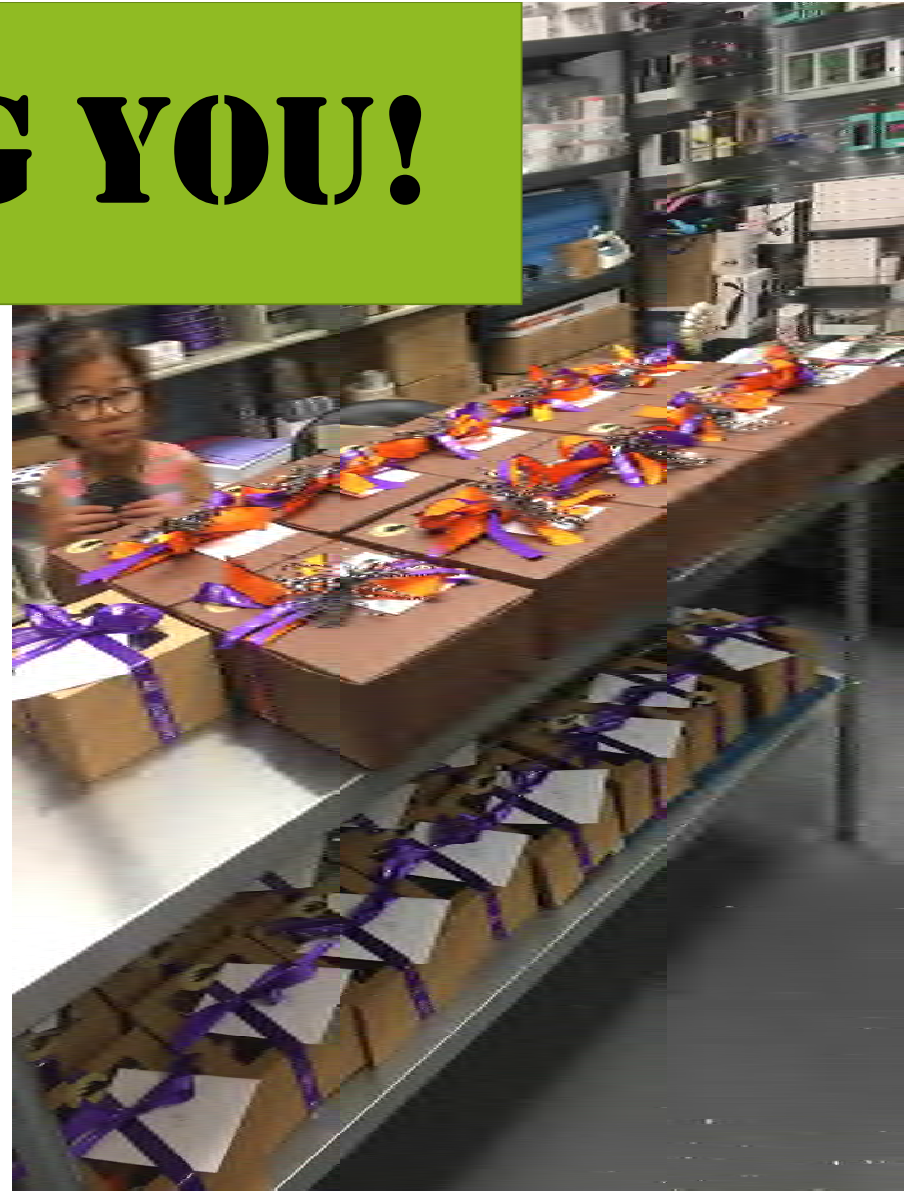


DEADLY GOOD AT WHAT WE DO



The Scholl Center
3105 S Harvard Avenue
Tulsa, OK 74135
(918) 508-7601 (918) 508-7603 fax
TheSchollCenter.com

WE DIG YOU!



MIRACLES
HAPPEN
HERE



THE SCHOLL CENTER

Bimodal Wearer:
Cochlear Implant &
Hearing Aid

COACH

Coach's experience with hearing loss began in 1966 as an artillery officer. He fired 175 mm shells with no hearing protection, as was the norm at that time. Shortly after his discharge in his thirties, Ira started coaching high school football. He struggled with hearing loss for nearly a decade, and was fit with hearing aids in his forties. Later in life, his hearing grew so poor, he was unable to hear on his headset during games, even with his hearing aids in.

After a consultation with The Scholl Center, Coach was encouraged to consider receiving a cochlear implant. Uneasy about the procedure, Coach was finally convinced to move forward after meeting a six-year-old boy with bilateral cochlear implants.

Now that his hearing has vastly improved, Coach is able to communicate more freely and enjoy his retirement



Unilateral Cochlear Implant,
Auditory Verbal Therapy

AYVA

When Ayva passed her newborn hearing test, her mother assumed everything was fine. As she grew, Ayva's speech developed normally and her mother never noticed any signs of hearing loss. Always vigilant about her daughter's health, Ayva's mom never missed a routine checkup. Surprisingly, when Ayva was five years old, her pediatrician caught a hearing loss during a well-check visit.

Immediately, the pediatrician referred Ayva to an ENT where she was given an audiogram to assess her hearing deficit. Within days, experts at The Scholl Center fit her hearing aids. Shortly after, Ayva's hearing loss progressed rapidly. In less than 2 years from the first diagnosis, Ayva received a cochlear implant. Her mother immediately noticed differences in her behavior, including less aggression and more contentment. Today, she's happy, healthy, and doing better than ever in school thanks to The Scholl Center. Ayva will soon receive her second cochlear implant.

Hearing Aid
Recipient

TRUMAN

Truman was diagnosed with osteosarcoma as a young child. In addition to losing his leg, he endured grueling chemotherapy treatments that caused him to lose his hearing. Truman came to The Scholl Center for help. When his insurance company refused to cover hearing aids, Truman, his family, and The Scholl Center refused to take "no" for an answer.

Moved by Truman's resolve, The Scholl Center aimed to find a way to ensure this incredible young man would hear again. Thanks to generous contributions from a top audiology equipment manufacturer and Dr. Scholl herself, Truman was fitted with high-end hearing technology. Dr. Scholl then started a foundation called the Children's Hearing Aid Project (CAP) to help other kids like Truman who needed help.

Thrilled to be back in action, Truman can be found practicing his latest skateboarding trick or taking aim in archery.



Unilateral
Cochlear
Implant

ARVIL

Arvil has never been afraid to take charge of his own audiological health. So when trips to various specialists and three different sets of hearing aids did not work, he knew it was time for a change. That's when he decided to visit The Scholl Center. During his initial consultation, Arvil was identified as a prime candidate for a cochlear implant. Confidence garnered from specialists at The Scholl Center, coupled with help from his support group, convinced Arvil to move forward with the procedure.

Today, Arvil is living better than ever with his cochlear device. He's grateful for The Scholl Center's patience and passion to help others, and credits them with restoring his hearing.

PicMonkey

Canva



Website...
no problem!




www.TheSchollCenter.com

theschollcenter.com


KIDS DISCOVER IXL - Seventh ...arts practice Daily Gramma... and quizzes A Guide to Si...rs | TitleMax Interactive L...essment test World History...aching Units >>

peak evolve - Google Search businessman drawing financial graph... (5,458 unread) - n2earz@yahoo.co... Hearing Aids | Audiology | Tulsa, OK +

 **THE SCHOLL CENTER**
3105 S. Harvard Ave., Tulsa, OK 74135
Call us today! (918) 508-7601

[Patient Forms](#)

[Home](#) [About Us](#) [Hearing Aids](#) [Care](#) [Services](#) [Blog](#) [FAQ](#)





Hearing loss is tied to 3-fold risk of falling.
HEARING LOSS FACT #3

[Learn more](#)

Welcome to The Scholl Center

We don't just sell hearing aids, we provide intelligent

 Let's Chat! 

FOCUS & OTCs

Sound IQ





HEARING AIDS



COCHLEAR IMPLANTS

Starkey

ReSound GN

COCHLEAR

COCHLEAR

MED-EL

AB Advanced Bionics



WELCOME TO SOUND IQ

STEP 1: CHOOSE A LIFESTYLE
 STEP 2: AUDIOGRAM
 STEP 3: FIT & PROGRAM
 STEP 4: SERVICE PLAN & FINANCING

Widex

Amplisound

Amplisound/500+









What we are not

Consumer Electronics



Hit inside the bullseye

Bone conducted Headphones

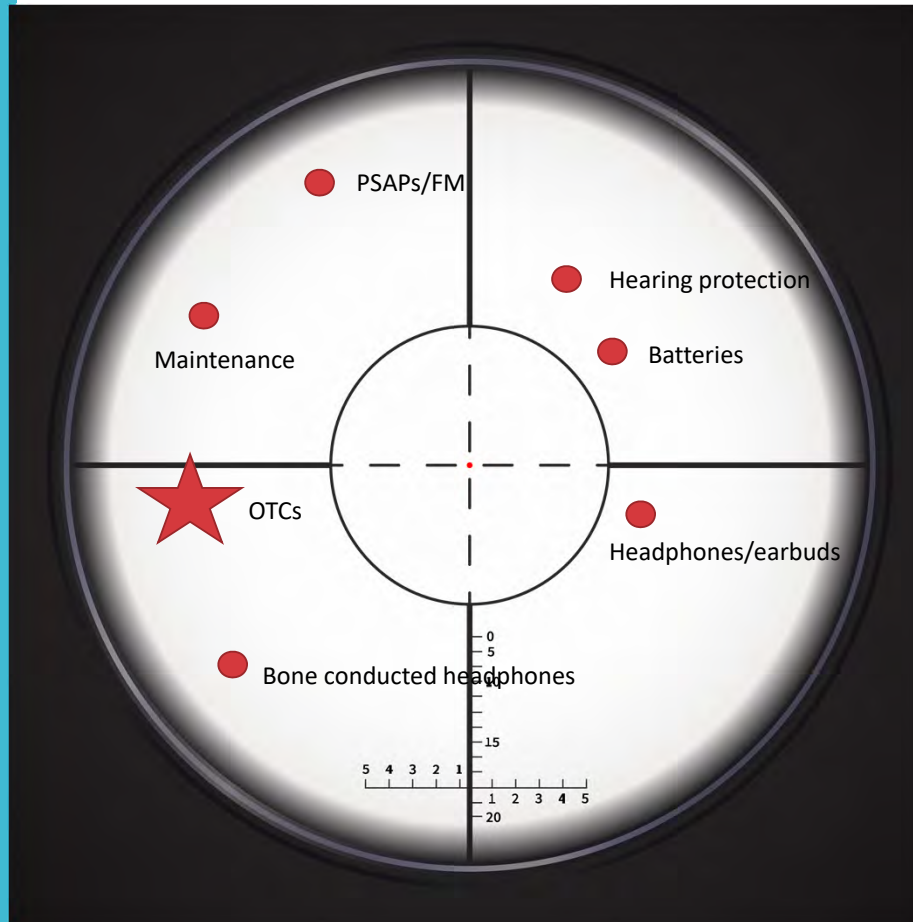
High quality/inexpensive head phones/ear buds

Hearing protection and products that keep people safe

OTCs/ PSAPs/FM

Wax Removal/HA Maintenance

Batteries





"She wasn't looking for a knight,
she was looking for a sword."

atticus





Never quit.

If you stumble, get back up.

What happened yesterday no longer matters.

Today is another day so get back on track and
move closer to your dreams
and goals.

You can do it.

Take aim

Use good data to make good decisions

Not easy!

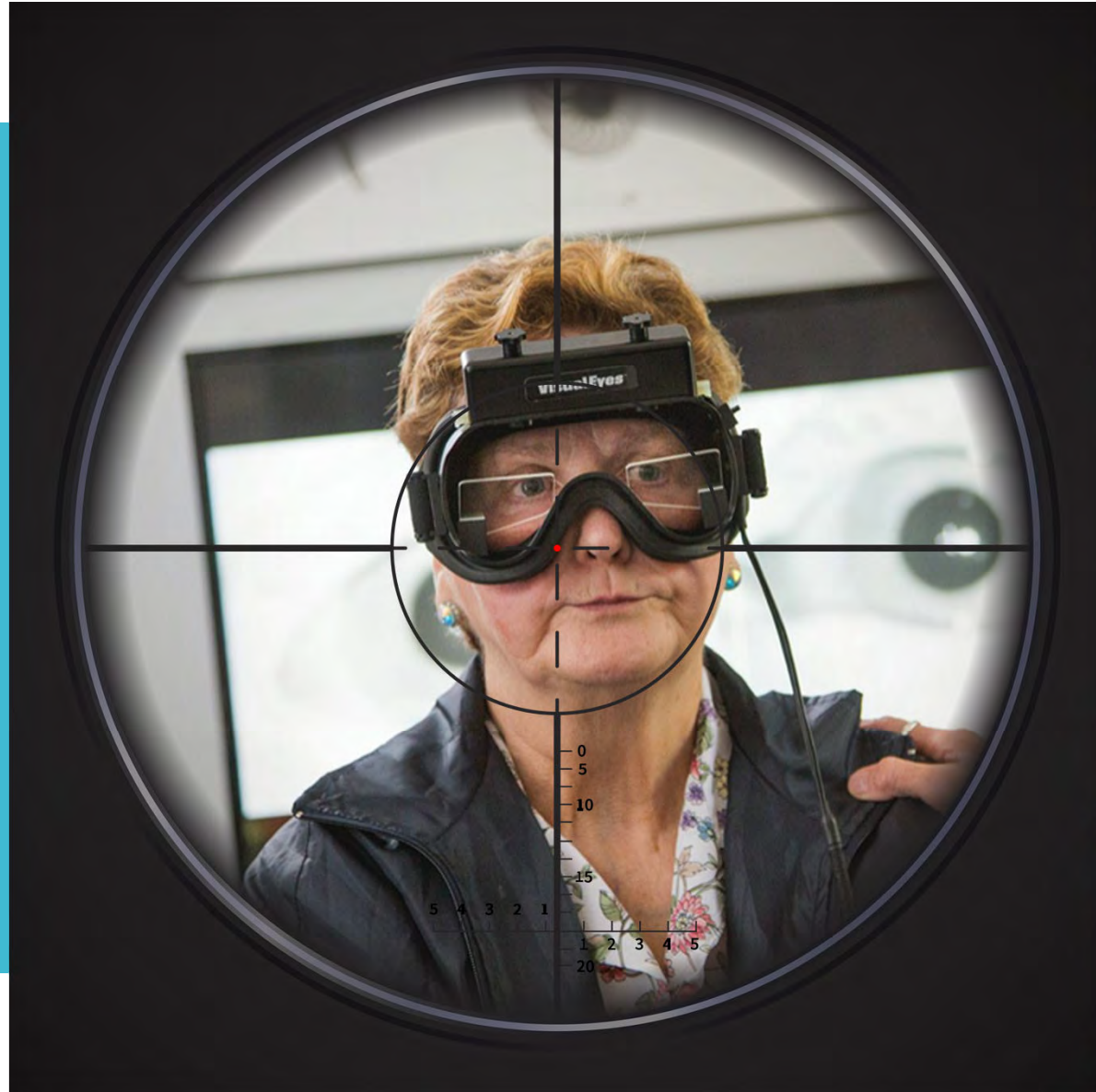


Painful Cuts



Line up your
shot

The secret
sauce

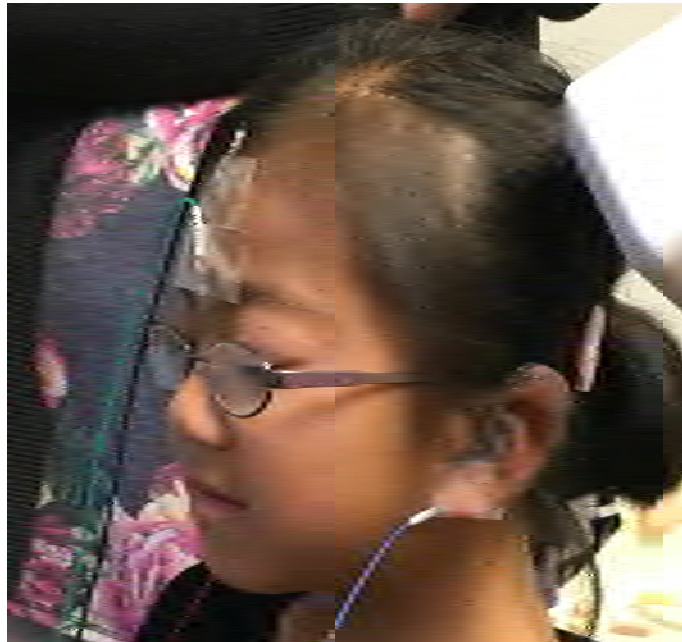


Hearing Aids

Balance

Tinnitus

Implantable
Technology



Doubt kills more dreams than failure



signia

SOUND IQ
HEARING CARE ACADEMY

Cochlear™

MED•EL

AB Audi

TAKE CHARGE OF YOUR HEARING HEALTH IN 4 SIMPLE STEPS

LET'S GET STARTED

STEP 1
STEP 2
STEP 3
STEP 4

Financing available

Looking for financing options?



MED•EL YOUR JOURNEY TO BETTER HEARING BEGINS HERE

IN SYNC WITH NATURAL HEARING FOR OVER 50 YEARS

- Sound is the voice
- Safe and gentle fit
- Get the whole picture
- Most natural hearing









Break

Part III: Take the shot

How to incorporate balance, tinnitus & implantable technology services into your practice.

The usual suspects

- Audiology Online
- Conferences
- Books
- Online modules
- Networking

Tinnitus

Natural addition

- Read, read, read
- Conference offerings
- Recreate the audiogram
- Understand questionnaires
- Offer all options available
- Special offering for a tinnitus masker
- How to bill for services



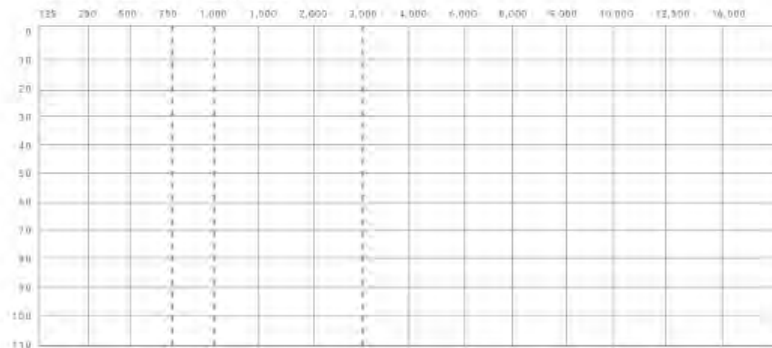
THE SCHOLL CENTER AT SOUND IQ
 918.508.7601 | THESCHOLLCENTER.COM | SOUNDIQ.COM
 3105 S. HARVARD AVENUE, TULSA, OK 74134

ASSESSMENT

PATIENT NAME: _____ PATIENT DOB: _____ DATE: _____

CLINICIAN: _____ REFERRED PHYSICIAN: _____

HIGH FREQUENCY AUDIOGRAM



TYMPANOMETRY	TYPE	OTOSCOPY	COMMENTS		500	1,000	2,000	4,000
L				L CONTRA	/	/	/	/
R				R CONTRA	/	/	/	/

TINNITUS

[] L PITCH MATCH: _____ HZ [] R PITCH MATCH: _____ HZ

	LE	RE
TINNITUS LOUDNESS MATCH	<40	00
BBN MINIMUM MASK LEVEL		
WHITE NOISE	<40	00
NBNOISE	00	00
RESIDUAL INHIBITION		
PRESENTATION LEVEL	>40	00
COMPLETE		
PARTIAL		
NO CHANGE		

RESIDUAL INHIBITION	
TIME LE	TIME RE

*SECONDS

TEST	SCORE/NOTES
TRQ SCORE	
THI	
TFI	
PANAS	

Questionnaires

Tinnitus Functional Index (TFI)

Severity and negative impact of tinnitus for use at intake assessment and for measuring treatment related changes in tinnitus (responsiveness). The TFI has multiple tinnitus severity domains.

Tinnitus Handicap Inventory (THI)

Measures the degree of distress suffered by the tinnitus patient.

Tinnitus Evaluation

CPT 92625

Use modifier -52 if only
testing one ear.

Pitch Match

A pitch match can be used to show a correlation with damage to the auditory system.

Loudness Match

Typically matches are less than 20dBSL and are very commonly on a few dB.

Minimum Masking Level

Measure for both white noise and narrowband noise (Narrowband not required for 92625).

Residual Inhibition

Loudness Growth Function

(not required for 92625)

Billing Tinnitus

Comprehensive Audiogram (high frequency audiogram)

92557; 92550; 92587

Tinnitus Protocol

92625

Schedule a technology consultation

Tinnitus Solutions

Tinnitus Retraining Therapy, Clinical Guidelines

Henry, Trune, Robb, Jastreboff

Plural Publishing

Chapter 13: TRT Counseling

Step-by-Step to demystify tinnitus

Discuss self-administered questionnaires

Hearing aids with/without masking

Specific masker solution

Sound Oasis products

Apps to download (Bluetooth speakers and/or ear buds)

Levo Otoharmonics

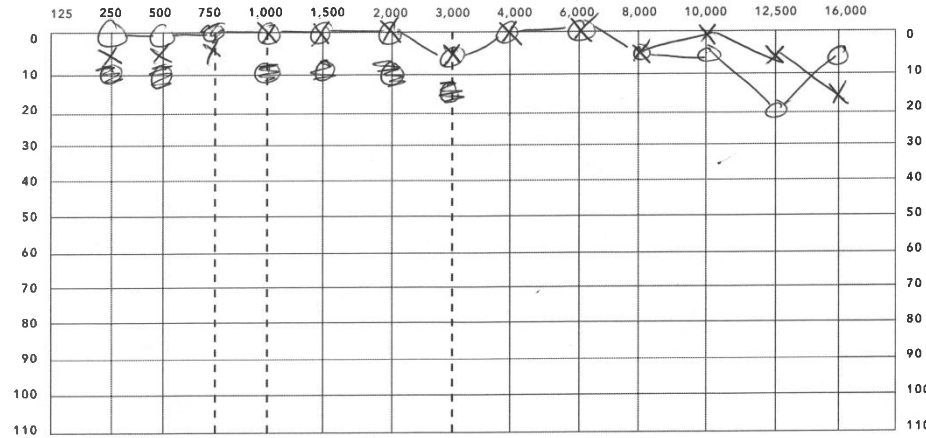
Support Group

Appropriate referrals

Don't forget due diligence with these patients

CLINICIAN: _____ REFERRED PHYSICIAN: Jacob Callison

HIGH FREQUENCY AUDIOGRAM



TYMPANOMETRY	TYPE	OTOSCOPY	COMMENTS
R	A	✓	
L	A	✓	

	500	1,000	2,000	4,000
R CONTRA ipsi	NR	NR	NR	NR
L CONTRA ipsi	NR	NR	NR	NR

TINNITUS
 [] R PITCH MATCH: 8K HZ [] L PITCH MATCH: 10K HZ

OAE: R-pass
L-pass

	RE	LE
TINNITUS LOUDNESS MATCH	25 dB	15 dB
BBN MINIMUM MASK LEVEL	15 dB	15 dB
WHITE NOISE	35 dB	20 dB
NBNOISE	35 dB	20 dB
RESIDUAL INHIBITION		
PRESENTATION LEVEL	25 dB	25 dB
COMPLETE		
PARTIAL		
NO CHANGE	✓	✓

SRT: R-0
L-0
discrim
R 100 @ 50/40
L 100 @ 50/40

TIME RI	TIME CB*

*CAME BACK

TEST	SCORE/NOTES
TRQ SCORE	40 - moderate
THI	62 - severe hearing
TFI	128 51% severe
PANAS	+34 < 22 -29 > 29.9

Patient ABR Report

HISTORY: XXXXX was seen for neuro-diagnostic ABR evaluation on this date. XXXX has bilateral tinnitus and hyperacusis. She is wearing custom earplugs for excessively loud situations. XXXX has normal hearing sensitivity with absent/elevated acoustic reflexes, and further testing to evaluate the integrity of the auditory system was recommended. XXXX tinnitus comes and goes; she will have periods of quiet, but a single loud, sharp sound (ie, silverware on plates) will trigger the tinnitus which will then last for days. She reported a single vertiginous episode in the recent past.

RESULTS: A neurodiagnostic ABR evaluation was completed at 60 nHL bilaterally. Could not complete at louder levels due to XXXXX symptoms and hyperacusis. Right ear absolute latencies were within normal limits; interpeak latencies were normal. Reversal of the click stimulus polarity did not alter waveform morphology in the right ear which indicated normal neural synchrony. A fast repetition rate shifted Wave V within the limits of normal.

A well defined Wave I could not be identified in the left ear; Wave III and V absolute latencies were slightly delayed compared to the right. Reversal of the click stimulus polarity altered the waveform morphology of Waves I and III, but Wave V was normal. A fast repetition rate shifted Wave V within the limits of normal. Morphology was worse in the left ear compared to the right.

Abnormal ABR LEFT EAR

RECOMMENDATIONS:

1. Referral to neurology for further evaluation of symptoms and abnormal ABR on the left.

Balance

- Expensive equipment
- Learning curve
- Read, read, read
- Practice, practice, practice
- Take advantage of trainings
- Professional organization trainings
- Networking

Key points

Pre-Balance Assessment

HISTORY

Comprehensive audiogram (including ipsi/contra reflexes);
Cerumen check;
Medication overview and instructions;
Explanation of testing.


Balance Testing

Posturography (or bedside procedures)
Neuro ABR
oVEMP/cVEMP
eCochG
VNG

NO SHOW FEES

Implantable Technology

- The single most important aspect of expanding your private practice is offering all options for hearing loss.

A night sky filled with numerous stars of varying brightness, set against a dark blue background. At the bottom of the image, there are large, white, fluffy clouds that appear to be illuminated from below, creating a soft glow. The overall scene is serene and evocative of a clear night.

Life will only change when
you become more committed
to your dreams than you are
to your comfort zone.

Billing Codes

- Comprehensive audiogram
- Evaluation of auditory rehabilitation status (92626)
-each additional 15 minutes (92627)
- Activation code (92601; 92603)
- Mapping code (92602; 92604)

- You can only use 92626/27 for cochlear implants.

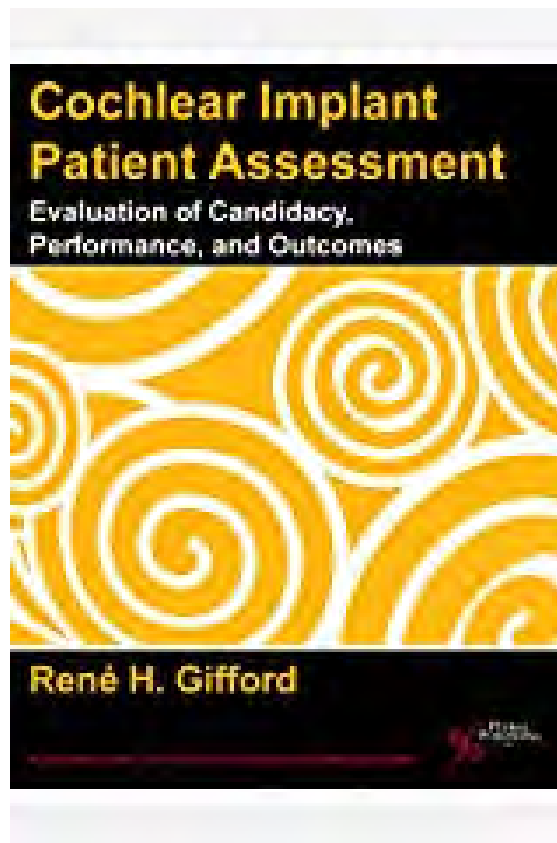
How do you learn?

- Read, read, read
- Cochlear reps BFF
- Attend trainings
- Professional organizations
- Audiology online

Most importantly – know who is a candidate...and it has little to do with the audiogram.



Dr. Rene H. Gifford



CD for Assessments

Speech-Recognition Testing

- Speech-Perception Metrics
 - *Minimum Speech Test Battery (MSTB)* created by AAO-HNS, AAA, and CI manufacturers to determine test materials to be used in clinic and research for adult CI users.
 - Current version of MSTB includes
 - CNC words
 - AzBio sentences
(in quiet or at fixed SNR w/ 10-talker babble)
 - BKB-SIN
(descending SNR w/ 4-talker babble)

AB
Cochlear
Medel

Workshops

One day per month in office

Lots of hands-on training

Materials for office

Regional trainings

On-Call audiologists always
available



Write down 3 things you can take back and implement in your practice





Thank you!

Jscholl@schollhearing.com