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The Future of Private
Practice in Audiology,
presented in partnership
with Seminars in Hearing

Dave Fabry, Ph.D.
Chief Innovation Officer
Starkey Hearing Technologies

@dfab1959



Overview

Although private practice in audiology has evolved during the past 40 years, hearing aids have remained a central component to success. This session will focus on past, present and future trends for the next decade, including parallels to other professions and the need to innovate beyond technology. Audience participation is strongly encouraged in the live webinar.

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Learning Objectives

After this course learners will be able to:

- Explain WHY there is a need of "urgency" for action to prevent disruptive innovation from impacting the private practitioner.
- List three innovative trends beyond signal processing that will impact audiologists in private practice.
- Describe a strategy for OTC hearing aids in their marketplace.

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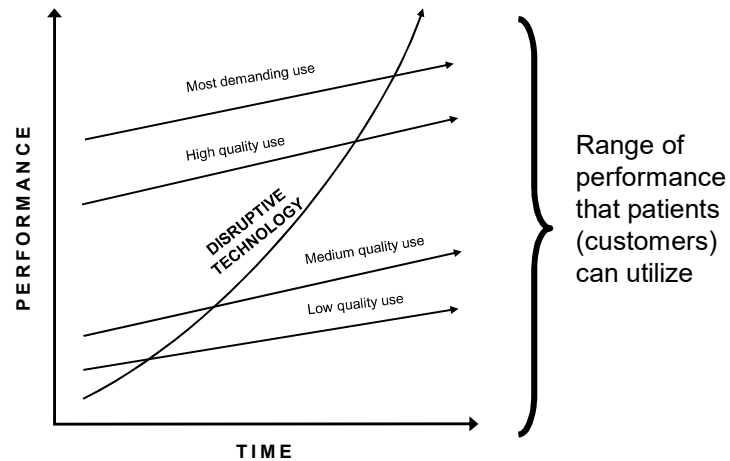
Threats vs. Opportunities



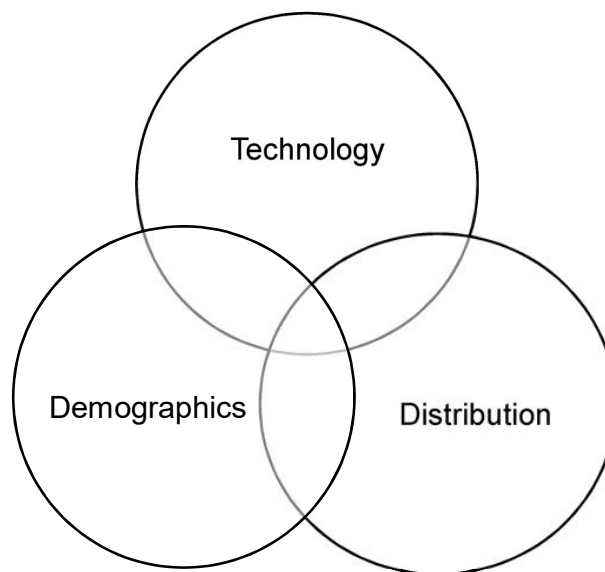
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DISRUPTIVE INNOVATION MODEL

Clayton Christensen (1997)

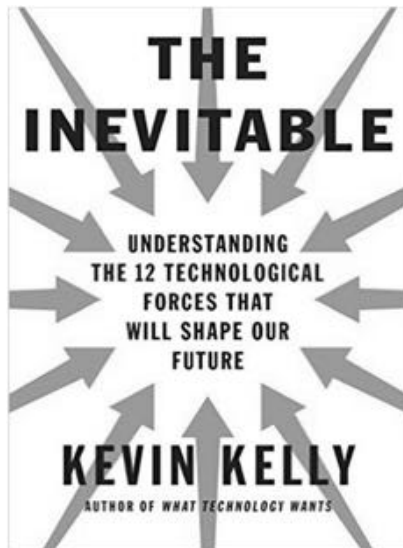


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9

12 Technological Forces

1
0

Becoming
Cognifying
Flowing
Screening
Accessing
Sharing

Filtering
Remixing
Interacting
Tracking
Questioning
Beginning

Fabry (2016) Seminars in Hearing

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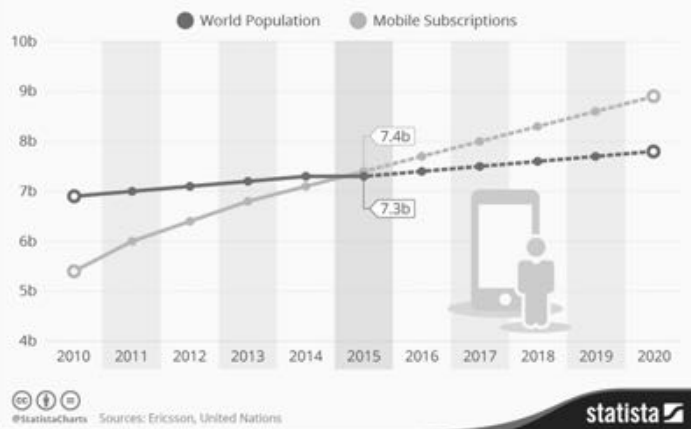


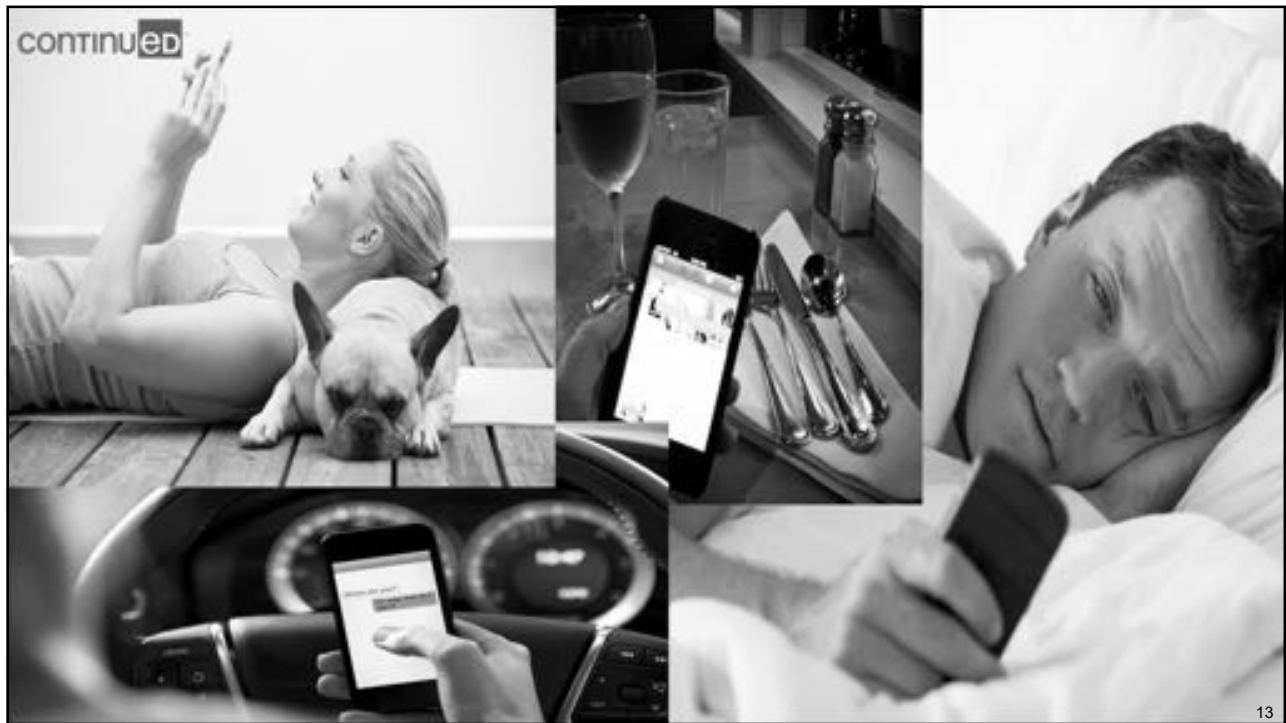
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Mobile Subscriptions to Outnumber the World's Population

World population vs. estimated number of worldwide mobile subscriptions





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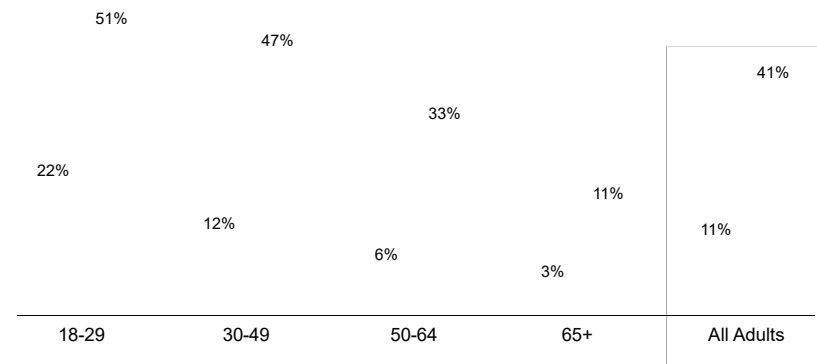
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US Growing Smartphone Addiction



% of American smartphone owners who check their phones at least several times an hour

- ☐ Every few minutes
- ☐ A few times an hour



Gallup, 2015

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1
5

12 Technological Forces

Becoming
Cognifying
Flowing
Screening
Accessing
Sharing

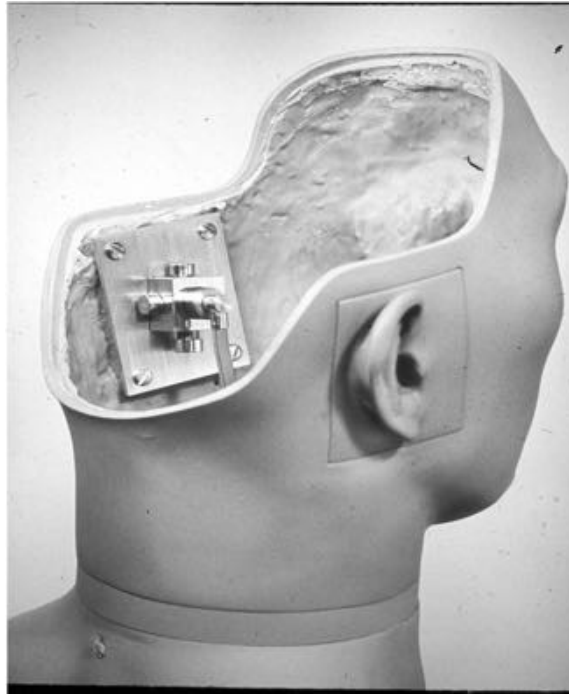
Filtering
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Fabry (2016) Seminars in Hearing

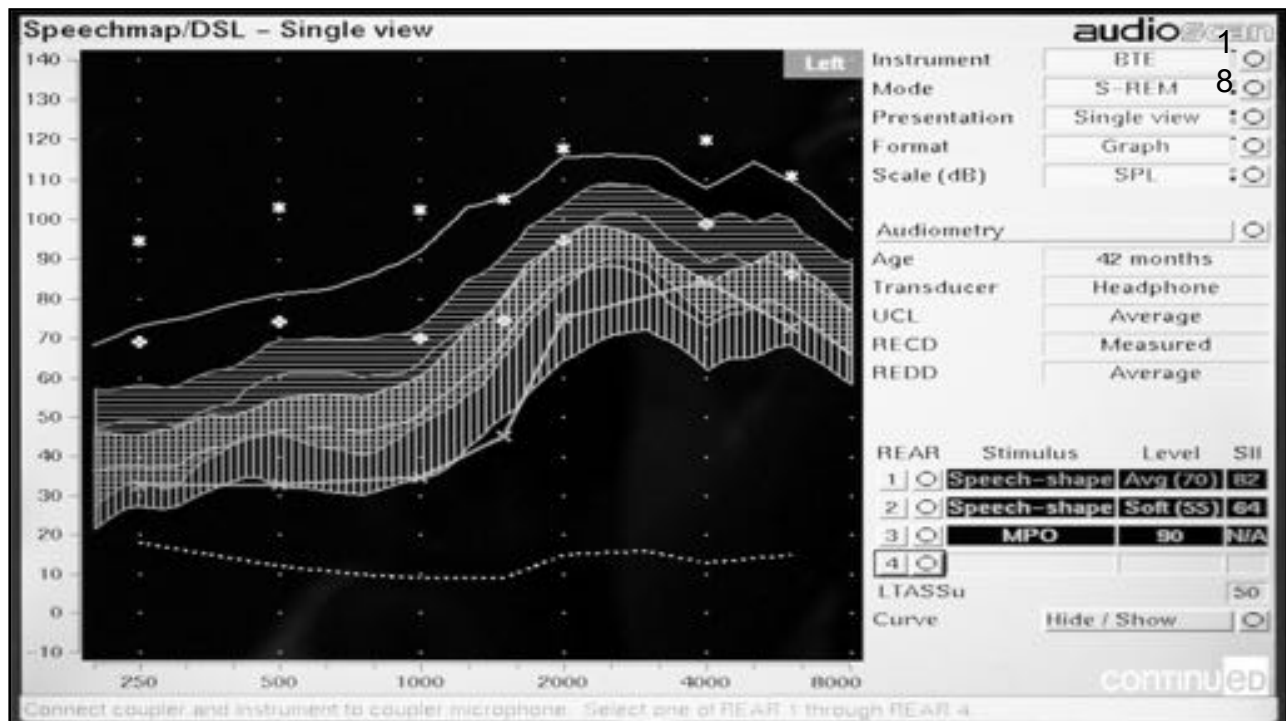
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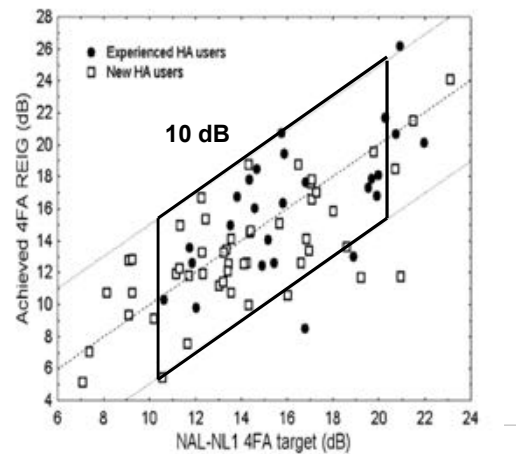
Is first fit the final fit?

Kiedser et al, 2008

New and experienced wearers
show a range of gain
preference

Patients' judgment of loudness
will change with time

Starting gain may affect
preferred final gain (Mueller et
al, 2008)



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Auditory Ecology

The range of **acoustical environments** that a person experiences, the auditory **demands** of those environments, and the **importance** of those demands to an individual's daily life.

(Gatehouse et al., 1999)

Potential Predictors of Benefit



Hearing Thresholds
 Loudness Discomfort Level
 Susceptibility to Upward Spread of Masking
 Broadened psychophysical tuning
 Spectral and Temporal smearing
 Noise dosimetry measurement
 Lifestyle and Demand questionnaire
 Cognitive function

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2
2

12 Technological Forces

Becoming	Filtering
Cognifying	Remixing
Flowing	Interacting
Screening	Tracking
Accessing	Questioning
Sharing	Beginning

Fabry (2016) Seminars in Hearing

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CONTINUED



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Wearables



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Declining rate of sustained activity tracker use over ownership



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The Ear is Prime Real Estate for Sensing

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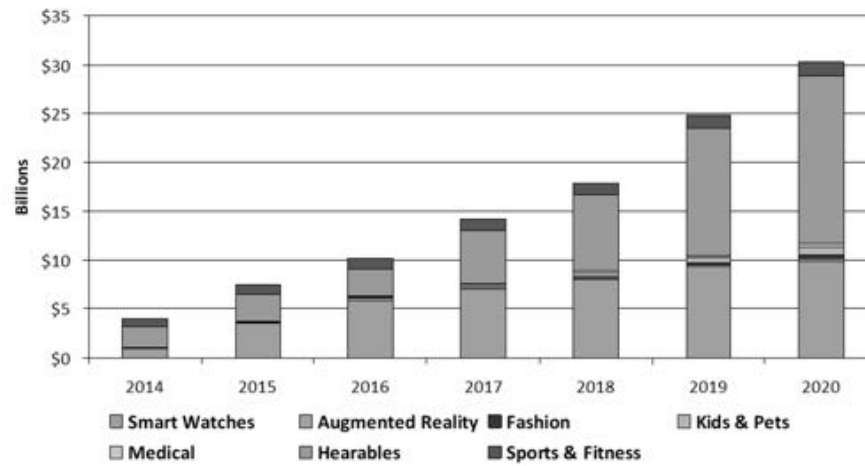


- Biometrics and health
- Location , position and vibration
- Two way communications

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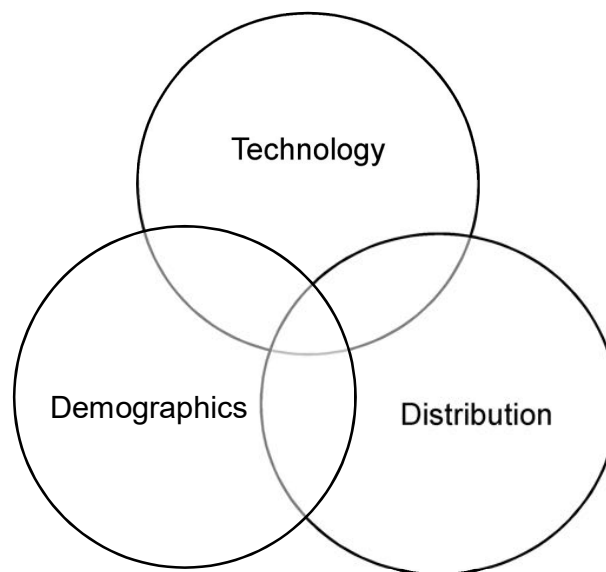
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The global market for smart wearables

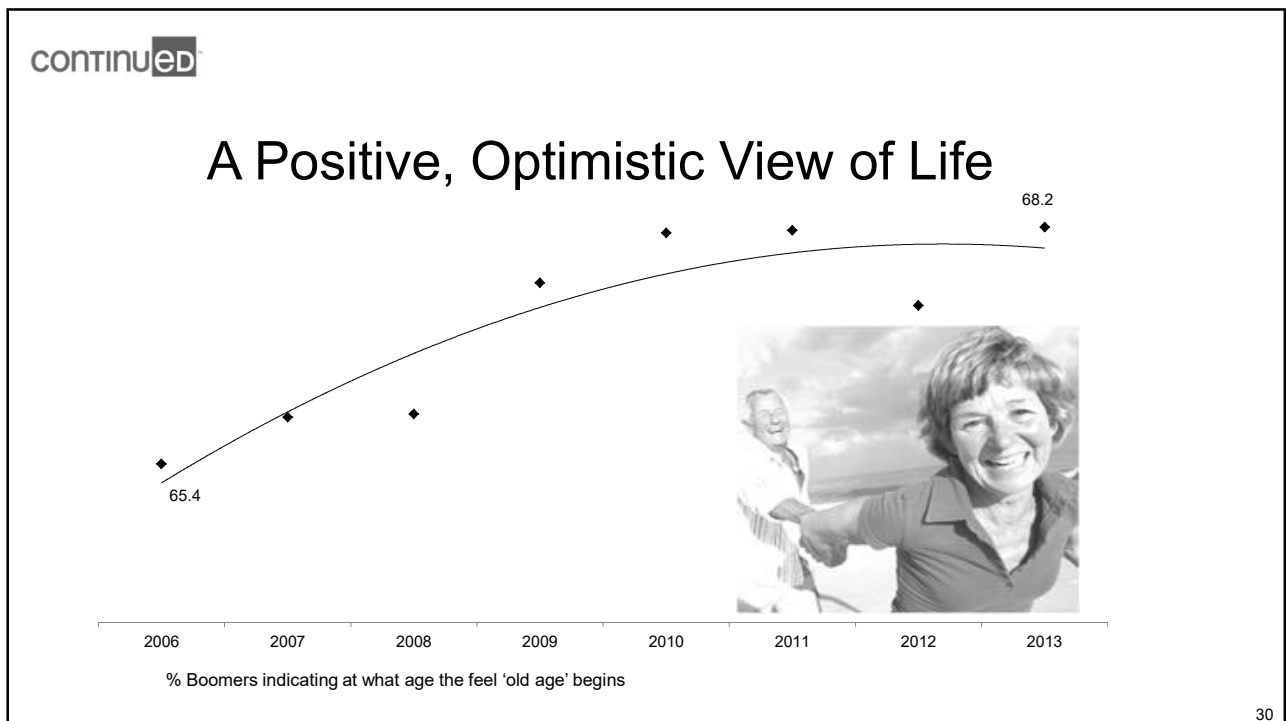


For more details, download the report from www.bit.ly/smartwear

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Open-Minded & In Pursuit of Knowledge



They are more likely than the population to describe themselves as “knowledge-seeking”

Have adapted to and adopted new technologies, with 7 in 10:

- Comfortable using new technologies and devices
- Using technology to stay connected with family on a regular basis

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More Boomers than younger generations agree they...



...Are taking more responsibility for their health compared to 10 years ago

81%



...Will take whatever means necessary to control their own health

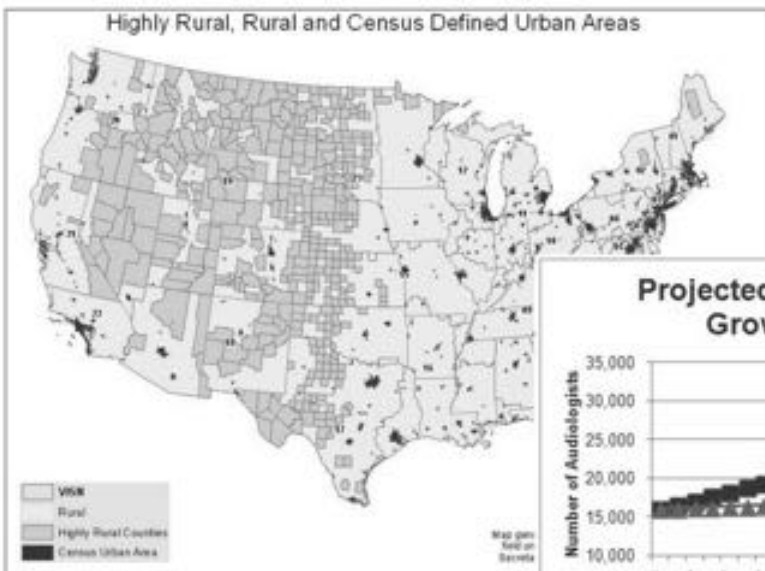
64%

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Healthcare Consumerism

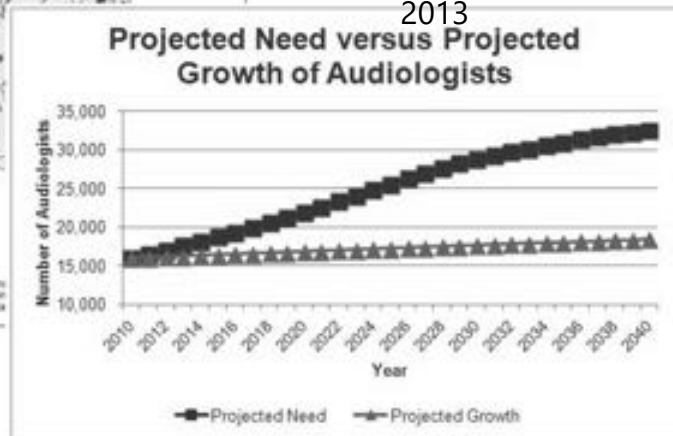
Healthcare consumerism refers to the transformation of an employer's health benefit plan into one that puts economic purchasing power – and decision making – into the hands of the participants

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15000

Windmill & Freeman,
2013



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THE HearingReview

NEWS PRODUCTS BUYER'S GUIDE RESOURCE CENTER BLOGS

BLOG

1608 **Audiologist Ranked #2 on "Best Jobs of 2015" List**

13 Published on April 16, 2015

6 **3**

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CareerCast.com, an online career resource for finding targeted job opportunities by industry, function and location, has named "audiologist" as the #2 job on its list of "The Best Jobs of 2015." Audiologist earned a Jobs Rated Score of 89% in job satisfaction on CareerCast, which factors in

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A Comparison of Three Doctoral Professions in 2017

	Dentistry	Optometry	Audiology
# of Doctoral Programs	65	23	79
Total Student Enrollment	20,171	6,289	2,400
Av. Student Investment	\$151,000	\$108,000	\$101,000
# of Active Practitioners	151,500	40,600	13,200
% in Private Practice	93%	60%*	<20%*
Mean Annual Income – all practice settings	\$158,300	\$103,900	\$74,890

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U.S. Optometry in 1980

21,000 optometrists in practice in the country

90% either sole owners or partners in private practice

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During the '80's, Some Things Happened...

DRAMATIC IMPROVEMENTS IN TECHNOLOGY AND PRODUCTION

Cost of manufacturing vision care products dropped, improving wholesale and retail margins

THE BABY-BOOMERS

Reached their late thirties and early forties, with their associated need for vision care, increasing demand (contact lenses, refractive surgery)

Increased demand prompted consolidation



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U.S. Optometry in 2017

- 40,600 optometrists in practice in this country
- **10%** earn their living entirely through ownership of a private practice
- 50% run a part-time practice and work for a corporate retailer part-time
- 40% work full time for a corporate retailer
- Average net income has declined during past decade

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What we can learn from optometry...

OVER 30 YEARS:

- The population of practicing optometrists increased substantially from 21,000 to 40,600 with increasing demand
- Those earning a living 100% in private practice declined significantly from 90% to 10%
- At the end of this 30 year period, average compensation and job satisfaction have both declined

WHY?

- Corporate consolidation & wage employment

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Today's Dental Profession (2017)

151,050 active practicing dentists in the U.S.

93% are in a private practice

- 90% of these own their own practice either as sole proprietor (75%) or a partner, meaning there is only a small percent of dentists employed by the owners of these private practices

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Preserving Independent Practice: Dentistry

- Private practice allows dentists to practice autonomously and make independent patient care & practice decisions

Private practice has positively impacted income in dentistry

- By lack of participation with third party payers
- And increased reimbursement via private pay

The Baby-Boomer demand for highly lucrative cosmetic dentistry (e.g. braces, whitening, titanium implants) has boosted the earning potential of dentistry dramatically by expanding their scope of practice

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Dentistry more independent than Physicians

“In comparison to physicians, dentists work more independently, have a higher rate of solo practice, and in some cases, their earnings have surpassed the net income of physicians.”

Elizabeth Mertz, MPA,
Health Policy Researcher, UCSF

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IT WON'T HAPPEN TO US...

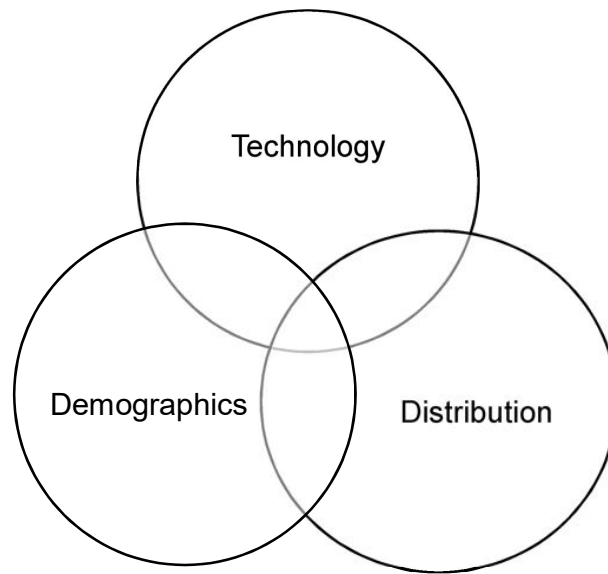


	2013	2011	2008	2007	2006	2005
Primary Job Title	% of Work Force	% of Work Force	% of Work Force	% of Work Force	% of Work Force	% of Work Force
Clinical Staff Audiologist	59%	61.90%	58.00%	55.00%	52.00%	54.00%
Researcher	2%	1.90%	1.00%	1.00%	2.00%	1.00%
Faculty	7%	3.70%	5.00%	5.00%	7.00%	6.00%
Manager/Supervisor	8%	7.80%	9.00%	10.00%	9.00%	10.00%
Director	6%	7.10%	6.00%	7.00%	8.00%	8.00%
Owner/Partner	10%	12.30%	14.00%	14.00%	14.00%	13.00%
CEO/Executive Director	<1%	<1%	1%	1%	1%	1%

Between 2005 – 2013, salaries for clinical audiologists increased by 21%. During the same time period, salaries for those working in an Independent practice increased by 41%

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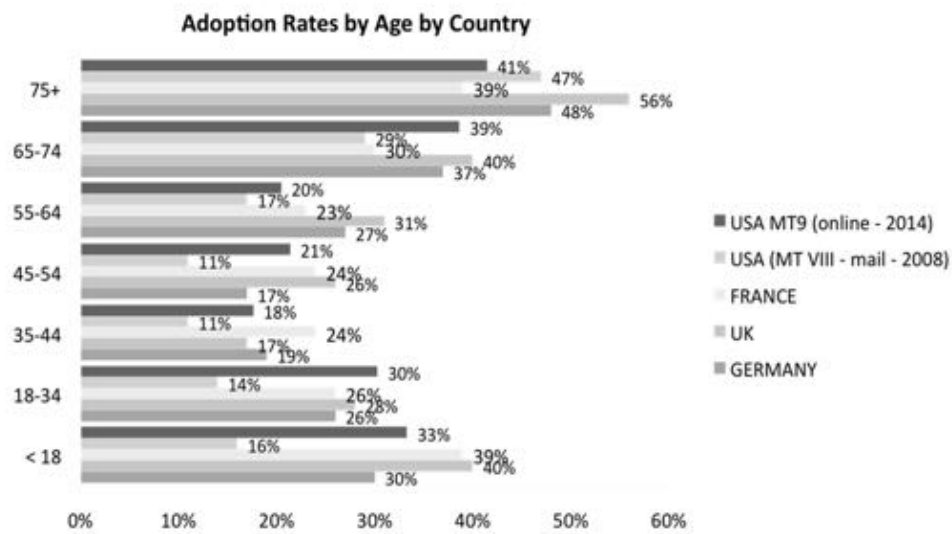
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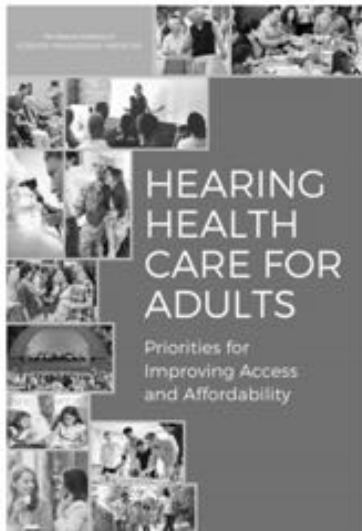
Hearing Aid Adoption Rates by Age (MT9 and EuroTrak)



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Hearing Health Care for Adults: Priorities for Improving Access and Affordability

Suggested citation: National Academies of Sciences, Engineering, and Medicine. 2016. *Hearing Health Care for Adults: Priorities for Improving Access and Affordability*. Washington, DC: The National Academies Press.

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

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CONTINUED

Over-the-Counter Hearing Aid Legislation



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CONTINUED

115TH CONGRESS
1ST SESSION

H. R. 2550

To amend title XVIII of the Social Security Act to provide for an incremental expansion of telehealth coverage under the Medicare program.

IN THE HOUSE OF REPRESENTATIVES

MAY 19, 2017

Mr. THOMPSON of California (for himself, Mrs. BLACK, Mr. WELCH, and Mr. HARPER) introduced the following bill; which was referred to the Committee on Energy and Commerce, and in addition to the Committee on Ways and Means, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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What's the 411 on TELEMEDICINE?

Telemedicine is a healthcare service provided to a patient by a healthcare professional from a different location through the use of telecommunications technology.

TELEMEDICINE COULD BE...

- Connecting with your doctor over video
- Conducting a follow-up appointment online
- Participating in a virtual consultation

OVER 20 MILLION

patients will benefit from a remote service by the end of 2017



LEADING MEDICAL SERVICES USING TELEMEDICINE

- Radiology
- Mental Health
- Pathology
- Primary and Urgent Care
- Intensive Care Unit Monitoring
- Chronic Care Monitoring
- Wellness Applications

TYPES OF TELEMEDICINE DELIVERY

- Live Video
- Voice
- Mobile Devices
- Store and Forward
- Provider-to-provider Consultation
- Direct to Consumer
- Artificial Intelligence



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continued

Connecting people
to a world of professionals through:

- Video consultations
- Prescription consultations
- Wellness advice
- Personal coaches
- Patient monitoring
- Self-care planning

All with the same goal:

- Improving Outcomes
- Improving Satisfaction

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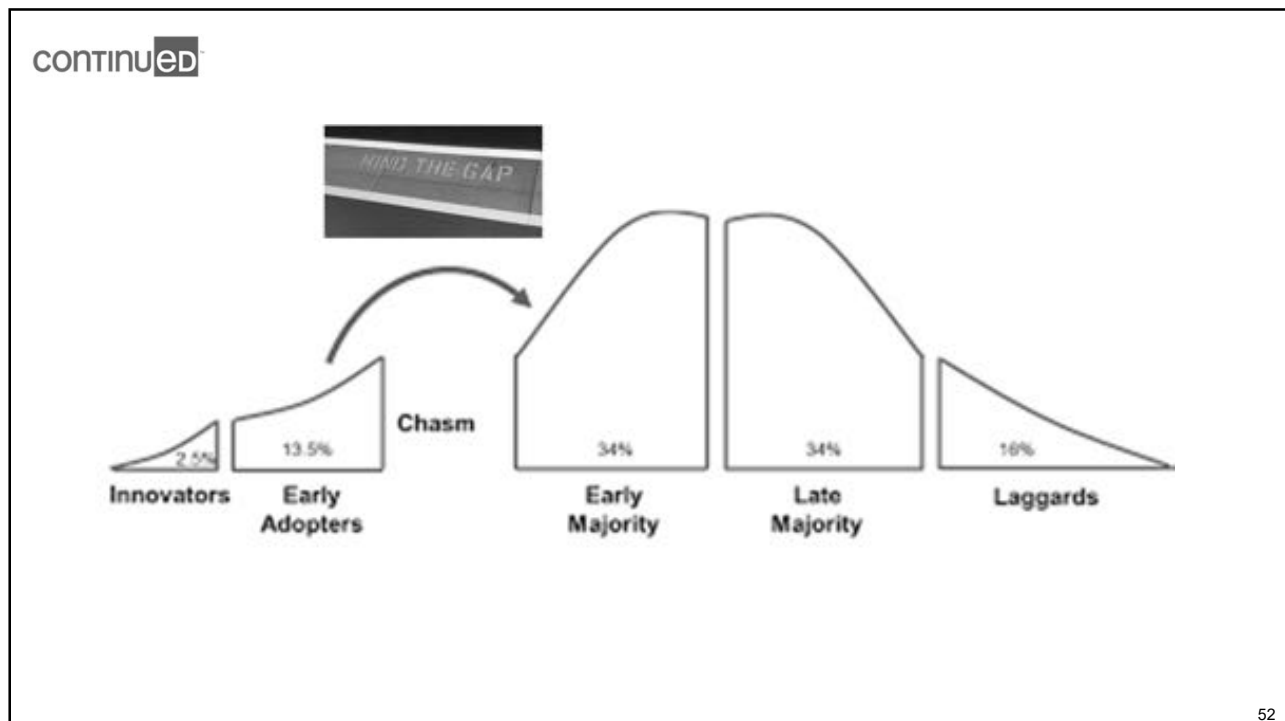


Table 2. Use of technology and attitudes toward telehealth.

Use of Technology	Men (%)	Women (%)	Total (%)
Used PC-based, video-conferencing	96.5	88.1	90.0
Use smartphone	78.9	82.4	81.8
Use PC tablet	57.9	56.2	56.5
Used teleaudiology	24.6	12.9	15.6*
Used telehealth for other services	14.0	8.1	9.7
Attitudes toward telehealth	Men, mean 1 to 5 score	Women, mean 1 to 5 score	Total, mean 1 to 5 score
I am familiar with what the term <i>telehealth</i> entails	3.9	3.7	3.7
I am familiar with telehealth applications in audiology	3.2	3.2	3.2
If trained, I would feel comfortable to utilize telehealth for delivery of audiology services	3.9	3.7	3.7
I am comfortable with the use of a tablet computer	4.2	4.0	4.0
I am comfortable with the use of a computer	4.7	4.7	4.7
I am comfortable with the use of e-mail	4.8	4.8	4.7
I am comfortable with using PC-based video-conferencing software (e.g., Skype)	4.2	4.3	4.3

* Significant difference $p \leq .05$.

Attitudes towards telehealth and willingness to use telehealth if trained were generally positive, with mean scores ranging from 3.2 for being familiar with telehealth in audiology to 4.7 for being comfortable with using a computer and email (Table 1). There was no significant association with gender or age.

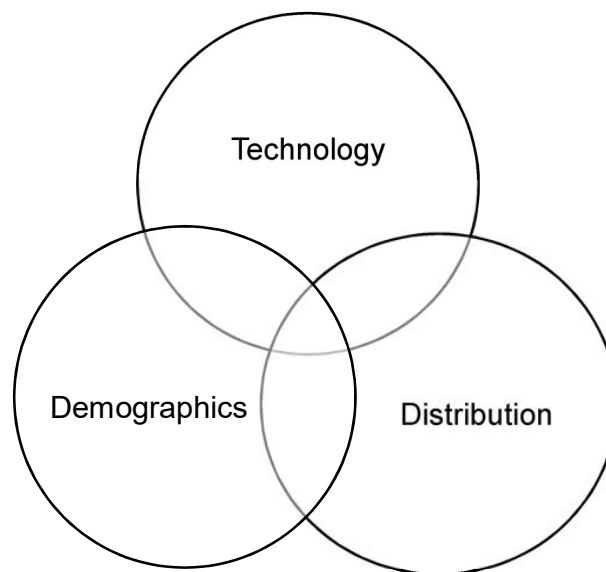
International Survey of Audiologist's Attitude towards Telehealth

Robert H Eikelboom & De Wet Swanepoel (2016)

269 professionals from 28 different countries,

Conclusions: Despite positive attitudes towards telehealth and associated technology, the low number of audiologists who have used teleaudiology for services indicates limited clinical adoption.

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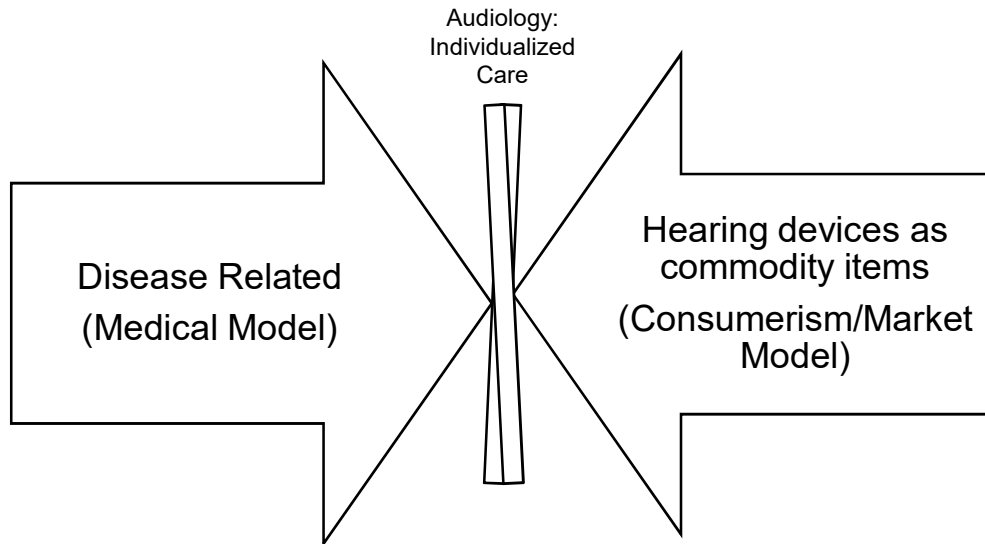


Healthcare Future Shifts

From Treatment to Prevention

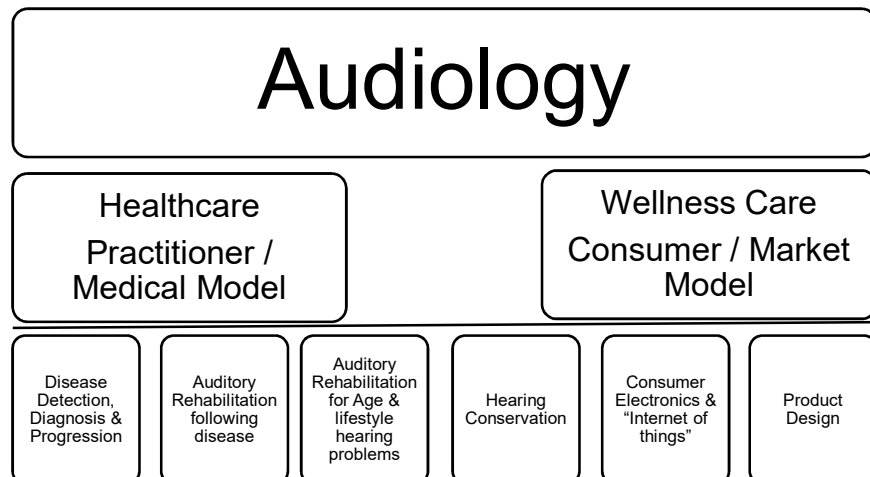
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Note Pressures on Hearing Healthcare Definition



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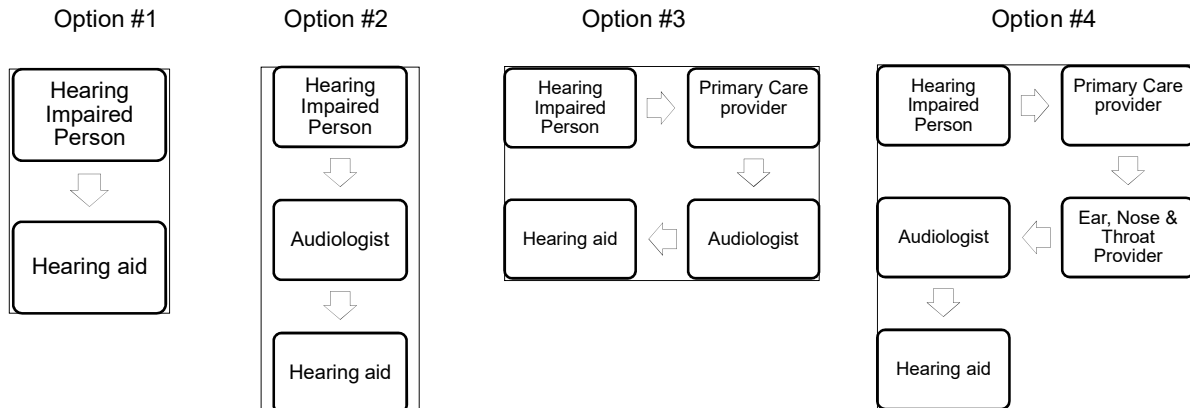
What Should Insurance Pay For...?



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Which Model Has the Best Outcomes?

Cost / diagnosis? Cost / hearing Aid? Cost / hearing benefit?



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Did you know?

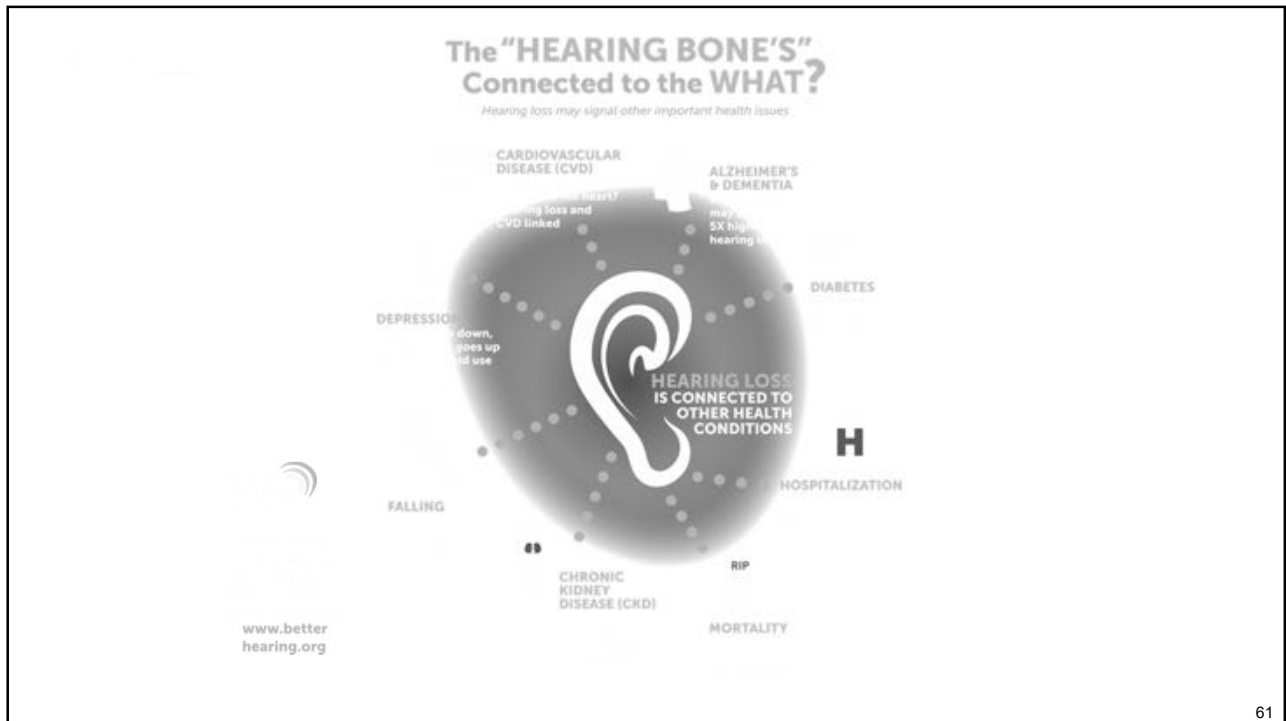



74% of adults have their vision examined every two years? (Glaucoma Research Foundation)

62% of adults see their dentist annually? (CDC & Prevention)

23% of adults receive hearing screenings during physical examination? (Better Hearing Institute)

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continued


mln
EDUCATIONAL TOOL
KNOWLEDGE • RESOURCES • TRAINING

PRINT-FRIENDLY VERSION

THE ABCs OF THE INITIAL PREVENTIVE PHYSICAL EXAMINATION (IPPE)





Target Audience: Medicare Fee-For-Service Program
(also known as Original Medicare)

The Hyperlink Table, at the end of this document,
provides the complete URL for each hyperlink.

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The ABCs of the Initial Preventive Physical Examination (IPPE)
MLN Educational Tool

Acquire Beneficiary Information (cont.)

Action	Elements
<input type="checkbox"/> Review the beneficiary's functional ability and level of safety	Use appropriate screening questions or standardized questionnaires recognized by national professional medical organizations to review, at a minimum, the following areas: <ul style="list-style-type: none"> • Activities of daily living • Fall risk • Hearing impairment • Home safety

Begin Examination and Discussion

Action	Elements
<input type="checkbox"/> Exam	Obtain the following: <ul style="list-style-type: none"> • Height, weight, body mass index, and blood pressure • Visual acuity screen • Other factors deemed appropriate based on the beneficiary's medical and social history and current clinical standards
<input type="checkbox"/> End-of-life planning, on agreement of the beneficiary	End-of-life planning is verbal or written information provided to the beneficiary about: <ul style="list-style-type: none"> • The beneficiary's ability to prepare an advance directive in case an injury or illness causes the beneficiary to be unable to make health care decisions • Whether or not you are willing to follow the beneficiary's wishes as expressed in an advance directive

continued

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continued

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Healthcare Future Shifts

From Treatment to Prevention
From Provider Centric to Patient Centered

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Healthcare Future Shifts

From Treatment to Prevention
From Provider Centric to Patient Centered
From Bureaucracy to Innovation

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FDA-Regulated Medical Hearing Devices

Class I (low risk)	Class II (moderate risk)	Class III (high risk)	
AC Hearing Aids	Wireless AC Hearing Aids (special controls)	Cochlear Implants	<div> Not Regulated PSAPs "Hearables" </div>
		Implantable Middle Ear Devices	

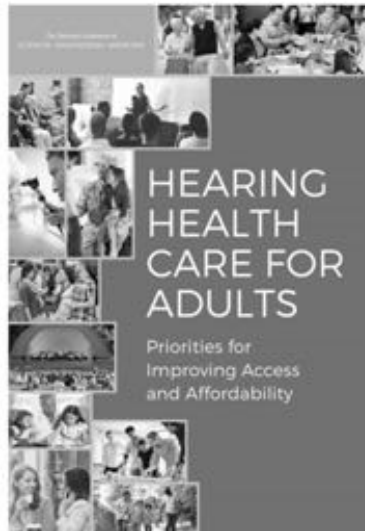
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Over-The-Counter Hearing Aid Act of 2017

FDA is required to generate regulations that:

- Establish or adopt appropriate output limits
- Include reasonable assurance of safety, efficacy, AND privacy/security!

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Hearing Health Care for Adults: Priorities for Improving Access and Affordability

Suggested citation: National Academies of Sciences, Engineering, and Medicine. 2016. *Hearing Health Care for Adults: Priorities for Improving Access and Affordability*. Washington, DC: The National Academies Press.

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National Academies of Sciences (December, 2016)



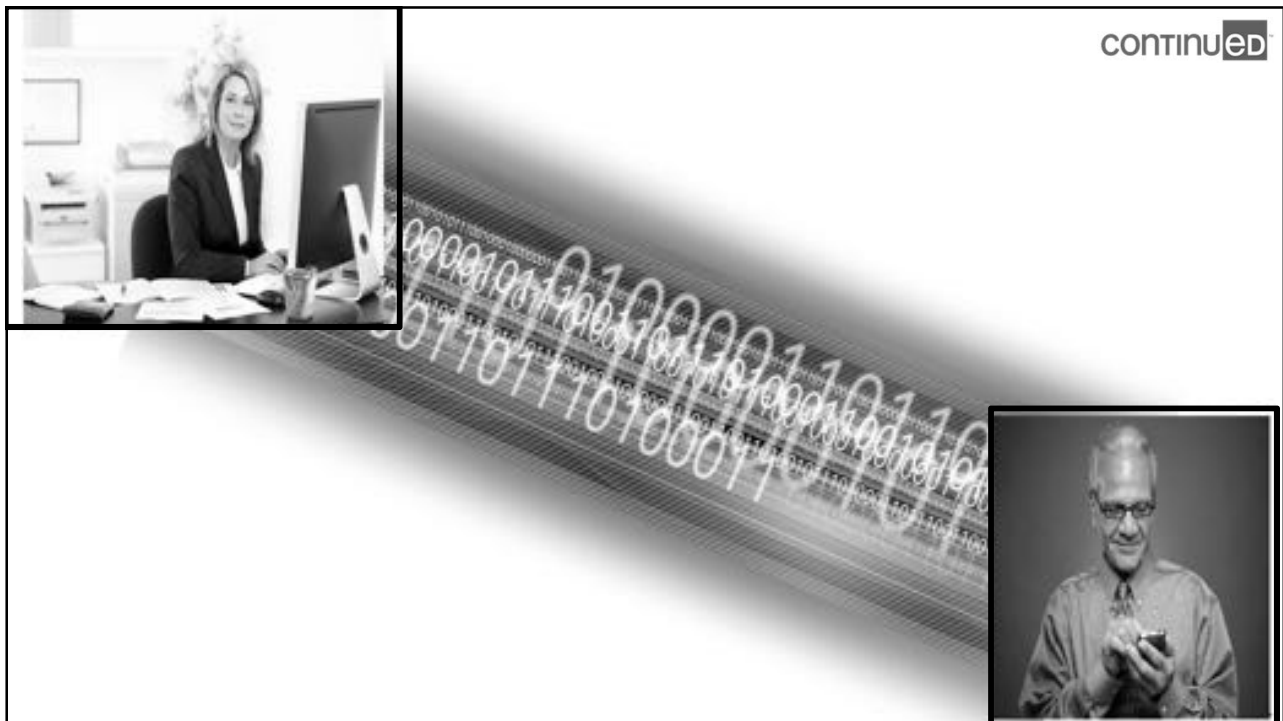
- FDA announced that it will not enforce the medical waiver requirement for adult patients who seek hearing aids
- Validation of current practice in US (~70% of adult patients already purchase with medical waiver, rather than medical exam)
- If FDA introduces OTC, they will continue to regulate as they have for Class I Medical devices, rather than no regulatory control, as with PSAPs

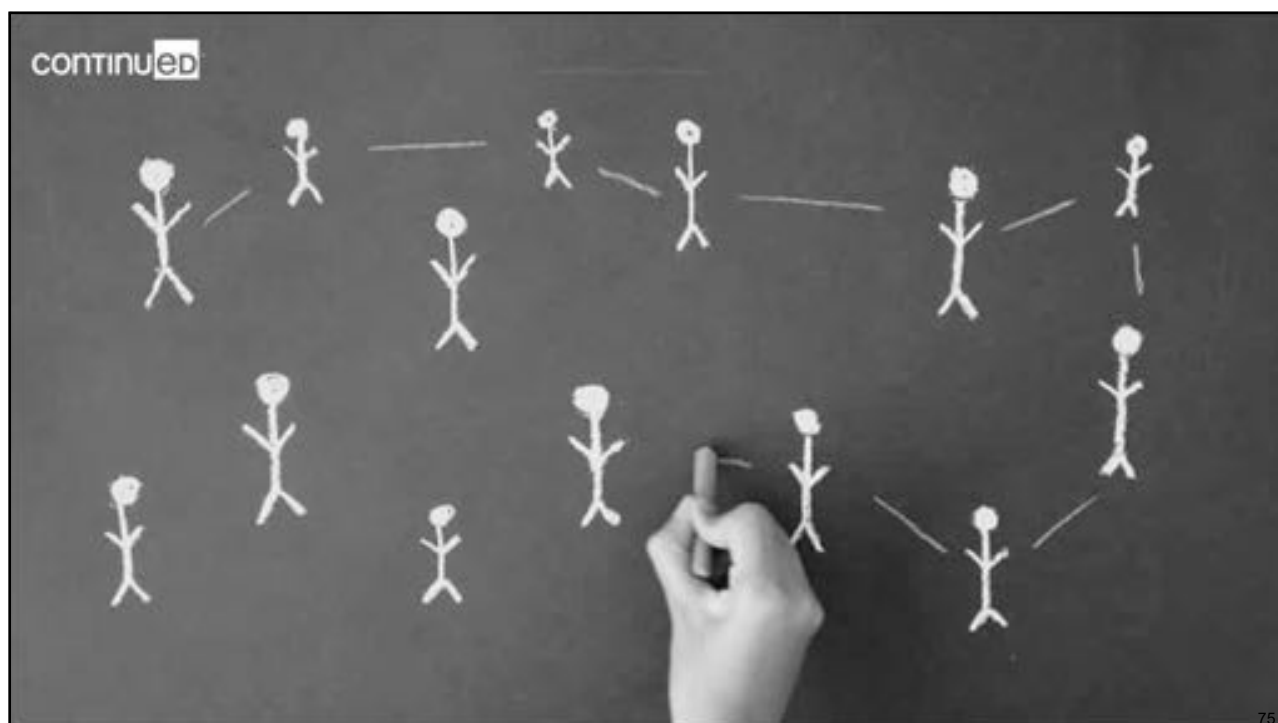
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Healthcare Future Shifts

From Treatment to Prevention
From Provider Centric to Patient Centered
From Bureaucracy to Innovation
From disconnected to Hyper-connectivity

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continued

J Am Acad Audiol 27:441–457 (2016)

Perceptions Toward Internet-Based Delivery of Hearing Aids among Older Hearing-Impaired Adults

DOI: 10.3766/jaaa.15058

Navshika Chandra*
Grant D. Searchfield*†

Abstract

Background: Despite evidence that hearing aids can improve the social and psychological functioning of older hearing-impaired adults, hearing aid uptake is low. High cost of hearing aids and poor access to audiology services in rural areas are potential barriers to hearing aid acquisition. Methods of hearing aid delivery deviating from the traditional clinician-based model have been available to consumers for many years. One such method is Internet hearing aid sales. However, research exploring Internet-based hearing aid delivery, as a method to improve hearing aid uptake in this population, is limited.

Purpose: The purpose of this study was to explore the perceptions of older hearing aid users (aged ≥ 65 yr) toward Internet-based hearing aid delivery.

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The Effects of Service-Delivery Model and Purchase Price on Hearing-Aid Outcomes in Older Adults: A Randomized Double-Blind Placebo-Controlled Clinical Trial

Humes et al (2017)



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Humes et al (2017)

Design: Single-site, prospective, double-blind placebo-controlled randomized trial with three parallel branches:

- (1) audiology best practices (AB);
- (2) consumer decides OTC model (CD); and
- (3) placebo devices (P).

Outcome measures obtained after typical 6-week trial period with follow-up 4-week AB-based trial for those assigned to CD and P groups initially.

Participants: 154 adults aged 55-79 years with mild-to-moderate hearing loss.

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Humes et al (2017)

Intervention: High-end digital mini-behind-the-ear hearing aids fitted bilaterally.

- AB and P received best-practice services from audiologists; differing mainly in use of appropriate (AB) or placebo (P) hearing aid settings.
- CD participants self-selected their own pre-programmed hearing aids via an OTC model.

Primary and Secondary Outcome Measures.

- Primary outcome measure: 66-item self-report Profile of Hearing Aid Benefit (PHAB)
- Secondary outcome measure: Connected Speech Test (CST) benefit.
- Additional measures of hearing-aid benefit, satisfaction and usage also obtained.

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Humes et al (2017)

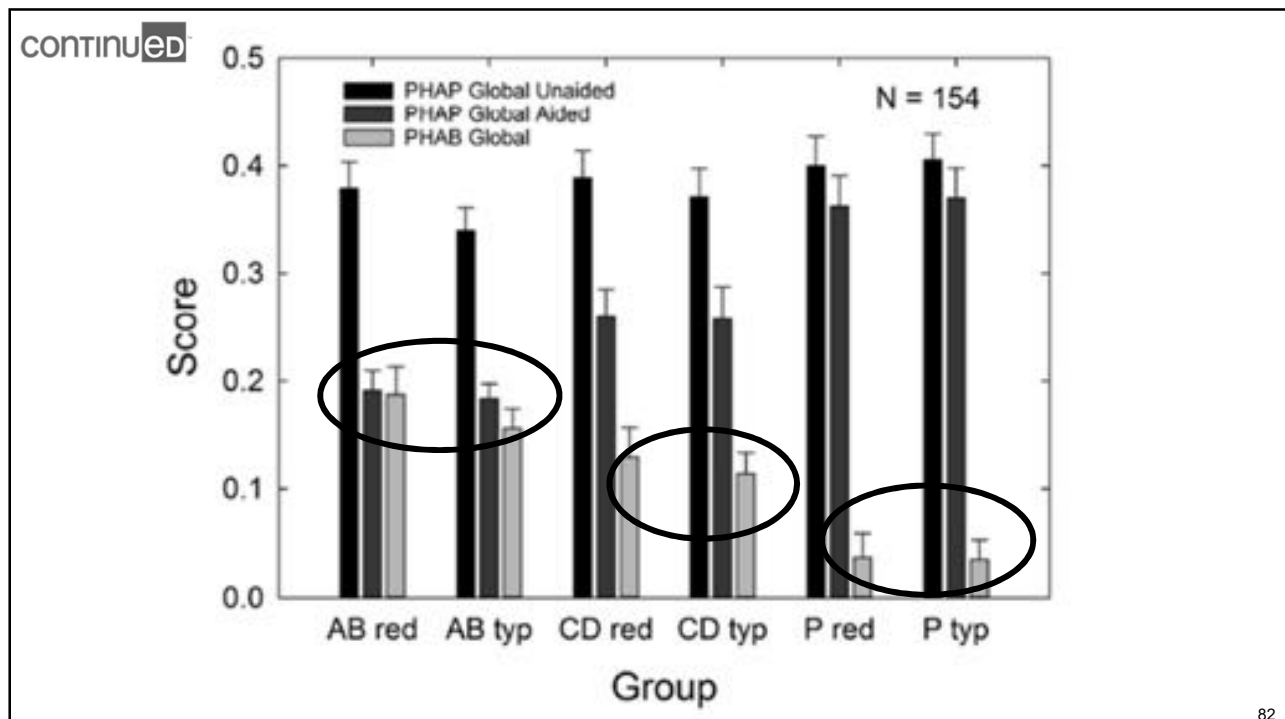
Results: Per-protocol analyses performed.

- AB service-delivery model found to be efficacious for most of the outcome measures; moderate or large effect sizes (Cohen's d).
- CD service delivery model efficacious; similar effect sizes. However, CD group had a significantly ($p < .05$) lower satisfaction and percentage (55% CD; 81% AB; 36% P) likely to purchase hearing aids after the trial.

Conclusions: Hearing aids are efficacious in older adults for both AB and CD service-delivery models.

- CD model of OTC service delivery yielded only slightly poorer outcomes than the AB model.
- Efficacious OTC models may increase accessibility and affordability of hearing aids for millions of older adults.

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Healthcare Future Shifts

From Treatment to Prevention
From Provider Centric to Patient Centered
From Bureaucracy to Innovation
From disconnected to Hyper-connectivity
From Hearing “Aids” to “Hearables”

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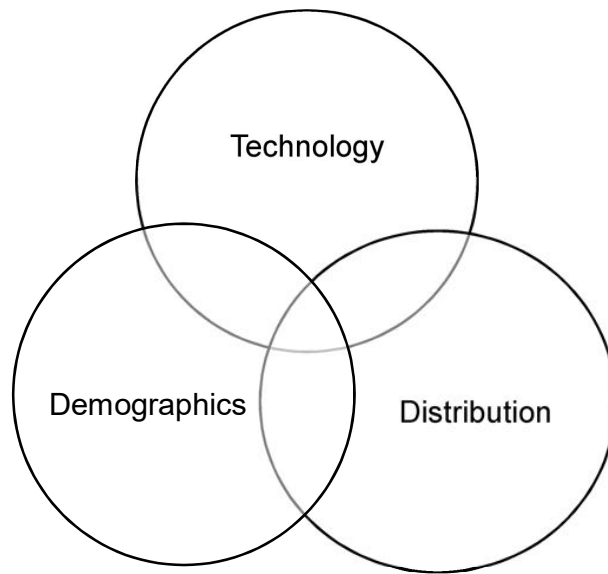
The “HEARING BONE’S” Connected to the WHAT?

Hearing loss may signal other important health issues



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Thank you
Dave_fabry@starkey.com

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