

Panel 5: Devices

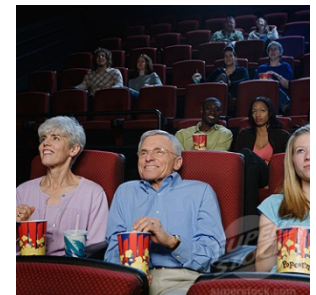
Innovation, Technology and Distribution

Institute of Medicine
Committee on Accessible and Affordable Hearing Health Care for Adults
June 30, 2015

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Technology

- Hearing assistance is not just about amplifying speech.
- Environments such as the telephone, listening to music, using your phone, attending religious services, watching TV, seeing a movie.
- Hearing aids need to work in all these environments.



Technology Driven



- **21 million** transistors™
- **Over 300 million** instructions/second per second
- e2e wireless 3.0 transmits up to **1000x** more data than e2e wireless 2.0

Technology Driven

- The primary driver of technology is speech discrimination in noise, sound quality difficult listening environments, wearability and miniaturization
- Device manufacturers spend 8-10% of annual budget on R&D.
- Over 6000 people work in R&D in the hearing aid industry
- Digital revolution in progressing
- Shift in styles from BTE to custom to BTE

Technology Driven

- New technology will have more wireless features, more accessories, wearables, processing power, battery technology, and self management of the devices (apps, connection to professional)



Technology Development

- Directional Microphones
- Feedback Reduction
- Noise Reduction
- Wireless communication
- Adaptive streaming
- Datalogging
- Learning
- Frequency Compression



Hearing loss as medical problem

- Too few people view hearing loss as a medical condition.
- Some seek guidance (physician)
- Current “boutique” distribution is expanding to: big box, online distribution, VA, all within compliance with current
- Innovation is taking place in the hearing aid delivery system, consumers have choices

Consumer protection

- Current healthcare environment does not provide for DIY solutions.
 - No inspection of earcanal, no manufacturing controls, biocompatibility, no repair capability, no return privilege
- It is a complex process to get it right and achieve the “Gold Standard” of patient care.

Consumer protection

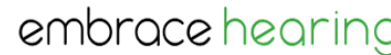
- Failure to check "red flags" may result in the purchase of unnecessary device (earwax)
- Hearing aids may help however a larger medical issue may be missed or ignored
- Hearing aid are different from "reading glasses"
 - if they do the trick no other intervention may be required.

Shifting model of distribution

- Hearing aids are specifically excluded from Medicare
- However, other forms of accessibility and affordability have and continue to emerge

Delivery models

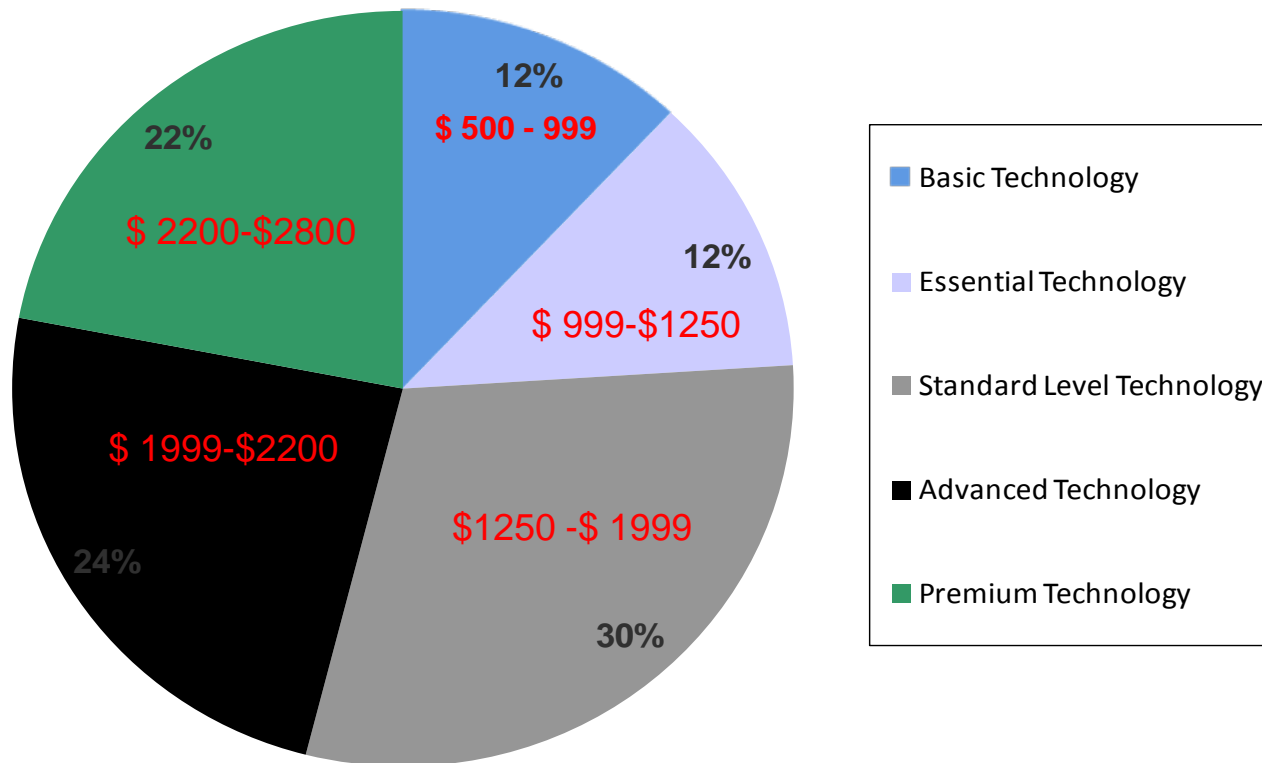
- Healthcare is becoming Retail
- Retail is becoming Healthcare
- Online delivery models emerging
- Managed care and employer sponsored care
- Member discount programs



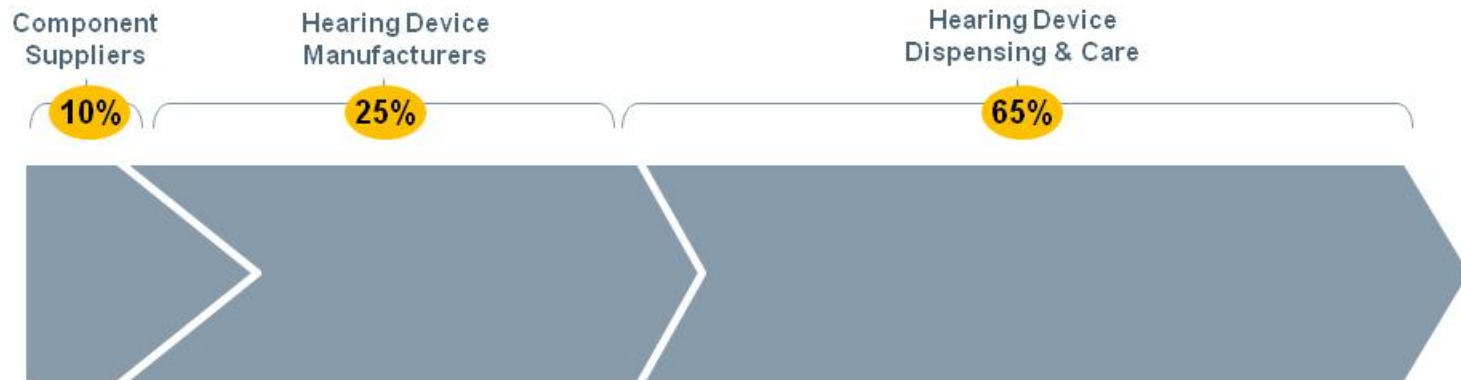
Cost

- Safe and effective hearing devices are available at a variety of technology levels and price points
- The delivery system provides many different points of entry with a wide variety of service components.

Percentage of technology categories sold



Extensive service included within the price of the hearing instrument



- Bundled pricing of hearing instrument + services

Source: Analyst Reports; Knowles, Sonova, Demant, GNR, Widex, Amplifon Annual Reports; Siemens 2013 Practice Management Benchmarking Survey, Internal Estimates

Recommendations

- Hearing loss and treatment need to be recognized as a medical condition, not a benign disorder.
- Improved education for consumers and physicians about treatment options
- National campaigns to inform the public about hearing and co-morbidities including dementia, diabetes, risk of fall, etc.
- Further develop remote evaluation and programming capabilities
- Passage of Tax Credit (HR1882)
- Reimbursement and access needs to be improved

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