

# **Cochlear Implants and Education: Who are the Stakeholders?**

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# On Teaching

“In a completely rational society, the best of us would be the teachers and the rest of us would have to settle for something else.”

Lee Iococca

# Early Days of Cochlear Implantation

- 7 centers in the US
- Medical model
- 3M/House single channel
  - Never received FDA approval for children

# Team Collaboration

- Surgeon
- Audiologist
- SLP
  - Educator
    - Most centers did not have educational consultants
  - Other professionals

# **Deaf Culture and CIs in the 80's and 90's**

- 1984 – Clinical trials begin in children in US
  - Multicenter using multichannel device
- 1988 – DPN Movement
- 1990 – FDA approves Cochlear Implants in Children

# DPN Movement

- National attention to deaf culture
- Locally, CI centers must address concerns raised
- Medical community educates itself regarding the issues
  - Ethics of implantation
  - Outcomes

# Clinical Trials

- Multiple centers across the US begin implanting children
- Major medical centers house majority of CI teams
- Manufacturers play important role in bringing forth new technology

# Manufacturers

- 1970s – 3M
- 1980s
  - Cochlear Corporation
  - Ineraid
    - 3M device and Ineraid eventually bought by Cochlear
- 1990s – Advanced Bionics and Med El

# CI Centers

- 1970s – 7 centers
- Today >350 centers in the US
  - There is at least one center in each of 49 states
    - Including Puerto Rico and District of Columbia
  - State with no centers
    - WY
  - States with most centers
    - NY, CA, FL and TX

# Population Growth

- 1970s – <50
- 1980s – 550
- 1990s – 4300
- 2000-2007 - 8500
  - In past 5 years growth attributed to bilateral implantation

# **Educational Resources**

- 1980s – schools that initially embraced implantation
- 1990s - local schools/programs for children with hearing loss become active centers
- 2000 to present - establishment of oral schools in various sectors of US for providing services

# Schools for Deaf

- Traditional deaf schools that use ASL enter market (2000)
  - Gallaudet
  - State schools for deaf children

# Medical Resources

- Increased number of surgeons performing implants within one facility
  - Surgeries become fairly commonplace
- Number of audiologists in field begins to decrease
  - Pay
  - Manufacturers lure

# Paradigm Shift

- Emphasis away from surgical/medical center to educational sites
- CI companies support educational programs
  - Hire personnel
  - Launch websites
  - Offer seminars and workshops
- Private foundations offer workshops and training
  - Use of web-based technology to deliver content

# Educational Trends

- Children receive implants earlier as infants
- Children may begin early education in district preschools
- Special programs developed for early years

# Educational Service Providers

- District schools/programs
- Schools for deaf
  - Develop special programs
- Oral schools

# District schools/programs

- Many children begin mainstream hearing pre-schools due to parental choice or limited options
- Schools' preparation for these children varies depending on knowledge and skills of personnel
  - Professional development opportunities
  - Parent advocacy

# Schools for Deaf Children

- Overall decrease in population of typically deaf child
- Increase in number of children with additional disabilities
- Opening of early education spoken language classes to attract families

# Oral Schools

- Receive private support to expand
- Are opened in large metropolitan areas to attract families
  - “if you build it they will come”
- Emphasis on pre-K and K with goal to mainstream child afterward

# Mainstream Schools

- Overall increase in number of children with “special needs” without accommodations due to NCLB
- Teachers not prepared for the variety of children that require special attention
- May not be the best place for some children with implants

# Performance and Placement

- Commensurate children
  - Marked success
    - Transition easily
- Capable
  - Makes slower but steady gains
    - Mainstream may not be possible initially
- Challenged
  - Require different mode of communication to learn classroom content

# **School as Society: Oral Preschools**

- Focused attention on learning spoken language
- Small number of children
- Maximal acoustic environment
- Maximal interaction
- Teachers very knowledgeable of child's abilities
- Parental contact high

# **Schools as Society: Oral Preschools**

- Comfort level of child usually excellent
- Extended family of the school community provides child with “new” members with a “common” characteristic
- Needs and wants met with relative ease

# **Schools as Society: Mainstream**

- Larger classrooms with poor acoustics
- More children
- Less teacher contact
- Diverse group with different needs
- Interactions within school group can vary
- Parent advocacy more challenged

# **Schools as Society: Mainstream**

- Child must be able to adapt rapidly
- Communication with larger number of children necessary
- Must advocate for themselves

# Who are the Stakeholders?

- 70's, 80's, early 90's
  - Surgeons and CI centers
- Mid 90's to today
  - Teachers
  - SLPs
  - Educational Audiologists

# How have the Stakeholders' needs changed?

- Surgeons
  - number of surgeries and surgeons has grown
- CI Teams
  - Follow up more difficult with larger caseloads and less reimbursement
  - Loss of members due to burnout and lure of corporate work

# How have the Stakeholders' needs changed?

- Educators
  - Growing number of specialty teachers required along with mainstream teachers with knowledge of CIs
  - School SLPs providing most of the services in district schools
  - Educational Audiologist's role expands to implants with more children and fewer resources

# **Educators as Major Stakeholders**

- Emphasis in the US on childhood education
  - Outcomes/assessment
- Funding and government support tied to performance
- Pressure on educational facilities to service diverse populations with limited resources

# **Educators as Major Stakeholders**

- Failure of any one child in an educational institution is a result of cumulative interactions and experiences
  - Identifying a single school program or cause is not productive and dangerous

# Are we doing enough?

- Role of Higher Education
  - Educating the professionals of tomorrow
    - SLPs
    - Aud
    - TOD

# **Growth?! in Audiology**

- 1999 – 12,950
- 2004 – 9,810
- 2008 – 11,844
  - Field expected to increase by 1.2% each year until 2014

# How is what we are doing now changing?

- Continually assess the paradigms being used to teach the children and the teachers
- Investigate more diverse methods of providing information to classroom teachers
- Embrace technology
  - Don't do it blindly
    - Toolishness is foolishness

# Change and Response to Change

- Initiate change
- Process change
  - Early adapters
  - Laggards
- Leading change
  - Creating shared need
  - Shaping vision

# Change and Response to Change

- Mobilizing change
  - Modifying systems
- Monitoring change
  - Assessing the process
- Lasting change
  - Continuous assessment

# What needs to be done?

- Raise the awareness
- Raise the bar
  - School personnel must maintain currency regarding latest educational trends and technology

# What needs to be done?

- Raise the roof
  - Demand the resources and support
    - Continuing education
    - Time management
    - Assistance
  - Engage in government
    - Grassroots movement for bills before state/national legislature

# On Education

“Education’s purpose is to replace an empty mind with an open mind”

Malcolm Forbes

# Final Thoughts

- The stakeholders in cochlear implantation have changed through the years
- The educational personnel are now the major stakeholders with regard to performance of children with cochlear implants
- Educational institutions must re-examine their approaches to ensure maximal outcomes