



Palavas / Montpellier Cochlear Implant Center Adults and children

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The Palavas /Montpellier Cochlear Implant Program

- First implantations in 1986 (3M House monochannel CI) in adults.
- First implantation Nucleus CI22 in a postlingual deaf child and in adults : 1989
- First implantations Nucleus CI22 in prelingually deaf children : 1990

Population

- 950 profound deaf patients who received a CI
- 650 adults
- 300 children
- With follow-up at Cochlear Implant center
- All children used oral language as primary mode of communication

CI Staff

- 3 otologic surgeons
- 1 ENT specialist hearing impaired patients
- 7 speech therapists
- 1 psychologist
- 4 audiologists
- ENT resident



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University Hospital Montpellier



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Hospital Institut -Saint -Pierre Palavas les Flots

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**COCHLEAR IMPLANT
CENTER
CHRU/ISP**

**PREIMPLANTATION
Assessment
ISP /CHRU**

CI SURGERY CHRU

**FOLLOW UP POST CI
ISP**

**MEDICAL TEAM
ISP/CHRU**

**SPEECH
THERAPISTS**

PSYCHOLOGIST

AUDIOLGISTS

**REHABILITATION
TEAMS**

**SURDI 34
ASSOCIATION**



Cochlear Implant Criteria



- Profound total hearing loss with no significant improvements from powerful hearing aids.
- Poor speech recognition scores with best $\leq 50\%$ at 65 dB .
- Otology: otological history and examination
- CT scan and MRI
- Family and patient motivation.

Management of CI patients

- Visit to the center 2 days/ months
- 7 times/ 1st year for evaluation, speech processor programming
- 3 -4 times /2^{sd} year
- 1 time each year



Post-operative patient management

- 2 Fitting sessions
- 6 Aural rehabilitation sessions
- Follow-up evaluation
- Meetings between patients / family / team

Counselling patient
with Surdi 34
Association



Aural rehabilitation program

- Explanation and training of auditory memory
- Practice activities related to rhythm, intonation and accent
- Telephone use
- Training in speech recognition in background noise
- Music
- Speechreading

5 levels of auditory training

- Sound Awareness (presence/absence)
- Discrimination of speech sounds
- Identification of sounds, words, sentences...
- Comprehension of speech discourse
- Communication in daily life.

Elisabeth ... 56 years

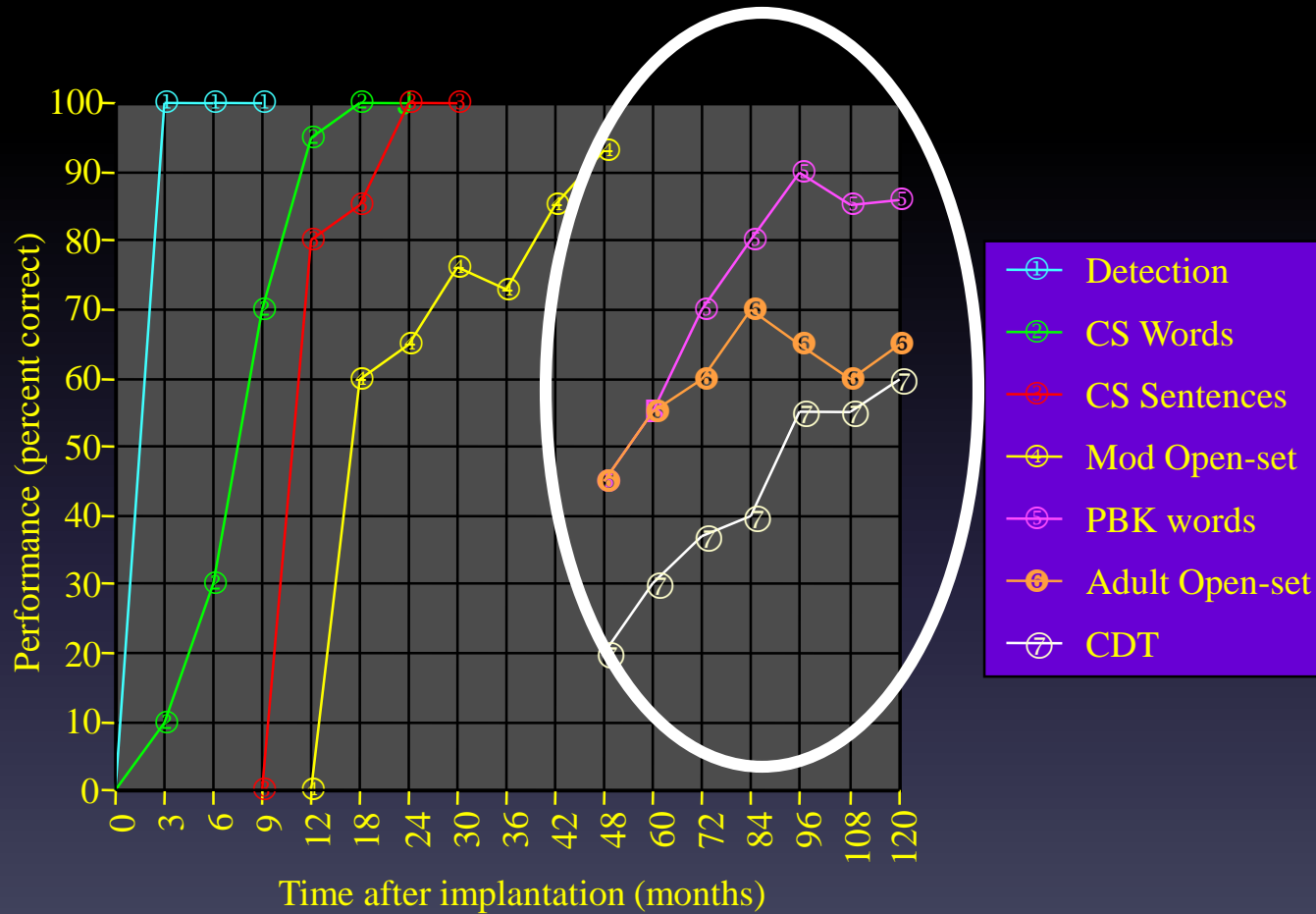
Duration of deafness : 10
years

CI OG: 10 /02/ 2016

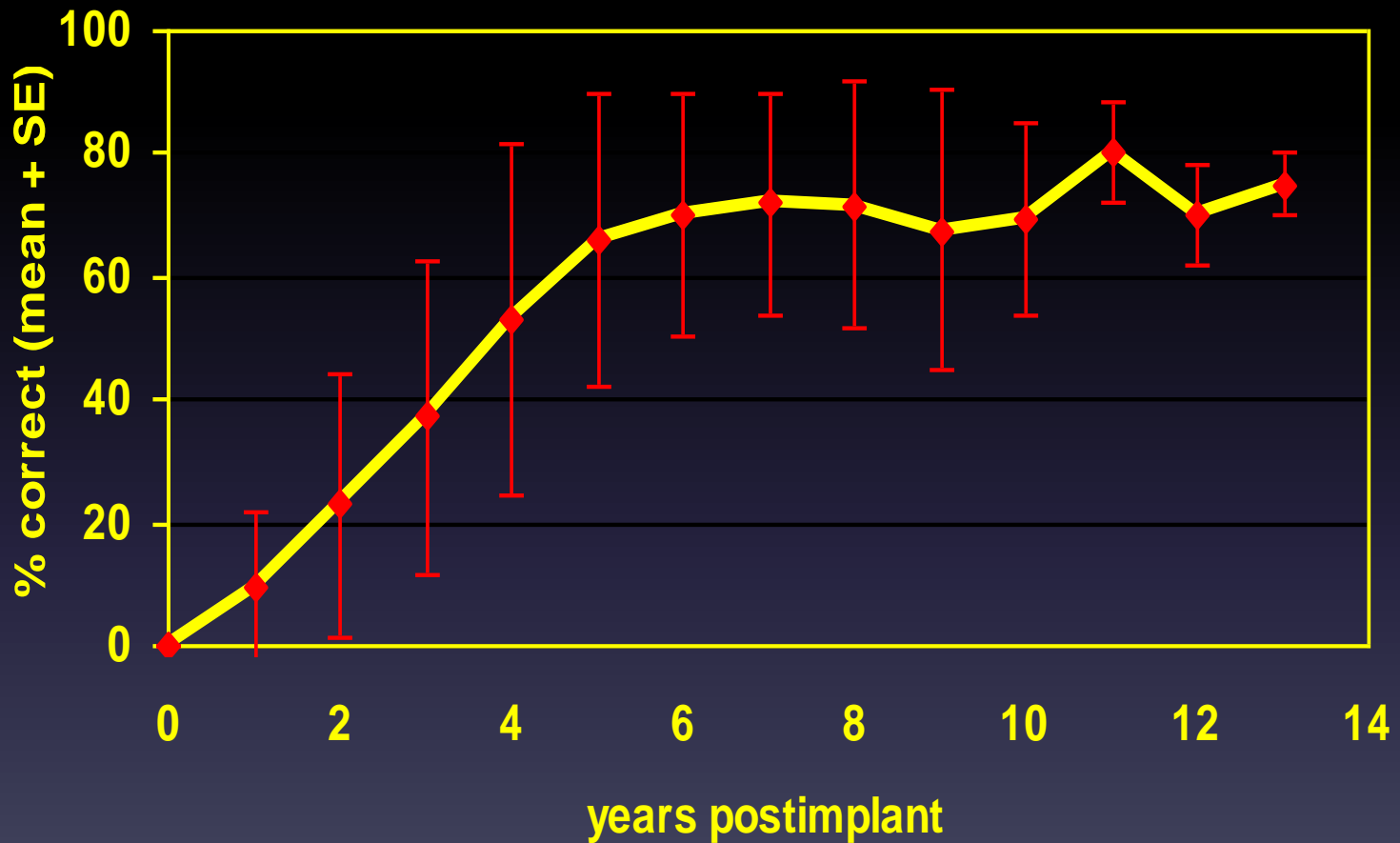
Follow up : 1st month



Performance over time

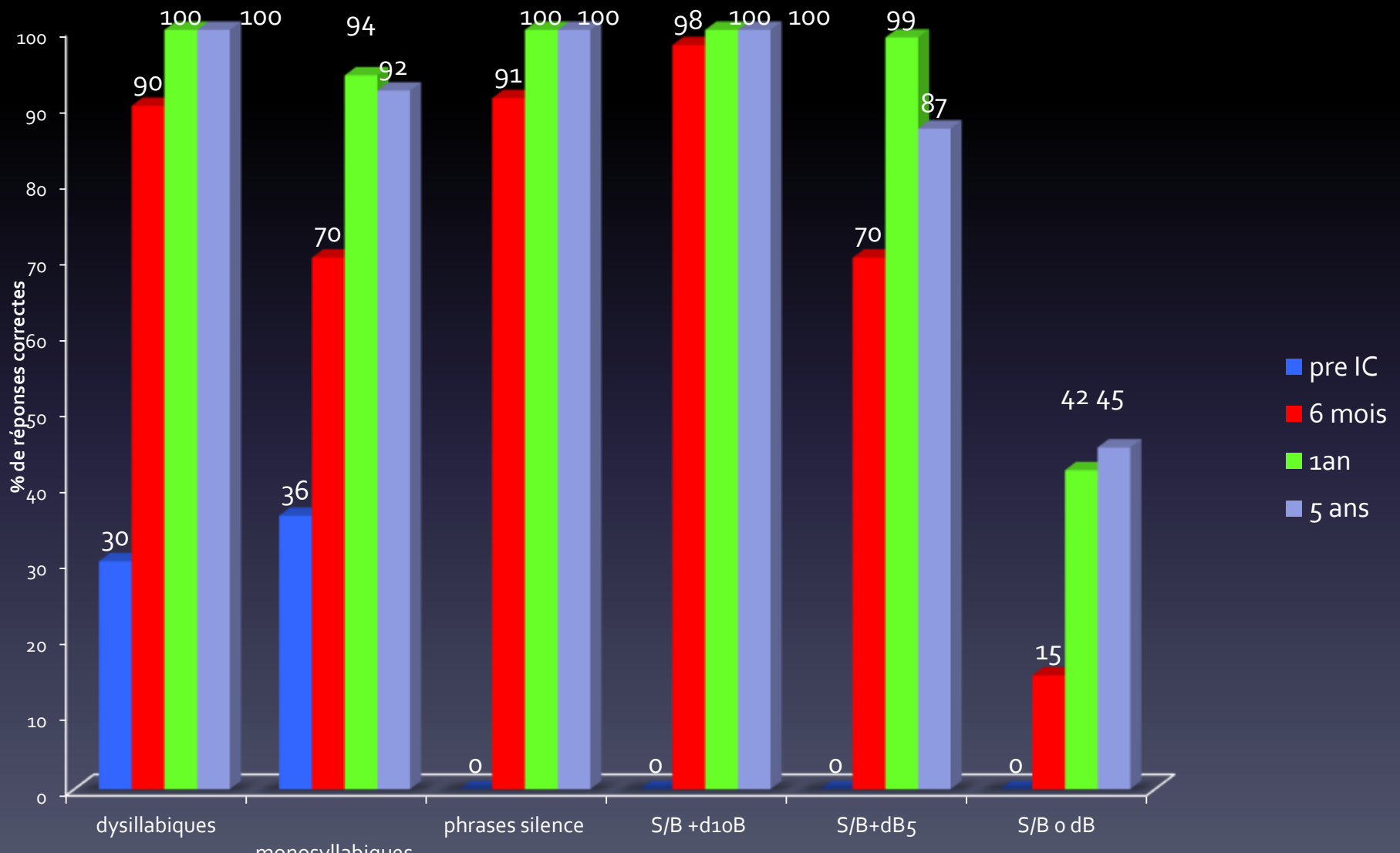


Open-set Speech Perception PBK word test



Long term performance at 5 years post CI

N= 123 adults CI 2010 -2015



Cochlear implant outcomes

N = 123 CI 2010 - 2015

After cochlear implantation, patients show significant improvement

- ◆ Good speech performance in quiet and noise ,
- ◆ Phone use : 38% , television use : 50%
- ◆ Quality of life : 80%
- ◆ Cognitive abilities / attention, verbal fluency, verbal working memory
- ◆ Communication ability with another person.

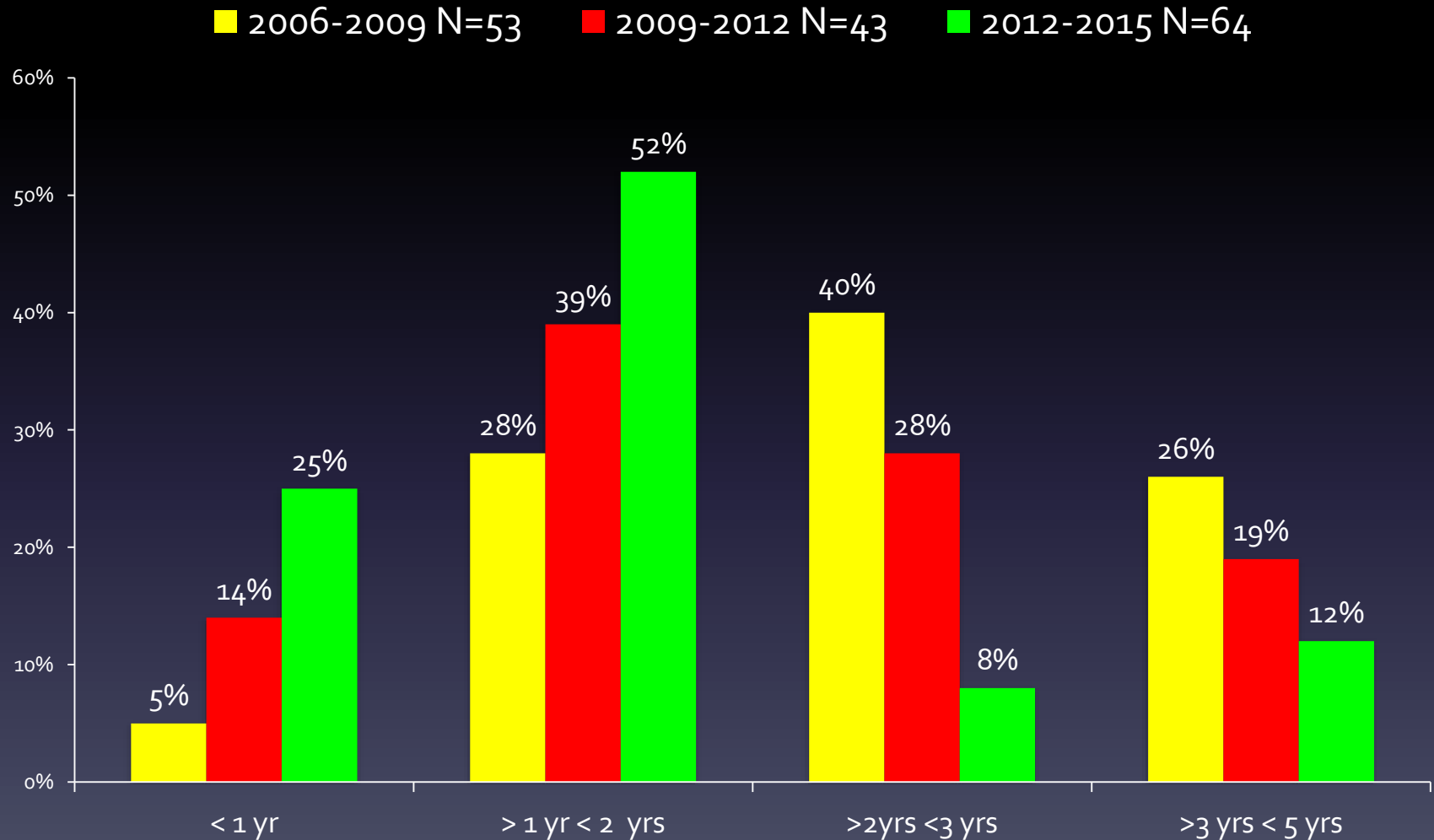


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Prelingual deaf CI children

- French law on universal newborn hearing screening in **April 23rd 2012.**
- Early diagnosis and rehabilitation promote oral language development.
- Early Cochlear Implantation has a positive impact on the language development of hearing-impaired children.
- Close collaboration between Cochlear Implant center and family as well as daycare centers and schools.

Evolution of Cochlear Implant Age CI -Palavas/Montpellier



Thomas... , 4 years 6 months

- Congenital bilateral profound hearing loss.
- No benefit with hearing aids after a trial of 6 months.
- First CI at **9 months** , second CI at **15 months**.
- Score over 80% for open –set sentence.
- Improve regularly in speech production.
- Attending normal school with additional support.



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Long Term CI Academic & Employment Achievements:

20 years later

Patients

- 95 children with profound/total SNHL:
 - 91 prelingually deafened
 - 4 postlingually-deafened
- Aged 22 to 32 years
- Operated (Cochlear CI22): 1989-1995
- Regularly followed & evaluated at the CIC
- More than 20 years of implant use



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Felix, 24 years

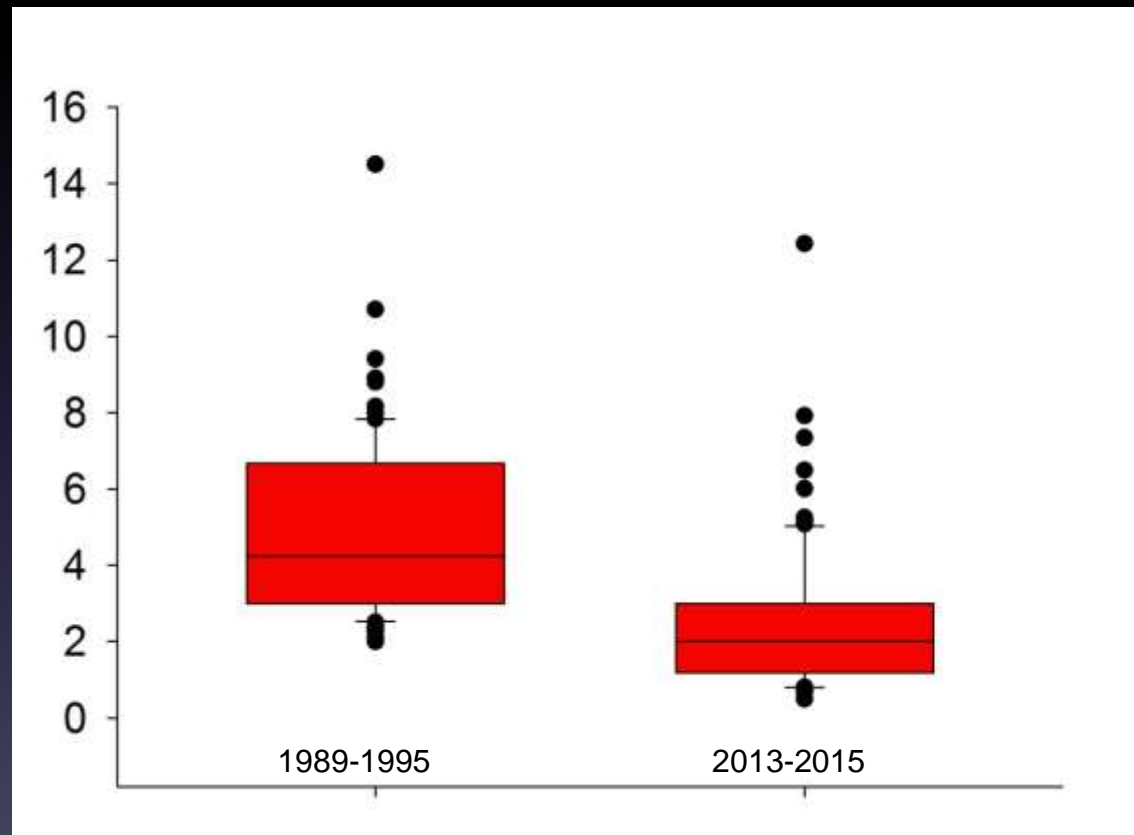
- Implanted at 2 years
- Graduated from Ecole Normale Supérieure (Physics & Chemistry)
- Elite higher education institution « grande école » and prestigious research center
- Prepares future leaders in research, public service & industry.



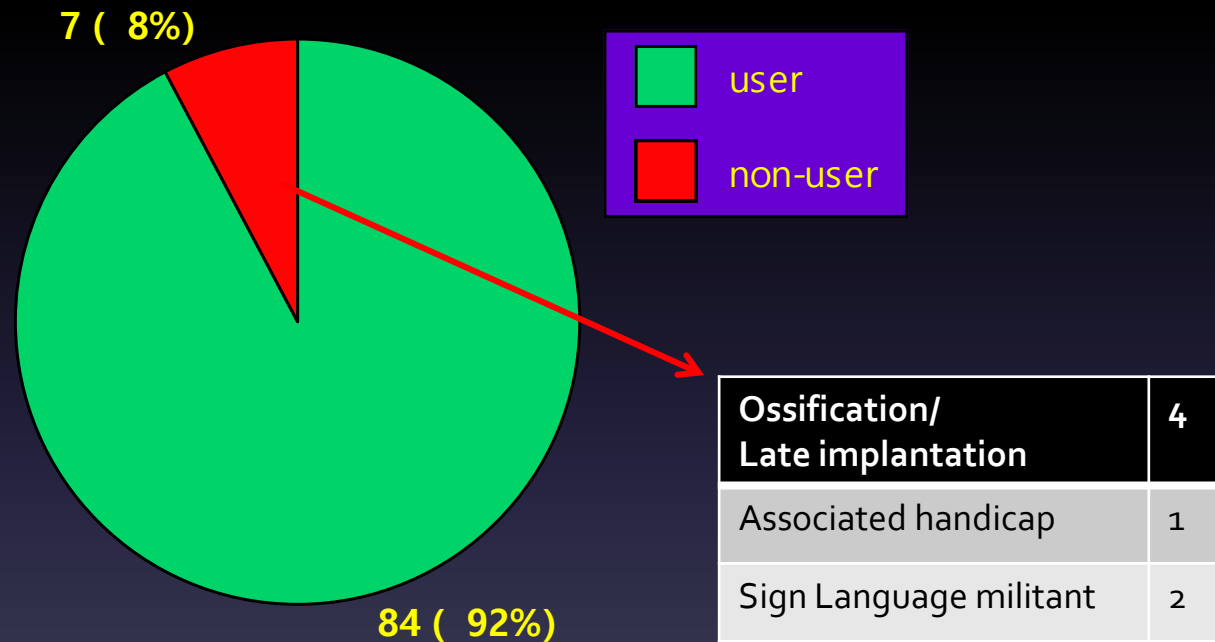


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Age at Implant

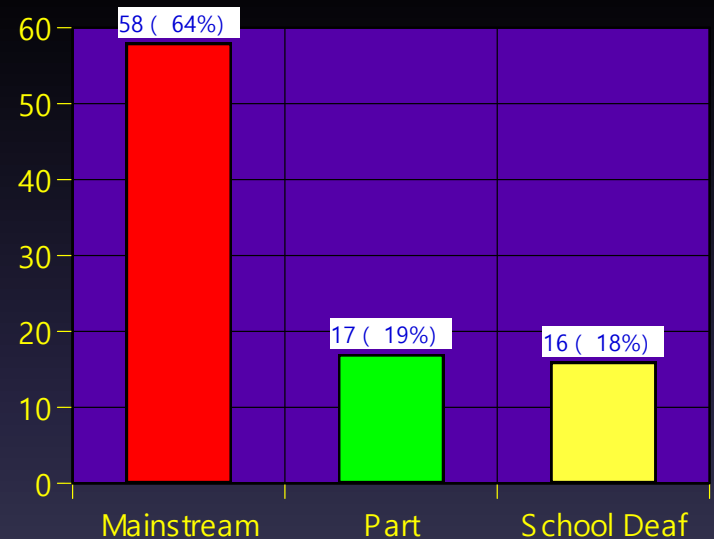
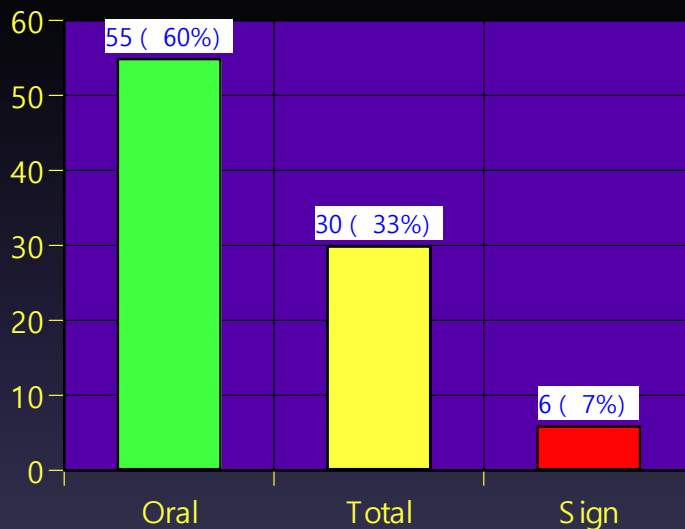


User/Non-user



Mode of Communication

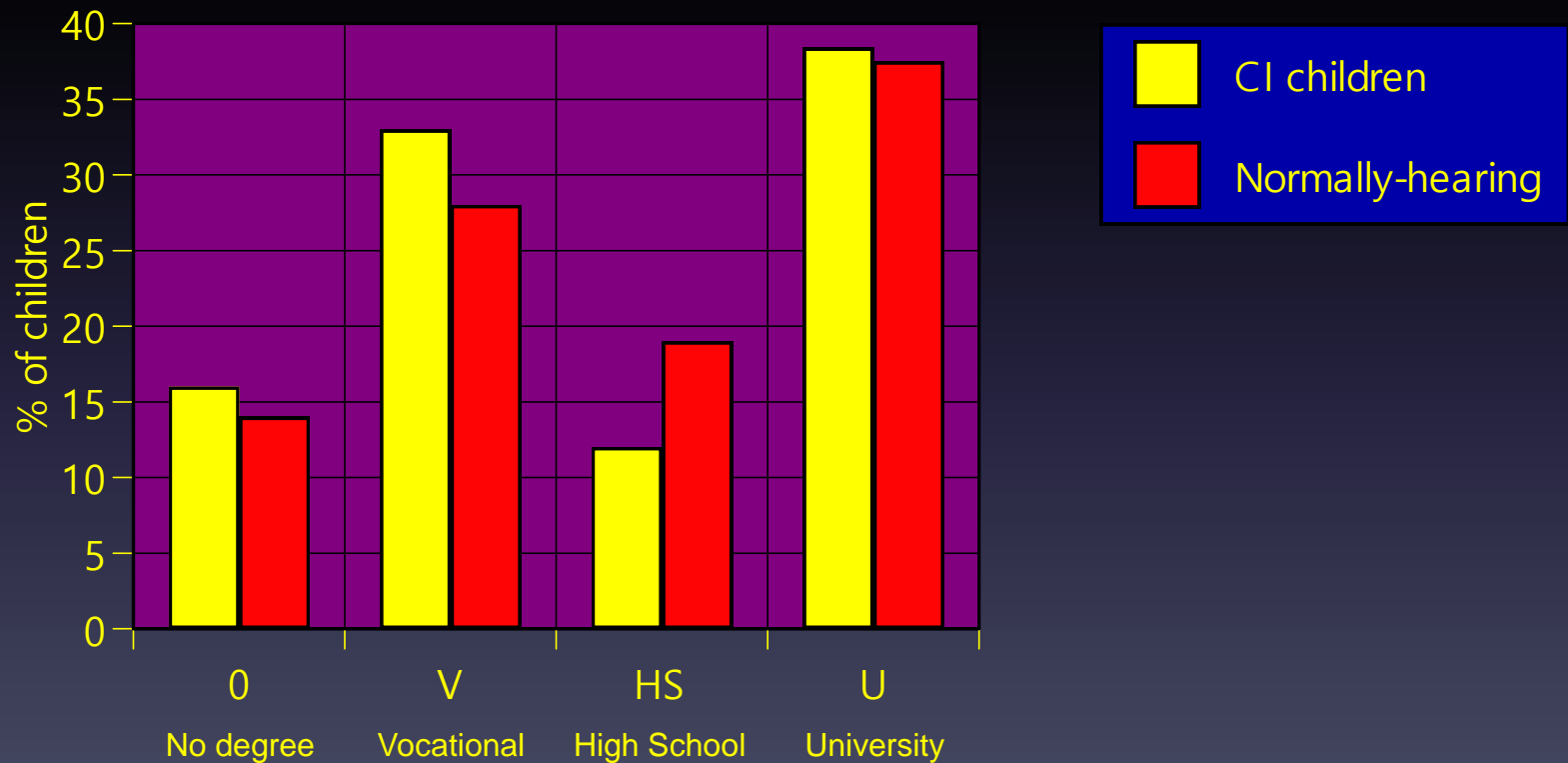
Educational Placement



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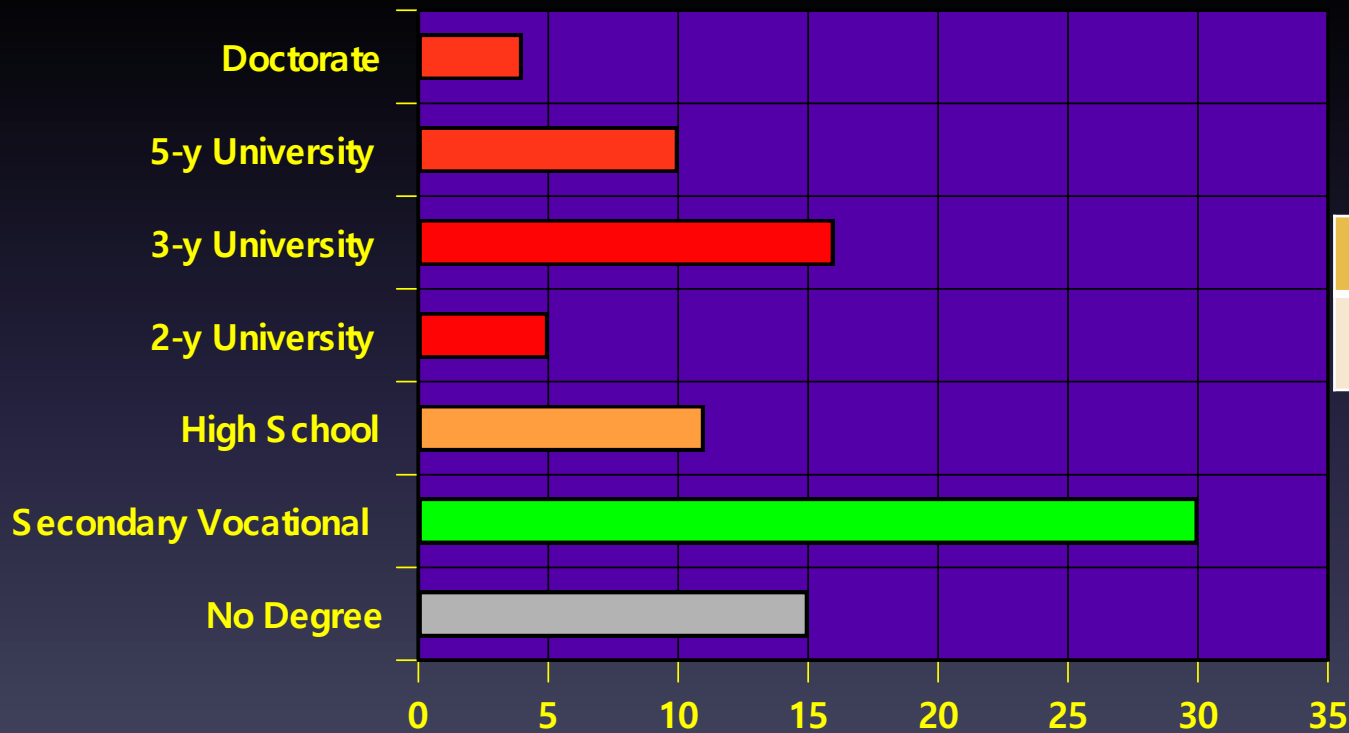
Disability	7
Late Implant	4
Ossification	2
Parent choice	2

Highest High School or University Degree



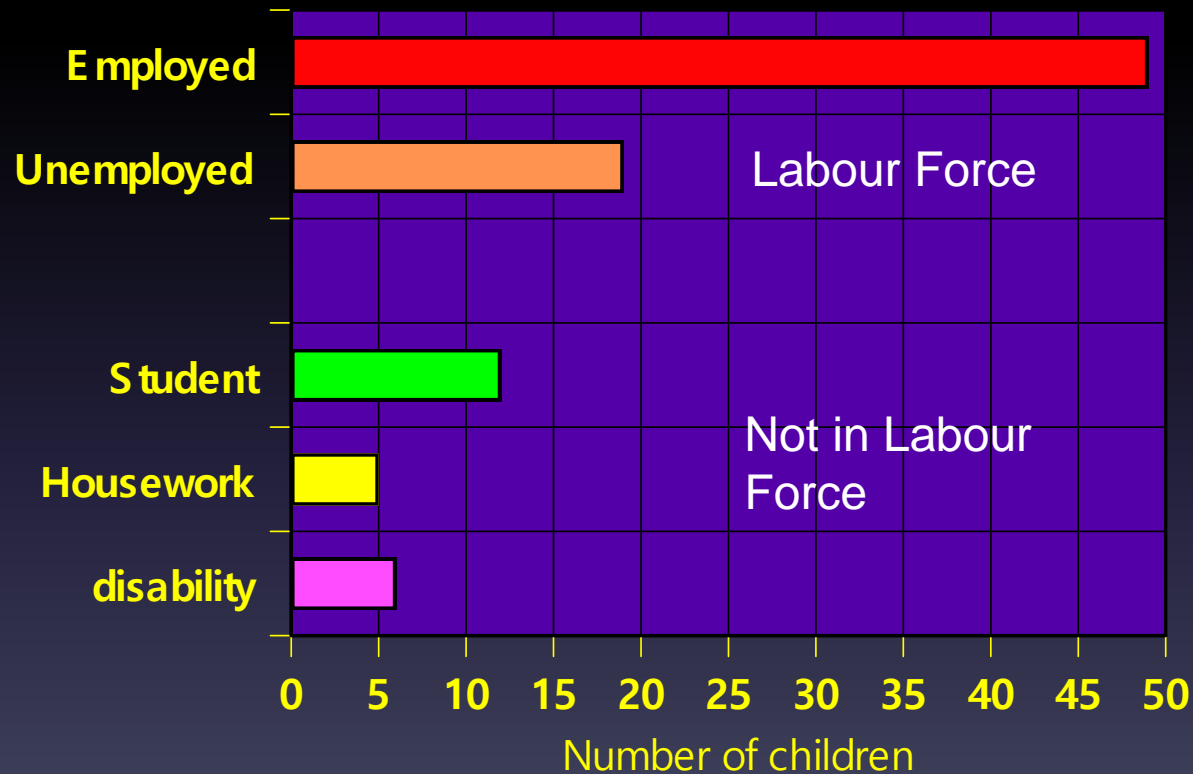
Educational Attainment:

highest High School/University degree



University	38 %
Graduate School	15 %

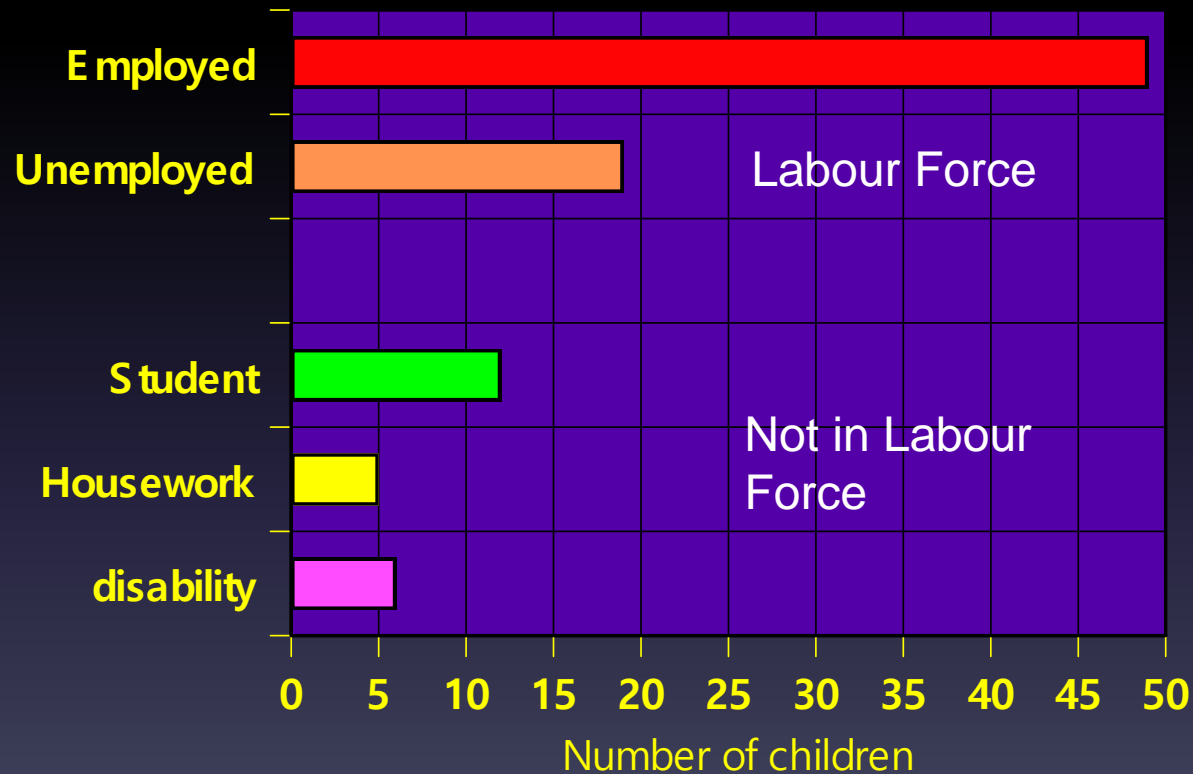
Occupational Achievement



Unemployment rate = 28 %

(18 % for the general population) EFHOH PARIS, April 2nd, 2016

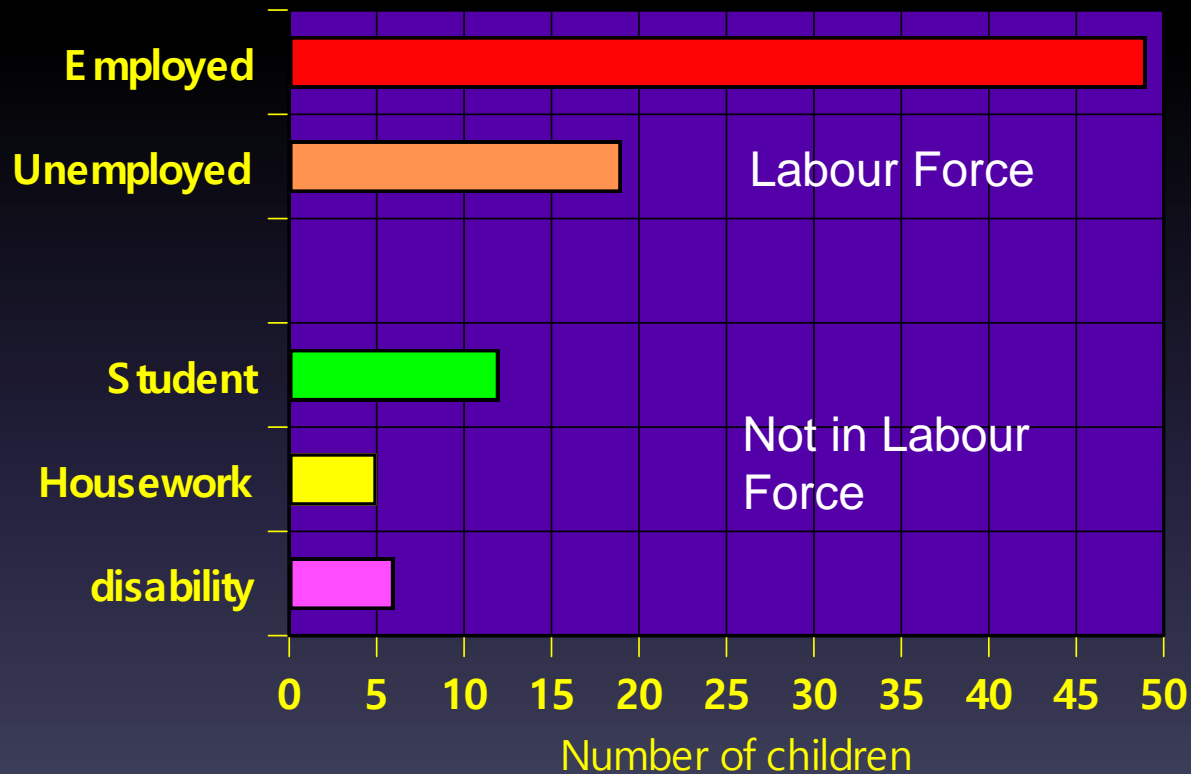
Occupational Achievement



82 % of CI children with HS or University degree are employed

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Occupational Achievement



51 % of CI children with a vocational secondary degree are employed

Labour force category



Conclusion

- This first generation of CI children demonstrate academic achievements at levels similar to their hearing peers.
- However the unemployment rate remains still higher in CI patients.
- Low-achieving is correlated with older age at implantation, associated disabilities, sign communication.

Thank you for your attention

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