Research Findings & Potential Policy Implications:

The Amajuba Universal Newborn Hearing Screening Programme

An assessment of the feasibility and effectiveness of a Universal Newborn Hearing Screening Programme (UNHSP) in a semi-rural community in KwaZulu Natal

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Planning, Monitoring and Evaluation
REPUBLIC OF SOUTH AFRICA

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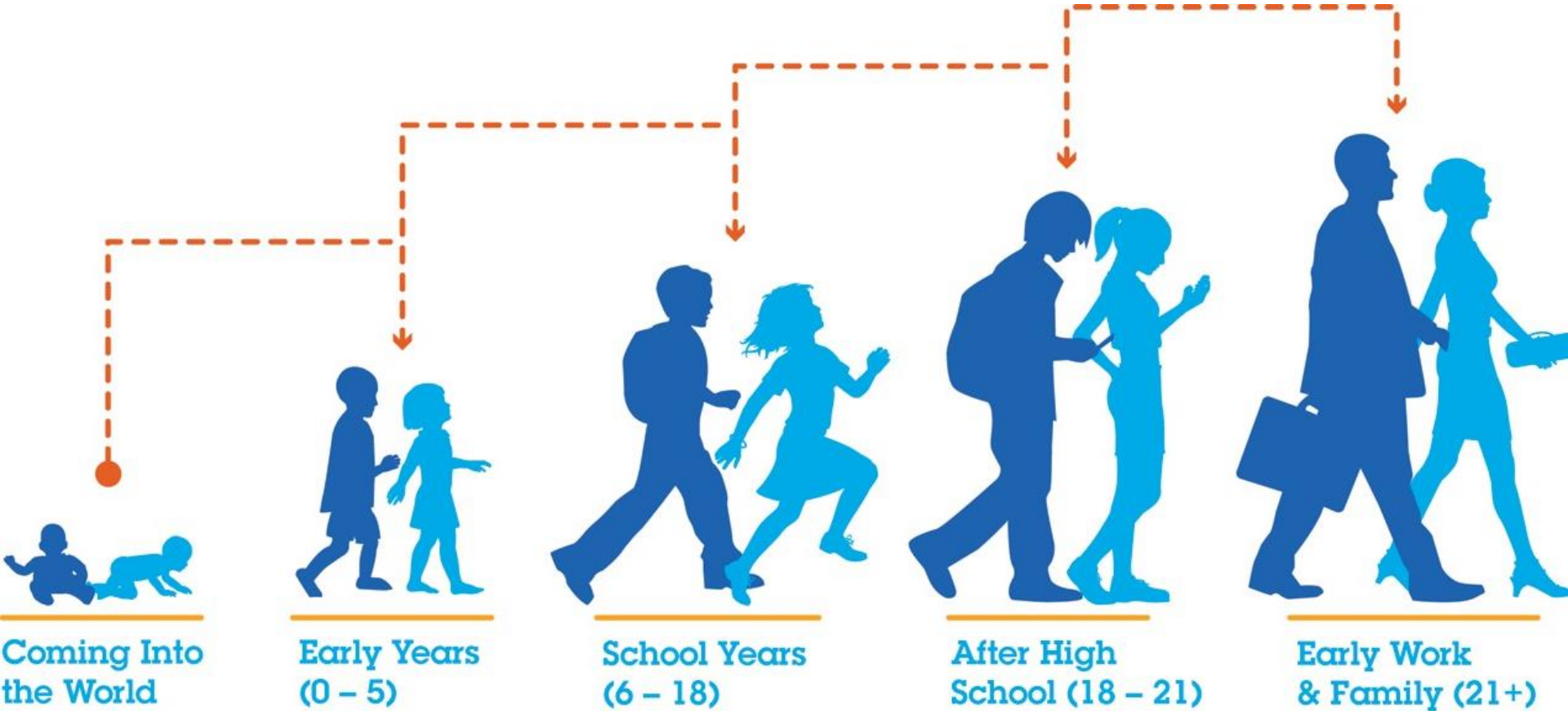
Research team

Team member	Role
Dr. Yougan Saman MBBCh MSc FCORL PhD	Primary Investigator
Ms. Ayanda Gina Bsc (Aud) MSc (ECI)	Audiology lecturer, Programme manager and PhD candidate
Ms. Christine Graham BA MPH	PhD candidate& social scientist
Ms. Thembi Nkosi (EN)& Ms. Zama Kubheka (EN)	Research nurses
Dr Asitha Jayawardena MD MPH	International collaborator (Vanderbilt University - ENT)

Typical development timeline



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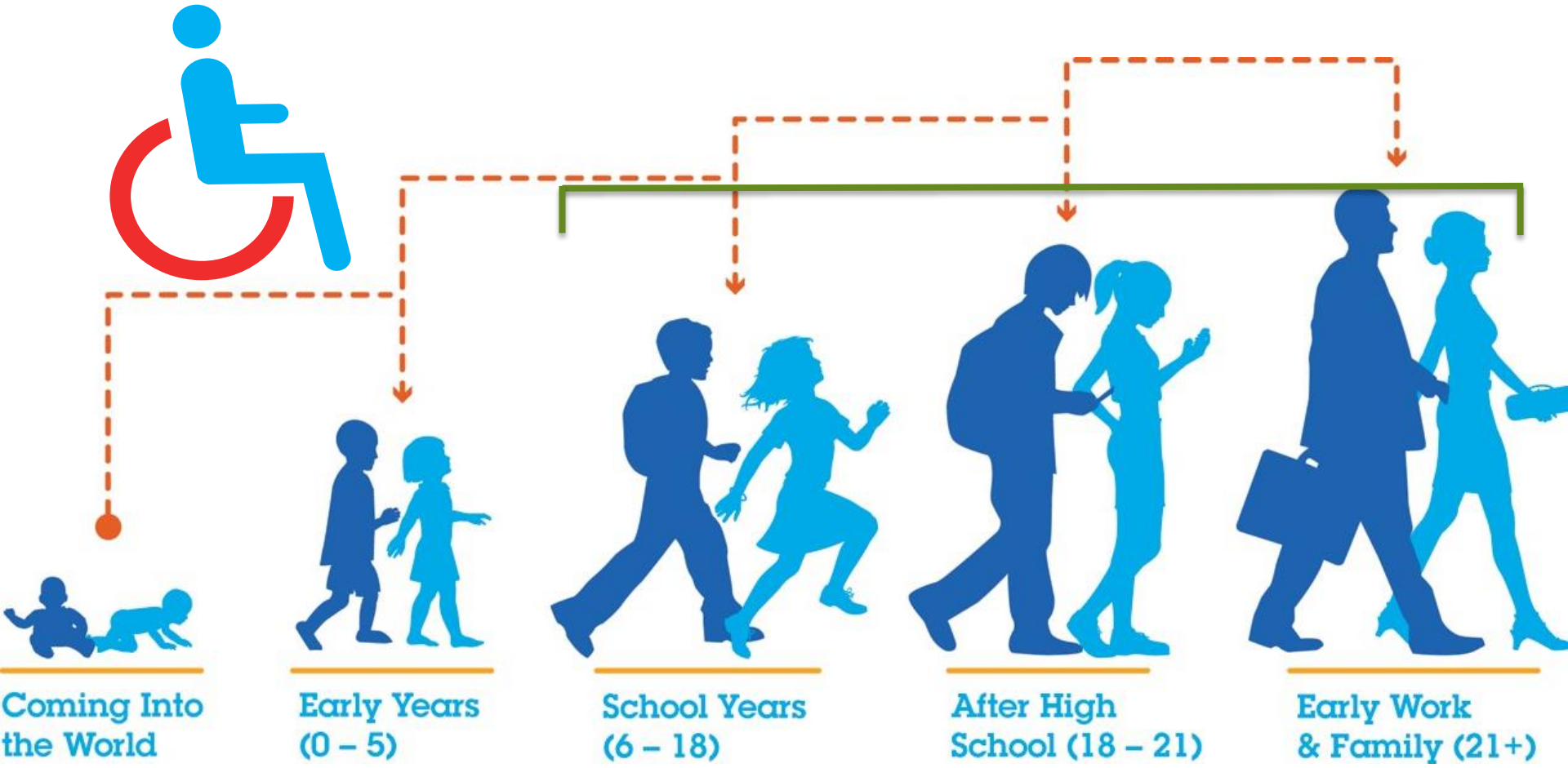

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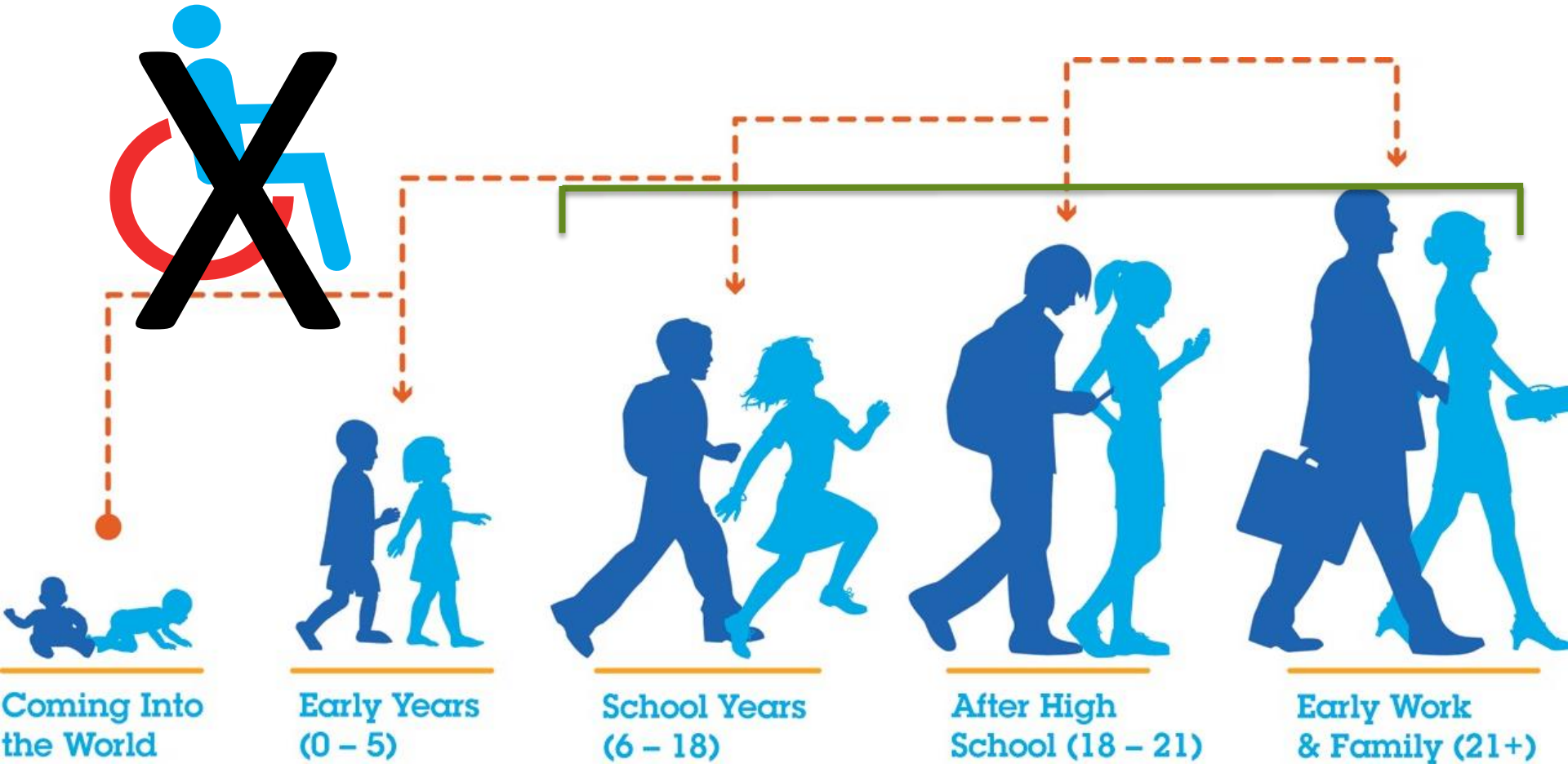

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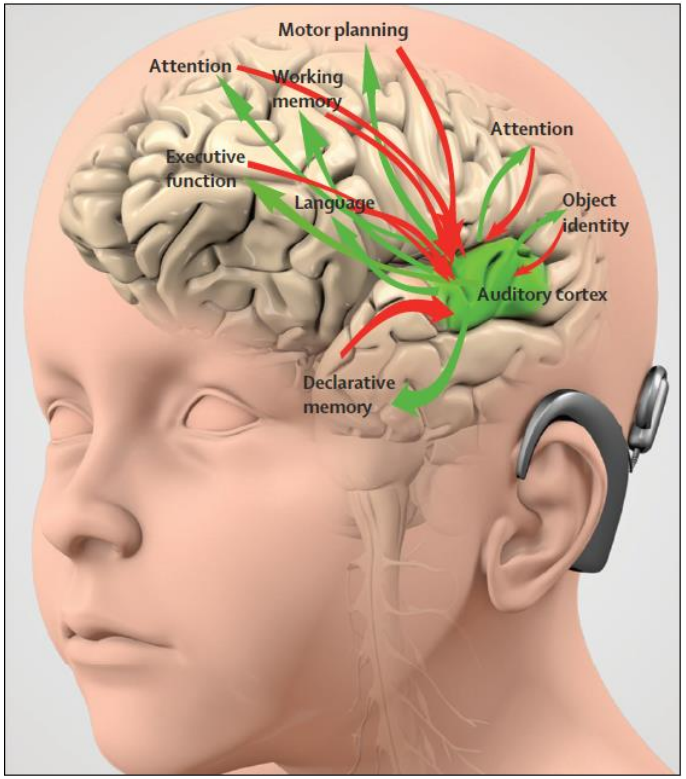
Brain development in childhood

- Cortical development accelerates after birth
- Synaptic counts peak at 1- 4 years
- Genetics and environmental modification



- UNHSP
- 1- 2/ 1000 born deaf
- Spoken language acquisition

Lancet-Neurology 2016

Overview of the research

Significance of study:

- First prospective study of newborn hearing loss in a rural district in KZN, in order to develop a model for a national Newborn Hearing Screening Programme with significant implications for policy in relation to early childhood development and disability

Research Question

- A UNHSP is feasible and sustainable in the South African context
- The UNHSP will impact positively on ear healthcare in the local community
- Increased prevalence of hearing impairment in newborns: HIV & TB

Global UNHS models

- Screen at 1 month:
  - Coverage rate: 95%
  - Failure rate: < 4%
  - Follow-up rate: > 70%
  - 2 stage test protocol
- Diagnosis at 3 months
- Intervention by 6 month
- Tracking system: multidisciplinary team
- Family involvement and compliance

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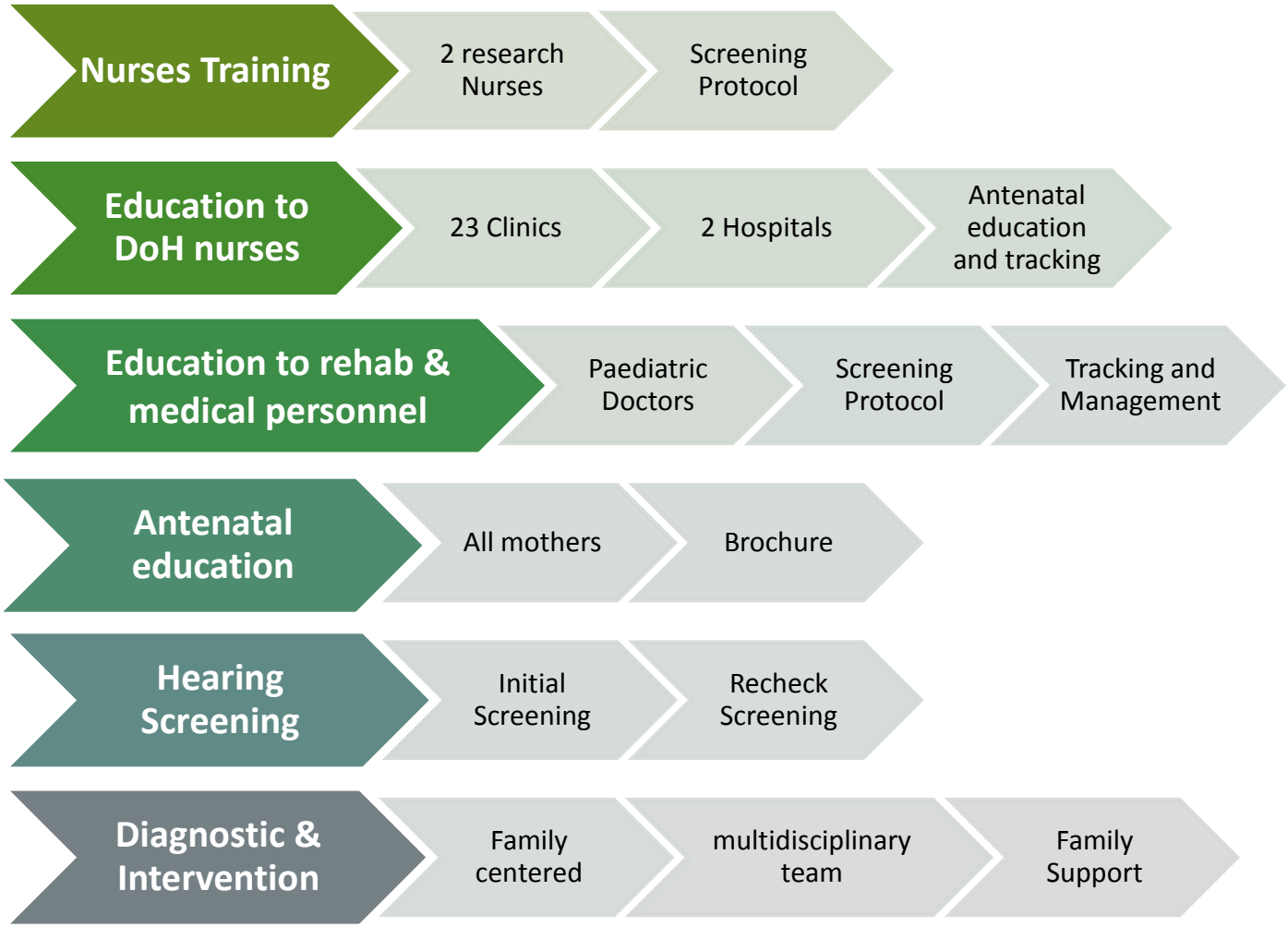
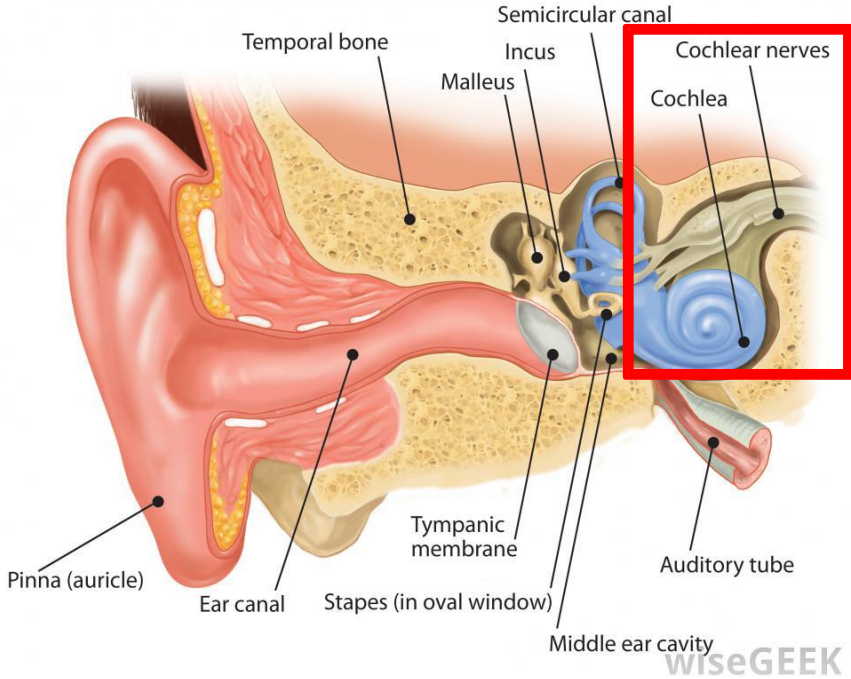
Methodology: Qualitative & Quantitative

Setting: Health Facilities in Amajuba District



Screening Procedure



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Methodology: Qualitative and Quantitative

Setting: Ante-Natal Clinic

Designing Questionnaire

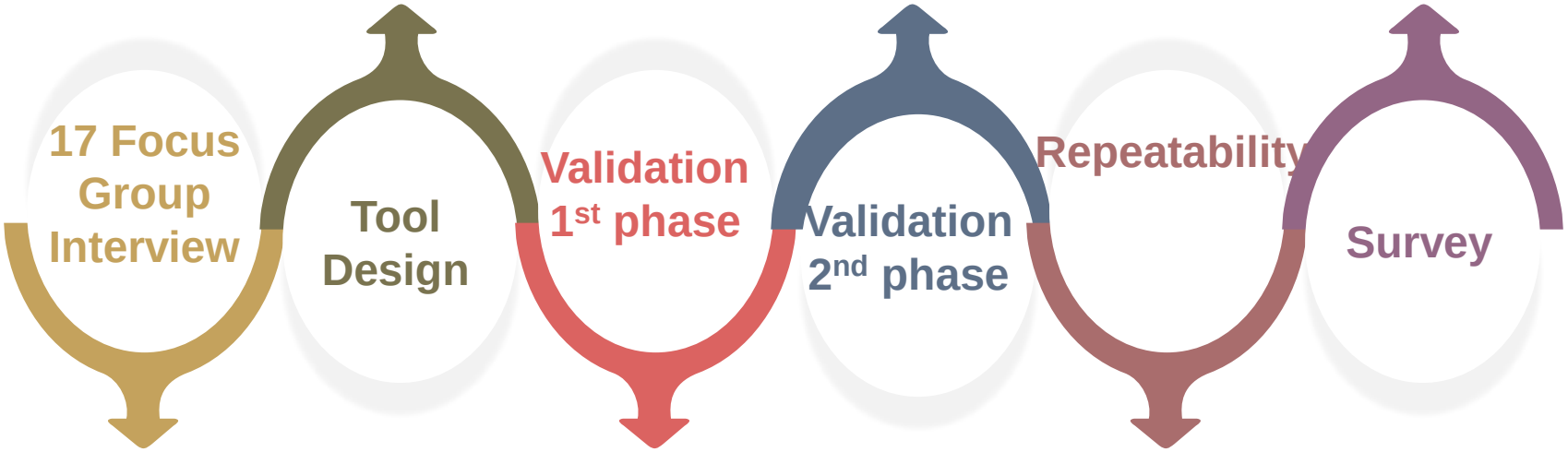
- Demographics
- Knowledge
- Attitude
- Health Seeking Patterns
- Awareness

Face Validity

*20 Pregnant mothers
*Clarity, ease of reading and instructions

KAP

* 450 Pregnant Mothers



Mapping Content

- 145 Pregnant
- Thematic Framework

Content Validity

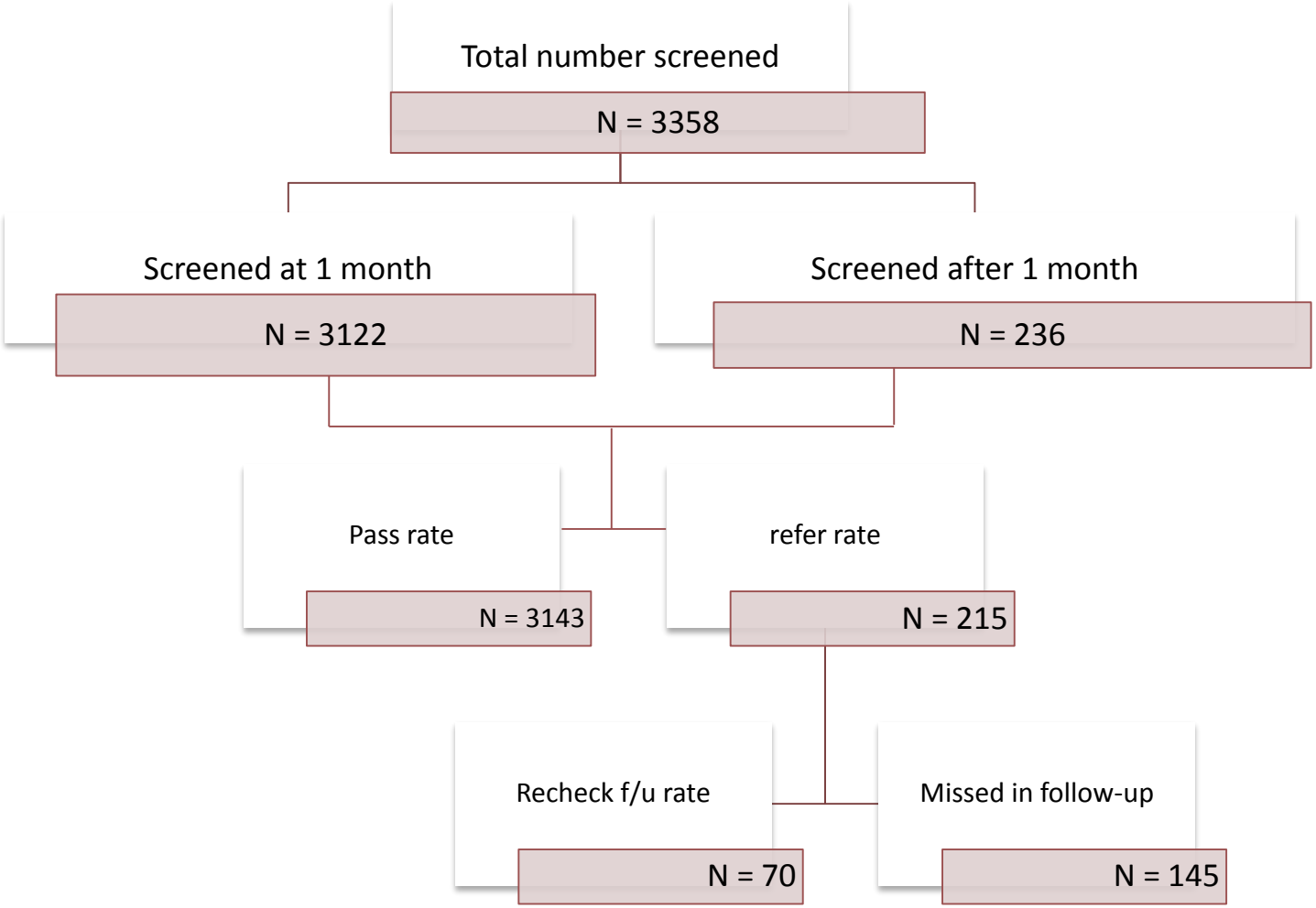
- 7 Experts – 1st stage
- 3 Experts – 2nd stage
- Content area & Structure

Test - Retest

- 160 Pregnant mothers
- Repeat same measurement under same condition

Study results

Numbers screened



Amajuba District

Access to healthcare

Newcastle: 13 facilities

Emadlangeni: 2 Facilities

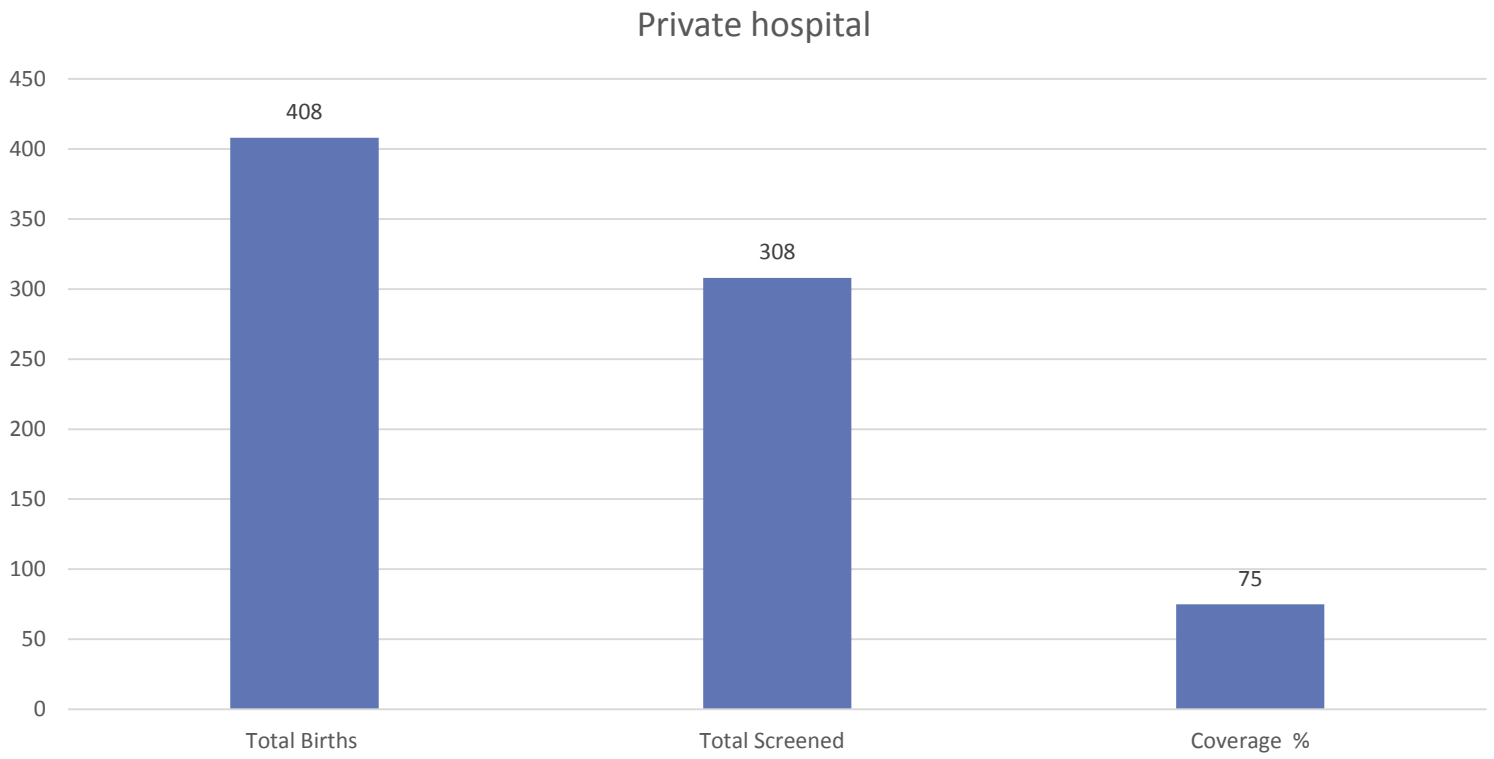
Danhauser: 7 Facilities

Tracking methods used

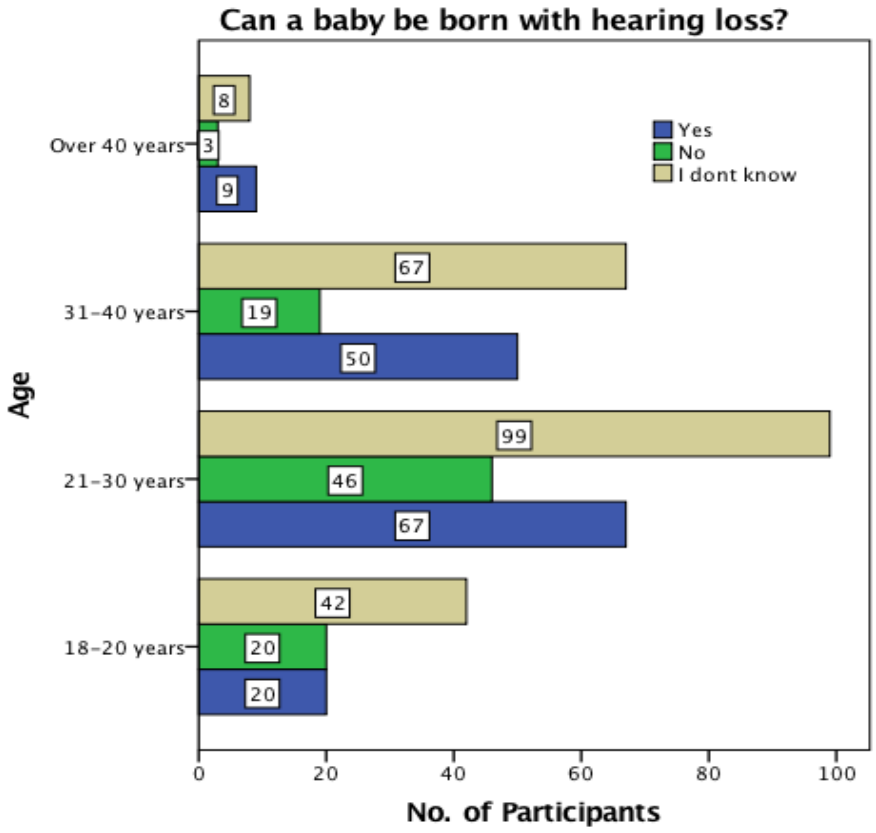
Tracking Stickers	
	Pass & Discharge
	Pass and monitor (High risk)
	Refer need recheck (recheck test date given)

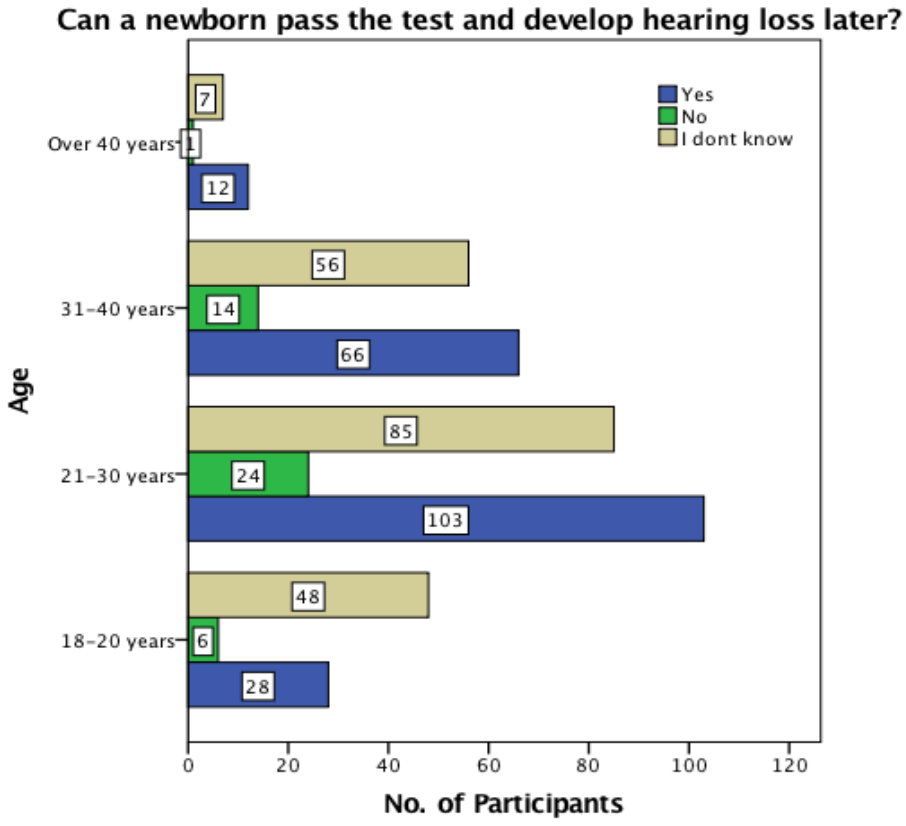
- Tracking Stickers
- Contacted telephonically
- Tracked at immunisation clinic

Compliance: Medi-clinic

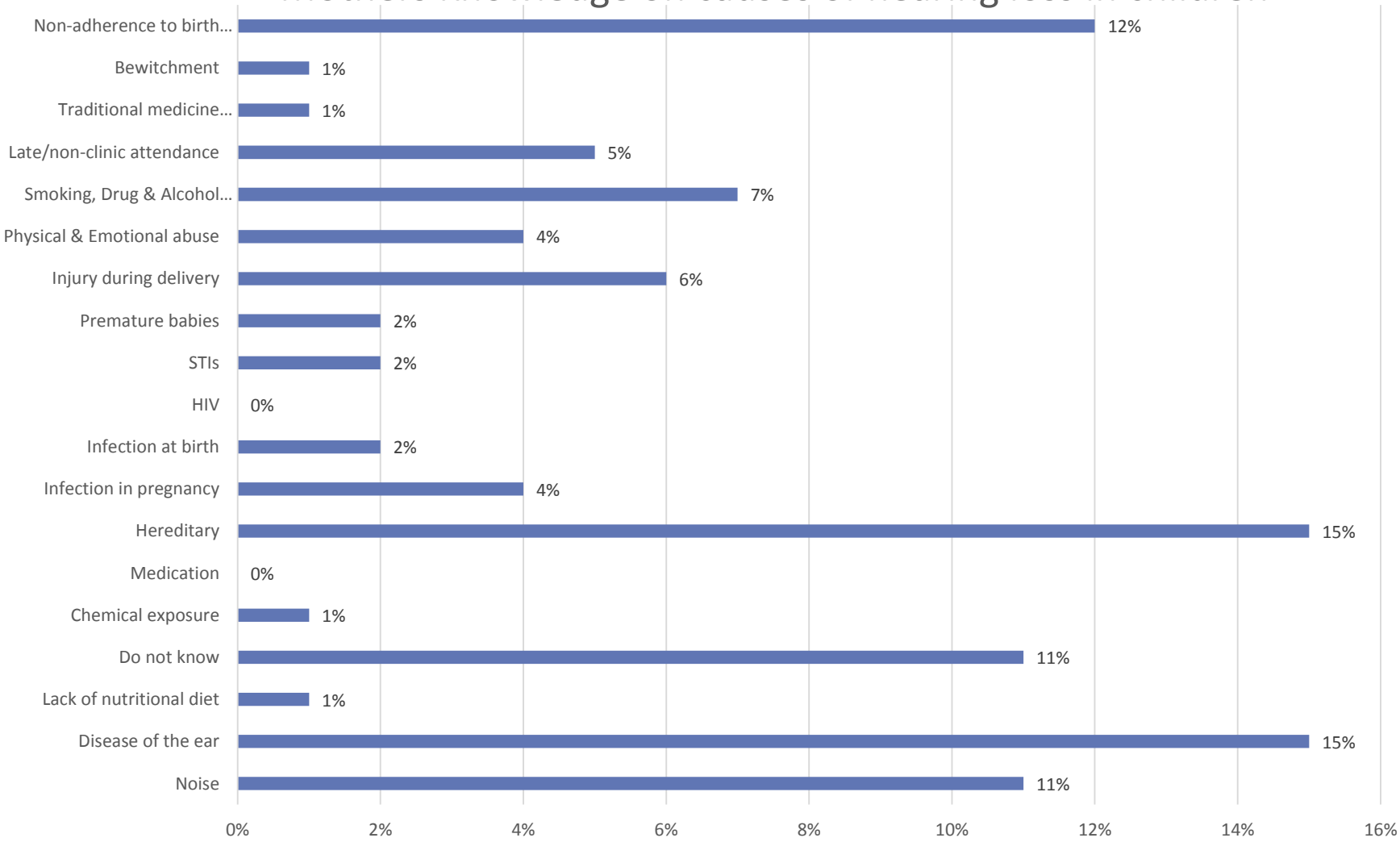


Knowledge of congenital vs. acquired hearing loss





Mothers Knowledge on causes of hearing loss in children



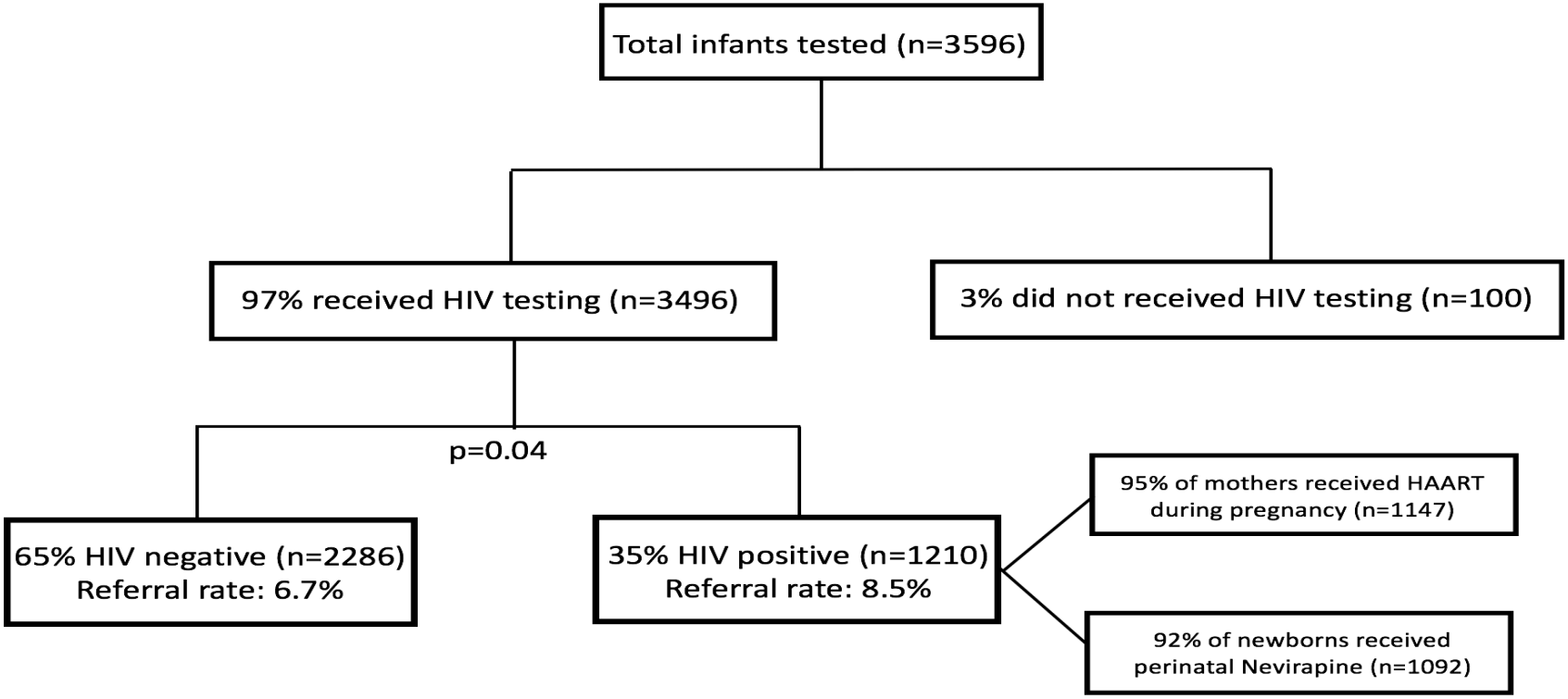
Knowledge of treatment Options

Treatment for a child identified with hearing loss		
		Responses Percent
Treatment Options	Cultural	10.0%
	Hospital procedures	58.0%
	Hearing Aids	24.2%
	Church	7.8%

Attitude related to refusal to screen

Reasons for screening refusal		
		Percent
Refusal	Need to inform the family first	42.1%
	Newborns cannot have hearing loss	31.6%
	I do not have enough information	26.3%

relationship between TB and HIV in childhood hearing loss



relationship between TB and HIV in childhood hearing loss

- 96.5% (n=3496) of mothers were tested for HIV
- 35% (n=1210) of mothers were HIV+
- **p=0.04**
- HIV+: 8.5% referral rate
- HIV-: 6.7% referral rate
- 95% (n=1147) of HIV+ mothers were on HAART during pregnancy
- 92% of newborns born to HIV+ mothers received perinatal nevirapine

Methodology cont.

Limitations of research

- Screening a single community
- Focus on knowledge of mothers in isolation
- Screening Coverage
- Loss in follow up
- Parental compliance to screening and follow up

Conclusions

- Legacy effect: DOH Amajuba District Plan
- 2 PhD Students
- Publications
- National and international conferences

Conclusion & Policy implications

- Inclusion of Newborn Hearing screening in birth and immunisation package
- Family and Community empowerment
- Long term investment on the child

Recommendations

- Proposed necessary actions for taking recommendations forward to effect change

  - Tailored Health education and promotion: family empowerment

- Where possible, specify what is in need of urgent attention and what is longer term

  - **COMMUNICATION**

  - **?** Acquired hearing loss

  - Tracking children (longitudinal study)

  - School screening

Acknowledgements

- DPME & EU : Funding
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- Air Mercy Services
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- Vanderbilt university
- Stanyer electroserve


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