HEARING - Gateway to learning
Globally:

- 360 million with hearing loss
- 5.3% of world population

South Africa:

- 3.1 million
- 1.9% of children
- 1/10 children including milder losses

(ECD Knowledge Building Seminar 25-26 November 2015 © Author(s) of this presentation)
SCHOOL SCREENING

- **First opportunity** for screening RSA
- Screen for **barriers to learning** – educationally significant HL
- South Africa – **3.5mil children** to screen annually

**Integrated School Health Policy**
CHALLENGES?

AWARDS

Top city brains in line for awards

SA INNOVATION AWARDS
WE ARE AFRICAN. WE ARE INNOVATIVE.
Features

1. Calibration to standards
2. User-friendly interface
3. Quality assurance
4. Automation
5. Smart noise monitoring
6. Location-based referral
7. Light, mobile, battery
8. Data capture
9. Cloud data management
10. Low-cost solution
11. Clinically validated
1. PURE TONE CALIBRATION

Pure tone calibration according to specified (ISO 389-1) – within 0.1 dB accurate (non-audiometric and audiometric headphones)
2. USER-FRIENDLY INTERFACE

- **RESULTS**
  - BEGIN

- **Patient Details**
  - First Name
  - Last Name
  - Email
  - Contact Number

- **1000Hz**

- **Results**
  - 1000 Hz
  - 2000 Hz
  - 4000 Hz

- **FINAL PASS**
  - Referral Options
  - finish

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Patented
3. QUALITY ASSURANCE

- Ensure the headphones are placed correctly over the patient's ears.
- Instruct the patient to raise their hand when they hear a beep.
- Sit behind the patient.

Ensure headphones are plugged in to continue the test.

Exit    Continue

2000Hz
4. AUTOMATED TEST & INTERPRET

Tests according to best protocols for 1) reliability 2) ease of use
4. AUTOMATED TEST & INTERPRET

Best practice, Objective interpretation, Simple display
5. SMART NOISE MONITORING

1) Accurate noise monitoring;
2) Smart decision algorithm;
3) Quality control;
4) Noise data captured
6. LOCATION BASED REFERRAL

Child failed hearing test

This child failed the hearing test. Refer the child to the nearest ear and hearing follow-up service

Referral Options

- Department of Speech Language Pathology and Audiology
  Aula Theatre, University Road, Pretoria, 0001, South Africa
  Tel: 012 420 2816
  <29m

- J@M Rehabilitation
  577 Pretorius Street, Arcadia, 0083, South Africa
  Tel: 012 341 1909
  <3km

- Hearing Hub Audiologists
  8 13th St, Pretoria, 0081, South Africa
  Tel: 012 346 0511
  <3km

- Life & Avenant Hearing Centre
  403B Medforum Hospital, 412 Schoeman street, Pretoria, 0001, South Africa
  <4km
7. LIGHTWEIGHT, MOBILE, BATTERY-OPERATED

- **120 grams**
- **130 grams**

Full day testing on battery
8. DATA CAPTURING & SHARING

- Rich onsite data
- Geotagging
- Wi-Fi/Mobile network
- Automatic upload
- Storage for uploading
- Secure server
  (256-encryption & SSL certification)
9. CENTRALISED DATA

Tests Dashboard: All Recorded Tests for foundation@neardata.com are shown below.

Test Details:
- Test Date: 10/01/2015 02:18 PM
- Duration: 49 Seconds
- Test Full Name: Koos Jacobs
- Facility: Tuks
- Hearing Problem Reported: None
- Retest: No

Patient Details:
- Name: Dave Howe
- Gender: Male
- ID Number: 04/05/1981 [34 years old]
- Email: Contact Number: +27761681012

Device Details:
- Model: SM-G313H
- IMEI: 356130063382035

Headphone Details:
- Model: Sennheiser_HD_202
- Serial: PaVn^Rs@
10. LOW-COST SOLUTION

Device costs ↓

Hardware 2-year warrantee
CONCLUSION: The newly developed smartphone application can be accurately calibrated for audiometry with valid real-time noise monitoring, and clinical results are comparable to conventional screening.

CONCLUSION: The hearScreen™ application is accurate and time-efficient... an inexpensive solution that can be used by lay persons with limited training due to automated test sequences and interpretation.
Conclusion: Smartphone-based hearing screening allows CHWs to bring hearing health care to underserved communities at a primary care level. Active noise monitoring and data management features allow for quality control and remote monitoring for surveillance and follow-up.
HEALTHY HEARING HEALTHY LEARNING - ECD PROJECT -

PARTNERSHIP
• Starting Dec 2015

AIM
• Ensuring healthy hearing
• 10 000 kids in ECD’s across Mamelodi in 12 months
• First phase mapping ECD’s
• Ages 3-6 years
• Referral system and f/up data capturing ecosystem