

1. Introduction

The Universal Newborn Hearing Screening programme offers hearing screening to every baby born in Scotland. Figure 1 below shows the pathway infants follow from this process.

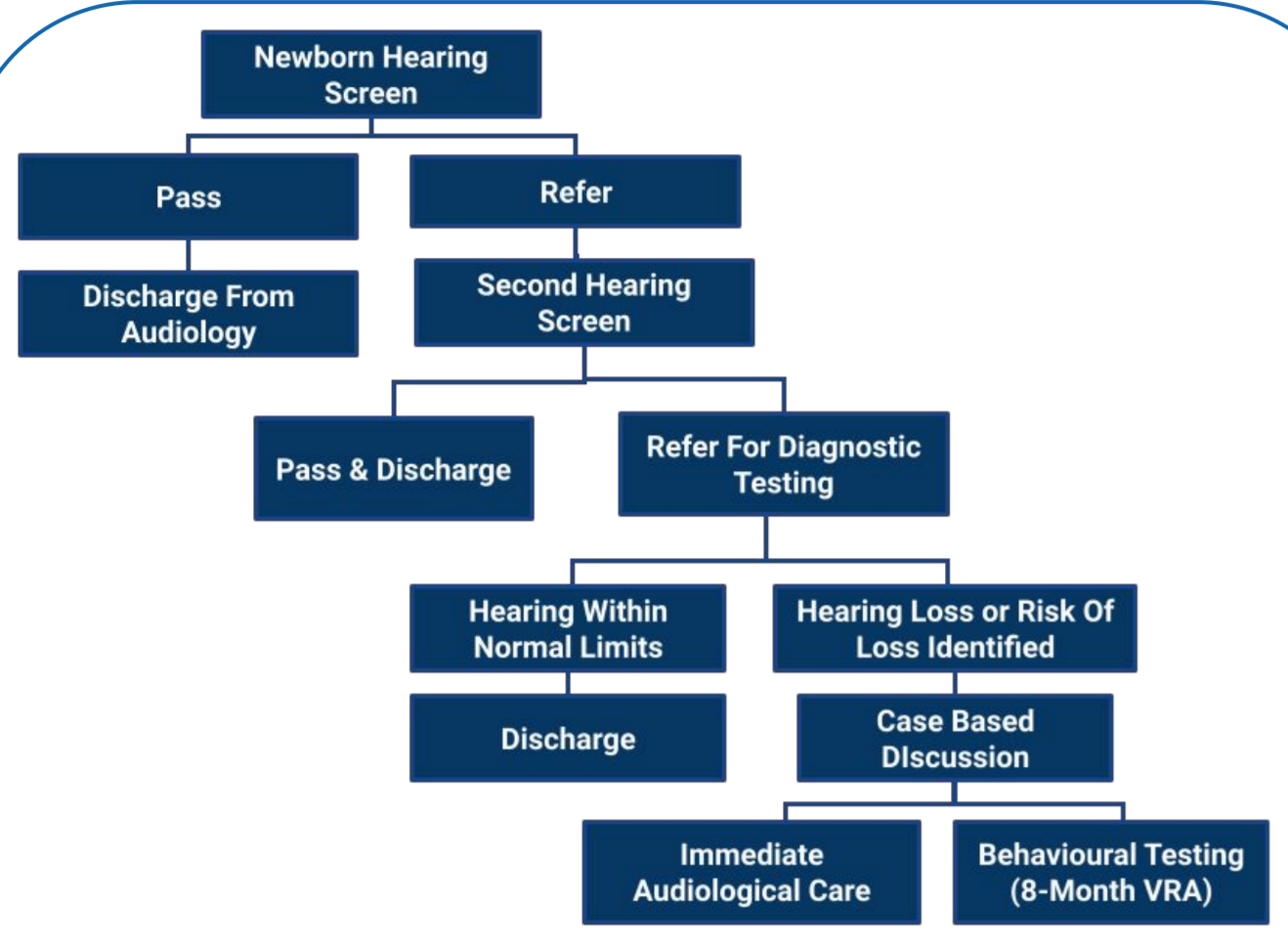


Fig 1: 8 Month VRA Pathway

8 Month VRA Appointments

- Behavioural testing from around 6 months.
- Use of cross-check principle is key. (Ringger, Houlden & McRedmond, 2021)
- Early Identification and Intervention improves outcomes. (Korver et al, 2010)

2. Methods

Identify Topic - Clinical Audit of 8 Month VRA appointments from 2017 to 2021

Set Standards - Team meeting held in department to set standards, agreed on Newborn Hearing Screening Programme Standards (NHS England, 2022)

Data Collection - Ages at initial appointment and when journey completed, number of appointments including those missed, testing completed & outcomes

Data Analysis - Results analysed using Google Sheets & SPSS. Data tested for normality with Kolmogorov-Smirnov & displayed graphically using both software

Discussion - Results explored & recommendations given on how to improve service. Will be shared with department once completed at next team meeting to propose changes

3. Results

157 infants identified, 9 rejected (2 missed, 2 not followed up, 3 not completed, 1 moved, 1 passed away)

Outcomes

- Discharge (WNB)
- Discharge (Normal Hearing)
- Ear, Nose & Throat
- Audiovestibular Physician
- Hearing Aids

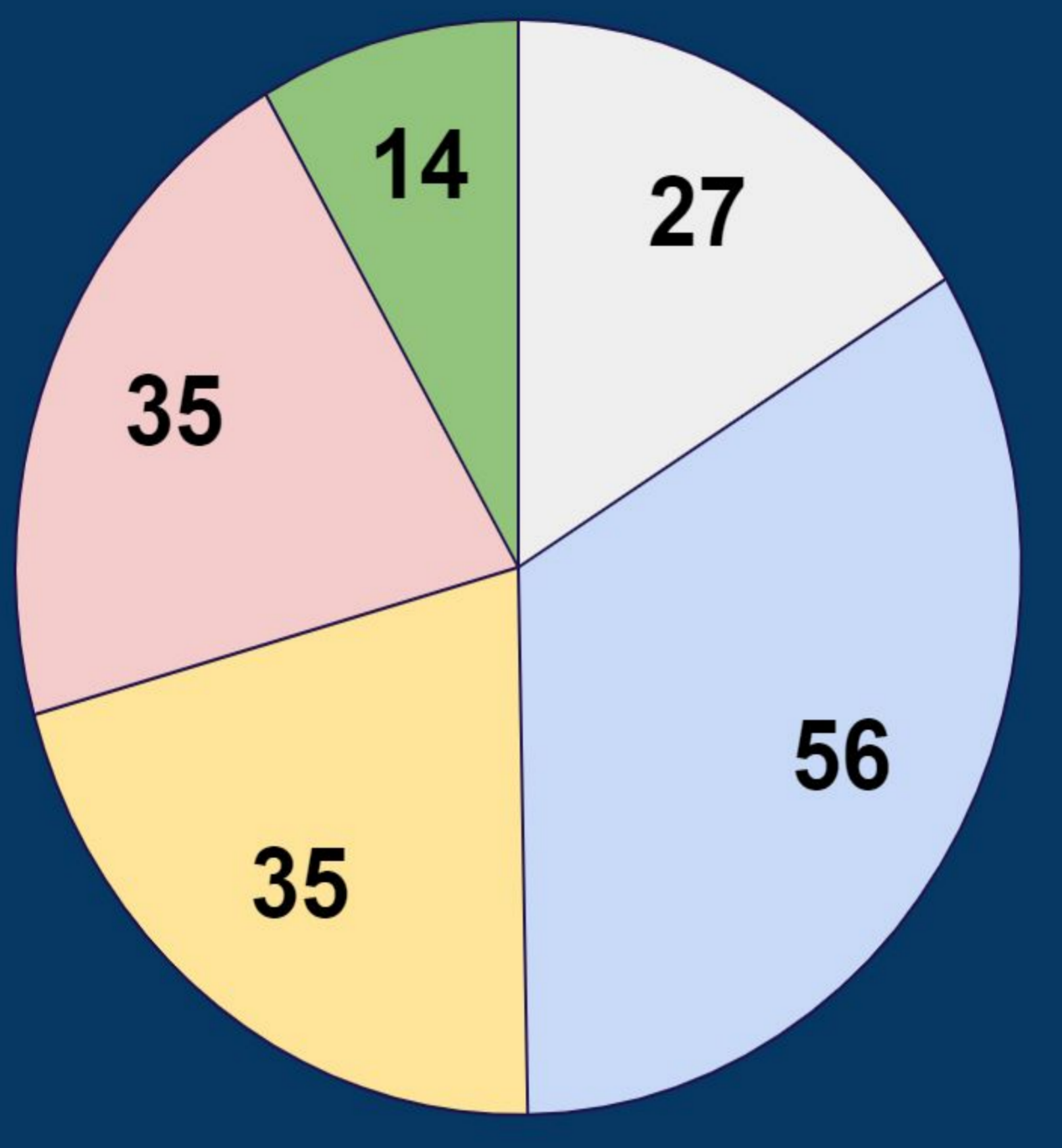


Fig 2: Patient Outcomes

Appointments & Attendance

- 148 infants required a total of 380 appointments.
- Attendance rate was 59.21%.
- 27 were not brought (WNB) to any appointments.
- 20 infants referred due to not attending 2 diagnostic appointments following referral from hearing screen. These 20 infants accounted for 61 WNB in audit, 101 in total.
- Incorrect patient details found to be the cause of 25 missed appointments.

Ages

■ Age at initial appointment ranged from 6.64 months to 19.73 months with 58.78% seen at target of 7-9 months. Median age 9.21 months.

■ Age at completion ranged from 7.30 months to 28.67 months. Median age 12.97 months.

■ 28.37% of infants completed their journey on a single visit. Median time for completion was 2.65 months with the longest time to completion being 17.33 months.

Histogram of Age at Initial Appointment

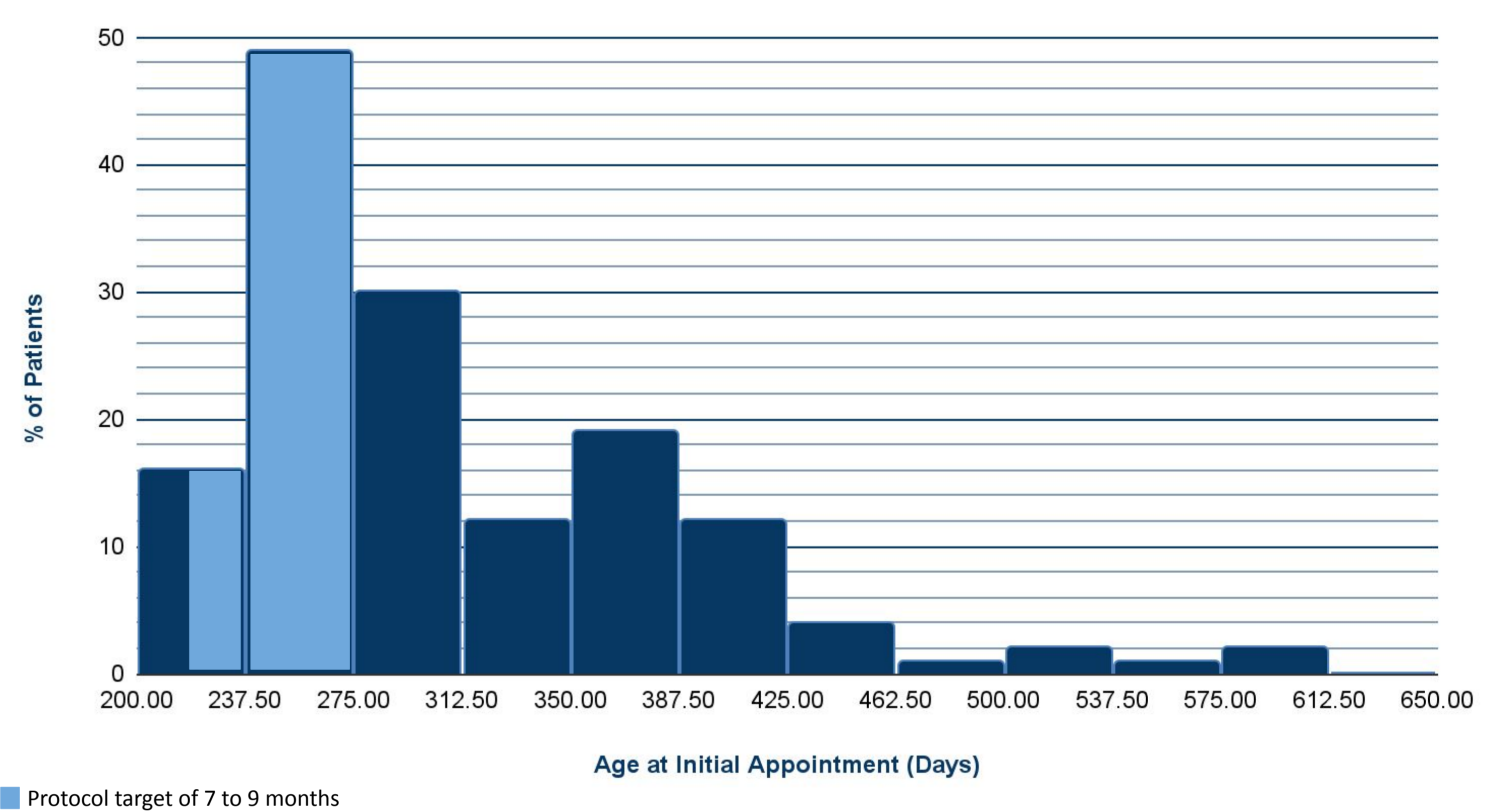


Fig 3: Histogram of Age at Initial Appointment

Testing Completed

- Otoscopy only reported in 71.1% of infants.
- Tympanometry results in 92.56%.
- OAE testing in 57.38% of suitable patients.
- Ear specific completed in 31.08%, all via insert earphones.
- Bone conduction carried out in 3.31%.

4. Discussion and Conclusions

Standards & Protocols - Standards chosen for audit not applicable to 8 month VRA appointments. Department protocol outdated as written in 2016. Scottish Paediatric Audiology Quality Standards published in 2009, British Society of Audiology Recommended Procedure for VRA written in 2014. Department protocol needs to be updated.

Attendance Rate - Correct patient details - new patient management system. Health Visitor should also be contacted for every appointment not attended as they are the infants 'named person' under Getting It Right For Every Child (GIRFEC) policy (Scot Gov, 2022). An opt-in clinic could help reduce non-attendance (Hawker, 2007), has been successful in the past in department, however it requires extensive admin time.

Age at Appointments - Team Lead and Audiologist could be put in charge of infants to appoint at 7-9 months. Currently 8 month VRA patients are appointed by the admin team that do not put priority so subject to the same waiting time increases of other clinics.

Testing Guidelines - Added to protocol to create a uniform approach from audiologists towards test battery used. Currently only testing mentioned in protocol is VRA itself.

Appointment Time - At least 45 minutes to help clinicians complete all the testing required while giving infants time to settle.

Audit Content - A lot of content for one audit, a more specific criteria would allow for a deeper dive into areas of the clinic.

References

- HAWKER, D., 2007. Increasing initial attendance at mental health out-patient clinics: Opt-in systems and other interventions. *Psychiatric Bulletin*, 31(5), pp.179-182. [viewed 15 January 2023]. Available from: <https://doi.org/10.1192/pb.bp.105.007377/>. KORVER, A.M., KONINGS, S., DEKKER, F.W., BEERS, M., WEVER, C.C., FRIJNS, J.H., OUDESLUYS-MURPHY, A.M. & DECIBEL COLLABORATIVE STUDY GROUP, 2010. Newborn hearing screening vs later hearing screening and developmental outcomes in children with permanent childhood hearing impairment. *JAMA*, 304(15), pp.1701-1708. [viewed 20 November 2022]. Available from: <https://doi.org/10.1001/jama.2010.1501/>. NATIONAL HEALTH SERVICE ENGLAND, 2022. Newborn Hearing Screening Programme: Standards [online]. National Health Service England. [viewed 09 November 2022]. Available from: <https://www.gov.uk/government/publications/newborn-hearing-screening-programme-quality-standards/>. POKORNY, M.A., HISLOP, R.A. & HOLT, E.A.L., 2022. Telephone triage does not improve attendance rates in a paediatric audiology outpatient service. *New Zealand Medical Journal*, 135(1553), pp.72-82. [viewed 02 January 2023]. Available from: <https://www.proquest.com/scholarly-journals/telephone-triage-does-not-improve-attendance/docview/2656324370/se-2/>. RINGGER, J., HOLDEN, K. & MCREDMOND, M., 2021. Clinical test batteries to diagnose hearing loss in infants and children: The cross-check principle. *Otolaryngologic Clinics of North America*, 54(6), pp.1143-1154. [viewed 03 March 2023]. Available from: <https://doi.org/10.1016/j.otc.2021.08.009/>. SCOTTISH GOVERNMENT, 2022. *Getting it right for every child* [online]. Scottish Government. [viewed 20 February 2023]. Available from: <https://www.gov.scot/policies/girfec/principles-and-values/>.