

Implementation of Ototoxicity Monitoring Guidance in an NHS Setting: A Service Evaluation

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Introduction

Ototoxicity monitoring is the process where individuals undergoing ototoxic treatments have their hearing monitored before, during and after treatment (Lord, 2019).

Whilst guidance exists in other countries, the only guidance in the UK is the *United Kingdom Thalassaemia Society* (2016) who recommend annual audiometry for those aged 5+ receiving iron chelators; deferasirox and deferoxamine.

There is currently no UK specific guidance in place for audiology professionals.

Objectives

GUIDANCE: To explore how the implementation of ototoxicity monitoring guidance in a NHS audiology department affects procedure completion rate?

PATIENT OUTCOMES: To identify the completion of ototoxicity monitoring appointment at each stage of treatment; baseline, during treatment and post-treatment assessments.

To identify the prevalence of hearing loss (HL) for different ototoxic treatments.

Methods

DESIGN: A retrospective service evaluation reviewing clinical notes for patients referred for ototoxicity monitoring at a single NHS audiology department over a 3-year period. Appointments were defined as being in year 1, 2 or 3.

Sample Size	392 Patients (292 adults, 100 children) 553 appointments (340 adult, 213 children)
Population	All adults and children who received ototoxic monitoring
Time Period	1 st November 2019- 31 st October 2022 Covid pandemic occurred during this period
Exclusions	Individuals receiving ototoxic treatment for vestibular schwannomas. Appointment not completed due to occluding wax or patient unwell.

Year	Dates	Status
1	1/11/19-31/10/20	Prior to changes, guidance and training
2	1/11/20-31/10/21	Changes and training gradually introduced
3	1/11/21-31/10/22	Post implementation of changes, guidance and training

Results

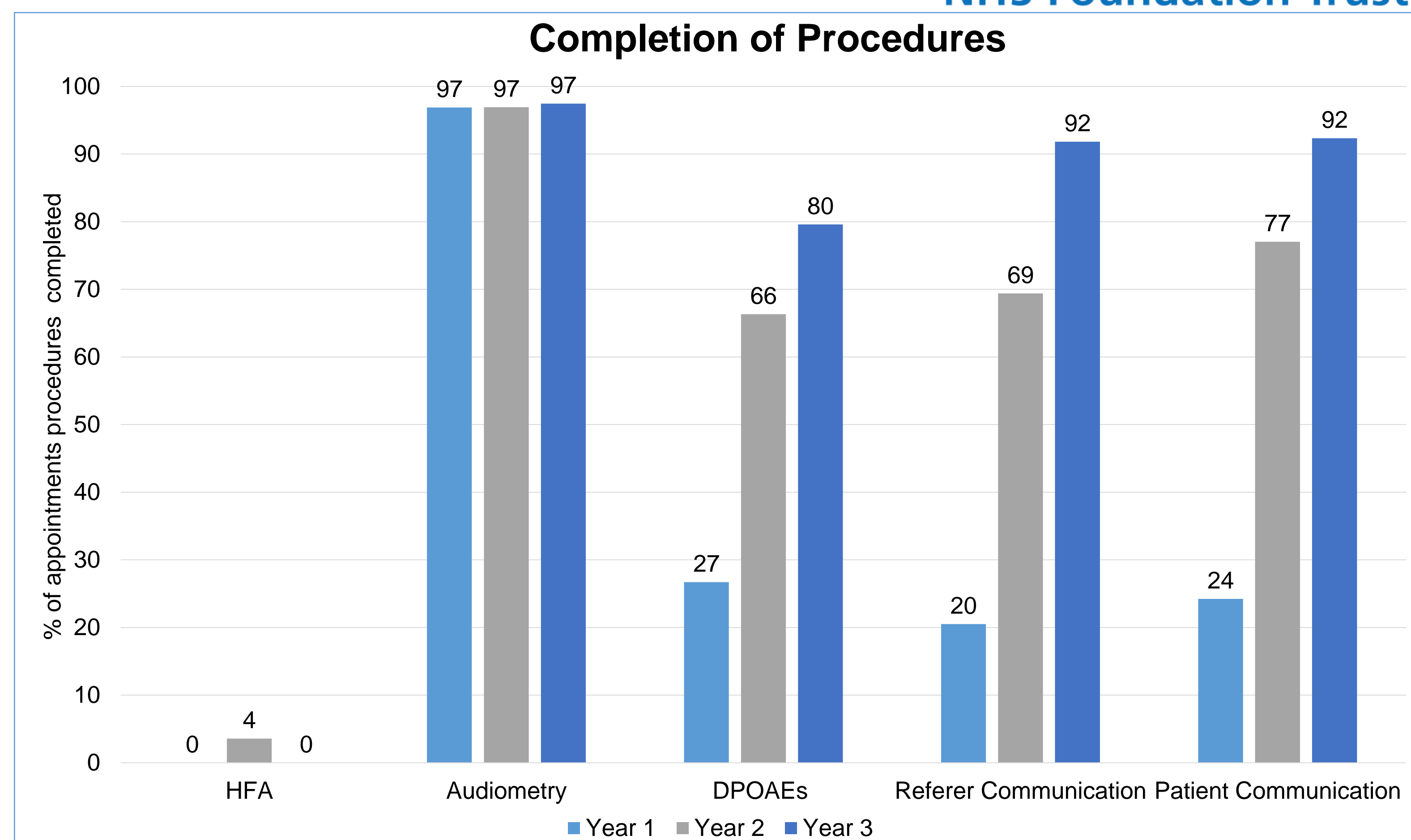
GUIDANCE: A statistically significant improvement was demonstrated between year 1 and year 3, for completion of DPOAEs, and communication being sent to referrer and patient following implementation of ototoxicity monitoring guidance. Completion rate of audiometry remained consistent and high throughout. Due to the low number of procedures performed statistical analysis of high frequency audiometry was not completed.

Acknowledgements

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References

Lord, S. G. (2019) 'Monitoring Protocols for Cochlear Toxicity', *Seminars in Hearing*, 40(2). doi: 10.1055/s-0039-1684042.
United Kingdom Thalassaemia Society. (2016) 'Standards for the clinical care of children and adults with Thalassaemia in the UK', 3rd Edition.



Results CONT.

Patient Outcomes

ADULTS: Only 16 adults received both a baseline and in- treatment or post-treatment assessments due to poor completion rates. Meaning there was insufficient data to determine if adults had pre-existing HL or developed a HL during or following ototoxic treatments. Of these, 5 adults were confirmed with a HL following ototoxic treatment.

Treatment	Number of patients - HL
Modified Packer (Cisplatin & Carboplatin)	2
BEP (Cisplatin)	2
Amikacin	1 (Unilateral)

CHILDREN: Sensorineural HL (SNHL) was identified in 27/100 children following ototoxic treatment, all had received platinum-based chemotherapy (PBC).

Platinum Based Chemotherapy Treatment Children			
Treatment	Total	No. with HL	%
Cisplatin	22	12	54
Carboplatin	24	2	8.3
Cisplatin & Carboplatin	12	8	62
Proton Beam Therapy	12	0	0
Cisplatin & Proton Beam Therapy	2	2	100
Carboplatin & Proton Beam Therapy	1	1	100
Cisplatin & Photon Therapy	4	1	25
Carboplatin & Photon Therapy	2	0	0
Cisplatin, Carboplatin & Photon Therapy	2	1	50

Conclusions

This study demonstrates improved completion rate for procedures following implementation of local guidance for ototoxicity monitoring in the absence of national protocol within the UK for audiology professionals.

An improvement in completion of baseline assessments is needed to identify the effect of ototoxic treatment for adults. Cisplatin was identified as the most ototoxic treatment in children.

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