**Skill mix in the aetiology pathway for children identified with permanent childhood hearing Impairment**

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### Introduction

The pilot of the pathway celebrated several successes; to a paediatrician or other specialist such as clinical genetics was developed. Where complex results and held in an enhanced audiology role. These investigations include: clinical history, referrals for; family audiograms, orthoptics, CMV, genetics, ECG, MRU/CT, urine analysis bedside balance tests and tinnitus discussion. Where complex results were received indicating further investigation, a secure and timely referral pathway to a paediatrician or other specialist such as clinical genetics was developed.

### Aims

This project aimed to assess the feasibility of introducing skill mix into the aetiology pathway. Resulting in shortened wait times for families, cost savings for audiology and better use of paediatricians time.

### Methods

Through a multi-disciplinary approach, quality improvement tools, including sequential PDSA cycles were used to develop the new pathway (figure 1). It was identified that the majority of the routine level 1 investigations could be requested and held in an enhanced audiology role. These investigations include: clinical history, referrals for; family audiograms, orthoptics, CMV, genetics, ECG, MRU/CT, urine analysis bedside balance tests and tinnitus discussion. Where complex results were received indicating further investigation, a secure and timely referral pathway to a paediatrician or other specialist such as clinical genetics was developed.

### Results

The pilot of the pathway celebrated several successes;
- a waiting list of 214 children (new and review) with the longest wait of 58 week wait was reduced to 0 weeks
- 193 children were managed by audiology with no requirement for medical input (only new cases were referred to paediatrics for a physical exam and any cases requiring level 2 investigations)
- Money was released to employ more paediatric audiologists to support general diagnostic wait times within the service
- CMV swabbing was incorporated into the routine diagnostic follow up appointment for babies referred from the NHSP with improved notification time for positive cases.

### Discussion

SPIN modules for doctors should increase the number of paediatricians trained in delivery of this specialist area of practice. However, this pilot has shown that with good links, it is possible to prevent delay in the provision of the early level 1 aetiology investigations for families by incorporating the role into the audiology service.

### The last 12 months

- Electronic referrals and notifications of results have been established for most parts of the pathway
- Waiting lists have been maintained at 0-4 weeks
- All new children are now seen within recommended timeframes for aetiology

### Case Study

Girl age 2.5yrs. Movement in from Spain May 2021. Referred to audiology via ENT with known hearing loss but no hearing aids (lost in transition)

Assessed in audiology as urgent case – bilateral moderate SNHL referred for hearing aids and aetiology.

- Seen for aetiology within 1 week of initial assessment no family history of hearing loss reported.
- Offered referrals to community paediatrics for physical examination, family audiograms, orthoptics, CMV and genetics testing

### Aetiology investigation outcomes:

Family audiograms completed 2 weeks after aetiology visit:
- Father and 2 sisters - normal hearing
- Brother age 10, behind in school, poor speech - found to have bilateral mild/ moderate SNHL which was unknown – hearing aids issued within 3 weeks and now making good progress.
- Mother - Bilateral moderate SNHL which was unknown – hearing aids issued.
- CMV negative
- Genomics – awaiting results
- Orthoptics – no concerns being monitored
- Physical exam - August 2022 paediatrics have still not seen the family due to long waiting lists.

The new pathway facilitated timely identification and positive intervention for two additional members of this family who would otherwise have been delayed.