

Item 7: Audiology: Background Note.

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To: Health Overview and Scrutiny Committee, 4 January 2013

Subject: Audiology: Background Note

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## 1. Introduction

- (a) An estimated 10.7 million people in the UK have some form of hearing loss. 4.9 million adults have a hearing loss where hearing aids/other appropriate aids, with clinical management, would be beneficial.<sup>1</sup>
- (b) Hearing loss comes about through three main routes:
1. *Conductive hearing loss* – Sounds are unable to pass from the outer to the inner ear. It is caused by a blockage such as ear wax, fluid build up from an ear infection, perforated ear drum or disorder of the hearing bones.
  2. *Sensorineural hearing loss* – Damaged is caused, through ageing or injury, to the hair cells in the cochlea or auditory nerve.
  3. *Mixed hearing loss* – Both of the above types are possible at the same time.<sup>2</sup>

## 2. Hearing Tests

- (a) A range of different hearing tests are used, some used specifically for children and others specifically for adults. Common hearing tests include:
- *Automated otoacoustic emissions tests (AOAE)* where a computer attached to an earpiece plays clicks and measures responses.
  - *Automated auditory brainstem response tests (AABR)* where sensors are placed on the head and neck to check nerve responses while sound played through headphones.
  - *Pure tone audiometry tests* where a button is pressed when sounds, played at different volumes and frequencies, are heard.
  - *Bone conduction tests* which tests how well sound travels through the bones in the ear using a vibrating sensor.<sup>3</sup>

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<sup>1</sup> Right Care, The NHS Atlas of Variation in Healthcare, November 2011, p.113, [http://www.rightcare.nhs.uk/atlas/downloads/Hearing\\_AoV\\_2011.pdf](http://www.rightcare.nhs.uk/atlas/downloads/Hearing_AoV_2011.pdf)

<sup>2</sup> NHS Choices, *Hearing impairment (deafness)*, <http://www.nhs.uk/Conditions/Hearing-impairment/Pages/Introduction.aspx?url=Pages/Overview.aspx>

- (b) In 2010, the rate of audiology assessments undertaken per 1000 population varied per Primary Care Trust (PCT) from 2.3 to 75.1.<sup>4</sup>

### 3. NHS Newborn Screening Programme (NHSP)

- (a) About 1 in every 842 children is born with some form of hearing loss with the number rising to 3 in every 1000 for babies who have spent more than 48 hours in intensive care.<sup>5</sup> Since 2006 the NHS Newborn Screening Programme (NHSP) has been offered across England and over 5 million babies have been screened.<sup>6</sup> It has been estimated that before the NHSP around 400 of the approximately 900 children born each year in the UK with a significant hearing impairment would have been missed by 1 ½ years of age and 200 of these children by 3 ½ years of age.<sup>7</sup>
- (b) Through the NHSP, children are referred to paediatric audiology services if a poor response in one or both ears is found at screening. In 2010, the mean time from referral to assessment for hearing tests in newborns varied by PCT from 10.5 to 57.2 days.<sup>8</sup>

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<sup>3</sup> NHS Choices, *Hearing tests*, <http://www.nhs.uk/Conditions/Hearing-tests/Pages/Introduction.aspx>

<sup>4</sup> Right Care, *The NHS Atlas of Variation in Healthcare*, November 2011, p.113, [http://www.rightcare.nhs.uk/atlas/downloads/Hearing\\_AoV\\_2011.pdf](http://www.rightcare.nhs.uk/atlas/downloads/Hearing_AoV_2011.pdf)

<sup>5</sup> NHS Newborn Hearing Screening Programme, *National programme*, <http://hearing.screening.nhs.uk/nationalprog>

<sup>6</sup> NHS Newborn Hearing Screening Programme, *Statistics*, <http://hearing.screening.nhs.uk/statistics>

<sup>7</sup> NHS Newborn Hearing Screening Programme, *Screening Information*, <http://hearing.screening.nhs.uk/screeninginformation>

<sup>8</sup> Right Care, *The NHS Atlas of Variation in Healthcare*, November 2011, p.115, [http://www.rightcare.nhs.uk/atlas/downloads/Hearing\\_AoV\\_2011.pdf](http://www.rightcare.nhs.uk/atlas/downloads/Hearing_AoV_2011.pdf)