

Sgrinio Clyw Babanod Cymru  
Newborn Hearing Screening Wales



GIG  
CYMRU  
NHS  
WALES

Iechyd Cyhoeddus  
Cymru  
Public Health  
Wales

# Newborn Hearing Screening Wales Annual Statistical Report 2020-21



# About us

Public Health Wales exists to protect and improve health and wellbeing and reduce health inequalities for people in Wales.

We are part of the NHS and report to the Minister for Health and Social Services in the Welsh Government.

Our vision is for a healthier, happier and fairer Wales. We work locally, nationally and, with partners, across communities in the following areas:

**Health protection** – providing information and advice and taking action to protect people from communicable disease and environmental hazards

**Primary, community and integrated care** – strengthening its public health impact through policy, commissioning, planning and service delivery

**Microbiology** – providing a network of microbiology services which support the diagnosis and management of infectious diseases

**Safeguarding** - providing expertise and strategic advice to help safeguard children and vulnerable adults

**Screening** – providing screening programmes which assist the early detection, prevention and treatment of disease

**Health intelligence** – providing public health data analysis, evidence finding and knowledge management

**NHS quality improvement and patient safety** – providing the NHS with information, advice and support to improve patient outcomes

**Policy, research and international development** – influencing policy, supporting research and contributing to international health development

**Health improvement** – working across agencies and providing population services to improve health and reduce health inequalities

## Further information

**Web:** [www.publichealthwales.org](http://www.publichealthwales.org)  
**Email:** [general.enquiries@wales.nhs.uk](mailto:general.enquiries@wales.nhs.uk)  
**Twitter:** @PublicHealthW  
**Facebook:** [www.facebook.com/PublicHealthWales](http://www.facebook.com/PublicHealthWales)

This report is a detailed summary of information on work undertaken by Newborn Hearing Screening Wales for the financial year from April 2020 to the end of March 2021. Results are reported by Health Board and are broken down to show the hospital location where screening or assessment has been carried out in some cases. Further details are available on request.

**Publication Details:**

**Title:** Newborn Hearing Screening Wales Annual Statistical Report 2020-21

**Date:** This report published August 2024

**ISBN:** 978-1-83766-451-1

**For more information about this report contact:**

Helen Clayton, Lead Informatics and Data Services Manager,  
Digital Services, Floor 6, Public Health Wales, Number 2 Capital Quarter,  
Tyndall Street, Cardiff, CF10 4BZ  
Tel: 029 2010 4405

Email: [Screening.Information@wales.nhs.uk](mailto:Screening.Information@wales.nhs.uk)

**Quality Assurance Statement**

Screening data records are constantly changing. The databases used by Public Health Wales Screening Division are updated on a daily basis when records are added, changed or removed (archived). This might relate to when a person has been identified as needing screening; has had screening results that need to be recorded, or has a change of status and no longer needs screening respectively. Data is received from a large number of different sources with varying levels of accuracy and completeness. The Screening Division checks data for accuracy by comparing datasets – for example GP practice data – and corrects the coding data where possible. It should be noted that there are sometimes delays in data collection – for example a person might not immediately register with their GP. These delays will therefore affect the completeness of the data depending on individual circumstances. In addition, the reader should be aware that data is constantly updated and there might be slight readjustments in the numbers cited in this document year on year because of data refreshing.

© 2024 Public Health Wales NHS Trust

Material contained in this document may be reproduced without prior permission provided it is done so accurately and is not used in a misleading context.

Acknowledgement to Public Health Wales NHS Trust to be stated.  
Copyright in the typographical arrangement, design and layout belongs to  
Public Health Wales NHS Trust.

## Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>6</b>
1.1	'Key messages' for parents .....	6
1.2	Programme delivery.....	6
1.3	Screening pathway .....	7
1.4	Impact of COVID-19 on NBHSW .....	7
<b>2</b>	<b>HEADLINE STATISTICS.....</b>	<b>10</b>
<b>3</b>	<b>DATA.....</b>	<b>11</b>
3.1	Standards.....	11
3.2	Coverage.....	14
3.3	Timeliness of testing .....	16
3.4	Attendance at screening appointments for Well babies .....	18
3.5	High risk babies completing screening .....	19
3.6	Screening Outcomes .....	20
3.7	Referrals for assessment .....	22
3.8	Attendance at assessment appointments .....	23
3.9	Time taken to start and complete assessments .....	24
3.10	Confirmation of hearing loss .....	26
3.11	Hearing aid fitting.....	27
3.12	Yield, Sensitivity, Specificity and Predictive Values.....	28
<b>4</b>	<b>DEFINITIONS .....</b>	<b>29</b>
<b>5</b>	<b>PRODUCTION TEAM.....</b>	<b>30</b>

## Tables and Graphs

Table 1:	Programme performance standards.....	11
Table 2:	Total number of live births by Health Board, babies eligible and suitable, number and proportion consented and tested .....	14
Graph 1:	Timeliness of Well babies receiving their first test in hospital .....	16
Graph 2:	Timeliness of Well babies receiving their first test in the community .....	16
Graph 3:	Well babies completing screening within four weeks .....	17
Table 3.i:	All Wales Well baby attendance at screening appointments.....	18
Table 3.ii:	Well baby attendance at screening appointments by Health Board .....	18
Graph 4:	High risk babies completing screening .....	19
Table 4:	Screening outcomes for Well babies .....	20
Table 5:	Screening outcomes for High Risk babies .....	21
Table 6:	Referrals for assessment.....	22
Table 7.i:	All Wales attendance at assessment appointments (includes community clinic and hospital outside Wales) .....	23
Table 7.ii:	Attendance at assessment appointments by Health Board .....	23
Table 8:	Time taken to start assessment .....	24

Table 9.i: All Wales time taken to complete assessment .....25

Table 9.ii: Time taken to complete assessment by Hospital .....25

Table 10: Number of babies with confirmed hearing loss born between  
1 April 2020 and 31 March 2021 by Region. ....26

Table 11: Age of confirmation of hearing loss.....26

Table 12: Age at hearing aid fitting .....27

Graph 5: Hearing aid fitting within four weeks of identification of hearing  
loss by Health Board for 2020 – 2021.....28

## 1 Introduction

This is the seventeenth annual statistical report published by Newborn Hearing Screening Wales (NBHSW). This report covers data for babies born between 1 April 2020 and 31 March 2021.

One or two babies in every 1,000 are born with a hearing loss that may affect their speech and language development. NBHSW was launched in 2003 and aims to identify these babies as early as possible, as evidence shows that introducing an early support programme before six months of age leads to better outcomes for speech and language development.

### 1.1 'Key messages' for parents

- Newborn hearing screening identifies if your baby has a hearing loss that could affect their speech and language development without early support
- All babies born to women who live in Wales are offered newborn hearing screening soon after birth
- Screening is offered either while you are still in hospital after your baby's birth, or a week or two later, usually in a local clinic
- Babies who have needed special care usually have their hearing screen before they go home
- The screening tests do not hurt or harm your baby
- Screening does not identify all hearing loss or prevent it at a later date
- Having your baby's hearing screened is your choice. The newborn hearing Screener and the leaflet "Your Baby's Hearing Screening Test" will give you more information.

### 1.2 Programme delivery

The Screening Division of Public Health Wales is responsible for managing, delivering and quality assuring the Newborn Hearing Screening programme. The programme is administered and delivered in three Regions across Wales and employs Coordinators, Screening Managers, Screeners and administrative staff.

The North Wales Region covers Betsi Cadwaladr University Health Board. The Mid and West Wales Region covers Swansea Bay University Health Board, Hywel Dda University Health Board, Powys Teaching Health Board and Princess of Wales Hospital. The South East Wales Region covers Aneurin Bevan University Health Board, Cardiff and Vale University Health Board and Cwm Taf Morgannwg University Health Board sites other than Princess of Wales Hospital. Screening of babies in Powys is shared across

the three Regions factoring in geographical proximity and the most effective deployment of staff and resources. Diagnostic assessment and early support is provided by a clinical network of Audiologists and medical leads (Doctors) in each Health Board.

### **1.3 Screening pathway**

Babies who are eligible for screening are identified in each Health Board from midwife birth notifications. Newborn Hearing Screeners offer screening tests to babies who are in hospital, and in community clinics when it has not been possible to perform the screen in hospital. The majority of babies in neonatal intensive care or special baby care units are screened before discharge.

Well babies who have a clear response in one or both ears on screening are discharged from the programme. Parents of Well babies who have a clear response in one ear are offered the opportunity to make arrangements for a further hearing test. Those who do not show a clear response in both ears at the end of the screening process are referred for diagnostic assessment.

High Risk babies who have a clear response in both ears on screening, are discharged from the programme. Those who do not show a clear response in one or both ears at the end of the screening process are referred for diagnostic assessment.

Babies who miss or do not complete screening or assessment are offered a hearing test at around nine months of age by their local Health Board.

Diagnostic assessments are undertaken by Audiologists within Health Boards. Babies identified with a hearing loss are fitted with hearing aids if appropriate and are supported by a multi-disciplinary early years team. The team includes a Specialist Doctor, Teacher of the Deaf, Audiologist and Speech and Language Specialist.

More information is available at [www.newbornhearingscreening.wales.nhs.uk](http://www.newbornhearingscreening.wales.nhs.uk)

### **1.4 Impact of COVID-19 on NBHSW**

Newborn Hearing Screening Wales service delivery was significantly impacted by the Covid-19 pandemic throughout the entire period covered by this report.

Throughout the whole pandemic, Newborn Hearing Screening continued to be delivered by Newborn Hearing Screeners across Wales on the post-natal wards and in Special Care and Neonatal Intensive Care Units with the aim of completing hearing screening for as many babies as possible in

hospital. Working practices were subject to rapid, significant and repeated changes to ensure the safety of babies, parents and staff.

However, not all babies are able to complete their screen in hospital (this includes babies who are discharged outside the hours covered by the Newborn Hearing Screening Team, those babies who are born at home or in hospitals that Screeners are not based in and babies of mothers who are Covid positive).

In line with UK and Welsh Government directives, Community Clinics for NBHSW were suspended on 18 March 2020 until July-August 2020. At clinic restart, and for the remainder of the period covered by this report, Community Clinics across Wales remained subject to social distancing and local venue restrictions which impacted on the number of appointments that could be offered. Additionally, some venues that had previously been used to deliver NBHSW clinics were no longer available for the service to use.

Full details of the action taken by NBHSW in response to the Covid-19 pandemic, including changes to the service model and the involvement of Audiology services in screening can be found in the 'Changes to the NBHSW Screening Pathway during Covid 19' report, which is available from NBHSW on request.

Babies who were not able to be offered screening in hospital, or were awaiting an initial screening test in community during the early period that NBHSW clinics were paused, were considered eligible for screening but were recorded by NBHSW with a 'screening suspended' status and were referred for Targeted Behavioural Testing (TBT) in audiology. From May 2020, many of these babies were offered screening by Audiology services, rather than wait until they were old enough for a TBT test, to reduce the risk of late diagnosis. Between June and August 2020, Screener colleagues from the Wales Abdominal Aortic Aneurysm Screening Programme (WAAASP) were temporarily redeployed to provide a single hearing screening opportunity; increasing NBHSW testing capacity to support service coverage. Details can be found in the report 'Management of babies affected by suspension of NBHSW community clinics due to Covid-19', which is available from NBHSW on request.

Babies who were awaiting follow-up screening in Community Clinics at the time of clinic closures were referred to Audiology for diagnostic assessment (but were able to have a repeat AOA screen in Audiology in the first instance).

Despite attempts to maximise the opportunity for babies to complete screening whilst in hospital, there has inevitably been an impact on screening performance activity throughout the pandemic, which is reflected in this Annual Statistical Report. Understandably, the reluctance of families to attend NBHSW or Audiology clinics for either completion of screening or for diagnostic assessment has also impacted on the performance of the

programme. This effect can be seen throughout 2020/21, with particular periods of time where Covid-19 transmission levels were high showing a notable impact.

NBHSW would like to acknowledge the Audiology services across Wales who worked tirelessly to ensure that babies who were unable to be screened in Hospital were given every possible opportunity to have timely neonatal hearing screening, diagnostic assessment and habilitation. Grateful thanks also go to the screeners who were redeployed from WAAASP.

## 2 Headline statistics

### Screening

- The coverage rates show that screening was offered to 93.2% of Eligible babies (26,306) with 92.2% of Eligible babies tested (26,093) and very few parents declining the screen. Service standards were not met.
- Across Wales, 75.9% of Well babies were screened within seven days of birth which meets the standard of 70%.
- 93.8% of Well babies completed screening within four weeks, achieving service standard.
- 99.9% of High Risk babies completed the screening programme, meeting the service standard.

### Assessment

- 1.6% of babies screened were referred for audiology assessment, in line with service standards.
- 94.5% of babies referred for audiology assessment completed the assessment process within three months, meeting the service standard.
- The time taken to start the assessment process was within the allocated time for 95.3% of Well babies (within four weeks of final screening test) and 99.5% of High Risk babies (within eight weeks of final screening test), both achieving service standards.
- 97.2% of babies referred attended an assessment, meeting service standards.
- 78.5% of assessment appointments were attended.
- 2.8% of babies referred for assessment were not seen due to non-attendance.

### Outcomes

- In babies born between 1 April 2020 and 31 March 2021, the prevalence of diagnosed permanent hearing loss greater than 40 dBHL in both ears was 1.5 per 1,000 of those babies screened. This is slightly higher than the prevalence recorded since the start of the programme which is 1.2 per 1,000.
- The mean age of confirmation of hearing loss was 8.2 weeks.
- The mean age of hearing aid fitting was 11.5 weeks.
- 96.0% of babies were fitted with hearing aids within four weeks of confirmation of hearing loss.

### 3 Data

#### 3.1 Standards

This table outlines the standards set by the screening programme to monitor performance.

**Table 1:** Programme performance standards

	<b>Objective</b>	<b>Criteria</b>	<b>Minimum Standard</b>	<b>Actual Value</b>	<b>Met</b>	<b>Variance From 2019/20</b>
1	To maximise the number of babies who are offered screening	The percentage of eligible babies who are offered screening	>= 99% of all babies	<b>93.2%</b>	<b>No</b>	<b>-5.5%</b>
1b	To provide assurance that each eligible and suitable baby has completed screening	The percentage of eligible and suitable babies who complete screening (Coverage)	>=98% of eligible and suitable babies	<b>92.1%</b>	<b>No</b>	<b>-5.1%</b>
2b	To provide assurance that each eligible and suitable baby for whom the offer of screening is made and is accepted has a completed screening outcome	The percentage of offered eligible and suitable babies who complete screening (Uptake)	>=98% of all babies offered screening	<b>98.8%</b>	<b>Yes</b>	<b>+0.3</b>
3	To screen most babies within the first week of life	The percentage of babies receiving the first screening test within the first week of life	>=70% of those Well babies screened	<b>75.9%</b>	<b>Yes</b>	<b>+0.7%</b>
4	To maximise the number of babies who complete the screening programme within the allocated time periods	Well babies - the percentage of babies who complete the screening programme within four weeks	>=90% of all babies entering the screening programme	<b>93.8%</b>	<b>Yes</b>	<b>-4.0%</b>
		High risk babies in SCBU > 48 hours - the percentage of babies who complete the screening programme	>=98% of all High Risk babies entering the screening programme	<b>99.9%</b>	<b>Yes</b>	<b>-0.1%</b>
		All babies - the percentage of babies who complete the screening programme	>=99% of all babies entering the screening programme	<b>99.9%</b>	<b>Yes</b>	<b>+0.1%</b>

	<b>Objective</b>	<b>Criteria</b>	<b>Minimum Standard</b>	<b>Actual Value</b>	<b>Met</b>	<b>Variance From 2019/20</b>
5	To minimise the number of babies requiring a diagnostic ABR who have normal hearing	Those babies who are referred for diagnostic ABR with normal hearing	<3% of all those who complete assessment and are found to have normal hearing as a proportion of all babies screened	<b>1.2%</b>	<b>Yes</b>	<b>+0.5%</b>
6	To start the assessment procedure (diagnostic ABR) in appropriate cases within the allocated time	Referred Well babies that start assessment procedure (Diagnostic ABR) in appropriate cases within four weeks	>=90% of those referred	<b>95.3%</b>	<b>Yes</b>	<b>-0.9%</b>
		Referred High Risk babies that start assessment procedure (Diagnostic ABR) in appropriate cases within eight weeks	>=90% of those referred	<b>99.5%</b>	<b>Yes</b>	<b>+0.7</b>
7	To complete the assessment procedure within the allocated time	Those babies that complete the assessment procedure within three months (in appropriate cases)	>=85% of those requiring assessment	<b>94.5%</b>	<b>Yes</b>	<b>+5.2%</b>
8	To minimise the number of babies who do not receive screening	The percentage of offered screening appointments which are not attended (Well babies)	<=3% (includes DNA appointments only)	<b>1.8%</b>	<b>Yes</b>	<b>-0.7%</b>
9	To minimise the number of babies who do not receive screening	The percentage of offered screening appointments which are declined (Well babies)	< 1% of Well babies	<b>0.5%</b>	<b>Yes</b>	<b>+0.3%</b>

	<b>Objective</b>	<b>Criteria</b>	<b>Minimum Standard</b>	<b>Actual Value</b>	<b>Met</b>	<b>Variance From 2019/20</b>
10	To refer an appropriate number of babies for assessment	The percentage of screened babies referred for assessment	Between 1-2%	<b>1.6%</b>	<b>Yes</b>	<b>+0.4</b>
11	To minimise the number of babies who do not receive an assessment	The percentage of offered assessment appointments which are not attended	< 10% (DNA appointments only)	<b>7.3%</b>	<b>Yes</b>	<b>-1.2%</b>
12	To minimise the number of babies who do not receive an assessment	The percentage of babies who are referred for assessment and not seen	< 5%	<b>2.8%</b>	<b>Yes</b>	<b>-6.2%</b>
13	To refer an appropriate number of babies for a repeat screen from audiology (one ear clear response, Well babies)	The percentage of screened babies referred	< 1%	<b>0.5%</b>	<b>Yes</b>	<b>-0.8%</b>
16	To provide information to promote informed choice	The percentage of mothers who provide positive responses on the information subscale of a user survey. The criteria for inclusion in the survey may be selected to compare the experiences of families	>90% positive responses from mothers completing the user survey	<b>Data not available. User surveys were paused during Covid-19 pandemic to reduce the risk of infection transmission from survey forms.</b>		
17	To evaluate mothers' satisfaction with the screening programme	The percentage of mothers who provide positive responses on a general satisfaction subscale of a user survey. The criteria for inclusion in the survey may be selected to compare the experiences of families	>= 95% of mothers completing user survey questionnaire	<b>Data not available. User surveys were paused during Covid-19 pandemic to reduce the risk of infection transmission from survey forms.</b>		

## 3.2 Coverage

*Standard 1:  $\geq 99\%$  of eligible babies are offered screening*

**Table 2:** Total number of live births by Health Board, babies eligible and suitable, number and proportion consented and tested

Health Board	Births	Eligible & Suitable	Consented & Tested	% Tested of Eligible & Suitable	Total Offered	% Offered of Eligible and Suitable
Aneurin Bevan University Health Board	5914	5725	5349	93.4%	5414	94.6%
Betsi Cadwaladr University Health Board	6490	6270	5778	92.2%	5797	92.5%
Cardiff and Vale University Health Board	4931	4758	4497	94.5%	4581	96.3%
Cwm Taf Morgannwg University Health Board	4271	4159	3843	92.4%	3871	93.1%
Hywel Dda University Health Board	3217	3099	2812	90.7%	2839	91.6%
Powys Teaching Health Board	1114	1070	897	83.8%	903	84.4%
Swansea Bay University Health Board	3332	3225	2917	90.4%	2978	92.3%
<b>All Wales</b>	<b>29269</b>	<b>28306</b>	<b>26093</b>	<b>92.2%</b>	<b>26383</b>	<b>93.2%</b>

This standard was met in all regions of Wales from August 2020 to the end of the period. Between April and June 2020, performance fell below standard across all health board areas as a direct result of the disruption caused by the Covid-19 pandemic as described in section 1.4. With gradual restarting of paused community clinics from June, coverage improved, mirroring pre-Covid performance and achieving the standard for almost all areas by July 2020.

The pause in clinic based delivery had a disproportionate effect on babies in the Powys area which is shown in performance figures. As NBHSW Screeners do not deliver screening from Midwifery led birth centres, hospital based NBHSW screening was only offered to Powys babies born in district general

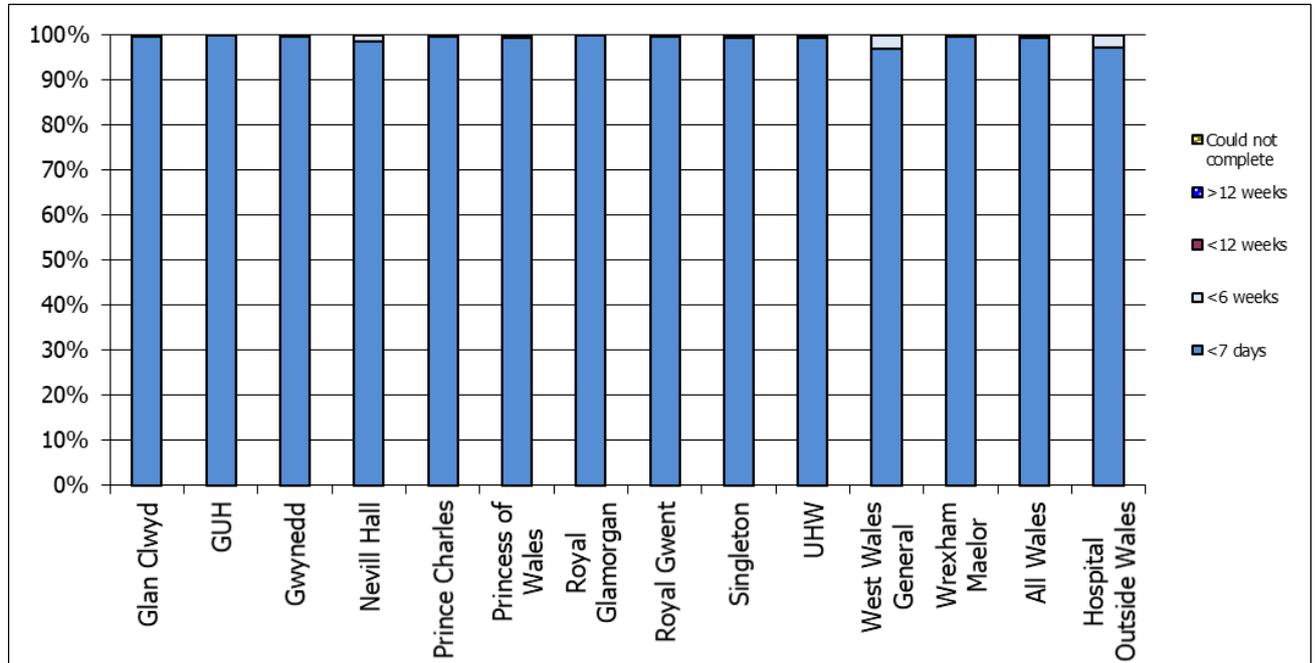
hospitals in neighbouring health board areas during the time that clinic activity was paused. Once it was again safe to offer community based clinic appointments, capacity remained below pre-Covid levels because of the need to adopt social distancing measures, additional time in sessions for infection control activity and the delayed return to clinic delivery on some sites. By December 2020, the service standard was being met in all health board areas as well as at an all Wales level.

In response to the pandemic, alternative arrangements were established to ensure that those babies to whom NBHSW could not offer routine screening were subsequently offered hearing assessments via NBHSW or Audiology services.

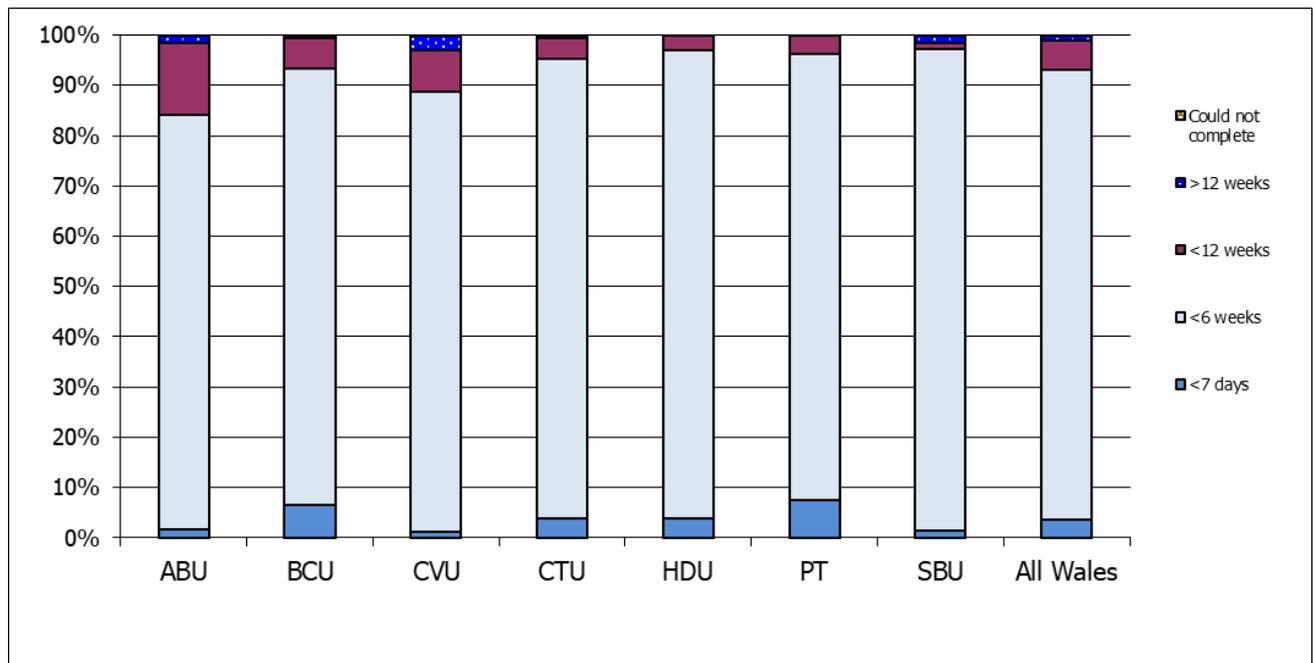
### 3.3 Timeliness of testing

*Standard 3: ≥70% of Well babies screened receive the first screening test within the first week of life*

**Graph 1:** Timeliness of Well babies receiving their first test in hospital



**Graph 2:** Timeliness of Well babies receiving their first test in the community

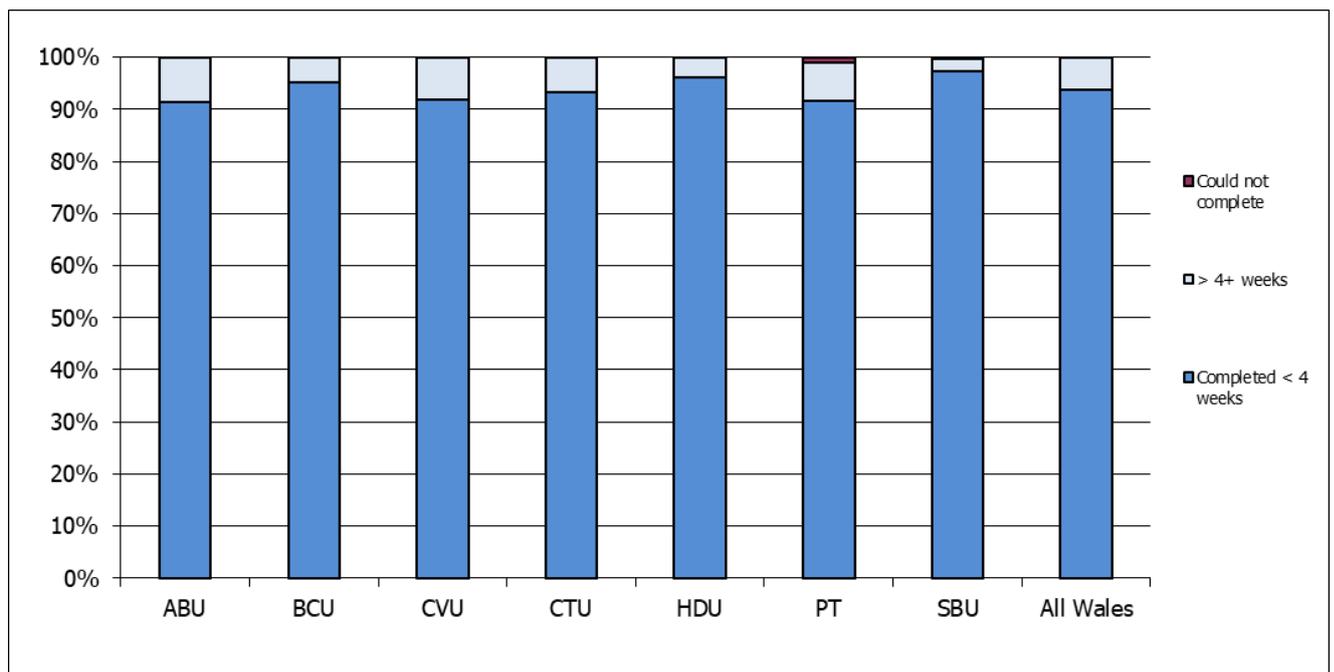


The all Wales average for Well babies having an initial test within seven days of birth in any setting is 75.9%. This is an increase of 0.7% on the previous year.

Four hundred and seven Well babies were over six weeks old before their initial test. This is an increase of 332 babies from the previous year. Over half of these babies (54.8%) were from the Aneurin Bevan or Cardiff and Vale Health Board areas. Maternity units in these Health Boards are very busy with short length of hospital stay for well mother and babies during this period, reducing the opportunity to perform the initial screen in hospital. More generally, the programme was managing with reduced staffing levels during this period, particularly in the South East Wales region, with both short and long term staff absences linked to the pandemic.

*Standard 4: ≥90% of Well babies entering the screening programme complete screening within four weeks*

**Graph 3:** Well babies completing screening within four weeks



Across Wales, 93.8% of Well babies completed screening within four weeks which achieved the service standard but was 4.0% less than the previous year. Screening is complete when the baby is discharged or referred for assessment. Performance against this standard was affected by Covid-19 disruption. As noted previously, for the majority of Powys resident babies there is no hospital screening opportunity which resulted in a higher proportion of screening that could not be completed compared to other areas.

The majority of babies that did not complete screening within four weeks (259 babies) were being managed during December 2020, which coincided with a new highly infectious strain of Covid-19, resulting in reduced staffing levels and delays in clinic attendance by families.

### 3.4 Attendance at screening appointments for Well babies

*Standard 8: ≤ 3% of offered screening appointments not attended (DNA appointments only)*

*Standard 9: < 1% of offered screening appointments declined*

**Table 3.i:** All Wales Well baby attendance at screening appointments

Screening Location	Attended (%)	DNA (%)	Cancelled (%)	Parent Declined (%)	Unknown (%)	Total
All Wales	26491 (94.7%)	498 (1.8%)	831 (3.0%)	153 (0.5%)	2 (0.01%)	27975

Numbers are rounded to 1 decimal place

The standard for DNA appointments has again been achieved this year at 1.8%. Absolute numbers of offered appointments was lower for 2020/21 in comparison to previous years due to the temporary pause in clinic activity and the implementation of Covid safety measures. Cancelled appointments dropped from 4.9% to 3.0% which is a significant achievement considering the wider context in which the service was being delivered. This was achieved by a particular focus on agreeing convenient appointments with the parents and provision of an appointment reminder service by Screeners.

**Table 3.ii:** Well baby attendance at screening appointments by Health Board

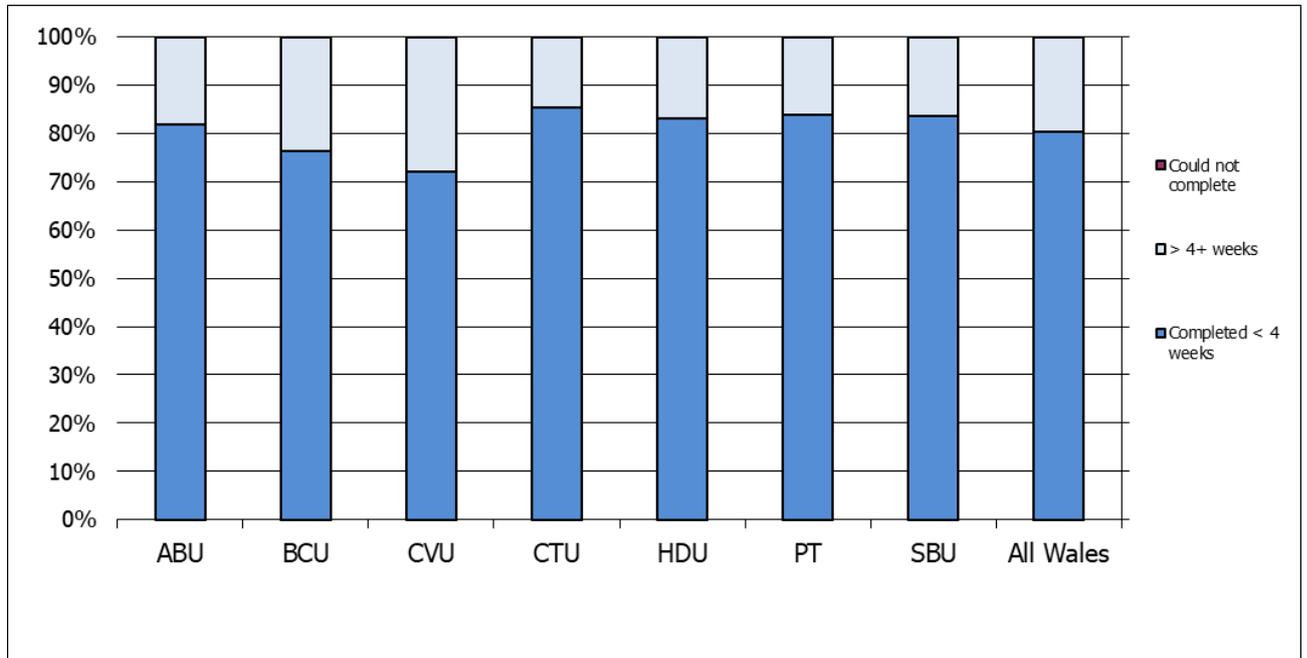
Screening Location	Attended (%)	DNA or Cancelled (%)	Parent Declined (%)	Unknown (%)	Total
Aneurin Bevan University Health Board	94.9%	4.6%	0.5%	-	5423
Betsi Cadwaladr University Health Board	96.5%	3.4%	0.2%	-	6248
Cardiff and Vale University Health Board	95.5%	3.5%	1.1%	-	5476
Cwm Taf Morgannwg University Health Board	93.3%	6.6%	0.2%	0.01%	4653
Hywel Dda University Health Board	92.4%	6.8%	0.8%	-	2885
Powys Teaching Health Board	93.1%	6.4%	0.6%	-	535
Swansea Bay University Health Board	93.9%	5.2%	0.9%	-	2755

The number of parents declining the screening test remained minimal despite the pandemic.

### 3.5 High risk babies completing screening

*Standard 4:  $\geq 98\%$  of all High Risk babies entering the screening programme complete screening*

**Graph 4:** High risk babies completing screening



99.9% of High Risk babies completed screening.

### 3.6 Screening Outcomes

*Standard 10: Between 1 and 2 % of screened babies referred for assessment*

*Standard 13: <1 % of screened babies referred to audiology for repeat screen (Well babies with a one ear clear response)*

**Table 4:** Screening outcomes for Well babies

Screening Location	Discharged	Referred for Assessment	Referred to Audiology	Referred for Behavioural Test
Outside Wales	95.6%	0.5%	0.3%	2.4%
Aneurin Bevan University Health Board	96.5%	1.1%	0.4%	1.8%
Betsi Cadwaladr University Health Board	96.6%	0.9%	0.8%	1.8%
Cardiff and Vale University Health Board	96.8%	1.4%	0.6%	1.2%
Cwm Taf Morgannwg University Health Board	97.9%	1.1%	0.3%	0.5%
Hywel Dda University Health Board	97.7%	0.8%	0.3%	1.1%
Powys Teaching Health Board	96.6%	2.0%	0.0%	1.5%
Swansea Bay University Health Board	97.7%	0.9%	0.1%	1.0%
<b>All Wales Total</b>	<b>97.0%</b>	<b>1.1%</b>	<b>0.5%</b>	<b>1.3%</b>

Numbers are rounded to 1 decimal place

The above table excludes High Risk babies and therefore shows that 1.1% of Well babies are referred for assessment following bilateral no clear response. Referrals to audiology for repeat screen following a one ear clear screening result are overall at 0.5%. For a significant proportion of the reporting period, audiology services withdrew the option of one ear clear rescreen, in order to provide sufficient capacity to manage the increased volume of targeted behavioural test activity.

**Table 5:** Screening outcomes for High Risk babies

Screening Location	Discharged	Referred for Assessment	Referred for Behavioural Test
Outside Wales	82.1%	11.9%	6.0%
Aneurin Bevan University Health Board	91.6%	6.4%	2.0%
Betsi Cadwaladr University Health Board	87.8%	9.1%	2.8%
Cardiff and Vale University Health Board	87.7%	11.6%	0.7%
Cwm Taf Morgannwg University Health Board	91.1%	7.3%	1.6%
Hywel Dda University Health Board	93.1%	5.2%	1.7%
Powys Teaching Health Board	100.0%	0.0%	0.0%
Swansea Bay University Health Board	92.3%	7.3%	0.4%
<b>All Wales Total</b>	<b>90.1%</b>	<b>8.1%</b>	<b>1.8%</b>

Although the overall referrals for assessment meet the standard of 1-2% of babies screened there are, as expected, a higher percentage of High Risk babies referred for assessment. Referrals for assessment for High Risk babies include those with no clear response in one ear as well as those with bilateral no clear response.

### 3.7 Referrals for assessment

*Standard 10: Between 1 and 2% of screened babies referred for assessment*

**Table 6:** Referrals for assessment

Location	Total Screened	Referred for assessment	% of Babies Referred
Aneurin Bevan University Health Board	5349	90	<b>1.7%</b>
Betsi Cadwaladr University Health Board	5778	81	<b>1.4%</b>
Cardiff and Vale University Health Board	4497	87	<b>1.9%</b>
Cwm Taf Morgannwg University Health Board	3843	71	<b>1.8%</b>
Hywel Dda University Health Board	2812	34	<b>1.2%</b>
Powys Teaching Health Board	897	13	<b>1.4%</b>
Swansea Bay University Health Board	2917	32	<b>1.1%</b>
<b>All Wales</b>	<b>26093</b>	<b>408</b>	<b>1.6%</b>

The above breakdown is based on screening location rather than assessment location, it should be noted that some babies will be assessed in a different Health Board area from where they were screened. There were an additional 84 babies referred directly for assessment as a result of a medical decision without first completing screening.

### 3.8 Attendance at assessment appointments

*Standard 11: <10% offered assessment appointments not attended (DNA appointments only)*

This standard covers both Well and High Risk babies.

**Table 7.i:** All Wales attendance at assessment appointments (includes community clinic and hospital outside Wales)

Health Board	Attended	Cancelled	Parent Declined	DNA	Total
All Wales Total	624 (78.5%)	99 (12.5%)	8 (1.0%)	58 (7.3%)	795

**Table 7.ii:** Attendance at assessment appointments by Health Board

Health Board	Attended	% DNA
Aneurin Bevan University Health Board	123	<b>9.6%</b>
Betsi Cadwaladr University Health Board	126	<b>9.0%</b>
Cardiff and Vale University Health Board	152	<b>4.1%</b>
Cwm Taf Morgannwg University Health Board	133	<b>10.8%</b>
Hywel Dda University Health Board	51	<b>1.7%</b>
Swansea Bay University Health Board	35	<b>0.0%</b>

The all Wales standard is being met at 7.3%, an improvement by 1.2% from the previous year. As in previous years, there is variability between Health Boards. Work is continuing at a local level to reduce the percentage of DNAs for the assessment appointments.

### 3.9 Time taken to start and complete assessments

*Standard 6: ≥ 90% Well babies start assessment within four weeks*

*Standard 6: ≥ 90% of High Risk babies start assessment within eight weeks*

**Table 8:** Time taken to start assessment

Assessment Location	% Starting within Set Timescales	
	Well babies	High Risk babies
Hospital Outside Wales	100.0%	100.0%
Glan Clwyd Hospital	100.0%	100.0%
Gwynedd Hospital	93.3%	100.0%
Neath Port Talbot Hospital	85.7%	100.0%
Nevill Hall Hospital	100.0%	100.0%
Princess of Wales Hospital	90.0%	94.1%
Royal Gwent Hospital	97.5%	100.0%
Serennu Children's Centre	100.0%	100.0%
Singleton Hospital	92.9%	100.0%
UHW	92.4%	100.0%
West Wales General Hospital	100.0%	100.0%
Wrexham Maelor Hospital	89.7%	100.0%
Ysbyty Cwm Cynon Outpatients Dept	100.0%	100.0%
<b>All Wales Total</b>	<b>95.3%</b>	<b>99.5%</b>

All Wales figures show a slight decrease in the Well baby group. This relates to 13 babies where the initial assessment appointment was delayed.

*Standard 7:  $\geq 85\%$  babies complete assessment within three months (if appropriate)*

*Standard 12:  $< 5\%$  of babies referred for assessment are not seen*

**Table 9.i:** All Wales time taken to complete assessment  
Includes community clinics and hospitals outside Wales

Assessment Location	Never Attended	Attended then DNA'd final test	Not Yet Complete	Completed < 3 Months	Completed 3+ Months
All Wales Total	2.8%	1.8%	0.2%	94.5%	0.6%

Standard 7 continues to be met but with an increase of 5.2% compared with the previous year's figures for babies completing assessment within three months. There was an decrease of 6.2% in the number of babies referred but never seen. These changes relate to the impact of the Covid-19 pandemic during the 2019-20 and 20-21 reporting periods (as described in section 1.4).

**Table 9.ii:** Time taken to complete assessment by Hospital

Assessment Location	Never Attended	Attended then DNA'd final test	Not Yet Complete	Completed < 3 Months	Completed 3+ Months
Glan Clwyd Hospital	0.0%	7.1%	0.0%	92.9%	0.0%
Gwynedd Hospital	3.4%	3.4%	0.0%	93.1%	0.0%
Neath Port Talbot Hospital	0.0%	7.1%	0.0%	92.9%	0.0%
Nevill Hall Hospital	8.3%	0.0%	0.0%	91.7%	0.0%
Princess of Wales Hospital	3.7%	0.0%	3.7%	88.9%	3.7%
Royal Gwent Hospital	5.7%	1.4%	0.0%	92.9%	0.0%
Serennu Children's Centre	0.0%	9.1%	0.0%	90.9%	0.0%
Singleton Hospital	3.4%	0.0%	0.0%	96.6%	0.0%
UHW	0.9%	0.9%	0.0%	97.3%	0.9%
West Wales General Hospital	0.0%	0.0%	0.0%	100.0%	0.0%
Wrexham Maelor Hospital	3.3%	4.9%	0.0%	90.2%	1.6%
Ysbyty Cwm Cynon Outpatients Dept	3.3%	0.0%	0.0%	96.7%	0.0%
Hospital Outside Wales	0.0%	0.0%	0.0%	100.0%	0.0%

### 3.10 Confirmation of hearing loss

The total number of babies identified with a bilateral moderate or greater permanent hearing loss in Wales born between 1 April 2020 and 31 March 2021 is 25. This was a prevalence of 0.9 per 1,000 babies screened.

**Table 10:** Number of babies with confirmed hearing loss born between 1 April 2020 and 31 March 2021 by Region.

Division	Total
North Wales	2
Mid & West Wales	7
South Wales	16
<b>All Wales Total</b>	<b>25</b>

Confirmed hearing loss is as defined above.

It should be noted that the South Wales region contains the highest population density of NBHSW regions.

Table 11 shows average and median age of confirmation of hearing loss in babies born between 1 April 2020 and 31 March 2021.

**Table 11:** Age of confirmation of hearing loss

Health Board	Average (weeks)	Median (weeks)
Aneurin Bevan University Health Board	6.3	5.7
Betsi Cadwaladr University Health Board	11.2	9.9
Cardiff and Vale University Health Board	6.4	6.4
Cwm Taf Morgannwg University Health Board	14.9	11.0
Hywel Dda University Health Board	4.9	4.9
Swansea Bay University Health Board	4.9	4.9
<b>All Wales Total</b>	<b>8.2</b>	<b>7.0</b>

These figures are affected by small numbers of identified babies in each Health Board. Clinical and social factors can influence timing of both confirmation of hearing loss and hearing aid fitting.

### 3.11 Hearing aid fitting

#### Average and median age of hearing aid fitting by Health Board

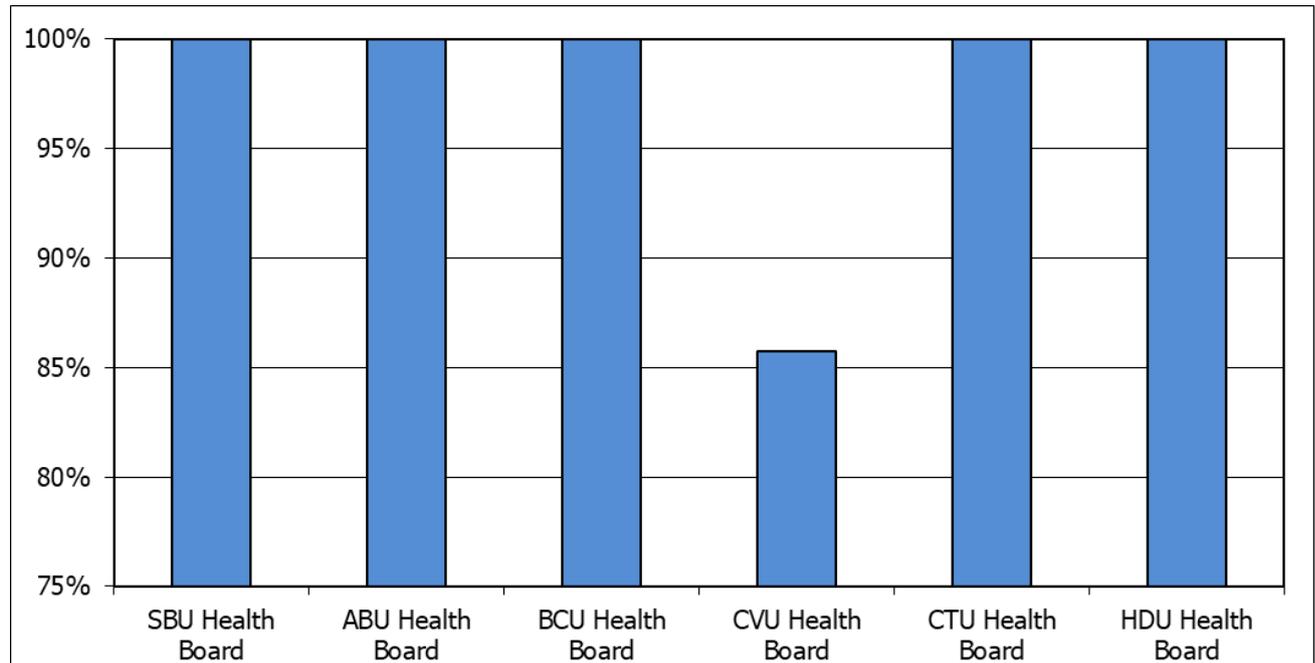
Table 12 shows average and median age of hearing aid fitting of babies born between 1 April 2020 and 31 March 2021. These figures allow for prematurity.

**Table 12:** Age at hearing aid fitting

Health Board	Average (weeks)	Median (weeks)
Aneurin Bevan University Health Board	8.1	7.4
Betsi Cadwaladr University Health Board	11.9	12.1
Cardiff and Vale University Health Board	8.8	9.0
Cwm Taf Morgannwg University Health Board	16.0	13.3
Hywel Dda University Health Board	25.6	25.6
Swansea Bay University Health Board	6.9	6.9
<b>All Wales Total</b>	<b>11.5</b>	<b>9.3</b>

The figures in Table 12 are affected by small numbers of identified babies in each Health Board. Clinical and social factors can influence timing of both confirmation of hearing loss and hearing aid fitting.

**Graph 5:** Hearing aid fitting within four weeks of identification of hearing loss by Health Board for 2020 – 2021



96.0% of babies in Wales were fitted within four weeks of identification.

Timely hearing aid fitting for babies identified with a hearing loss can be influenced by clinical and social factors and does not always reflect issues with service delivery. During this reporting period, audiology services were subject to staffing issues and capacity constraints linked to the pandemic.

### 3.12 Yield, Sensitivity, Specificity and Predictive Values

The yield from the programme indicates that the number of cases detected related to the number of babies screened is 1:799.

The sensitivity of the programme is 90.2% with a specificity of 98.8%.

The positive predictive value of the screen is 9.5%.

This means that the screening process worked well to identify the babies who require diagnostic assessment. However, as permanent deafness only affects a small number of babies and many babies will still have temporary fluid in the ears following birth, most will be assessed to have satisfactory hearing when they have a diagnostic test.

## 4 Definitions

This section provides further detail on the calculations used in this report.

### Health Board

Screening data is taken from the All Wales New Born Hearing system. Babies are allocated to Health Boards based on residence, unless stated that the location is based on where the screening took place. We do not hold data on place of birth.

### Eligible babies

Babies born to mothers who are temporarily or permanently resident in Wales at the time of birth and babies that move into Wales under the age of six weeks.

### Suitable for testing

Babies are suitable for testing when they and their mother are well. Babies born prematurely are ideally suitable for testing when the baby's gestational age is more than 36 weeks, but tests can be undertaken from 34 weeks onwards.

### Uptake

The proportion of eligible and suitable babies who are tested.

### High risk babies

Babies who have spent more than 48 hours continuously in a Special Care Baby Unit/Neonatal Intensive Care Unit.

### Well babies

All babies that are not classified as High Risk.

### Referral for re-screen in Audiology

Parental request for re-screen following a one ear clear response result for a Well baby on completion of screening.

### Targeted Behavioural Test

A hearing assessment for babies undertaken by audiologists at a developmental age of nine months. This is offered to babies who do not complete screening or assessment, babies whose parents request follow up for a Well baby with a one ear clear response, and babies who have identified risk factors for hearing loss.

### Yield

The number of babies with a follow-up outcome that meets the definition of the target case, per 1,000 babies screened. The target case for NBHSW is bilateral permanent hearing loss of a level greater than 40 dBHL across the frequency range of 500Hz, 1KHz, 2kHz and 4KHz.

**Sensitivity**

The number with confirmed hearing loss that were correctly identified as positive on screening.

**Specificity**

The number confirmed with no hearing loss that were correctly identified as negative on screening.

**Predictive Value**

The proportion of referred cases following a positive screening test which are found to have confirmed hearing loss.

**5 Production Team****Production Team:**

Jacqui Evans	Newborn Screening Manager, North Wales
Hayley Mills	Programme Co-ordinator, North Wales
Jackie Harding	Programme Co-ordinator, South Wales
Lara Tompkins	Programme Co-ordinator, Mid and West Wales
Jude Kay	Head of Programme, Newborn Hearing Screening
Dr Sikha de Souza	Consultant in Public Health, Screening
Dr Sharon Hillier	Director of Screening Division
Helen Clayton	Lead Informatics and Data Services Manager
Kate Lilly	Senior Informatics and Data Specialist
Christie Redman	Senior Informatics and Data Analyst
Rhys George	Cofus CTF (Welsh translation)

This report was not published as official statistics.