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Newborn Hearing Screening Wales Annual Statistical Report 2022-23

Version 1.0

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Publication details

This report is a detailed summary of information on work undertaken by Newborn Hearing Screening Wales for the financial year from April 2022 to the end of March 2023. 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.

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Rydym yn croesawu gohebiaeth a galwadau ffôn yn Gymraeg. Byddwn yn ateb gohebiaeth yn Gymraeg heb oedi / We welcome correspondence and phone calls in Welsh. We will respond to correspondence in Welsh without delay.

QA 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.



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This document is also available in Welsh.

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Key messages

- Newborn hearing screening identifies if a 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 mother and baby are still in hospital after the 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 the baby
- Screening does not identify all hearing loss or prevent it at a later date
- Screening is not 100% accurate. If the screening test suggests a problem, the baby will need further tests to assess their hearing
- Having screening is a choice, but it is recommended by the NHS. The newborn hearing Screener and the 'About Newborn Hearing Screening' information that is available on the programme web pages provide parents with the information they need to make a decision.



Introduction

Background

This is the nineteenth annual statistical report published by Newborn Hearing Screening Wales (NBHSW). This report covers data for babies born between 1 April 2022 and 31 March 2023.

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.

Current eligibility

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 are eligible for NBHSW Screening. Babies are suitable for testing when they and their mother are well. The optimal gestational age for screening is 36 weeks, but in certain circumstances screening may take place between 34 and 36 weeks gestational age. For babies born prematurely, eligibility starts from 34 weeks gestation and runs until 46 weeks from that point.

Babies with certain clinical conditions are ineligible for NBHSW screening. These babies are referred directly to Audiology.

- Babies born with 1 or both ears significantly malformed or absent
- Babies with confirmed or suspected bacterial meningitis / meningococcal septicaemia
- Babies with confirmed congenital CMV
- Babies with Programmable Ventriculo-Peritoneal Shunts

Sources of additional information

Further details about NBHSW can be found on the programme web pages:

www.phw.nhs.wales/services-and-teams/screening/newborn-hearing-screening-wales

Screening locations

Most NBHSW screening is delivered within post-natal wards and in Special Care and Neonatal Intensive Care units, with Screeners based in 9 hospital sites across Wales. Additionally, community clinics are delivered from approximately 50 venues including community hospitals and health centres. A new screening hub was opened in Rhondda Cynon Taff during June 2022, from which clinics for 3 programmes including NBHSW are delivered.

Throughout the period covered by this report, clinics were also delivered from sports facilities. These venues had been introduced in response to the Covid-19 pandemic when some NHS venues used by NBHSW prior to the pandemic were not available. Venue availability improved during the year, which allowed NBHSW to return to clinic delivery within NHS premises.

Summary of activity in reported year

New screening equipment was introduced during 2022-23, replacing the devices previously used for Automated Auditory Brainstem Response (AABR) testing with devices that can be used for both Automated Otoacoustic Emissions (AOAE) and AABR tests. These devices were implemented on a phased basis and required changes to Screener practice to ensure that interference picked up on these more sensitive devices did not affect results.

Additionally, the programme transitioned from providing pre-test information via leaflets to a digital first approach (pre-test information provided on website). This supports accessibility of information through a range of language and formatting options available through the programme web pages. The associated short animation produced for this work has been well received. Alongside this service change, improvements were made to the process used to obtain consent from parents whose babies are in intensive care or special care. The new process is consistently used across Wales and provides better assurance that parents receive the key information they require to make an informed choice about screening.

Adjustments to training and monitoring of practice were made for both NBHSW Screeners and to support peer review for Audiologists. These changes improve assurance around the quality of care for screened and referred babies.

Changes to the management structure were implemented which moved line management responsibility for operational managers to entirely within the programme, streamlining arrangements and supporting improved oversight of performance.

Looking forward to the next screening year

Proposals will be developed to transition to a service model which automatically refers all babies who do not receive a clear response in both ears for Audiology assessment. This change will require approval via the Wales Screening Committee and involve a redesign of the screening pathway rather

than just a change to referral criteria. Incorporating a further test for Well babies will ensure that Audiology services are not overwhelmed by a substantial increase in referral volumes for babies who would receive a clear response in both ears when screened again a short time after birth.

To assist in establishing the right infrastructure for a proposed change of service model, work to review the management structure of the programme will continue, including a refresh of job descriptions. Assurance activity will continue to be reviewed and strengthened, to support further service quality improvements for both screening and assessment.

Programme delivery

The Screening Division of Public Health Wales is responsible for managing, delivering and quality assuring the Newborn Hearing Screening programme. The NBHSW Head of Programme manages both NBHSW and Newborn Bloodspot Screening Wales (NBSW).

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.

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 (those who have spent more than 48 hours in special care or neonatal intensive care) 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

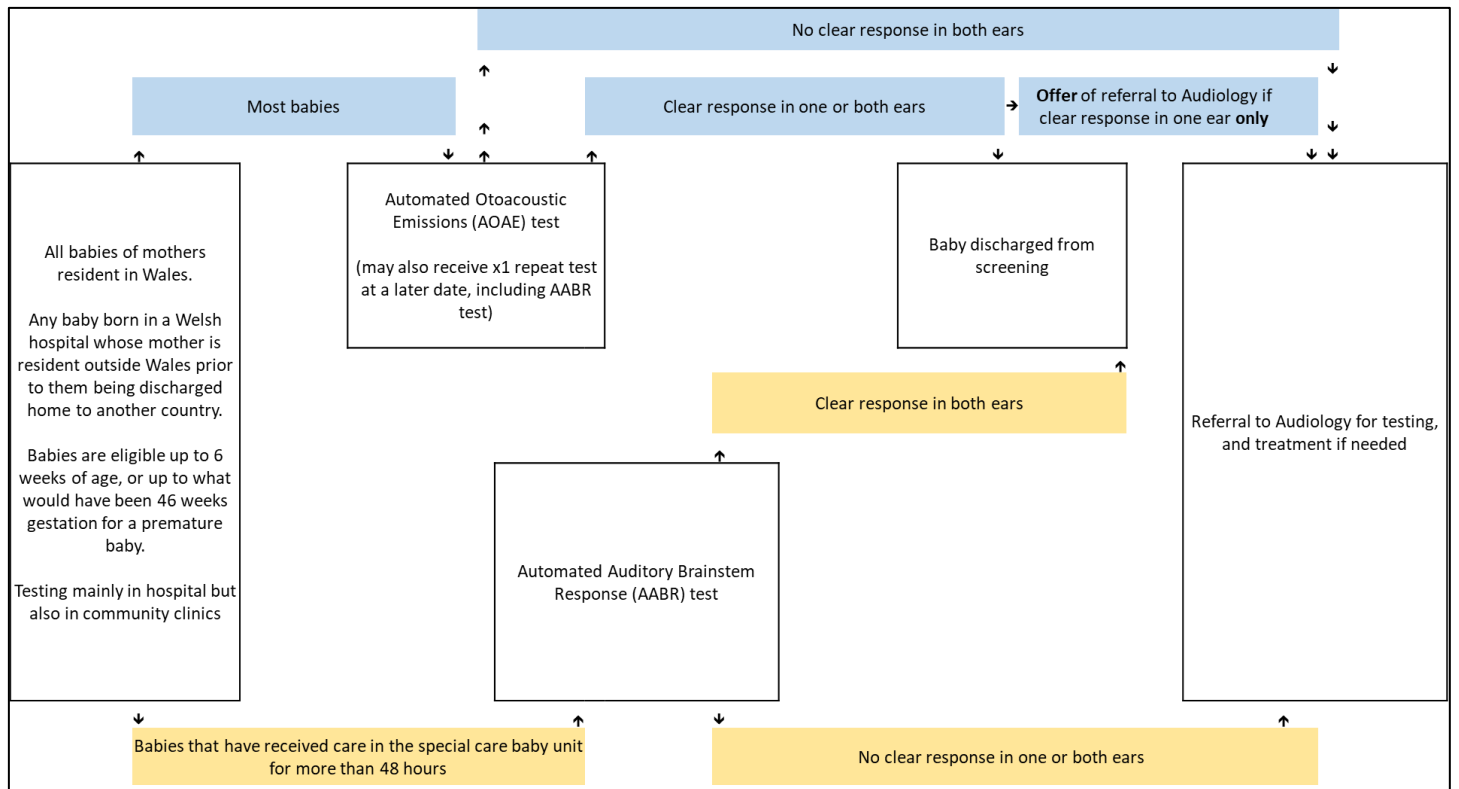


Figure 1: Pathway for Newborn Hearing screening



Headline statistics

Screening

- The coverage rates show that screening was offered to 99.9% of Eligible babies (28,053) with 98.8% of Eligible babies tested (27,746) and very few parents declining the screen.
- Across Wales, 72.0% of Well babies were screened within seven days of birth.
- 95.7% of Well babies completed screening within 28 days, achieving service standard.
- 97.4% of High-Risk babies completed the screening programme by 46 weeks gestation.

Assessment

- 1.2% of babies screened were referred for audiology assessment.
- 89.6% of babies referred for audiology assessment completed the assessment process within three months.
- The time taken to start the assessment process for Well babies was impacted by attendance at planned appointments, with 93.9% of Well babies being offered and achieving the standard, but only 79.7 % attending (within 28 days of final screening test).
- The time taken to start the assessment process was within the allocated time for 96.6% of High-Risk babies (within 56 days of final screening test).
- 70.0% of assessment appointments were attended.
- 4.5% of babies referred for assessment were not seen due to non-attendance.

Outcomes

- In babies born between 1 April 2022 and 31 March 2023, the prevalence of diagnosed permanent hearing loss greater than 40 dBHL in both ears was 0.8 per 1,000 of those babies screened. This is slightly less 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 12.6 weeks.
- The mean age of hearing aid fitting was 15.7 weeks.
- 87.5% of babies were fitted with hearing aids within four weeks of confirmation of hearing loss.



Data

Coverage

Definition and standard

The percentage of eligible and suitable babies who complete screening.

Standard: $\geq 98\%$ of eligible and suitable babies complete screening.

Result for 2022-2023

At an all-Wales level, coverage was 98.8%.

Three-year trend

All-Wales level coverage was 98.8% in 2022-23, 99.0% in 2021-22 and 92.1% in 2020-21.

Comment

At an all-Wales level, coverage has dropped slightly from the 2021-22 rate but remains within standard.



Figures and tables

Table 1: Total number of eligible and suitable babies who complete screening

Screening Location	Eligible & Suitable	Babies completing screening	Coverage
Aneurin Bevan	5879	5824	99.1
Betsi Cadwaladr	6144	6111	99.5
Cardiff & Vale	4667	4601	98.6
Cwm Taf	4157	4101	98.7
Hywel Dda	3018	2971	98.4
Powys	975	962	98.7
Swansea Bay	3233	3176	98.2
Wales	28073	27746	98.8

Attendance at screening appointments for Well babies

Definition and standard

The percentage of offered screening appointments which are not attended (well babies).

Standard: $\leq 3\%$ of offered screening appointments not attended (DNA appointments only).

Standard: $< 1\%$ of well babies decline the offer of screening.

Result for 2022-2023

At an all-Wales level, the percentage of offered screening appointments which are not attended (well babies) was 3.3%.

The all-Wales percentage of well babies that decline the offer of screening was 0.3%.

Three-year trend

The all-Wales percentage of offered screening appointments which are not attended (well babies) was 3.3% in 2022-23, 3.1% in 2021-22 and 1.8% in 2020-21.

The all-Wales percentage of well babies that decline the offer of screening was 0.3% in 2022-23, 0.3% in 2021-22 and 0.5% in 2020-21.

Geographic overview

Performance across health boards is variable, with particular performance challenges seen in the Swansea Bay area. In part, this is attributed to venue availability but reduced staffing levels for the service also meant that there was limited capacity to complete appointment reminder calls for families. Across Wales, increased levels of non-attendance can be correlated with reduced staffing periods, when appointment reminder calls cannot always be made.

Comment

The DNA rate is just over the standard this year at 3.3%. The rate of parents declining screening has remained in standard consistent with the 2021-22 level. Cancelled appointments are up this year from 5.1% to 5.6%.

Note that the standard 'offered screening appointments not attended (DNA appointments only)' refers to the number of individual appointments that have been missed, therefore individuals may appear more than once in the table.

The standard 'well babies declining the offer of screening' was amended in 2021-22 to focus on the percentage of babies for whom the offer of screening is declined, rather than percentage of individual appointments declined. The table below shows parental declines recorded for 87 babies, and the percentage remaining unchanged (0.3%).



Figures and tables

Table 2: All Wales Well baby attendance at screening appointments

Screening Location	Attended (%)	DNA (%)	Cancelled (%)	Parent Declined (%)	Unknown (%)	Total
Wales	28324 (90.8)	1024 (3.3)	1748 (5.6)	87 (0.3)	0 (0.0)	31183

Numbers are rounded to 1 decimal place.

Figures refer to the number of appointments, individual babies may appear more than once.

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

Screening Location	Attended (%)	DNA or Cancelled (%)	Parent Declined (%)	Total
Aneurin Bevan	92.3	7.5	0.2	6236
Betsi Cadwaladr	94.7	5.2	0.1	6701
Cardiff & Vale	91.9	7.7	0.4	5676
Cwm Taf	87.9	11.9	0.2	5608
Hywel Dda	86.1	13.1	0.8	3282
Powys	89.0	10.6	0.4	691
Swansea Bay	88.2	11.7	0.2	2989

Figures refer to the number of appointments, individual babies may appear more than once.



Timeliness of Completion of screening

Definition and standard

Well babies - the percentage of babies who complete the screening programme within 4 weeks.

High-Risk babies - the percentage of eligible and suitable babies who accept the offer of screening and complete screening by 46 weeks gestation.

Standard: $\geq 90\%$ of eligible and suitable Well babies entering the screening programme complete screening within 28 days.

Standard: $\geq 95\%$ of all High-Risk babies who accept the offer of screening complete screening by 46 weeks gestation.

Result for 2022-2023

At an all-Wales level, the percentage of well babies who complete the screening programme within 4 weeks was 95.7%. The percentage of eligible and suitable High-Risk babies who accept the offer of screening and complete screening by 46 weeks gestation was 97.4%.

Three-year trend

The percentage of well babies who completed screening within 4 weeks was 95.7% in 2022-23, 91.1% in 2021-22 and 93.8% in 2020-21.

The percentage of High-Risk babies who complete screening by 46 weeks gestation was 97.4% in 2022-23, 97.0% in 2021-22 and 97.6% in 2020-21.

Comment

Across Wales, 95.7% of Well babies completed screening within 28 days which achieved the service standard and was 4.6% more than the previous year. 97.4% of High-Risk babies completed screening by 46 weeks gestation, exceeding the standard and increasing slightly on the previous year. Screening is complete when the baby is discharged or referred for assessment.

Figures and tables

Table 4: Well babies completing screening within 4 weeks

Health Board	Completed < 4 weeks	> 4+ weeks	Total
Aneurin Bevan	4829	260	5089
Betsi Cadwaladr	5675	195	5870
Cardiff & Vale	4403	219	4622
Cwm Taf	4400	186	4586
Hywel Dda	2559	94	2653
Powys	493	82	575
Swansea Bay	2357	68	2425
Wales	24716	1104	25820

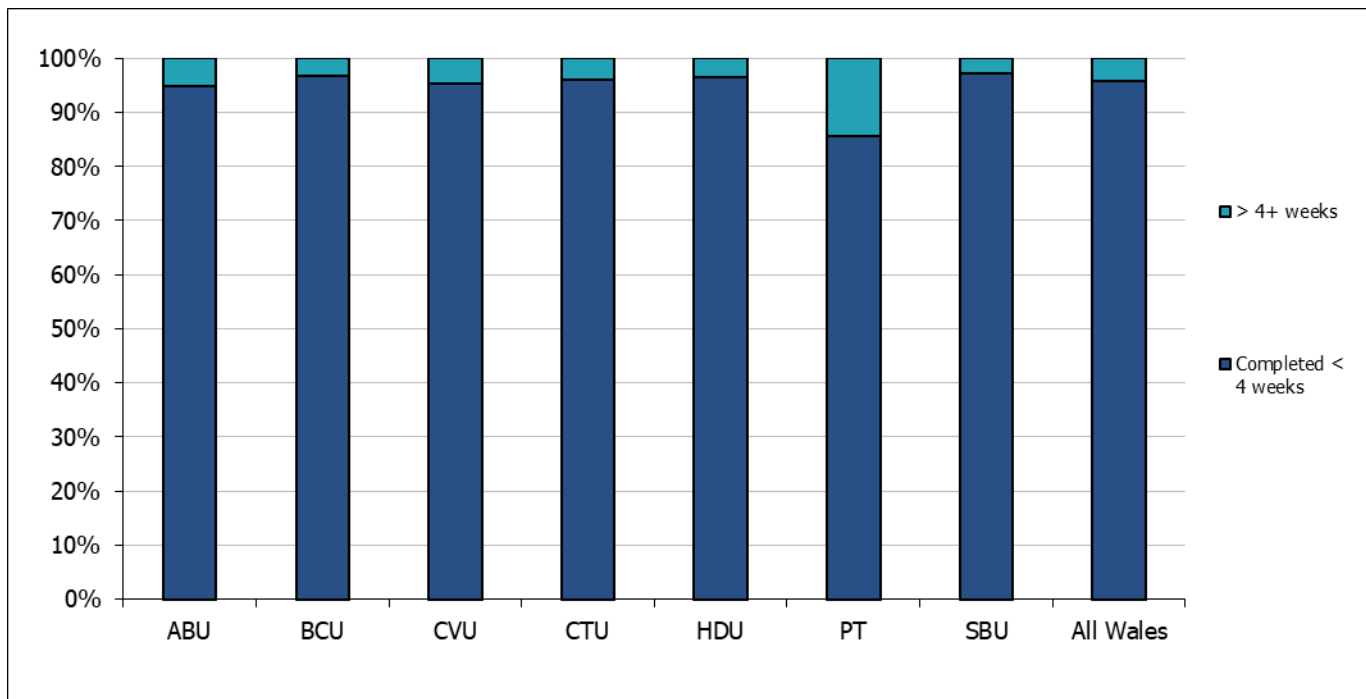


Figure 2: Well babies completing screening within 28 days

Table 5: High-Risk babies completing screening within 46 weeks gestation

Health Board	Babies completing <46 Weeks	Babies completing >=46 weeks gestation	Gestational data not available	Total babies who accept the offer of screening
Aneurin Bevan	423	6	4	433
Betsi Cadwaladr	365	6	7	378
Cardiff & Vale	253	3	2	258
Cwm Taf	341	4	3	348
Hywel Dda	232	3	3	238
Powys	48	1	4	53
Swansea Bay	213	4	1	218
Wales	1875	27	24	1926

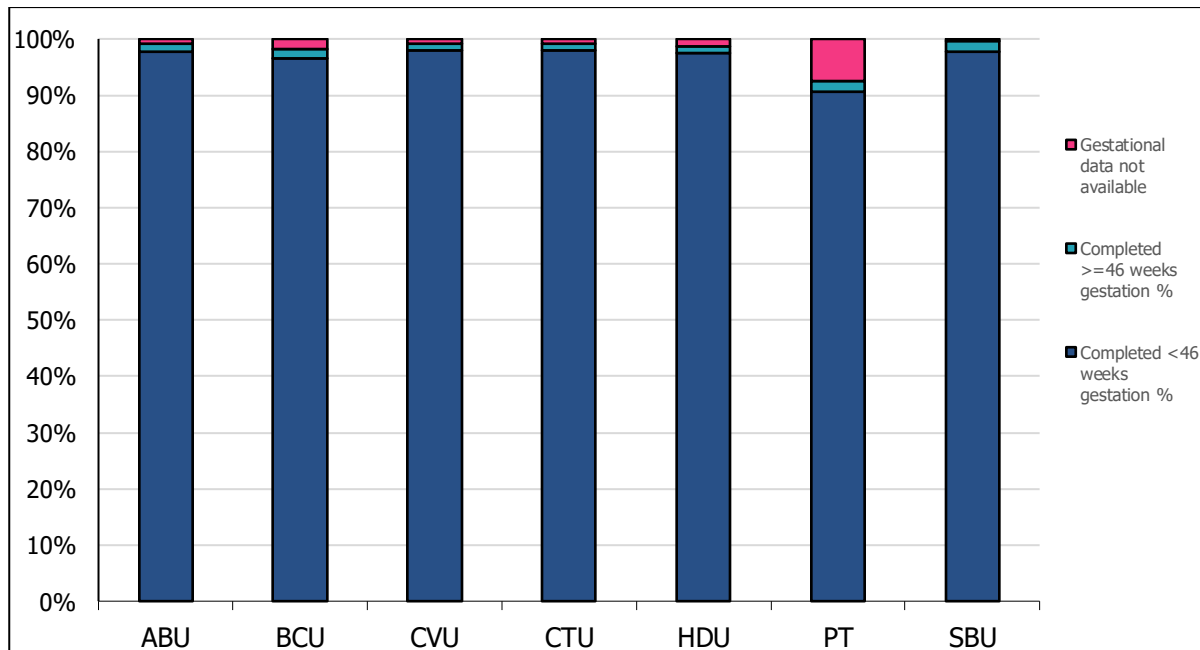


Figure 3: High-Risk babies completing screening within 46 weeks gestation

Screening Outcomes

Definition and standard

The percentage of screened babies referred for assessment.

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

Result for 2022-2023

At an all-Wales level, the percentage of screened babies referred for assessment was 1.8%.

Three-year trend

The All-Wales percentage was 1.8% in 2022-23, 1.5% in 2021-22 and 1.6% in 2020-21.

Geographic overview

The introduction of new screening equipment part way through the year led to increased referrals, due to increased sensitivity of the devices, with the impact of this being disproportionately greater in Aneurin Bevan and Cardiff and Vale Health Boards where there are particularly busy maternity units.

Comment

At an all-Wales level, the percentage of screened babies referred for assessment has increased slightly in 2022-23 compared to the previous years but remains within standard. Referral rates were directly impacted by the introduction of new screening equipment, which required changes in Screener practice and a period of familiarisation to adapt to the increased sensitivity. Referrals were closely monitored to ensure that all were clinically appropriate, and training adjusted to reflect the need to reduce impedances (such as ambient noise) which can affect test outcomes.



Figures and tables

Table 6: Screening outcomes for Well babies

Screening Location	Discharged (%)	Referred for Assessment (%)	Referred to Audiology (%)	Referred for Behavioural Test (%)
Outside Wales	97.1	0.3	2.0	0.5
Aneurin Bevan	94.9	1.9	1.9	1.3
Betsi Cadwaladr	97.2	0.8	1.1	0.9
Cardiff & Vale	96.5	1.2	1.6	0.7
Cwm Taf	97.0	1.4	0.7	0.9
Hywel Dda	98.0	1.0	0.5	0.5
Powys	99.1	0.6	0.0	0.3
Swansea Bay	98.1	0.8	0.4	0.8
Wales	96.8	1.2	1.1	0.9

Numbers are rounded to 1 decimal place. See definitions for details of the different Audiology test types.

The above table excludes High-Risk babies and therefore shows that 1.2% 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 1.1%.



Table 7: Screening outcomes for High-Risk babies

Screening Location	Discharged (%)	Referred for Assessment (%)	Referred for Behavioural Test (%)
Outside Wales	89.7	6.9	3.4
Aneurin Bevan	87.7	10.5	1.7
Betsi Cadwaladr	91.6	6.7	1.7
Cardiff and Vale	82.7	15.5	1.8
Cwm Taf	90.9	8.1	1.0
Hywel Dda	91.9	7.2	0.9
Powys	83.3	16.7	0.0
Swansea Bay	86.4	13.1	0.5
Wales	88.8	9.8	1.4

Although the overall referrals for assessment meet the standard of between 1% and 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.



Table 8: Screening outcomes for High-Risk babies

Screening Location	Total Screened	Referred for assessment	% of Babies Referred
Aneurin Bevan	5824	145	2.5
Betsi Cadwaladr	6111	70	1.1
Cardiff and Vale	4601	89	1.9
Cwm Taf	4101	83	2.0
Hywel Dda	2971	48	1.6
Powys	962	8	0.8
Swansea Bay	3176	50	1.6
Wales	27746	493	1.8

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 57 babies referred directly for assessment as a result of a medical decision without first completing screening.



Time taken to start assessment

Definition and standard

Referred well babies that start assessment procedure (are offered first test) (Diagnostic ABR) in appropriate cases within 4 weeks.

Referred Well babies attend an initial assessment appointment before 28 days from referral.

Referred High-Risk babies that start assessment procedure (are offered first test) (Diagnostic ABR) in appropriate cases within 8 weeks.

Referred High-Risk babies attend an initial assessment appointment before 56 days from referral.

Standard: $\geq 90\%$ Well babies are offered an initial assessment appointment before 28 days from referral.

Standard: $\geq 90\%$ Well babies are offered and attend an initial assessment appointment before 28 days from referral.

Standard: $\geq 90\%$ of High-Risk babies are offered an initial assessment appointment before 56 days from referral.

Standard: $\geq 90\%$ of High-Risk babies are offered and attend an initial assessment appointment before 56 days from referral.

Result for 2022-2023

At an all-Wales level, the percentage of well babies that were offered an initial assessment appointment before 28 days from referral was 93.9%. The percentage of well babies who attended an initial assessment before 28 days from referral was 79.7%.

At an all-Wales level, the percentage of High-Risk babies that were offered and attended an initial assessment appointment before 56 days from referral was 96.6%. The percentage of High-Risk babies who attended an initial assessment before 28 days from referral was 83.9%.

Three-year trend

At an all-Wales level, the percentage of well babies that were offered an initial assessment appointment before 28 days from referral was 93.9% in 2022-23, 96.3% in 2021-22, and 95.3% in 2020-21.

At an all-Wales level, the percentage of well babies that attended an initial assessment appointment before 28 days from referral was 79.7% in 2022-23, 84.7% in 2021-22 and 91.6% in 2020-21

At an all-Wales level, the percentage of High-Risk babies that were offered an initial assessment appointment before 56 days from referral was 96.6% in 2022-23, 99.4% in 2021-22, and 99.5% in 2020-21.

At an all-Wales level, the percentage of High-Risk babies that attended an initial assessment appointment before 56 days from referral was in 83.9% in 2022-23, 92.5% in 2021-22 and 95.3% in 2020-21

Geographic overview

Performance against the attendance standards was reduced during the latter part of the year, particularly in Aneurin Bevan and Cardiff & Vale Health Board areas. This is attributed to the increased referral volumes linked to the equipment change, as previously noted. Whilst health boards were able to offer appointment dates within the required timeframe, due to increased demand these were often towards the end of the period. This provided less flexibility to re-book an appointment within the standard timeframes, should families be unable to attend their offered date. Within Aneurin Bevan specifically, reduced staffing levels within the specialist Audiologist workforce impacted on timeliness.

Comment

At an all-Wales level, the percentage of well babies that were offered an initial assessment appointment before 28 days from referral has decreased in 2022-23 compared to the previous years, though remains in standard.

At an all-Wales level, the percentage of well babies that attended an initial assessment appointment before 28 days from referral has decreased in 2022-23 compared to the previous year and is currently below standard.

At an all-Wales level, the percentage of High-Risk babies that were offered an initial assessment appointment before 56 days from referral has decreased in 2022-23 compared to the previous years but remains in standard.

At an all-Wales level, the percentage of High-Risk babies that attended an initial assessment appointment before 56 days from referral has decreased in 2022-23 compared to the previous year and is currently below standard.

It should be noted that the timeframe monitored for these standards begins from the date of the screen result which prompts the referral, rather than receipt of referral by Audiology.

Figures and tables

Table 9: Time taken to start assessment

Assessment Location	% Offered assessment within Set Timescales		% Attending appointment within Set Timescales	
	Well babies	High-Risk babies	Well babies	High-Risk babies
Community Clinic outside Wales	100.0	-	100.0	-
Glan Clwyd Hospital	88.9	100.0	83.3	100.0
Gwynedd Hospital	100.0	100.0	83.3	100.0
Hospital Outside Wales	100.0	100.0	100.0	100.0
Neath Port Talbot Hospital	-	100.0	-	100.0
Nevill Hall Hospital	92.6	87.5	67.9	70.6
Prince Charles Hospital	100.0	100.0	-	100.0
Princess of Wales Hospital	100.0	88.9	100.0	100.0
Royal Gwent Hospital	100.0	97.4	77.2	71.4
Serennu Children's Centre	100.0	50.0	100.0	50.0
Singleton Hospital	87.5	100.0	68.8	90.5
UHW	91.1	96.8	81.5	79.3
West Wales General Hospital	92.6	95.5	81.5	90.9
Wrexham Maelor Hospital	100.0	100.0	86.4	81.8
Ysbyty Cwm Cynon Outpatients Dept	89.5	100.0	82.1	92.9
Wales	93.9	96.6	79.7	83.9



All Wales figures show a slight decrease in performance in the Well baby group compared to 2021-22. The High-Risk figure relates to 8 babies out of standard.

Time taken to complete assessment

Definition and standard

Standard: $\geq 85\%$ babies complete assessment before three months of referral.

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

Result for 2022-2023

At an all-Wales level, the percentage of babies completing assessment before three months of referral was 89.6%.

At an all-Wales level, the percentage of babies referred for assessment are not seen was 4.5%.

Three-year trend

At an all-Wales level, the percentage of babies completing assessment before three months of referral was 89.6% in 2022-23, 91.6% in 2021-22, and 94.5% in 2020-21.

At an all-Wales level, the percentage of babies referred for assessment that are not seen was 4.5% in 2022-23, 3.6% in 2021-22, and 2.8% in 2020-21.

Geographic overview

Performance against this standard reduced towards the end of the period, with challenges seen in areas where there were a greater number of referrals. Effective assessment requires babies to be settled and may require multiple appointments to complete. Additionally, as the assessments are performed by highly specialist Audiologist staff, capacity is affected by absence or vacancies. These issues can result in longer waiting times.

Comment

At an all-Wales level, the percentage of babies completing assessment before three months of referral has decreased over the past three years.

At an all-Wales level, the percentage of babies referred for assessment and not seen has increased over the past three years.

Both measures remain within standards.

Figures and tables

Table 10: All Wales time taken to complete assessment

Assessment Location	Never Attended (%)	Attended then DNA'd final test (%)	Not Yet Complete (%)	Completed < 3 Months (%)	Completed 3+ Months (%)
Wales	4.5	2.2	0.0	89.6	3.6

Includes community clinics and hospitals outside Wales

The standard continues to be met but with a drop of 2.0% compared with the previous year's figures for babies completing assessment within three months. There was an increase of 0.9% in the number of babies referred but never seen.

Table 11: 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 (%)
Community Clinic outside Wales	0.0	0.0	0.0	100.0	0.0
Glan Clwyd Hospital	6.3	0.0	0.0	90.6	3.1
Gwynedd Hospital	0.0	0.0	0.0	100.0	0.0
Hospital Outside Wales	0.0	0.0	0.0	100.0	0.0
Neath Port Talbot Hospital	0.0	0.0	0.0	100.0	0.0
Nevill Hall Hospital	6.3	0.0	0.0	89.6	4.2
Prince Charles Hospital	0.0	0.0	0.0	100.0	0.0
Princess of Wales Hospital	5.6	0.0	0.0	94.4	0.0
Royal Gwent Hospital	10.3	3.7	0.0	78.5	7.5
Serennu Children's Centre	0.0	0.0	0.0	100.0	0.0
Singleton Hospital	3.5	0.0	0.0	94.7	1.8
UHW	4.4	0.9	0.0	88.5	6.2
West Wales General Hospital	0.0	4.1	0.0	95.9	0.0
Wrexham Maelor Hospital	2.9	0.0	0.0	94.1	2.9



Ysbyty Cwm
Cynon
Outpatients
Dept

0.0

7.2

0.0

92.8

0.0

Confirmation of hearing loss

Definition and standard

The total number of babies identified with a bilateral moderate or greater permanent hearing loss.

There is no standard for this section.

Result for 2022-2023

The total number of babies identified with a bilateral moderate or greater permanent hearing loss in Wales born between 1 April 2022 and 31 March 2023 is 24. This was a prevalence of 0.8 per 1,000 babies screened.

Three-year trend

The total number of babies identified with a bilateral moderate or greater permanent hearing loss in Wales was 24 in 2022-23, 30 in 2021-22 and 25 in 2020-21.

This was a prevalence of 0.8 per 1,000 babies screened in 2022-23, 1.0 in 2021-22 and 0.9 in 2020-21.

Comment

Fewer babies were identified with bilateral moderate or greater permanent hearing loss in Wales compared to the last two years. Similarly, prevalence amongst babies screened is lower than the past two years.



Figures and tables

Table 12: Number of babies with confirmed hearing loss born between 1 April 2022 and 31 March 2023 by region.

Division	Total
North Wales	2
Mid & West Wales	9
South Wales	13
Wales	24

Confirmed hearing loss as defined above. It should be noted that the South Wales region contains the highest population density of NBHSW regions.

Table 13: Age of confirmation of hearing loss

Health Board	Average (weeks)	Median (weeks)
Aneurin Bevan	19.7	17.2
Betsi Cadwaladr	11.4	13.9
Cardiff & Vale	11.5	11.5
Cwm Taf	16.0	10.4
Hywel Dda	6.8	6.4
Swansea Bay	8.8	8.2
Wales	12.6	10.1

The table above shows average and median age of confirmation of hearing loss in babies born between 1 April 2022 and 31 March 2023.

The figures in the table above 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.



Hearing aid fitting

Definition and standard

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

There is no standard for this section.

Result for 2022-2023

The All Wales average age of hearing aid fitting was 15.7 weeks.

The All Wales median age of hearing aid fitting was 12.9 weeks.

Three-year trend

The All Wales average age of hearing aid fitting was 15.7 weeks, 16.4 weeks in 2021-22 and 11.5 weeks in 2020-21.

The All Wales median age of hearing aid fitting was 12.9 weeks, 11.6 weeks in 2021-22 and 9.3 weeks in 2020-21.

Comment

The All Wales average age of hearing aid fitting has decreased compared to the previous year results, but still exceeds 2020-21 results. In part, the high performance during 2020-21 reflects the reduced routine activity taking place during the pandemic. The All Wales median age of hearing aid fitting has increased steadily over the past three years.

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.

The table below shows average and median age of hearing aid fitting of babies born between 1 April 2022 and 31 March 2023. These figures allow for prematurity.

Figures and tables

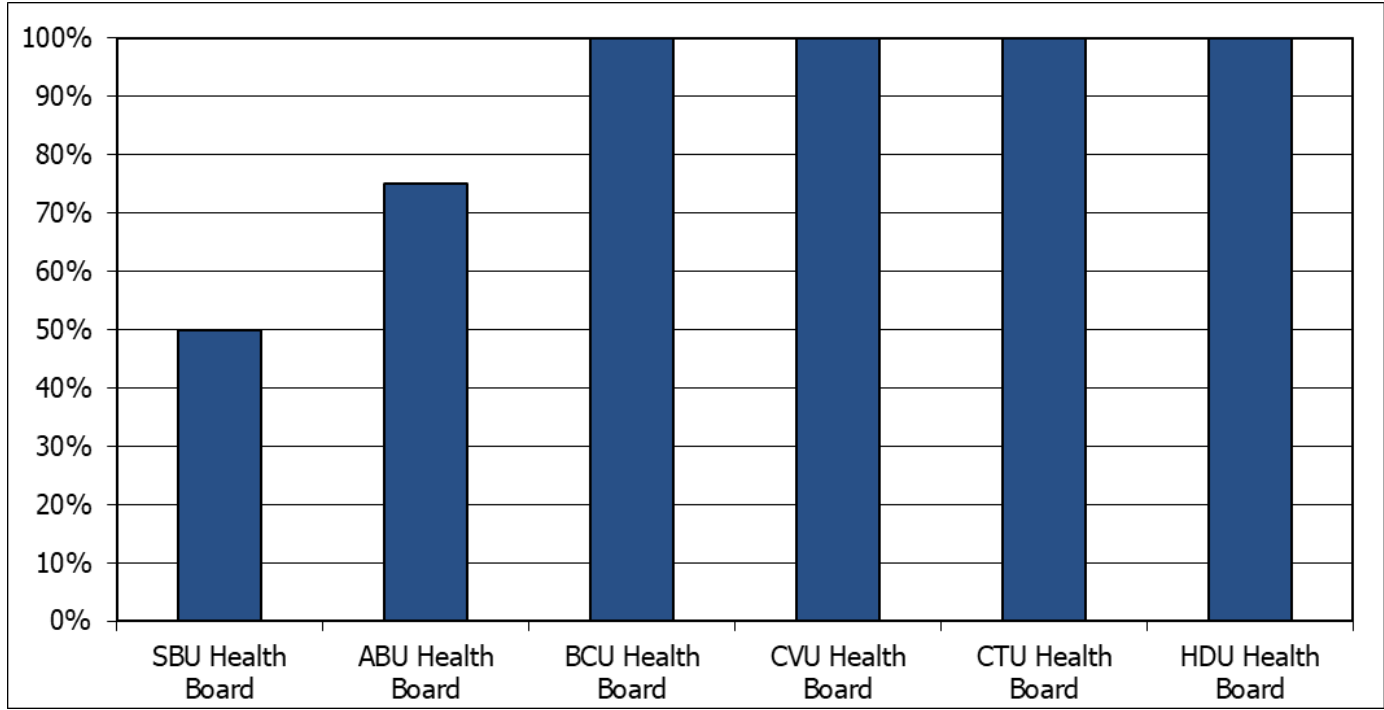


Figure 4: Hearing aid fitting within four weeks of identification of hearing loss by Health Board for 2022 – 2023

87.5% of babies in Wales were fitted within four weeks of identification.

Table 14: Age at hearing aid fitting

Health Board	Average (weeks)	Median (weeks)
Aneurin Bevan	31.2	28.0
Betsi Cadwaladr	13.1	14.9
Cardiff & Vale	14.4	14.2
Cwm Taf	14.1	12.1
Hywel Dda	8.5	7.9
Swansea Bay	12.9	12.9
Wales	15.7	12.9



The figures in the table 14 and figure 4 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.

Yield, Sensitivity, Specificity and Predictive Values

Definition and standard

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.

There is no standard for this section.

Result for 2022-2023

The yield from the programme indicates that the number of cases detected related to the number of babies screened is 1:819.

The sensitivity of the programme is 90.0% with a specificity of 98.8%.

The positive predictive value of the screen is 9.1%.

Three-year trend

The yield is 1:819 in 2022-23, 1:806 in 2021-22 and 1:799 in 2020-21

The sensitivity of the programme is 90.0% in 2022-23, 90.3% in 2021-22 and 90.2% in 2020-21

The specificity of the programme is 98.8% in 2022-23, 98.8% in 2021-22 and 98.8% in 2020-21

The positive predictive value of the screen is 9.1% in 2022-23, 9.4% in 2021-22 and 9.5% in 2020-21

Comment

The above figures show 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. As noted elsewhere in the report, the proportion of babies that were referred for Audiology assessment increased following the introduction of new equipment, which required a period of familiarisation for staff. This impacted the programme sensitivity for 2022-23.

Definitions

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

Health Board

Screening data is taken from the All-Wales Newborn 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 for clinical care.

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.

Audiology Assessment

Babies referred to Audiology in the neonatal period will receive an objective diagnostic hearing assessment to establish whether they have a hearing loss, and the severity of this. This involves Auditory Brainstem Response assessment and may require a number of appointments to complete.



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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. Targeted Behavioural Tests are sometimes referred to as Behavioural Tests.

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.



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i greu Cymru iachach

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