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Public Health Wales

Antenatal Screening Wales Annual Report

Version 1.0

Mae'r ddogfen yma ar gael yn y Gymraeg/This document is available in Welsh

Publication details

This report is a detailed summary of information on work undertaken by Antenatal Screening Wales for the year April 2024 to the end of March 2025.

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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

Antenatal screening data for this report is collated via different processes, including:

- manual counts by Antenatal Screening Wales (ASW) Governance Leads within health boards
- via NHS IT systems (maternity, PACS, laboratories including Biochemistry and Genomics)
- fetal medicine department records
- DQASS data provided directly to ASW.

All data received by ASW is not patient identifiable.

Copyright information

This document is also available in Welsh.

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Key messages

Visit your midwife early to help you make the best choices for your pregnancy.

Antenatal screening gives women important information about their and their baby's health

Women are asked to make an appointment with a midwife as soon as they find out they are pregnant.

Women will be given information to help them make a choice about taking part in antenatal screening.

The midwife will talk to the woman about the different tests she can have and answer her questions as part of her routine antenatal care.

Antenatal screening tests are not 100% accurate and some conditions may be missed.

The pregnant woman may be offered further tests or treatment after her antenatal screening.

To find out more:

Visit: phw.nhs.wales/antenatal-screening

Introduction

Background

The health board maternity services in Wales offer antenatal screening tests to pregnant women as part of their antenatal care. Antenatal screening tests are offered for different reasons, and this makes antenatal screening a complex programme with several different purposes and unique ethical considerations and implications. Supporting individuals to make personal informed decisions about their antenatal screening choices is important during pregnancy.

The agreed purpose of the antenatal screening programme in Wales is: *to detect defined conditions, present in either the mother or baby that are likely to have an effect on the health of either, and for which an effective intervention or treatment is available.*

Antenatal Screening Wales (ASW) is funded by Welsh Government to support improvements in the standard of antenatal screening offered to women. The model of screening provision in Wales is unique to the UK. ASW is responsible for developing and supporting health boards in delivering all aspects of the antenatal screening programme, through a managed clinical network structure. This includes:

- Planning, Policy development,
- Governance structures,
- Frameworks for Quality Assurance,
- Education.

ASW has established policies, standards and a performance management framework for antenatal screening delivered by maternity services in Wales who have the responsibility to deliver high quality screening information and testing.

Eligibility

All pregnant women resident in Wales to be offered, in every pregnancy:

- antenatal screening for HIV, hepatitis B and syphilis
- antenatal screening for blood group, RhD status and antibodies
- antenatal screening for sickle cell and thalassaemia
- an early pregnancy dating scan and a fetal anomaly scan
- antenatal screening for Down's syndrome (T21), Edwards' syndrome (T18) and Patau's syndrome (T13)

Timeframe for undertaking screening tests

Ideally, screening tests are to be performed in early pregnancy, by around 12 weeks of pregnancy if the woman presents for antenatal care before this gestation. Screening for HIV, syphilis, hepatitis B, sickle cell, thalassaemia, blood group and RhD status. Women who are RhD negative and eligible for cell free fetal DNA (cffDNA), can be offered this screening from 11^{+2} weeks gestation, although the normal pathway is from 16^{+0} weeks to 26^{+0} weeks gestation. The early pregnancy dating scan can be performed at any gestation.

The combined screening test for the chance of the pregnancy having Down's syndrome, Edwards' syndrome and Patau's syndrome can be performed between 11^{+2} weeks-14^{+1} week gestation, if this screening test is opted into. If the woman presents too late for screening in the first trimester or the crown-rump length (CRL) or nuchal translucency (NT) (measurement on the back of the fetal neck) cannot be obtained, the recommended laboratory screening test in the second trimester is the quadruple test. This test uses an ultrasound measurement to assess the gestation with the results from biochemical markers to give the woman a chance result for Down's syndrome only in singleton pregnancies between 15^{+0} to 18^{+0} weeks gestation.

The purpose of the fetal anomaly scan (performed at 18^{+0} weeks to 20^{+6} weeks of pregnancy) is to screen for significant structural fetal anomalies that are likely to have an adverse effect on the health of the mother or baby and for which an effective intervention is available. If the woman attends for antenatal care later in pregnancy, she must be offered an ultrasound scan appropriate to her presumed gestation.

The early pregnancy dating scan and the fetal anomaly scan are reported using standardised All Wales templates in either RadIS2 or Viewpoint. Where women present later in pregnancy these templates can still be used, with the understanding that the estimation of normal measurements may not be accurate with increased gestational age.

Managed clinical network delivery

ASW is part of the Screening Division within Public Health Wales, who have extensive expertise in the management and provision of population-based screening programmes. ASW has delivered the All-Wales Managed Clinical Network for antenatal screening since 2003. The Quality and Clinical Governance Group and the programme specific advisory groups provide governance for the network. The health board providing care undertakes antenatal screening provision. ASW does not provide or directly manage any antenatal screening services.

The composition of the ASW team consists of:

- Head of Programme (0.8wte)

- 3 Programme Coordinators – 2 midwives (1.6wte) and 1 Radiographer/Sonographer (0.8wte)
- Programme Support Manager (1.0wte) for Antenatal Screening Wales, Newborn Bloodspot Wales (NBSW) and Newborn Hearing Screening Wales (NBHSW)
- Assistant Programme Support Manager (1.0wte) for ASW, NBSW and NBHSW
- Administrative Support (1.0wte) for ASW

Professional Advisors

The ASW team and Quality and Clinical Governance Group (Q&CG) are supported by Professional Advisors who are employed through honorary contacts.

The current Professional Advisors for ASW are –

- Consultant obstetricians x2
- Consultant haematologist
- Consultant geneticist
- Consultant virologist
- Clinical Biochemist (special interest in Down's syndrome, Edwards' syndrome and Patau's syndrome screening)
- Consultant Sonographer (special interest in antenatal ultrasound/screening).

Health board maternal and child screening governance lead

Each health board has a named governance lead for the Antenatal and Newborn Screening Programmes who manage the strategic governance. These positions are funded by PHW (0.2wte).

The antenatal and newborn screening programmes governance leads meet formally every 6 months with ASW to discuss programme performance governance matters and provide support to each other within this role. An antenatal and newborn screening programmes governance lead represents the group in the ASW Quality and Clinical Governance Group, advisory groups and workstream meetings.

Antenatal Screening Wales advisory groups

ASW advisory groups for the antenatal screening programmes provide a clear focus for each of the programmes, reducing the reliance on individual knowledge and skills and promoting a robust clinical governance framework to support the screening pathways. The advisory groups for the antenatal screening programmes are:

- Communicable diseases screening advisory group
- Sickle Cell & Thalassaemia and blood group & antibodies screening advisory group
- Fetal anomaly/ Down's syndrome, Edwards' syndrome and Patau's syndrome screening advisory group.

The groups' remit is to provide professional advice and consultation to the ASW Quality & Clinical Governance Group. The groups meet between two and three times a year. The use of virtual meetings and discussions continue to promote engagement. The advisory groups have clear terms of reference and a defined membership.

Working in partnership with health boards

ASW meet regularly, and work closely with health board antenatal and newborn screening programmes governance leads, antenatal screening coordinators, ultrasound obstetric leads, ultrasound fetal cardiac leads and ultrasound nuchal translucency (NT) leads to provide professional advice to the All Wales Quality and Clinical Governance Group on all aspects of the antenatal screening programmes in Wales.

Directors and Head of Midwifery Advisory Group

The purpose of this group is to discuss and develop strategic and operational work within their maternity services and to provide expert professional advice to Welsh Government. ASW Head of Programme attends this meeting every six months and provides a summary paper to inform on work streams and provide discussions on ASW and health boards partnership working. A representative from this group is also a member of the ASW Quality and Clinical Governance Group.

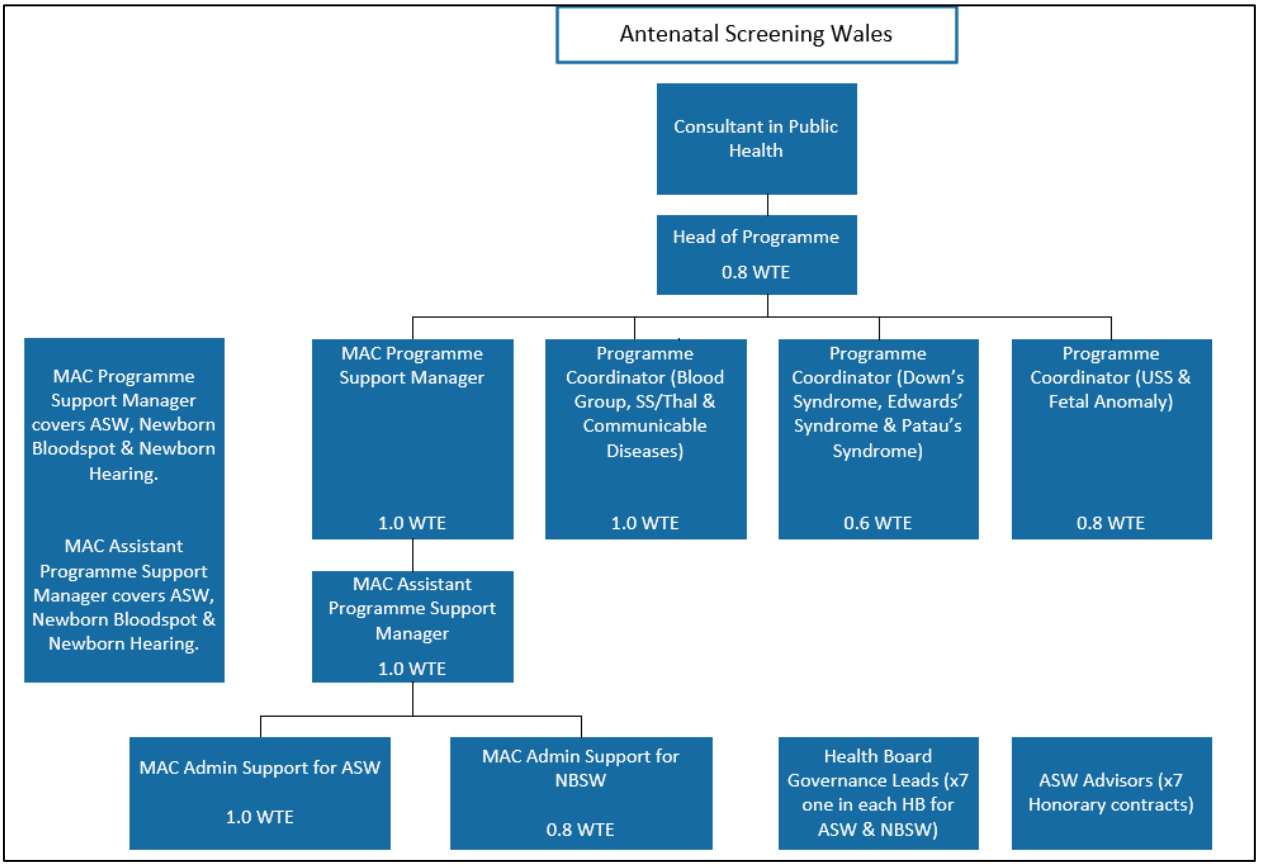


Figure 1 : ASW organogram

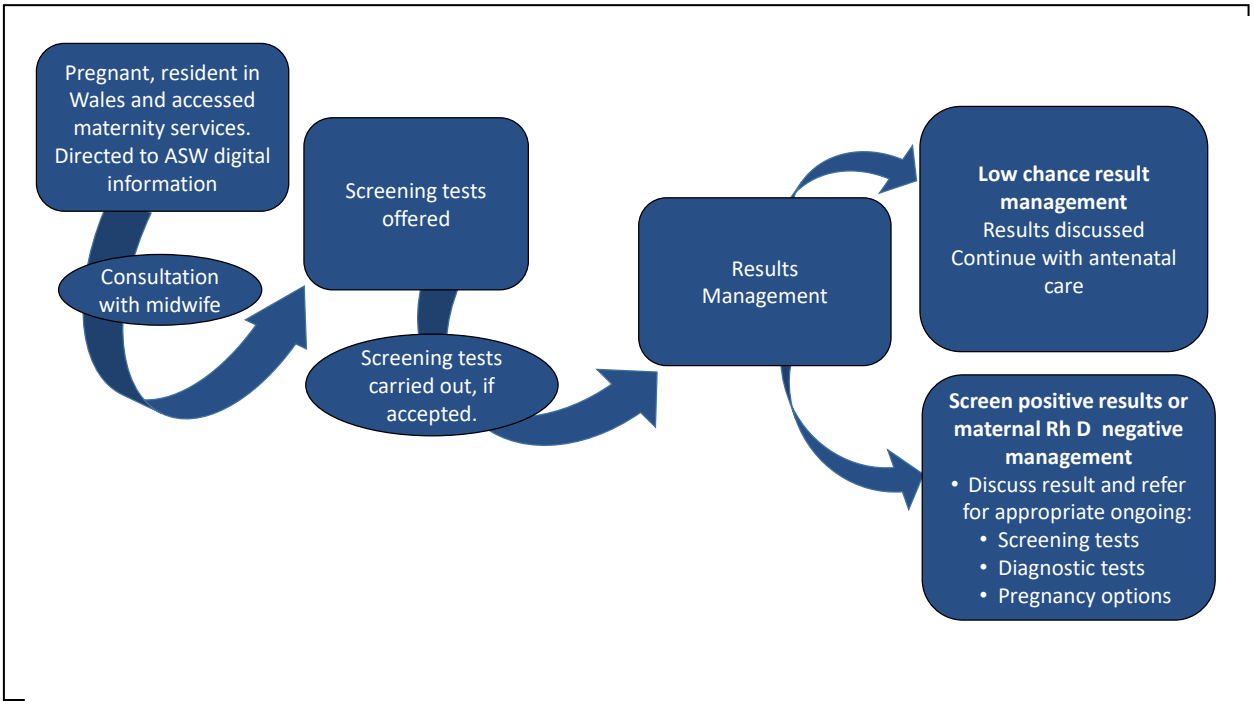


Figure 2 : Pathway for antenatal screening

Data

Biannual performance indicators report

Performance indicators are reported by the health boards to ASW every 6 months, in April and October. They monitor health board performance against ASW standards. Performance indicators are reported to the health board's Director of Public Health, Director/Head of midwifery, MAC governance leads, antenatal screening coordinators and ultrasound obstetric leads for escalation within individual health boards. The number of performance indicators has been agreed to be increased from 15 to 33 in 2024. The introduction is incremental to minimise impact on Health Board capacity and 20 were reported on in this report period.

Table 1: Performance indicator data - April 2025 reporting round (includes data from 1 July 2024 to 31 December 2024).

Indicator	Name	Standard	Apr-25
ASW-7	Informing women of their antenatal communicable diseases negative screening results	100% from April 25. Previous rounds were 85%	96.5%
ASW-11a	Completion of Down's syndrome, Edwards' syndrome and Patau's syndrome screening request cards - Combined screening test	>=98% complete	94.8%
ASW-11b	Completion of Down's syndrome screening request cards - Quadruple screening test	>=98% complete	87.5%
ASW-15	Neonatal hepatitis B vaccination (First dose only)	100%	100.0%
ASW-16	Postnatal Anti D immunoglobulin prophylaxis uptake and injection given	100%	99.8%
ASW-23	Timing of early pregnancy scan	100% from April 25. Previous rounds were 85%	95.8%
ASW-24	Sonographers and their flag status	100%	100.0%
ASW-25	Re-offer of HIV screening by 20+6 weeks for all women who have previously declined screening	100%	90.0%
ASW-25a	Re-offer of hepatitis B screening by 20+6 weeks for all women who have previously declined screening	100%	89.3%
ASW-25b	Re-offer of syphilis screening by 20+6 weeks for all women who have previously declined screening	100%	90.0%
ASW-26	Timeliness of testing of biological father of the baby for sickle cell and thalassaemia screening	100% from April 25. Previous rounds were 95%	76.3%
ASW-27	Timeliness of babies with a high chance of inheriting a sickle cell or thalassaemia disorder that received neonatal testing before the newborn bloodspot screening	100%	66.7%

ASW-28	Completion of appropriate record keeping for antenatal blood group and antibodies screening being taken recorded in the All-Wales maternity record/ antenatal maternity IT system	100%	98.9%
ASW-28a	Completion of appropriate record keeping for antenatal blood group and antibodies screening results recorded in the All-Wales maternity record/antenatal maternity IT system	100%	96.1%
ASW-29	NT not achieved at early pregnancy dating scan for combined screening	<7%	4.9%
ASW-31	Number of eligible pregnant women who are RhD negative, where cffDNA has been obtained	*	44.7%
ASW-32	Turnaround time (TAT) for cell free fetal DNA screening tests from the day the sample is received at the Welsh Blood Service Laboratory to the date the result is emailed to the relevant health board generic email box	95%	99.5%
ASW-35	Turnaround time (TAT) for combined screening tests from the day the sample is received at the All Wales Biochemistry Laboratory to the date the result is emailed to the relevant health board generic email box	95%	95.9%
ASW-35a	Turnaround time (TAT) for quadruple (quad) screening tests from the day the sample is received at the All Wales Biochemistry Laboratory to the date the result is emailed to the relevant health board generic email box	95%	96.3%
ASW-36	Referral times to fetal medicine	75%	**
ASW-37	NT lead paired image submission	100%	77.8%

* Due to this being a formal offer based on maternal choice, no performance target or action threshold has been set. This screening test was introduced in May 2024 and formal evaluation is still in process.

** No all Wales figure April 2025 as most health boards were unable to provide the data. Mechanism put in place to ensure this can be captured in future.

If you would like to have more information around the rationale for our compliance standards, please contact antenatalscreening@wales.nhs.uk

Individual Health Board data is reported alongside all Wales data and reported to each Health Board via their own individual service governance meeting. The data is presented by the antenatal and newborn screening programmes governance lead. Each of the governance leads must develop an action plan to drive improvement. Support is provided from ASW to demonstrate collaborative working and ensure wider learning can be captured and delivered across Wales. Some areas of focus that affect multiple Health Boards have improvement work driven centrally through ASW, for example work to improve completeness of Down's Syndrome screening request cards.

Biannual DQASS reporting

ASW commission the Down's syndrome screening quality assurance service (DQASS) to monitor and support the performance of the Down's syndrome (T21), Edwards' syndrome (T18) and Patau's syndrome (T18) screening pathway in Wales. The all-Wales Biochemistry Laboratory in Cardiff and Vale University Health Board, submit data biannually to DQASS. This consists of all paired crown-rump length (CRL) and nuchal translucency (NT) measurements for all sonographers delivering screening. Each sonographer has a unique identification code (DQASS code) which is submitted along with the measurements on the same form. DQASS produce a plot for each individual sonographer assessing bias, spread and trend against the Fetal Medicine Foundation reference curve and issue a flag status accordingly.

Sonographers are awarded a flag to record their performance. Green flag is where the bias for the plot is less than 0.1 and there is no evidence of substantive difference in spread or trend from the FMF reference curve

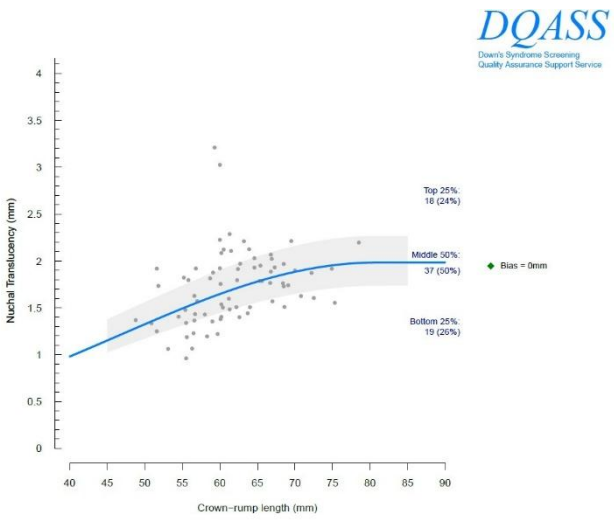


Figure 3 : Sonographer individual DQASS plot

Amber flag is where the bias is between 0.1 and 0.3 or there is a substantive difference in spread or trend from the FMF reference curve

Red flag is where the bias is greater than 0.3. No red flags are given for spread or trend differences

White flag is where a sonographer performs less than 25 paired measurements over a 6-month cycle, or less than 50 a year. This prevents DQASS performing a meaningful plot interpretation.

Sonographers with a bias of >0.3 are issued with a red flag and temporarily paused from independently performing combined screening scans, to have further training and to ensure their measurements will not negatively impact the performance of the screening programme.

Sonographers who are issued with an amber flag have more frequent image review to ensure that they do not deteriorate into requiring a red flag.

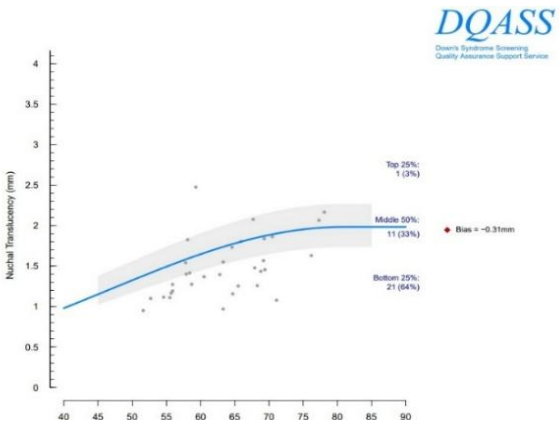


Figure 4 : Sonographer individual plot demonstrating bias

Within Cycle 37 (1 July 2024 to 31 December 2024) reporting timeframe, 145 sonographers provided the combined screening measurement. Of these:

82(56.5%) were green flagged

48 (33.1%) were amber flagged

15 (10.4%) were white flagged

0 (0%) were red flagged

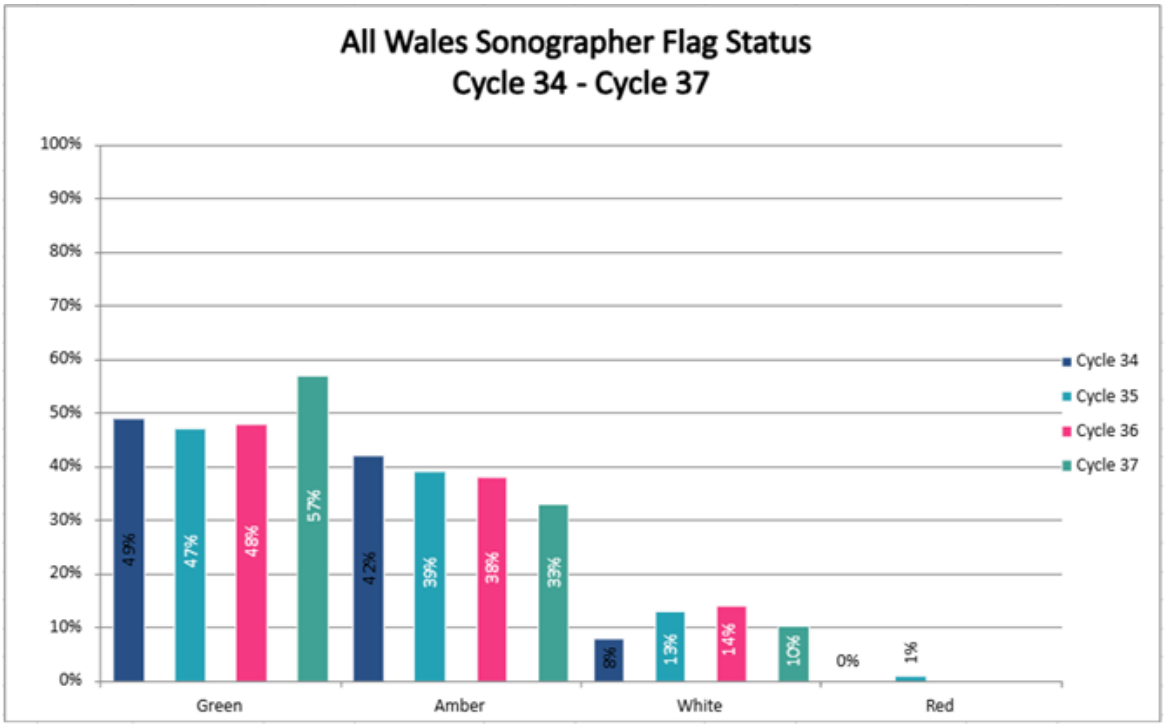


Figure 5 : Graph demonstrating sonographer flag status

10,140 scans were performed in Cycle 37 and of these:

6311 (62.2%) were performed by green flagged sonographers

3655 (36.1%) were performed by amber flagged sonographers

153 (1.5%) were performed by white flagged sonographers

0 (0%) were performed by a red flagged sonographer.

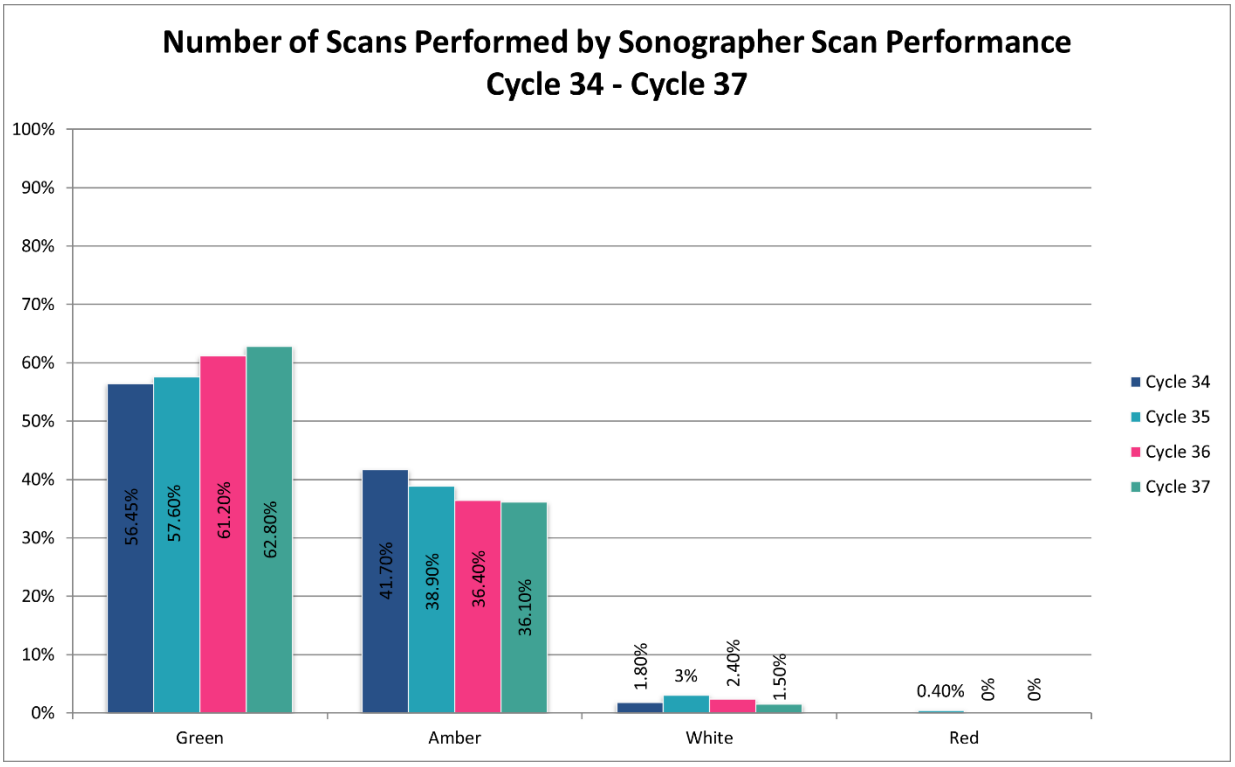


Figure 6 : Graph demonstrating number of scans performed by sonographer flag status

Annual Data from Down's syndrome (T21), Edwards' syndrome (T18), Patau's syndrome (T13) and Fetal Anomaly Programme

Reporting Period: April 2024-March 2025

The aim of screening for Down's syndrome, Edwards' syndrome and Patau's syndrome is to identify women whose baby may have one of these conditions.

Demographics & Screening Overview.

It is estimated* that 27,474 women were eligible for the offer of antenatal screening. 23,332/27,474 (85%) underwent either a combined or quadruple screening test. ASW does not have an uptake standard for this test as it is personalised, individual choice.

*Estimated numbers-data received from health boards and no mechanism in place to check whether data is collected in the same way within each health board.

Table 2: Combined and Quadruple (Quad) screening tests performed

Screening Type	Number	Percentage of total screens
Combined Screening (11^{+2} – 14^{+1} gestation)	20,285	86.9%
Quad Screening (15^{+0} – 18^{+0} gestation)	3,047	13.1%
Total Screens	23,332	

Combined screening test (screening for Down's syndrome, Edwards' syndrome, Patau's syndrome) - women with a singleton or twin pregnancy.

Quadruple screening test (screening for Down's syndrome only) - women with a singleton pregnancy and either presents too late for screening in the first trimester or if the NT measurement cannot be obtained.

For both screening tests with a higher chance result, can decide whether they wish to accept or decline:

- the offer of a further screening test called non-invasive prenatal testing (NIPT), or
- an invasive procedure (CVS or amniocentesis) to enable diagnosis of the condition that the screening test result has been higher/high chance for.

Table 3: Pregnancy Type

Screening Type	Number	Percentage of total screens
Singleton	23,045	98.8%
Twin	287	1.2%

The information below is required for each sample to enable correct chance calculation to be provided.

Table 4: Ethnic Origin

Ethnic Origin	Number	Percentage
White	20,585	88.2%
Black	836	3.6%
South Asian	1,516	6.5%
East Asian	184	0.8%
Mixed black	211	0.9%

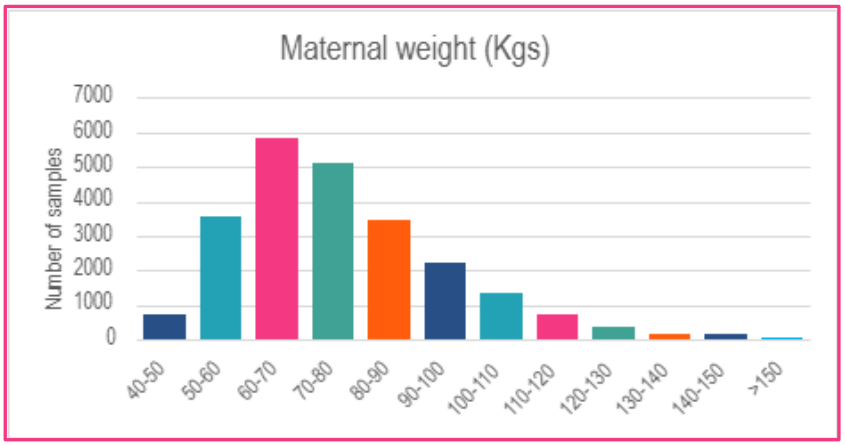
Table 5: Smoking Status *at the time of sample

Smoking status	Number	Percentage
Non-smoker	21,231	91%
Smoker	2,101	9.0%

Table 6: Insulin Dependent Diabetes Mellitus (IDDM) Status *at the time of sample

IDDM status	Number	Percentage
Non-IDDM	23,128	99.1%
IDDM	2,101	0.9%

Maternal Weight *at the time of the sample



Minimum weight 40Kgs
Maximum weight 150Kgs
Average weight: 76.4Kgs
Software truncates maternal lower limit 40 Kgs, upper limit 150Kgs

Figure 7: Maternal Weight

Higher chance results of Combined and Quadruple Screening

Table 7: Higher Chance Combined Screening Results (Singleton)

Result Type: higher chance	Number	Percentage
T21 only	480	2.4%
T18/T13	121	0.6%
T21 + T18/T13	72	0.36%
Total screens with a higher chance result	673	3.36%

Table 8: Higher Chance Quad Screening Results (Singleton)

Result Type: higher chance	Number	Percentage
T21 only (SPR*)	134	4.4%

Table 9: Combined Screening Results (Twin)

Result Type: higher chance	Number	Percentage
T21 only	3	1.0%
T18/T13	1	0.3%
T21 + T18/T13	1	0.3%
Total screens with a higher chance result	5	1.7%

Combined screening tests performed: 287

Combined and quad screening results- reported as **higher** or **lower** chance

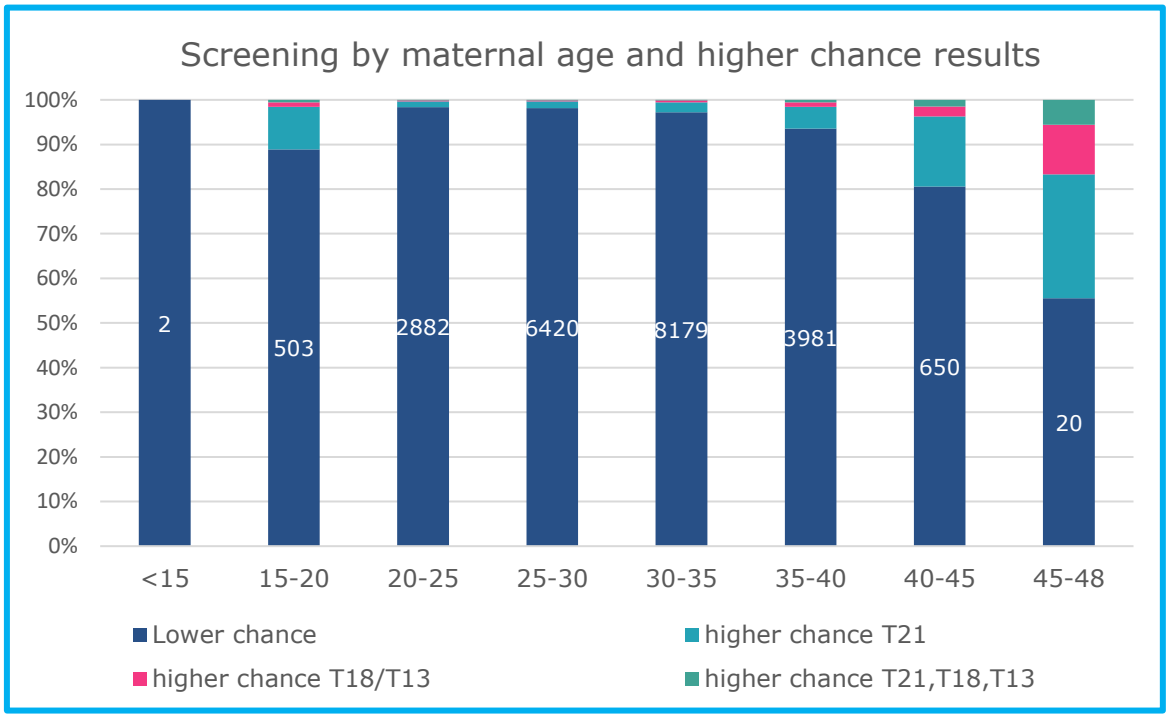


Figure 8: Maternal age at delivery demonstrating lower and higher chance results

Table 10: Higher Chance Results by Maternal Age

Age	higher chance T21	higher chance T18/T13	higher chance T21, T 18, T13
<15	0	0	0
15-20	54	6	3
20-25	36	7	4
25-30	98	17	8
30-35	188	32	13
35-40	207	42	24
40-45	127	18	12
45-48	10	4	2

This graph and table demonstrate that there is an increased chance of a pregnancy being diagnosed with a trisomy with increasing maternal age.

High chance results of Non Invasive Prenatal Testing (NIPT)

Total NIPT samples reported by All Wales Genomics Laboratory (AWGL): 508

NIPT results - reported as high or low chance

Table 11: NIPT Results (Singleton)

Result Type: high chance	Number	Percentage
T21 Only	28	5.5%
T18 Only	6	1.2%
T13 Only	2	0.4%
Total screens with a high chance result	36	7.1%

Table 12: NIPT Results (Twin)

Result Type	Number
High Chance Result for T21	1
No Result Obtained	1

Table 13: NIPT Turnaround Times

Time Range	Number	Percentage
≤7 calendar days	406	79.9%
8–14 calendar days*	94	18.5%
>14 calendar days	8	1.6%

- All Wales Genomics Laboratory standard for turnaround times is 10 calendar days. Breakdown of data will be presented as <10 calendar days and >10 calendar days for subsequent annual reports.

Invasive testing Performed

Total invasive testing performed: 42

Table 14: Invasive Testing

Test Type	Following Combined/Quad	Following NIPT
Total Procedures	15	27

The majority of procedures were amniocentesis.

Table 15: Turnaround Time for Amniocentesis and CVS (QF-PCR)

Context	Number	Percentage
Reported within 3 calendar days*	35	83.3%

All Wales Genomics Laboratory standard for turnaround times is 3 calendar days.

Table 16: Pregnancy Outcomes

Condition	Total Cases	Screening Performed	Screening Not Performed
T21	76	50	26
T18 and T13	22	12	10

Screening for Down's syndrome, Edwards' syndrome and Patau's syndrome is a choice for all women who present for antenatal care before 18 weeks gestation.

Production team

The production team for this report are all employed within Public Health Wales at the time of development and are listed below.

Sarah Fox	Head of Programme Antenatal Screening Wales
Ann-marie Donaghy	Programme Support Manager for Maternal and Child Screening
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Laura Macdermott	Programme Coordinator Antenatal Screening Wales
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Working together for a healthier Wales