NHS Borders

Public Health Screening Programmes Report

April 2020 – March 2023

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Completed by:

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Executive Summary

Screening programmes aim to find a disease, or precursors to a disease before a person becomes visibly unwell with symptoms. Those identified by screening can then be offered information, further tests and appropriate treatment to reduce their risk and/or any complications arising from the disease or condition.

The scope of screening services provided by NHS Borders is determined largely by the UK National Screening Committee (UKNSC). NHS National Services Scotland, is responsible, in conjunction with NHS Boards, for taking forward appropriate national screening developments, as well as the coordination and monitoring of the programmes.

The screening programmes that currently take place within Scotland are:

- Abdominal Aortic Aneurysm Screening
- Bowel Screening
- Breast Screening
- Cervical Screening
- Diabetic Retinopathy Screening
- Pregnancy and Newborn Screening

This annual report provides information about the screening programmes offered to residents in NHS Borders for the time period 1st April 2020 to 31st March 2023 where available. The purpose of this report is to review the operational performance data for each programme, highlight any areas of good practice, and identify any relevant service improvements required.

The Covid-19 pandemic is core to the timeframe of this report and had significant impact on all of the screening programmes. They were paused for at least 3 months, and following this had issues with backlog and delays, exacerbated by staff illness, reduced capacity, enhanced infection control procedures and isolation requirements.

Looking across all of the screening programmes, NHS Borders tends to perform quite well in comparison to Scotland and other health boards. In particular, uptake in the AAA, bowel, breast, and cervical programmes in Borders was consistently higher than the Scottish average over the last three years. Furthermore, uptake in the AAA, bowel and breast programmes in the health board did meet the required national standards or KPIs.

On the other hand, there are areas where performance against national targets was below standard. Cervical screening uptake did not meet the national standard for the last two years, and there is a wide variation in uptake within this programme across age categories. Other areas where NHS Borders falls below national standards include colonoscopy referral times, and quality of USS scanning in the AAA programme.

It is worth noting the stark differences in uptake that were seen across deprivation categories in the AAA, breast, bowel and cervical programmes. Uptake is much lower in the most deprived areas of the Borders compared to the least deprived.

Data issues were also noted as a problem within some of the programmes. There were no available national formally published KPIs for the DES programme for the last 3 years due to Covid-19, a new IT system and a change in screening pathway. Significant issues were also seen with meeting the national standards for the Pregnancy and Newborn Screening programme in Borders due to data problems. Historically it has been difficult to gather data for all of the pregnancy and newborn KPI's within Borders due to the scattered nature of the data across teams, systems and borders, as well as the inefficient maternity IT system (BadgerNet).

There is much to be celebrated however, with a great deal of good practice highlighted throughout the report. This includes work to improve accessibility of screening in the Borders through location and time availability, as well as staff and community training and engagement. In addition, screening offers a point of contact with services for many people who may otherwise not have a requirement to access healthcare. Within Borders, there are approximately 180,000 potential screening encounters over a 3 year period, which provide an important opportunity to be able to enact 'Making Every Contact Count', and utilise screening interactions to deliver other health and wellbeing information.

There are projects and developments occurring across many of the different screening programmes going forward. Notable mentions nationally include the development of new standards for the bowel screening programme, and an ongoing audit into cervical screening in those who are listed as having had a total hysterectomy.

Locally, work has begun on a new project related to defaulting on cervical screening during pregnancy. In addition, a data quality project is being scoped out within pregnancy and newborn screening, with the hope that this will lead to a discussion of the most effective and efficient ways of managing and reporting on this data going forward.

Recommendations for future work include dedicated focus on the quality and availability of data for the pregnancy and newborn programme, and wide buy-in from across Borders for both the upcoming Equity in Screening Action Plan, and the Health Inequalities Strategy, to ensure than any highlighted inequalities can be addressed in useful and enduring ways.

Introduction

Screening programmes form part of secondary prevention strategies; they aim to find a disease, or precursors to a disease before a person becomes visibly unwell with symptoms. Those identified by screening can then be offered information, further tests and appropriate treatment to reduce their risk and/or any complications arising from the disease or condition. The aim is that the earlier the disease is identified, the more likely that intervention will be successful, leading to less pressure on services overall and a better quality of life for more of the population. Furthermore, screening offers a point of contact with services for many people who may otherwise not have a requirement to access healthcare. This provides an important opportunity to be able to enact 'Making Every Contact Count', and utilise the huge number of potential screening encounters in the Borders to deliver other health and wellbeing information.

The screening programmes that currently take place within Scotland are:

- Abdominal Aortic Aneurysm Screening
- Bowel Screening
- Breast Screening
- Cervical Screening
- Diabetic Retinopathy Screening
- Pregnancy and Newborn Screening

This annual report provides information about the screening programmes offered to residents in NHS Borders for the time period 1st April 2020 to 31st March 2023 where available. The purpose of this report is to review the operational performance data for each programme, highlight areas of good practice, and to identify any relevant service improvements required. The report will also note changes to local and national policy in the delivery of screening services, as well as putting focus on any inequalities that are observable within the programme KPI or standards data. This is vitally important to acknowledge and address, as it can lead to a widening of inequalities in health outcomes due to lack of early diagnoses and interventions within certain groups of the population.

Quality and Governance

The scope of screening services provided by NHS Borders is determined largely by the UK National Screening Committee (UKNSC), which advises Ministers, the devolved National Assemblies and the Scottish Government on all aspects of evidence for screening.

A Scottish Screening Committee was created in 2017, to review the implementation of all UK National Screening Committee recommendations in Scotland. NHS National Services Scotland, is responsible, in conjunction with NHS Boards, for taking forward appropriate national screening developments as well as the coordination and monitoring of the programmes.

In NHS Borders, each of the screening programmes is supported by a local multidisciplinary planning team with a remit to monitor performance, uptake and quality assurance in delivery. It is a local priority to identify innovative ways to tackle inequalities in health and encourage uptake of screening programmes.

Successful delivery of screening programmes relies on a large number of individuals from across Scottish Borders working together. This includes primary and community care, as well as council colleagues, housing services, emergency services such as police and fire, and third sector organisations. For some programmes, partnership is also required with staff based in other Health Boards.

Most programmes have a national governance group which is comprised of board screening coordinators alongside other vital service partners. These meet to discuss planning and operational issues. For programmes which are managed more locally such as the Pregnancy and Newborn service, there is an NHS Borders Steering group which is coordinated and chaired by the board screening coordinator and has representatives from across paediatrics, obstetrics and laboratories.

Impact of Covid-19

At the onset of the first lockdown in March 2020, all of the screening programmes, except for pregnancy and newborn, were paused. The first services to recommence were abdominal aortic aneurysm and cervical (June/July 2020), followed by breast and diabetic eye screening in August 2020, and finally bowel in October 2020.

Most of the programmes took a prioritisation approach to re-starting, with those most at risk being invited first.

The pause within the screening programmes led to a backlog of people waiting to be screened.

This backlog was further exacerbated by longer appointment times across the programmes due to enhanced infection control procedures, temporary re-centralisation of services to the BGH in some of the programmes, alongside workforce issues due to Covid-19 illness and isolation requirements. Furthermore, DNA rates and non-attendance at screening increased during and following this period due to changes in the attitudes and behaviours of the population towards attending healthcare sites, and the perceived risk involved with doing so.

The increase in demand within the services led to some specific adaptions. For example:

- Within the AAA, DES and breast programmes, extra clinics were put in place, and the breast service introduced a new additional mobile unit.
- The breast service booked two patients into each time slot. This created a more efficient use of clinical time as both clients can be accommodated within the allocated time, and if one client does not attend there is at least an alternative client present.
- When routine recall resumed, Borders DES was in a favourable position to recover quickly as DES clinics operated 7 clinics a week from the BGH. To increase clinic uptake,

patients were telephoned to remind them of their appointment, and cancellations filled where possible. Patients who failed to attend were sent an open invitation to limit appointment wastage.

- The bowel service moved invitation dates back, meaning that people do not always receive a screening kit when they expect to, and a similar process was employed within the DES programme and the cervical programme. For the cervical programme, the 6 month delay will remain until after the next smear test. Therefore, unless women proactively ask for a smear test on time, those affected will receive an invite 6 months later than before their pre-Covid pause adjusted recall date, which has potentially introduced an inequality into the programme.
- The breast service made the decision to exclude all women aged over 70 from the previously available 3-yearly self-referral process. Since October 2022, self-referral access to breast screening has once again been available to women aged 71-74, or aged 75 years and over who have had a previous Breast Cancer diagnosis.

Abdominal Aortic Aneurysm

The aorta is the largest blood vessel in the body, and carries blood from the heart down through the abdomen to the rest of the body. The section of the aorta that lies within the abdomen can swell, and this is termed an abdominal aortic aneurysm (AAA). In many cases, those with an AAA are unaware and experience minimal or no symptoms. The risk of an AAA is that over time, the wall of the aorta where the swelling has occurred becomes weakened, increasing the risk of rupture and subsequent death. There are certain risk factors which have been identified as increasing the likelihood of an AAA occurring. These include smoking, age, sex (men at more risk), family history, high blood pressure, high cholesterol, and Caucasian background[1]. It is estimated that 5% of men in Scotland between 65 and 74 years old have an AAA[2], and that AAA deaths account for 2% of all deaths in men aged 65 years and older in England and Wales[3].

AAA screening looks to identify AAA in men aged 65 years old and over, with the aim of reducing deaths from their rupture. The screening test is an ultrasound scan of the abdomen. This is a painless and non-invasive test which takes approximately 10 minutes to complete.

It is thought that in Scotland, up to 170 lives each year are saved because of the AAA screening programme, and that screening for an AAA in the eligible group by ultrasound scanning reduces death from a ruptured AAA by 50%[2].

Eligibility

Men across Scotland in their 65th year of age are invited to be screened for AAA. Men over 65 years of age, who have not been screened previously, can refer themselves to the screening programme[4].

Trans-women are eligible for AAA screening. Trans-women are automatically invited to participate in screening if they haven't changed their CHI number to reflect their female gender, or if they changed their CHI number to reflect their female gender on or after 14th June 2015. Trans-women who changed their CHI number before 14th June 2015 can contact the screening centre to self-refer[4].

Trans-men are at lower risk of AAA, but if they have changed their CHI number they will be automatically invited to attend[4].

Individuals who are non-binary and were assigned male at birth should attend AAA screening and will be automatically invited if they have not changed their CHI number[4].

[1] Public Health Scotland: Abdominal Aortic Aneurysm Screening
[2] Healthcare Improvement Scotland: Abdominal Aortic Aneurysm Screening
[3] British Society of Interventional Radiology: Aortic Aneurysms
[4] Public Health Scotland: AAA screening pathway and FAQs

Service delivery in NHS Borders

The AAA Screening programme is a collaborative/partnership model with NHS Lothian. NHS Borders commenced delivery of the screening programme in August 2012.

AAA screening is currently available at the Borders General Hospital (BGH), as well as several community venues (Duns, Kelso, Pebbles and Hawick), delivered by sonographers. All invitations for eligible people are issued by a joint call-recall centre in NHS Lothian.

Areas of good practice

AAA screening has attempted to be as accessible as possible, and so ultrasound scanning occurs across five sites in the Borders.

The number of failed scanning encounters was noted to be high during this 3 year period, and so this was investigated, and led to additional lead scanner training.

Challenges

As with all the screening programmes, and noted in the introduction, the Covid-19 pandemic was a huge challenge, with some of the after effects still being felt and managed.

A higher than usual number of failed encounters was a challenge during the time period of this report (April 2020 – March 2023), but extra training was put in place to try to improve the scanning quality. In addition, in Autumn 2023, new scanning equipment was introduced with improved penetration. The anatomy of the individual/abdominal adipose can affect the quality of imaging.

Since NHS Borders screening recommenced at the end of July, there has been no access to Peebles Health Centre or Kelso Health Centre. Upon review of the facilities, the carpet flooring throughout each setting was deemed an infection control risk and should be replaced. This work is due to be completed before the end of the year. To absorb some of this lost capacity additional clinics have been running from BGH and Hawick.

Follow up and treatment

Participants are informed of their result verbally during the appointment. This is followed up with a letter within a few weeks.

If no aneurysm is detected, then the person is discharged from the screening programme.

If an aneurysm is identified, follow up depends on the diameter of the aneurysm. Just over 1% of people screened have a small sized aneurysm (3cm to 4.4cm across), and around 0.5% of people screened have medium sized aneurysms (4.5cm to 5.4cm across)[5]. The likelihood of an aneurysm rupturing at these sizes is minimal, and so treatment is not required immediately. Those with small aneurysms are invited to attend annual monitoring screens, and those with medium sized AAAs are invited for quarterly monitoring screens[5].

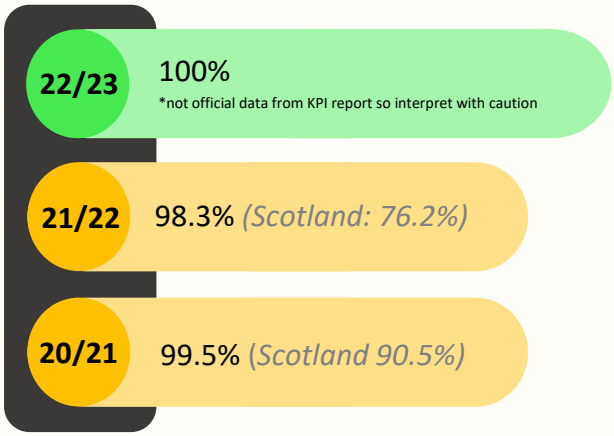
[5] NHS: Abdominal Aortic Aneurysm Screening

If a large aneurysm is detected (measures 5.5cm or more across), a referral is made to vascular specialist services in Lothian for further investigation and consideration of treatment[5]. Around 0.1% of men screened have a large AAA[5].

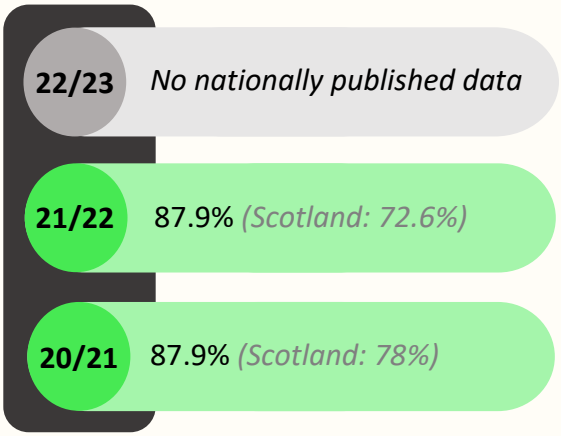
Sometimes, the aorta cannot be visualised on a scan. If this occurs, the participant will be invited for a second screen which will be at the BGH. If it is not possible to see the aorta on the second scan, local policy is to carry out a third scan using a high spec machine at the BGH, and this result is shared with the participant and their GP.

Uptake of AAA screening in NHS Borders

Percentage of NHS Borders residents offered screening before age 66yrs 3months



Percentage of NHS Borders residents tested before age 66yrs 3 months



The percentage of those offered screening before 66 years and 3 months appeared to decrease slightly between 2020/2021 and 2021/2022, although across both of these years, Borders performance was still better than Scotland overall, and did meet the essential national standard. The decrease was due to several clinics being cancelled as a result of staff absences (which has a significant impact in a small board such as NHS Borders), as well as reduced capacity within the programme due to appointment length increases to allow for Covid-19 infection control procedures. Reassuringly however, this percentage has tentatively improved in 2022/23 and has potentially met the desirable national standard.

Ideally individuals should also be tested before 66 years and 3 months. Borders was above the desirable national standard for this in both 2020/21 and 2021/22, as well as performing better than Scotland's average figure. Data regarding 2022/23 will be published in March 2024 and was not yet available at the time of writing.

	Percentage tested before age 66 and 3 months *2020-2021*	Percentage tested before age 66 and 3 months *2021-2022*
1 *(Most deprived)*	84.2%	83.8%
2	86.5%	83.1%
3	86.5%	87.2%
4	89.4%	89.9%
5 *(Least deprived)*	95.3%	94.4%

Table 1 Percentage of NHS Borders residents tested before 66 years 3 months by deprivation quintile for 2020/21 and 2021/22

Uptake of AAA screening tests can also be shown by deprivation quintile. In Borders, there is a clear trend of uptake increasing as deprivation decreases. In 2020/21, uptake of AAA testing met the desirable national standard in all quintiles except for the most deprived one.

In 2021/22, the desirable national standard was also not met in the second most deprived quintile – a decline in performance. Uptake also declined across all deprivation categories except for the 3rd. This is shown visually in the graph below. It is worth noting that other inequalities do exist within the screening programmes, despite not being included within national performance measures. These include differences in uptake due to age, sex, accessibility, ethnicity, language and learning difficulties.

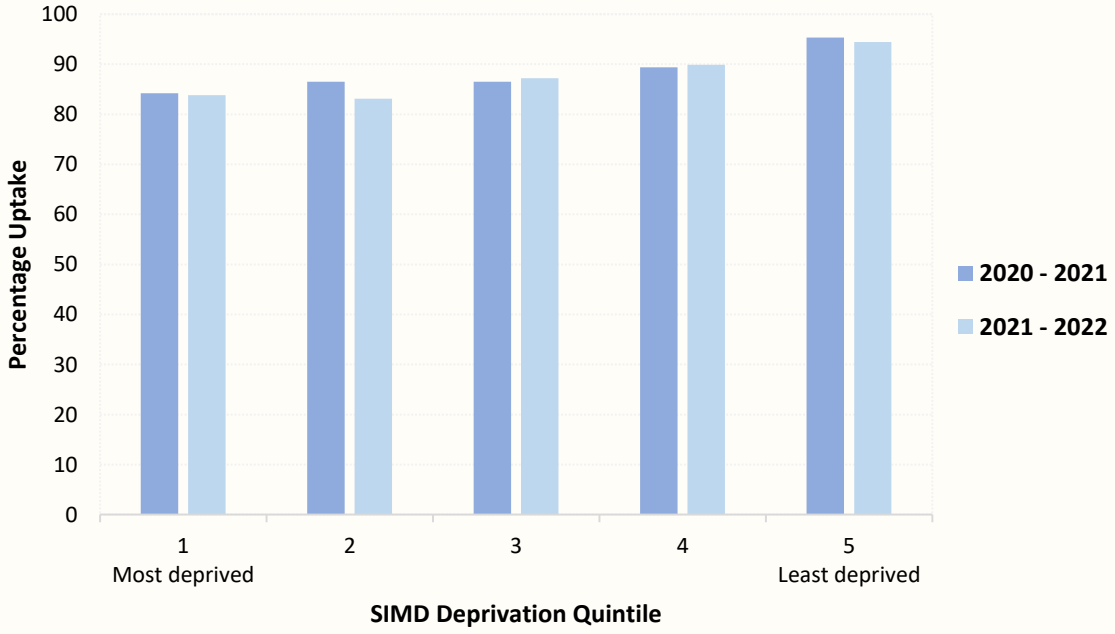
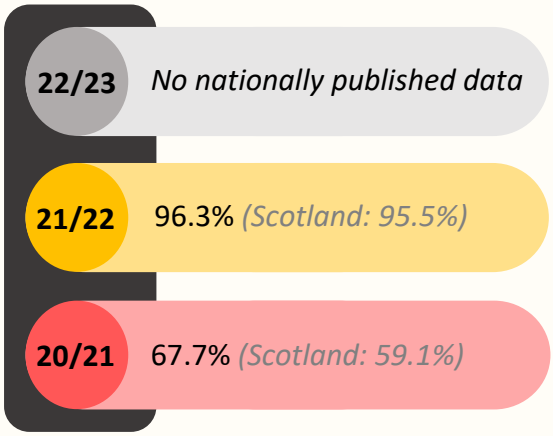


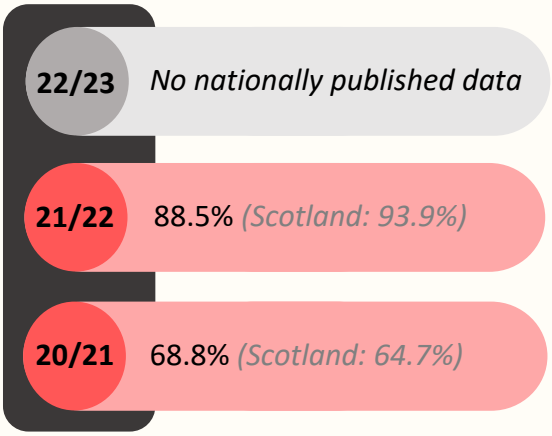
Figure 1 Percentage of men who had AAA screening within NHS Borders by age 66 years and 3 months, by deprivation quintile between March 2020 and April 2022

Percentage of NHS Borders residents tested within 6 weeks of due date for:

Annual surveillance



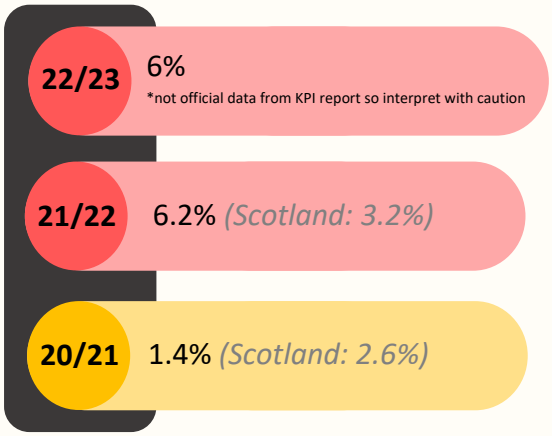
Quarterly surveillance



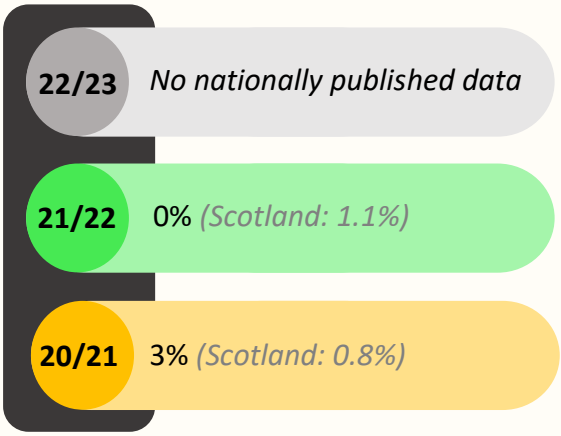
For those men who require ongoing surveillance at the Vascular department in NHS Lothian, the target is that they are screened within 6 weeks of the date of either their annual or quarterly surveillance. In 2020/21, Borders performed below the essential target for both quarterly and annual surveillance, but this decline in percentage was also reflected nationally. The percentage improved to above essential level for annual surveillance in 2021/22 and remained above the national average. Although the percentage also improved for quarterly surveillance in 2021/22, Borders did not meet the essential standard for this, and performance was lower than the national average. A small number of people who DNA or reschedule can affect this KPI disproportionately in a small board such as NHS Borders. Data regarding 2022/23 will be published in March 2024 and was not yet available at the time of writing.

Screening performance and outcomes

Percentage of screening encounters where aorta couldn't be visualised in NHS Borders residents



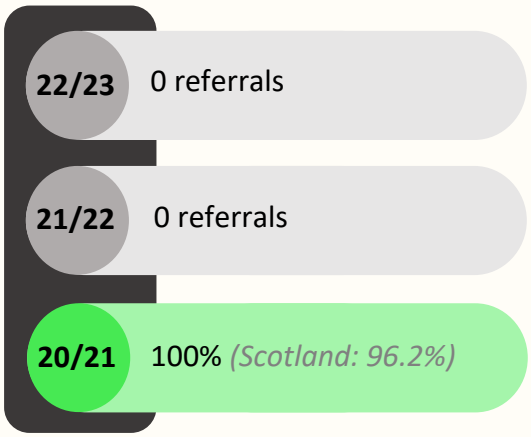
Percentage of screened images that did not meet quality assurance and required immediate recall



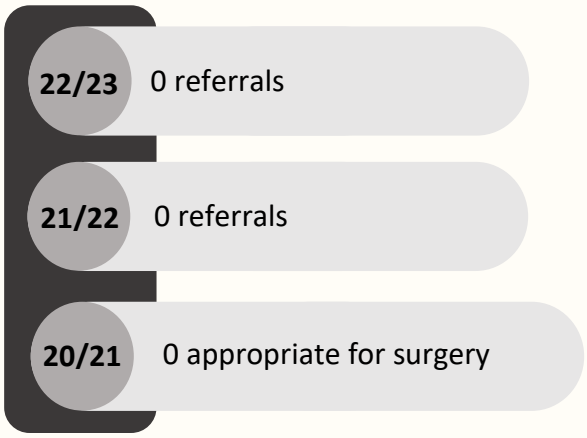
In 2020/21, there were minimal encounters where the aorta could not be visualised, and performance was better than the national average. The percentage of failed encounters

increased in 2021/22, rising above the national average and meaning that Borders did not meet the essential target for this. The percentage has remained high in 2022/23. Again, the small numbers that are being processed in NHS Borders can cause a disproportionate effect on KPI performance with only minor numbers of failed encounters. Data regarding 2022/23 will be published in March 2024 and was not yet available at the time of writing.

Percentage of NHS Borders residents with AAA ≥ 5.5cm seen by vascular specialist within two weeks of screening



Percentage of NHS Borders residents with a AAA deemed appropriate for intervention, operated on within 8 weeks



In Borders, there were no urgent vascular referrals as a result of screening in 2021/22 or 2022/23. This meant that no individual required intervention within 8 weeks. The 30 day mortality rate from AAA surgery is only available for the whole of Scotland, and it can be seen that this figure is lower for endovascular repair compared to open surgery.

30 day mortality rate across Scotland for AAA Surgery 2016/17 – 2020/21:

Identified risks

There is a risk noted around the inability to meet the essential target for KPI 3.2 (percentage of men with AAA ≥ 5.5cm deemed appropriate for intervention who were operated on by vascular specialist in Lothian within eight weeks of screening). As all men are referred for specialist intervention in Lothian, this is outwith the control of Borders.

NHS Borders Radiology department staff carry out the AAA USS scans, and are only resourced for a set number of clinics per annum. They helpfully always provide more when it is needed, but this is a fragile agreement if their own service is struggling. This means that there is a risk that patients may breach target.

Adverse events

There has been an issue identified with new AAA scanning equipment. An algorithm in the software is inappropriately “rounding” patients results on the screen, but not on their result letter.

This means that surveillance patients may be inadvertently given incorrect information about their recall status/ frequency, or may be incorrectly advised that they will be referred to vascular services, if they have either of the following measurements:

- 2.95: patient may be advised they have a AAA when they will actually not be marked for recall
- 4.45: patient may be advised they will be recalled in 3 months; however, they will be recalled in 12months
- 5.45: patient may be advised they will be referred to vascular services, but will be recalled for screening in 3month

Screeners all are aware of this workaround, and the risk to patients is low, but it is likely that a software fix may not be in place for another 6 months.

Bowel

In Scotland, bowel cancer is the third most common type of cancer. Approximately 4,000 people are diagnosed with bowel cancer each year in the country[6].

Bowel cancer screening aims to detect the disease in the early stages before symptoms appear and when treatment is more likely to be effective, leading to improved outcomes. If detected at the earliest stage, more than 9 in 10 people will survive for 5 years or more[7].

The bowel screening test is the only screening test to be performed at home at the moment. It involves sending a stool sample to the screening centre, using materials provided in the post. The test used is called a faecal immunochemical test (FIT) and it measures the amount of blood in the sample. Levels of blood above the determined programme threshold may indicate a higher risk of pre-cancerous growths (polyps) or other changes in the bowel.

Eligibility

Everyone across Scotland between the ages of 50 and 74 years old is invited to take the test every 2 years. Those over the age of 75 years old can also self-refer for a test by calling the bowel cancer screening helpline. This needs to be requested every 2 years if wanted, as there is no routine automatic recall in this age group.

Service delivery in NHS Borders

Bowel cancer screening is managed centrally within Scotland, with the Scottish Bowel Cancer Screening Centre being located in NHS Tayside. The laboratory and helpline are based at the screening centre, and all call-recall is handled from this central location.

The test kits are sent out to the address that a person has used to register with their GP. It is possible to request a replacement kit if a mistake has been made, or it has been misplaced, by using an online form or contacting the screening centre.

NHS Borders is responsible for delivering the diagnostic pathway for participants who have received a positive result.

Areas of good practice

Within NHS Borders, bowel screening patients can currently be offered a weekend appointment for colonoscopy, if appropriate for the individual patient, from Waiting Times Initiative Funding. This both increases capacity within the system, and provides better accessibility for this diagnostic test.

[6] NHS: Bowel Screening
[7] Cancer Research UK: Why early diagnosis is important

The pre-assessment stage of the referral process to colonoscopy continues to work well, with 90% of patients being offered a telephone pre-assessment appointment with a nurse within 14 days of referral.

NHS Borders consistently has one of highest uptakes in bowel screening of any mainland Scotland health board.

Challenges

Achieving the waiting time target for colonoscopy continues to be challenging, with only 25% of patients offered a colonoscopy date within 31 days of receipt of a positive screening test in 2022.

As with all the screening programmes, and noted in the introduction, the Covid-19 pandemic was a huge challenge, with some of the after effects still being felt and managed.

Follow up and treatment

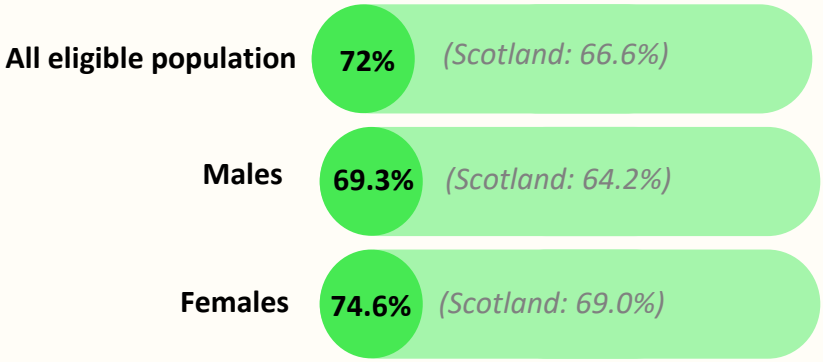
The Scottish Bowel Cancer Screening Centre aim to send individual's their results within 2 weeks.

If the test is negative, no further investigation is required and the person can continue with routine screening every 2 years.

If the test is positive, then further assessment is required. Approximately 1 in 50 people who take the screening test require further investigations[6]. The Bowel Screening IT System (BoSS) refers the patient for this further investigation at their local colorectal cancer service. This usually involves a colonoscopy as an outpatient[8]. This is an examination of the internal parts of the bowel using a small flexible camera. Of those people who have a colonoscopy as a result of bowel screening, 1 in 10 will have bowel cancer[6].

Uptake of bowel screening in NHS Borders

Percentage uptake of bowel screening in NHS Borders
1st Nov 2020 – 31st Oct 2022:



[8] NSS: Bowel Screening

The percentage uptake of bowel screening in NHS Borders for 2020 – 2022 was overall higher than the national figure. The uptake was greater in females than in males, but across both groups, NHS Borders performed above the Health Improvement Scotland (HIS) standard of 60%.

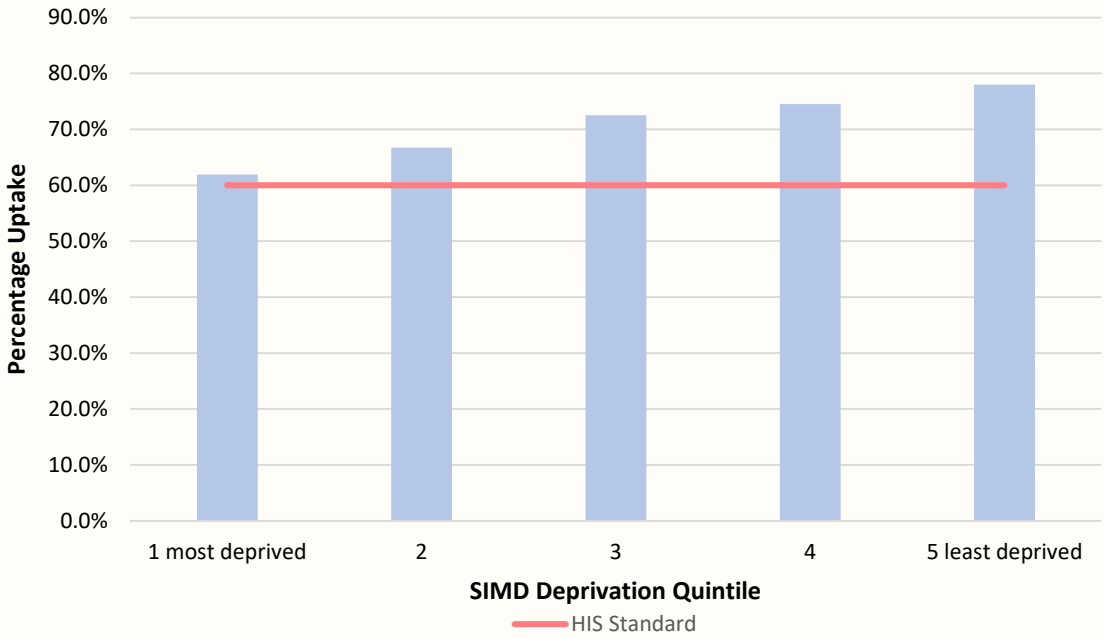


Figure 2 Uptake of bowel screening for NHS Borders between 1st Nov 2020 and 31st Oct 2022, by deprivation category

Uptake can also be reviewed by deprivation category. Bowel cancer uptake in Borders between 2020 and 2022 showed a strong trend by deprivation, with lowest uptake in the most deprived group, and best uptake in the least deprived group.

Uptake across all the deprivation quintiles was above the HIS standard of 60%, and higher than the equivalent Scottish figures. It is worth noting that other inequalities do exist within the screening programmes, despite not being included within national performance measures. These include differences in uptake due to age, sex, accessibility, ethnicity, language and learning difficulties.

Screening performance and outcomes

Screening test positivity

	Percentage of those screened who had a +ve result *(2019/21)*	**Percentage of those screened who had a +ve result** *(2020/22)*
Males	3.28%	3.32%
Females	2.29%	2.33%
All	2.77%	2.80%

Table 2 Percentage of people with a positive screening test result for both sexes, by two-year reporting period in NHS Borders

Within Borders in 2020/22, 2.8% of those who took part in bowel screening had a positive result and would have been referred for colonoscopy. This has increased slightly from the previous 2-year period. More males than females who participated in bowel screening had a positive result within the most recent, and previous 2 year periods.

Colonoscopy timeliness and completion

Of all those who were referred for colonoscopy in Borders following a positive screening test result in 2020/22, 80.9% had a colonoscopy performed, which was higher than the national figure of 74.5%.

In 2020/22, only 28.7% of people who were referred for colonoscopy in Borders had the test performed within 4 weeks of referral. The majority had their colonoscopy between 4-8 weeks of being referred (64.6%), with a small percentage waiting more than 8 weeks for the test (6.8%). As can be seen from the graph below, there was a greater percentage of those in Borders having their colonoscopy earlier than the Scottish equivalent figures, but some other boards had higher proportions of individuals having their colonoscopy within 4 weeks of referral.

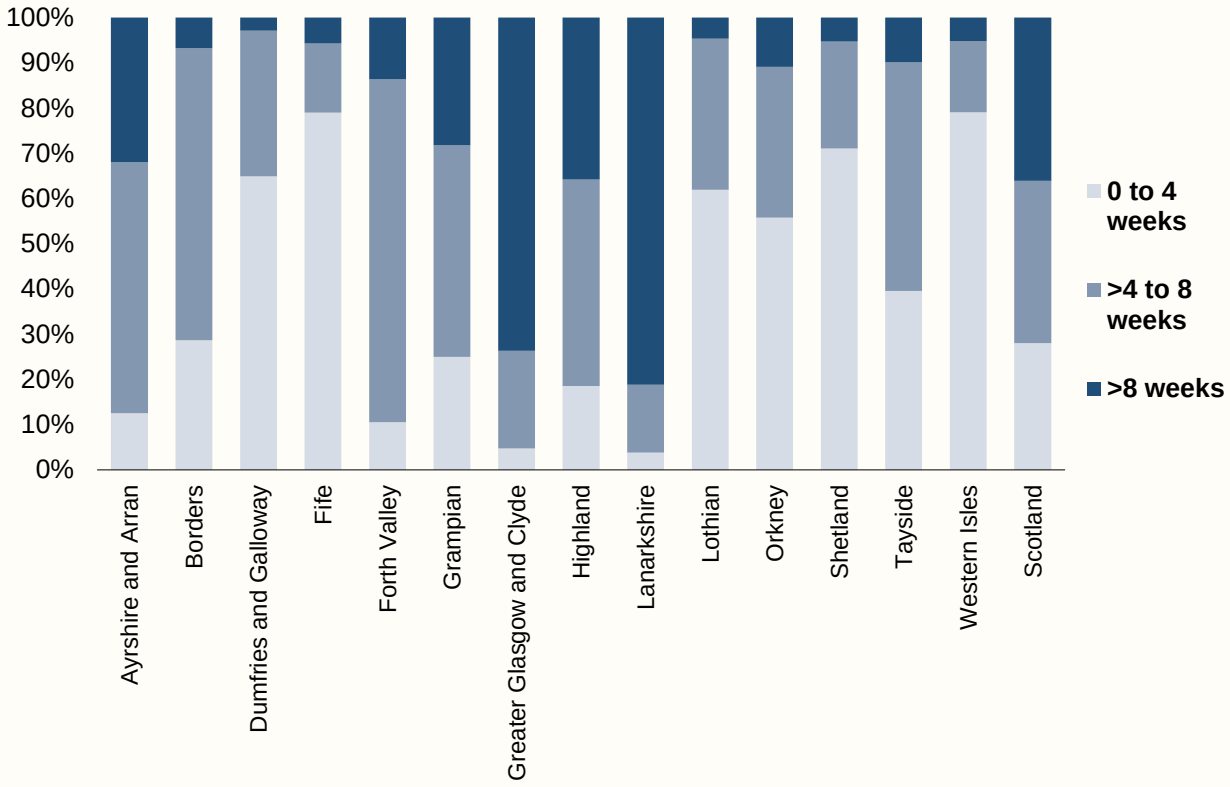


Figure 3 Time from screening test referral date to date colonoscopy performed, by NHS Board for 2020/22

Percentage of NHS Borders residents who had a completed colonoscopy 1st Nov 2020 – 31st Oct 2022:

92.8% *(Scotland: 94.1%)*

Of those who had a colonoscopy performed in Borders, 92.8% had a 'completed' colonoscopy where the scope extended the length of the bowel and visualised the caecum. This is greater than the 90% HIS standard target. However, Borders was still the 3rd worst performing health board for this measure, and completion rates were lower than the national figure. This is possibly due to the lower completion rates within the Board in females (89%) compared to males (95.6%).

In 2020/22 there were no recorded colonoscopy complications within NHS Borders.

Cancer detection and staging

Within NHS Borders, 0.113% of people who participated in bowel screening in 2020/22 had a colorectal cancer detected, with more males (0.133%) than females (0.095%) having a cancer diagnosed. This is higher than the Scottish detection rate of 0.110%.

Dukes Staging	Percentage of people with colorectal cancer *(2020/22)*
Dukes A	39%
Dukes B	24.4%
Dukes C	31.7%
Dukes D	4.9%
Unknown or not yet been supplied	0%

Table 3 Percentage of people with colorectal cancer, by Duke's stage in NHS Borders for 2020/22

Everyone who was diagnosed with colorectal cancer in Borders in 2020/22 had a recorded Duke's stage, with the most common stage being Dukes A (the least advanced). Less than 1% of individuals in the Borders who participated in bowel screening were diagnosed with polyp cancer, adenomas or high risk adenomas. The most common location for colorectal cancer to be found in individuals in Borders was the colon (53.7%), followed by rectum (34.1%), and finally the rectosigmoid junction (12.2%). Borders had more cancers than Scotland in the rectosigmoid junction and rectum, but fewer in the colon.

Positive predictive value for adenoma in NHS Borders residents
1st Nov 2020 – 31st Oct 2022

44.7% *(Scotland: 43.6%)*

One of the more specific HIS standards for bowel screening was the positive predictive value of the screening test for adenomas. This is the percentage of people with adenoma, out of those with a positive screening test and a colonoscopy performed. In Borders for 2020/22 this was 44.7%, which was higher than Scotland and above the HIS threshold of 35%. The remaining positive predictive values for different conditions are shown in the table below for interest.

Dukes Staging	Percentage of people with colorectal cancer (2020/22)
Colorectal cancer	6%
Adenoma	44.7%
High risk adenoma	7.1%
High risk adenoma or colorectal cancer	13.1%
Adenoma or colorectal cancer	50.7%

Table 4 Positive predictive values for different diagnoses in those with a positive screening test and colonoscopy performed in Borders for 2020/22

Identified risks

As detailed above, the time from positive FIT screening test to colonoscopy referral continues to be a challenge within NHS Borders. The majority are taking place between 4-8 weeks, when this should ideally be <4 weeks.

Adverse events

No adverse events were identified during the time period of this report.

Breast

In Scotland, breast cancer is the most common type of cancer for those assigned female at birth (AFAB). It is estimated that 1,000 people die from breast cancer each year in the country[9].

Breast cancer screening aims to detect the disease early, when symptoms are minimal or non-existent. The objective of this is to allow for early intervention, to hopefully improve survival rates from the cancer. Individuals are 5 times more likely to survive if the disease is found at an early stage[10].

Breast cancer screening involves performing a mammogram (x-ray) of the breast tissue. Two x-rays are taken of each breast. The appointment usually lasts no longer than 30 minutes.

Eligibility

All women between the ages of 50-70 years old are invited to participate in breast screening every 3 years. Women aged over 71 years old are outwith the routine screening age for this programme. During Covid-19, there were caveats placed on women above this age being able to self-refer, but since October 2022, women between the age of 71 and 74 years, as well as those who have previously had breast cancer can again self-refer for screening by contacting their local screening centre. This is the Southeast Scotland Breast Screening Centre for Borders residents. 2% of programme capacity is allocated for this.

AFAB non-binary people and trans men who haven't had breast removal surgery are automatically invited to breast screening if they have not changed their CHI number to reflect their male gender, or if their CHI number was changed after 14th June 2015. If their CHI number was changed before this, they can self-refer for screening by contacting the local breast screening centre.

Trans-women and AMAB non-binary people who are taking hormones are automatically invited for breast screening if they have changed their CHI number to reflect their female gender after 14th June 2015. If their CHI number has not been changed, or the change occurred before this date, they can also self-refer for screening.

Service delivery in NHS Borders

The Scottish Breast Screening Programme (SBSP) is divided into 6 screening centres. The Borders region is in the South East Scotland area, which is based in Edinburgh. The South East Scotland Breast Screening Programme (SESBSP) is directly commissioned by NSD. NHS Lothian is the host board, with local and regional partnership working with the SESBSP centre. The

[9] NHS: Breast Screening
[10] PHS: Breast Screening

service is provided through mobile units[11]. The Scottish Breast Screening Programme uses a national IT system to manage the call and recall of women for breast screening. Each of the territorial boards is responsible for planning, delivery and governance of the programme to eligible women resident within their board area.

SESBSP invites Borders women by their GP practice. The screening centre alerts local GP practices that they are attending a certain area, and obtains a list of eligible patients from them as well as information about patients' mobility. Appointments are then bulk allocated, although individuals have the option to change their appointment if required. If people move into the area whilst the GP practice is still 'open' to screening, then they will receive an appointment. The mobile units last visited Galashiels in September 2020 and will return in the autumn 2023.

Areas of good practice

The breast screening programme decided to split the visits to Borders into two within a three year screening cycle, in order to help with acute service pressures.

Following resumption of the programme during the Covid-19 pandemic, several adaptions were made to improve capacity. An additional mobile unit was added in January 2021, weekly Saturday clinics were introduced, and appointments were booked with 2 patients to each time slot. The last measure created a more efficient use of clinical time as both clients can be accommodated within the allocated time, and if one client does not attend there is at least an alternative client present

There are robust methods in place to follow up those who have been referred for further investigation at the breast centre in NHS Lothian, but who have not responded or attended.

Wireless connectivity was installed in the mobile units. This enables them to be managed by two Assistant Practitioners rather than a Senior Radiographer with an Assistant Practitioner. Images can now be transferred directly to the screening centre to check image quality remotely. This use of assistant practitioners also allowed greater flexibility to react to staff shortages.

Succession planning is undertaken proactively; One member of the Senior Radiography team became qualified to Film Read and was promoted to Band 7. Meanwhile an existing Advanced Specialist Radiographer was appointed Consultant Radiographer within the department.

The programme successfully trialled insertion of Saviscout surgical localisation markers into all grade 4 and 5 lesions to be referred to Borders or Lothian for treatment. This has removed the need for individuals to attend tertiary centres in advance of their day of surgery.

Since May 2022, those resident in the Borders who are diagnosed with non-palpable lesions have been referred to their home board for treatment. To enable this change, the Edinburgh

[11] NSS: Breast Screening

Breast Screening Multi-disciplinary meeting is now held on Microsoft Teams to allow surgeons and radiologists from Borders and Forth Valley to attend.

Within Borders an initiative has been established called Bridging the Gap, to raise awareness of breast screening amongst people with learning disability. Those who are excluded or opted out have the opportunity for further discussions and accurate recording of their decision.

Challenges

The National Adverse Event management process required a re-read of approximately 2,500 images by the South East Scotland reading team. This resulted in a delay to routine reading. Additional hours out with core time was offered, however the reading team were not in a position to provide this additional capacity.

As with all the screening programmes, and noted in the introduction, the Covid-19 pandemic was a huge challenge, with some of the after effects still being felt and managed.

Prior to the pause in screening during the Covid-19 pandemic, the 20% growth in the eligible population across the South East of Scotland meant that service was already unable to deliver all screening appointments within 3 years and 3 months of previous appointments.

Follow up and treatment

During the screening appointment, a decision will be made about whether the images obtained are of sufficient quality. If they are not, then several more images are taken.

Results are usually sent by letter within 3 weeks, with the individual's GP also receiving a copy.

The images are reviewed by two specialists. If they disagree about the results of the mammograms, then a third reviewer is used. If they are also unsure about the results, a technical recall is issued and an appointment arranged for further imaging.

If both reviewers agree that the mammograms are normal, then a negative result is issued and the individual will continue to have routine breast screening.

If both reviewers agree that there is an abnormality on a mammogram, then further investigation is required. Approximately 1 in 20 people who have a mammogram will require further tests[9]. The individual will be invited to the specialist breast centre in NHS Lothian, and may have a breast examination, more mammograms, an ultrasound scan and/or a biopsy. Only 1 in 5 of those who have further investigations as a result of screening will have breast cancer[10].

Uptake of breast screening in NHS Borders

Percentage uptake of breast screening among NHS Borders residents 2018/19 – 2020/21

78% *(Scotland: 73.2%)*

In Borders, 78% of the eligible population had breast screening in the 3 year cycle between 2018/19 and 2020/21, which was better than the Scottish figure and met the essential national target.

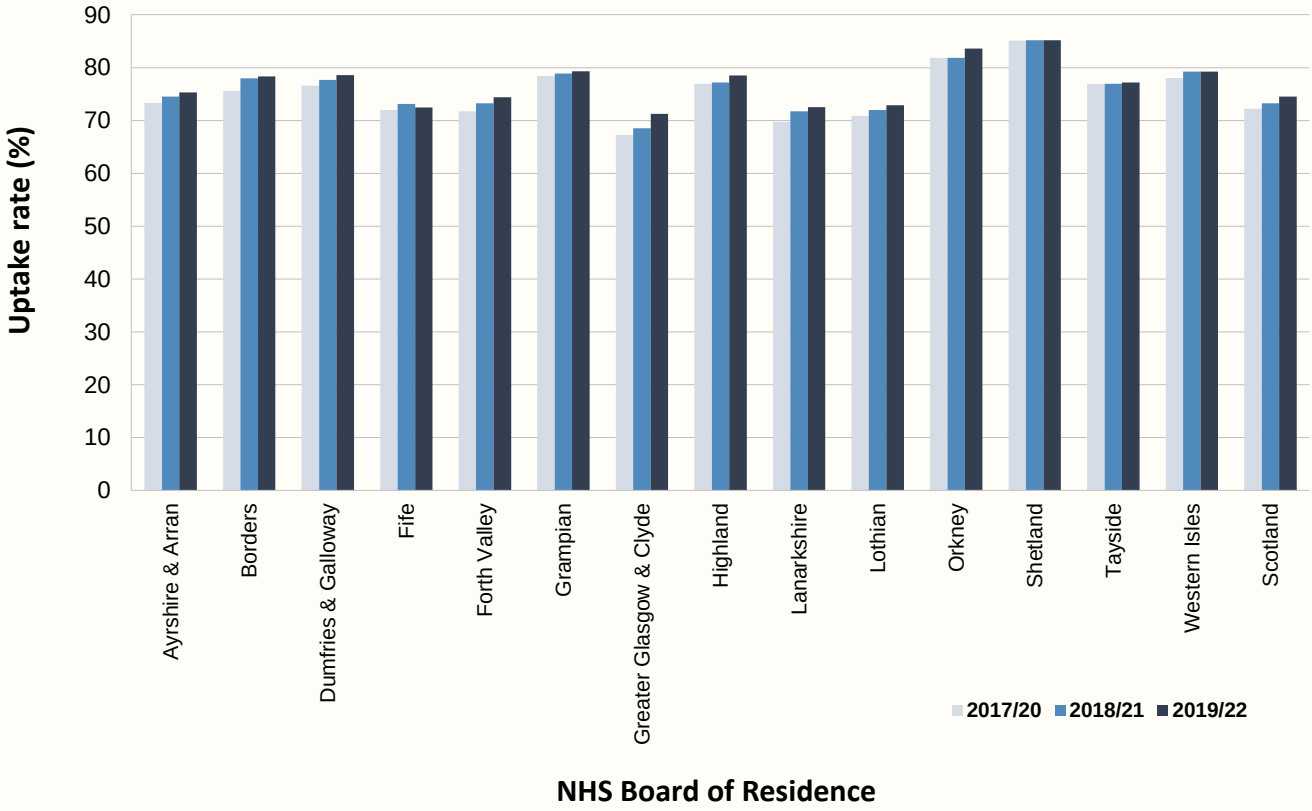


Figure 4 Three yearly uptake of breast screening across the health boards in Scotland for 2017/20, 2018,21 and 2019/22

The graph above shows the 3 yearly uptake of breast screening across the health boards in Scotland for 2017/20, 2018,21 and 2019/22. It highlights that uptake in Borders has been increasing across each of those 3 yearly periods.

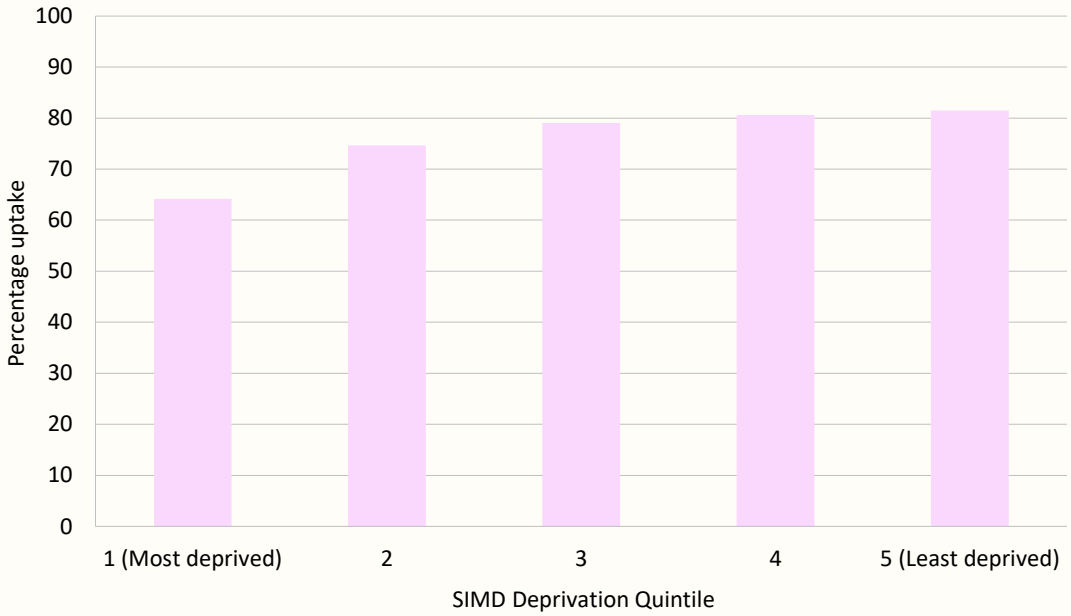
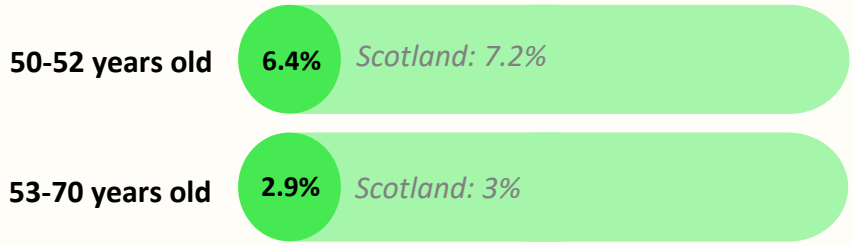


Figure 5 percentage uptake of breast screening in each deprivation category for Borders between 2019 and 2022

Uptake can also be reviewed by deprivation category. In NHS Borders, uptake is lowest in the most deprived quintile and increases as deprivation improves. NHS Borders is not meeting the minimum standard for those within the most deprived category (70%), and yet meeting the desirable target in the two least deprived groups (80%). It is worth noting that other inequalities do exist within the screening programmes, despite not being included within national performance measures. These include differences in uptake due to age, sex, accessibility, ethnicity, language and learning difficulties.

Screening performance and outcomes

Percentage of screened women in NHS Borders who were referred for further assessment 2018/19 – 2020/21



Between 2018/19 and 2020/21 in Borders, the percentages of screened women referred for further assessment were reassuringly below the required minimum and desirable thresholds.

	Number of women at their first screening (50-52 yrs old)	Number of women at subsequent screenings (53-70 yrs old)
Non Invasive Cancer detected	1 (0.7 per 1,000)	13 (1.8 per 1,000)
Invasive Cancer detected (<15mm)	5 (3.4 per 1,000)	36 94.9 per 1,000)
Invasive Cancer detected (all)	10 (6.8 per 1,000)	52 (7.1 per 1,000)

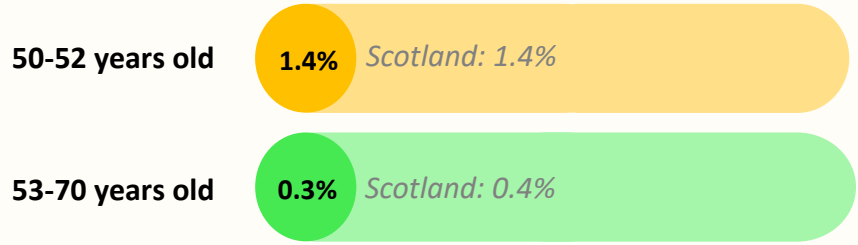
Table 5 Breast cancer detection rates through breast cancer screening for 3 year cycle from 2018/19 to 2020/21 in Borders

Between 2018/19 and 2020/21 in Borders, there were 62 breast cancers detected through the screening programme, of which 41 were less than 15mm in size. There were 14 non-invasive cancers detected in the same time period.

Detection rates for Borders for all of these categories were reassuringly above the minimum and desirable standards, and were all above the Scottish figures except for non-invasive cancer rates in the younger age group.

The standardised detection ratio (SDR) for the breast screening programme in Borders for this 3 year cycle was 1.6, which was above both the minimum (>=1.0) and desirable targets (>=1.4) as well as being the same as the Scottish figure.

Benign biopsy rates in NHS Borders
2018/19 – 2020/21



Some women who are referred for further assessment following screening have a biopsy taken, but are not diagnosed with breast cancer – instead they have a benign condition. The benign biopsy rates for Borders between 2018/19 and 2020/21 were below the essential and desirable thresholds for those having subsequent screens, but only met the essential target for women having their first screen.

Identified risks

The SESBSP maintains a risk register for the service on the DATIX system. As the service is coordinated and managed by Lothian, there is no separate process within NHS Borders.

Mortality and Morbidity (M&M) meetings are held quarterly within the service.

Adverse events and near misses are actively managed, reviewed for learning and are also recorded on DATIX.

Adverse events

In Summer 2022, four replacement mammography units within the Scottish Breast Screening Programme were suspended from clinical use due to continued sub optimal quality of breast images produced from the mammography equipment, combined with concerns that there were lower cancer detection rates for women screened on these units. No NHS Borders patients were screened on these units.

In September 2022 there was a problem with GP practice merges on SBSS, whereby eligible women were not moved over to the correct new GP practice as a result of a practice merge. This resulted in women remaining on a closed practice, and while still able to be recalled, may not have been recalled at the same time as the new practice or not invited appropriately for breast screening. Borders patients were not affected by this incident.

Cervical

Cervical cancer is the most common cancer in young women in Scotland (aged 25-35 years old). Approximately 6 women across the country are diagnosed with this cancer every week[12].

The majority of cervical cancers are caused by human papilloma virus (HPV). A lot of women carry this virus, and many clear it from their body themselves. A small number however (1 in 10 infections[13]) are harder to clear and eventually over many years, they may cause changes to the cervix. The aim of screening is to detect individuals who have HPV, so that further investigation for early pre-cancer cell changes can be carried out. These changes can then be monitored or treated, with the aim of reducing the number of people developing cervical cancer and mortality rates from this disease.

The test involves a healthcare professional taking samples of cells from the cervix. This is usually carried out local GP practices and the appointment takes 15-20 minutes.

Eligibility

Cervical screening is routinely offered to women with a cervix in Scotland between the ages of 25 and 64 years, every 5 years. Those up to the age of 70 will receive an invite if they are in non-routine screening. This is where screening results have shown the need for more investigation or follow up.

AFAB non-binary people and trans men who still have their cervix are automatically invited to cervical screening if they have not changed their CHI number to reflect their male gender, or if their CHI number was changed after 14th June 2015. If their CHI number was changed before this, they can self-refer for screening by contacting their GP.

Trans-women and AMAB non-binary people who have changed their CHI number to reflect their female gender after 14th June 2015 will be automatically invited to screening but they do not need to attend as they do not have a cervix and so are not at risk of this type of cancer.

Service delivery in NHS Borders

Eligible individuals receive an invitation for screening through the post, and most screening tests are performed within primary care. Since 30th March 2020, the programme has changed so that all samples taken are first tested for high risk human papillomavirus (HPV) that is found in 99.7% of cervical cancers. If HPV is found, then the sample will be looked at under a microscope to detect any changes to the cells.

Oversight for call-recall in the cervical screening programme is managed within local boards, with support from a national IT system called SCCRS (Scottish Cervical Call Recall System). This

[12] PHS: Cervical Screening
[13] NSS: Cervical Screening

multi-module platform coordinates the call-recall functions; GP smear taking, colposcopy and laboratory information[13].

Areas of good practice

Since January 2017, in order to improve uptake of cervical screening within staff in NHS Borders, the Public Health Screening team have arranged clinics for employees who are due, or overdue a smear. These are in the evenings, just outside of working hours, to enable better accessibility for staff.

Within Borders an initiative has been established called Bridging the Gap, to raise awareness of cervical screening amongst people with learning disability. Those who are excluded or opted out have the opportunity for further discussions and accurate recording of their decision. Furthermore, the new learning disability health check now had a question explicitly about cervical screening in the assessment.

Challenges

NHS Borders is a rural and small board, which can lead to difficulties in choice for women who do not wish to attend their local GP practice for their routine smear.

There are now only two national laboratories who analyse and process cervical smear tests. Initial demand modelling for cytology is being reviewed nationally, as the labs have struggled to meet the two-week time-to-result KPI, due to the cytology test bottleneck. This can be distressing for screening participants, some of whom are waiting 2 – 3 months for their result.

As with all the screening programmes, and noted in the introduction, the Covid-19 pandemic was a huge challenge, with some of the after effects still being felt and managed.

Colposcopy waiting times in Borders are usually well within national targets, but have recently come under pressure in line with other health boards.

Follow up and treatment

Results of the screening test should be reported by the screening laboratory within 2 weeks, and posted to the individual.

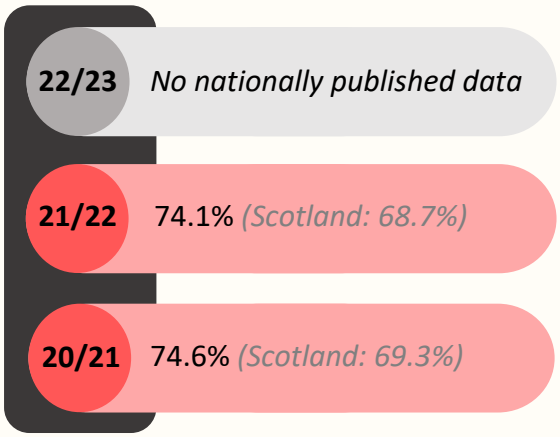
If no HPV has been found on the sample taken, then the individual will be placed back into routine screening and invited again in 5 years. If HPV was found, but there were no cell changes seen, then a further invite is issued after 12 months, in order to check if the HPV has been cleared.

If both HPV and cell changes are seen on the sample, then a referral is made to a specialist clinic for further investigation. This is usually to have colposcopy where the cervix can be looked at in greater detail.

Finally, if the sample result was unclear for any reason, then the individual is asked to return for another screening appointment in order to get another sample to process.

Uptake of cervical screening in NHS Borders

Percentage uptake of cervical screening among NHS Borders residents



The uptake of cervical screening in Borders has been declining over the past 4 years of available data. Uptake was 77.3% in 2018/19 but only 74.1% in 2021/22. It is difficult to know if this is due to interruption of the programme and other impacts of the Covid-19 pandemic. A similar trend has been seen across Scotland, although uptake locally is still higher than the Scottish average (68.7% in 2021/22). The HIS standard for coverage is a minimum of 80%, and so Borders did not meet this target in 2020/21 or 2021/22. National data regarding 2022/23 has not yet been published, and so was not available at the time of writing.

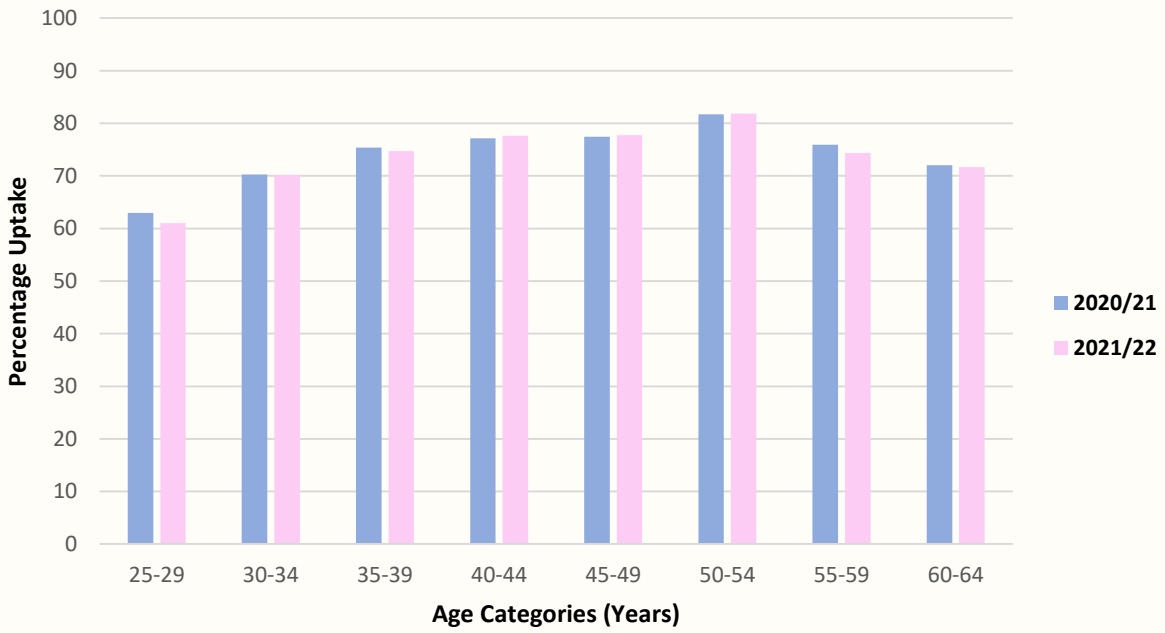


Figure 6 Percentage uptake of cervical screening within NHS Borders, by age for 2020/21 and 2021/22

There is variation in uptake of cervical screening by age in Borders, with lowest percentages seen in the 25-29 year age group (61%) and 60-64 year age group (71.6%) in 2021/22. This pattern is the same as the one observed in 2020/21, although the uptake has dropped over those two years across almost all age groups. The trend is also seen across Scotland, although Borders did perform better than the Scottish average for all age groups in 2021/22.

Not only do inequalities in uptake exist across age categories within the cervical screening programme, they also exist across deprivation categories.

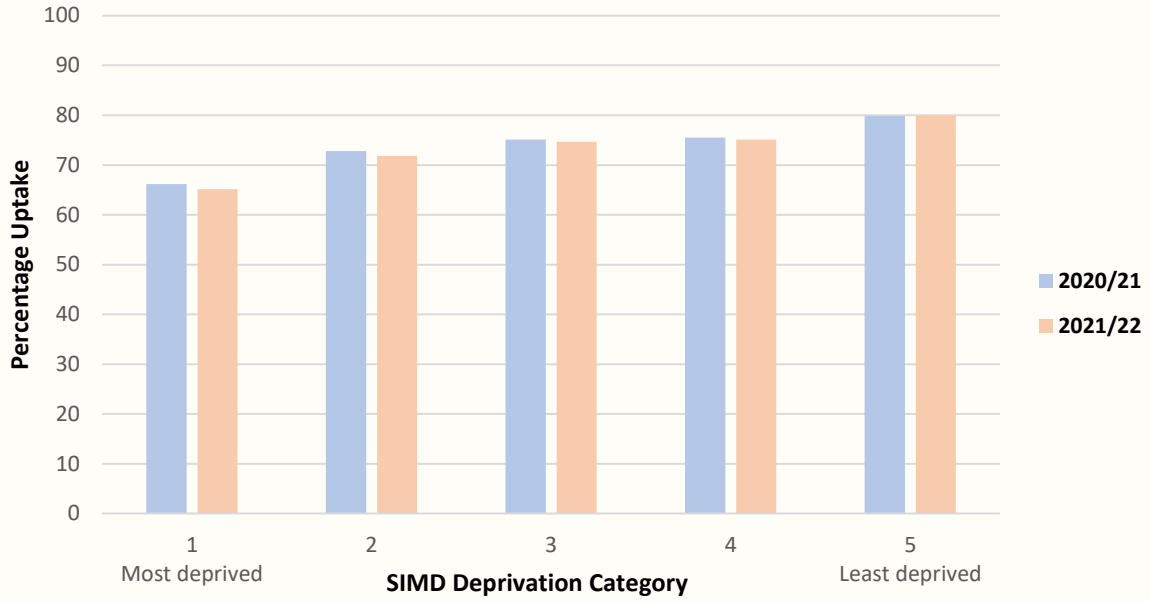


Figure 7 Percentage uptake of cervical screening within NHS Borders, by deprivation quintile for 2020/21 and 2021/22

Uptake of cervical screening shows a very clear trend in Borders, with uptake being lowest in the most deprived parts of the population (65.1% in 2021/22) and highest in the least deprived (80% in 2021/22). This is a gap of 14.9% between the most and least deprived areas of Borders.

This trend was observed in 2020/21 as well, with uptake decreasing across the two years for almost all categories except for the least deprived. The HIS standard of 80% uptake was only achieved in the least deprived category in 2021/22. It is worth noting that other inequalities do exist within the screening programmes, despite not being included within national performance measures. These include differences in uptake due to age, sex, accessibility, ethnicity, language and learning difficulties.

Finally, uptake of cervical screening can be analysed by HPV vaccination status. This vaccine was introduced in 2008 and is now offered to all individuals between 11 and 13 years old in Scotland. In 2021/22, uptake in screening amongst those 25-31 years old who were fully vaccinated was 70.4% in Borders. Uptake was only 61% in those of the same age with incomplete vaccination, and was even lower (45.8%) in those with no HPV vaccine history. This may be due to immunised women being more aware of the risk of cervical cancer as a result of contact with the immunisation programme.

Screening performance and outcomes

The average turnaround time for results coming to NHS Borders varied between 15 and 17 days across Q1-Q4 in 2021/22. This was similar in 2020/21, although Q1 in this year had an average of 12 days.

There is a HIS standard that requires a minimum of 80% of individuals receive their screening results within 14 days from the date of the sample being taken. This information is not available for Borders specifically, but some information does exist for the 2 laboratories in Scotland.

In 2021/22, the turnaround time for 95% of all screening tests processed within Scotland varied between 18 and 38 days across the quarters. The range was slightly wider in 2020/21, with turnaround time varying between 14 and 43 days that year.

The number of new cases of cervical cancer diagnosed each year is very low in the Borders and fluctuates from year to year, as would be expected given the small numbers.

Identified risks

There is a risk to resilience within the call-recall function of the cervical screening programme in Borders. The team is small and so any absence has a significant impact on function.

There is a risk noted around opportunistic cervical screening samples taken within BGH wards for in-patients by staff who do not have access to SCCRS. This is alongside variation in clinical standards and correct procedures.

There is a risk that out of date vials will be used for cervical smear taking within the BGH and GP practices.

There is a risk that pregnancy exclusions are not being applied consistently in SCCRS, which means that screening opportunities could be missed.

Adverse events

There was a national incident in June 2021 regarding individuals who had a sub total hysterectomy being incorrectly excluded from the cervical screening programme. All of these people have since been identified and invited for assessment, with no cancers found. This audit was extended to include all women with an SMR code of total hysterectomy and a no cervix exclusion in SCCRS. To date in Borders, two women from over 4000 audited have been found to have been inappropriately excluded from cervical screening as they did have a cervix. This audit will be completed by March 2024.

In spring 2022, two GP practices used an out-of-date vial for cervical smear taking, and so the patients had to be invited for another smear test with the standard 3 month recovery period.

In January 2023, Monklands screening lab discarded a sample that had not yet had cytology due to an I.T. upgrade issue. Three Borders patients had to be invited back for screening due to this. In the same month, a practice nurse had taken a sample for a patient but had not printed the label at the time of the consultation. They entered another patient's notes shortly after this and created a sample label for the wrong patient. The patient had to return for a repeat sample.

Diabetic Eye Screening (DES)

The Diabetic Eye Screening programme (DES) was formally known as the Diabetic Retinopathy Screening Programme. The programme aims to check for diabetic retinopathy, which is a condition caused when high blood sugar levels can damage the small blood vessels in the retina.

People with both type 1 and type 2 diabetes are at risk of developing the condition and often there are no symptoms in the early stages of the condition. If the damage is not treated then it can lead to serious complications, including blindness. Untreated diabetic retinopathy is one of the most common causes of sight loss in working age people[14].

The screening test involves a screener taking a digital photograph of the back of the eye to detect any damage and this can take between 10 to 30 minutes. The retinal images are then downloaded for assessment and grade assignment in Optomize, the DES IT system.

Eligibility

Everyone diagnosed with diabetes, and on the SCI Diabetes database, over the age of 12 years old is invited to have DES every 2 years if they are at low risk of sight loss. Those who are at high risk of sight loss should be invited every 6-12 months for screening. Pregnant women are invited three times during/post pregnancy, due to the risk of gestational diabetes.

An individual's image grading outcome and screening history are used to determine their risk profile.

Service delivery in NHS Borders

NHS Borders commissioned NHS Lothian in 2008 to provide programme management, retinal image grading, and call-recall admin services for the Borders DES programme. NHS Borders provides the DES screeners and cameras.

The DES service currently screens at the following locations:

- Borders General Hospital
- Coldstream Health Centre
- Eyemouth Health Centre
- Hay Lodge Health Centre, Peebles
- Hawick Community Hospital
- Hawick Health Centre
- Jedburgh Health Centre
- Kelso Community Hospital
- Knoll Hospital, Duns
- Selkirk Health Centre

[14] PHS: Diabetic eye screening

The DES programme in the Borders is delivered by two (1.95 WTE) screeners, supported by Borders Screening Team, as well as NHS Lothian's Princess Alexandra Eye Pavilion programme manager, graders, and call-recall admin, who manage all screening appointments for Borders screening participants. NHS Borders Ophthalmology Department provide all OCT (Optical coherence tomography) 3D imaging for the DES programme in the Borders, as the low numbers eligible for OCT imaging following DES screening are too low to justify the procurement costs of an additional screening OCT machine.

Where a satisfactory retinal image cannot be obtained by the screeners, patients are asked to make an appointment with a local community optometrist for a slit lamp examination, who feed the results into the DES programme admin.

Areas of good practice

The Borders community optometrist model for DES slit lamp examination widens access to screening across the Borders, enabling those with poor mobility and limited access to affordable public transport to attend a relatively local optician for a screening slit lamp examination rather than having to travel to the Borders General Hospital for an Ophthalmology appointment.

Screening is delivered in a variety of community locations to make it accessible and practical. There are also monthly Saturday clinics for people who have trouble accessing clinics during the working week. Furthermore, the DES programme aims to accommodate inpatients in the BGH who have missed their screening appointment, usually on the same day that this is flagged to the team.

Patients invited to the programme are given a phone call to remind them of their appointment, and to discuss any issues with attending the appointment. This has often led to elderly patients being given an appointment much closer to home than the one they originally received from the Lothian call-recall office.

Challenges

The pool of optometrists that have been accredited by the Borders Ophthalmology Department to provide slit lamp examinations for the DES programme has declined greatly since pre-Covid. Reasons include retirement, staff turnover and financial pressures. The current screening slit lamp fee is £15 and has not been reviewed since the implementation of the DES programme in 2008. Several optometrists have either opted-out of the slit lamp programme, or intend to do so if the fee cannot be increased in line with the standard eye test which is currently £45.

Current pressures in the NHS Borders Ophthalmology department mean that although there are Optometrists willing to be accredited for Borders DES slit lamp examination, there is currently no agreement when this can be achieved. This could result in more patients being referred to Ophthalmology for a DES slit lamp examination in future.

The size and population of NHS Borders only supports the use of two screeners. This means that staff absence can have a large impact on the ability to provide screening in the board.

As with all the screening programmes, and noted in the introduction, the Covid-19 pandemic was a huge challenge, with some of the after effects still being felt and managed.

Follow up and treatment

Results are usually sent to patients within 4 weeks. Individuals' GP and diabetic specialist also receive a copy of the results.

If the result is unclear when it is being reviewed by the team, then the person will be invited back for another test.

If no retinopathy is found on the screening test, and this is the first time this has occurred, they will be invited back for screening after 12 months. From the second time onwards, the screening interval increases to 2 years.

If minor changes are found on the retinopathy screen, then the individual is usually recalled after 6-12 months for monitoring.

Finally, if more significant changes are found, then the individual is referred to a specialist eye clinic for further assessment and investigations. Approximately 1 in 25 people who have the screening test will be referred for further investigations[15].

Uptake and screening performance of DES in NHS Borders

Since the programme moved from Vector to Optomize IT system in June 2020, there have been no official published KPIs for the DES programme. This is due to many, compounding reasons.

Optomize went live during the pause in national screening programmes for Covid-19. The recall dates of those on routine recall were moved back 12 months to enable users to become familiar with the new system whilst coping with the restart of screening in a position of significantly reduced capacity. However, this made it very difficult to recall patients as no-one was technically due for screening, and the call-recall team had to manually search for patients. It emerged the DES collaborative did not order a like for like replacement I.T. system and a stream of fixes and developments were needed for equivalent functionality, particularly in the reporting capabilities. Optomize is still in its embedding phase with work on producing a reliable set of DES KPI's ongoing, and as such, no official KPIs have yet been published.

DES Screening uptake was severely affected after the programme restarted again in August 2020, post Covid-19 lockdown. There was an initial focus on high-risk patients, including pregnant and newly diagnosed, which increases by approximately 5% each year. Across Scotland the numbers being invited and screened was significantly reduced due to staffing issues, closure and slow reopening of screening venues, infection control procedures, social distancing and isolation requirements. The barriers to participating in this programme, or any of the screening programmes were huge across the country and all of these factors

[15] PHS: Diabetic Eye Screening

contributed to the low uptake and consequent DES backlogs across Scotland. Specifically, within the Borders, the service had to be centralised to the BGH at the time. This meant that a lot of people were unable or unwilling to travel long distances for a screening appointment (particularly on public transport), and there was also hesitancy around attending a hospital setting and the perceived risks involved with this, particularly for people who already had long term health problems such as diabetes and may have been shielding.

Furthermore, the above sits alongside changes made to the screening pathway in the DES programme from 1st January 2021. Revised screening intervals (RSI) were introduced, and low risk patients, who met the criteria, were given a 2 year recall. To avoid distorting the demand curve, this was phased in gradually, using a random allocation algorithm, across Scotland and not by Board. This gradual phasing in of the RSI affected the accuracy of the KPI denominator. The proportion allocated either a 1 year or 2 year screening interval varied in each Board, making the establishment of an accurate denominator difficult and a conversion formula had to be applied. Since the RSI has been implemented fully, it has now emerged that recalling patients early, to smooth the bow waves in the demand curve created by Covid-19, results in some patients reverting back to a 1 year recall interval in error.

All of these factors are complex and interlinked. They have understandably meant that no official KPI report has been published as yet. In the meantime, the call/recall office continues to monitor the performance and safety of the programme, using management performance reports. The next KPI report for this programme is due next year, and it is hoped that the 2023/24 report will provide greater clarity about the ongoing performance of this screening programme both within Borders and across Scotland.

Governance and regulation

The NHS Borders Board Screening Coordinator and Screening Services Manager attend the quarterly Lothian DES Governance meeting.

Prior to Covid-19 the NHS Borders Diabetes Managed Clinical Network (NHSB MCN) provided governance for our DES programme. The NHSB MCN has not yet resumed since Covid-19, and so resumption of a Borders DES Governance group has proved difficult. However, it is hoped that a governance meeting we be held in the next quarter to include an Ophthalmology and a Diabetic Team representative.

Internal (IQA) and External Quality Assurance (EQA) activities are undertaken by all image graders, with level 3 graders being assessed by the External Quality Assurance (EQA) system provided, and hosted by Aberdeen University. All graders must participate in at least 3 out of 4 rounds of the EQA scheme; however, its main purpose is to show that an equitable and high quality grading standard is maintained across all 9 grading centres in Scotland.

Identified risks

There is an identified risk around the capacity of Ophthalmology and Diabetes Consultants to attend governance meetings around their clinical workload.

As detailed above, service delivery resilience can be challenging with only two DES screeners in post.

A risk is noted around clinic transport for the programme, as the current DES transport is diesel. NHS Borders policy may require DES to procure an electric vehicle in the near future, and funding will be required for this.

There is a lack of capacity within the Ophthalmology department to process and perform new slit lamp accreditation requests which reduces the number that can be performed in the community, and increases demand further on the Ophthalmology department.

Adverse events

An IT system user error in August 2021 led to 29 Borders patients who were newly registered onto the DES Optimise IT System in August and September 2021 not being sent an invitation for their first Diabetic Eye Screening (DES) within 90 days by the Lothian call-recall office. Fortunately, those who went on to attend a screening appointment showed no evidence of harm, and no referrals to Ophthalmology were necessary.

Pregnancy and Newborn

Pregnancy and newborn screening involves a variety of different tests, offered to mother and baby, at stages throughout pregnancy and in the early neonatal period.

There are three primary purposes of pregnancy and newborn screening tests:

- To identify whether a woman has a condition that could harm her baby without treatment during the pregnancy or shortly after birth.
- To identify whether the baby has, or is at risk of, conditions such as neural tube defects, sickle cell disorders and thalassaemia.
- To identify if the baby's development is normal, and whether they have conditions that require treatment in utero, shortly after birth, or will limit the baby's chance of survival.

Eligibility

All pregnant mothers and newborn babies within the UK are eligible for screening at specified time points during pregnancy and after birth.

Service delivery

Pregnancy screening is integrated into routine maternity care for pregnant woman. Most screening blood tests are carried out by community midwives at antenatal appointments in local venues, but sometimes are performed by hospital midwives within the maternity department at the Borders General Hospital (BGH). Ultrasound scans for fetal anomalies are performed by sonographers at the BGH.

Newborn screening is offered to all babies born within NHS Borders. Hearing tests are carried out at the BGH, and bloodspot tests are usually performed at home by community midwives (although some may occur within the hospital setting if a baby is an inpatient at the time of the test). Movers in to the Board under the age of 12 months are offered a bloodspot test in Ward 15 Ambulatory Care if they cannot provide their health visitor with a bloodspot result.

Areas of good practice

With regards to the blood spot testing programme, Midwifery produced a local training guide, engaged in training sessions, one to one supervision and introduced new lancets in an effort to mitigate the persistent number of avoidable repeat tests within Borders.

Delays in transit time of some screening samples was greatly affected by national Royal Mail postal strikes this year. The BGH lab arranged blood bike transportation of blood spot screening samples for most of the strike dates, and within the community consideration is given to when certain antenatal clinics are booked, so that blood samples can be posted in a timely fashion (taking into account both Scottish and English bank holiday dates).

The newborn hearing screening programme in Borders is now located on the Pregnancy Assessment Unit. Two more maternity staff (band 4) have been trained which provides cover later in the day, and has reduced the need for extra clinics. There are clinics on Saturdays and

occasional Sundays, which may be beneficial for some families where a parent returns to work before the hearing screening appointment date.

Challenges

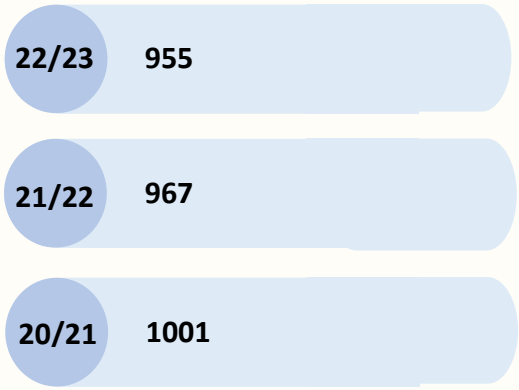
Over the past few years there have been some specific challenges within the pregnancy and newborn screening programme. Postal strikes, and the Royal Mail service in general have impacted on the timely delivery of blood tests to the appropriate laboratories.

The conflict in Ukraine saw movement of families into Borders from that area. It was difficult to locate these families at times, often resulting in extremely challenging deadlines for the test to be taken. It was also very difficult to explain the blood spot test to these families, and the reason why it was important.

Uptake, performance and clinical outcomes

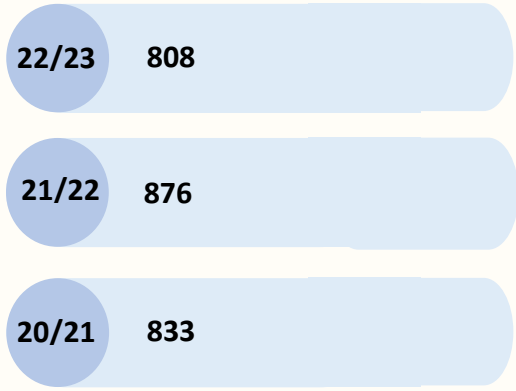
Much of the data that we have available around screening was taken from BadgerNet. The quality of the information that could be pulled from the IT system was uncertain and so the figures detailed below may not be a fully reliable representation of the KPI achievement for the last three years. This appears to be mostly due to issues around the use of BadgerNet and how to appropriately record information so that KPI figures can be pulled.

Number of booking appointments in NHS Borders



The data about booking appointments is from BadgerNet - it was not possible to know whether this figure included miscarriages, terminations, or movers into/out of the area, and so that should be kept in mind when reviewing the data.

Number of live births in NHS Borders



In 2020/21 there were 833 live births in NHS Borders. Of these, 68 babies were resident in another health board and so their ongoing care was the responsibility of that health board, leaving 765 babies for whom NHS Borders was responsible for ongoing care.

In 2021/22, there were 56 babies who were resident in another health board, leaving 820 the responsibility of NHS Borders.

In 2022/23, 64 babies were resident out of the area and so only 744 were the responsibility of NHS Borders in terms of going care.

Screening tests in pregnancy

Condition	Rationale	Test and Timing
Haemoglobinopathies	Haemoglobinopathies such as sickle cell disease and thalassaemia are inherited blood disorders that are passed on from parents to children genetically[16]. They are serious and life-long conditions, where people can experience severe pain, anaemia, and infections. Screening for these illnesses aims to allow early treatment for the baby in order to prevent damage to their liver, heart, and spleen. https://www.nhsinform.scot/healthy-living/screening/pregnancy/blood-tests-during-pregnancy	Maternal blood test and Family Origin Questionnaire (FOQ) *Sometimes a paternal blood test is also offered, as this can provide more accurate screening results* During or shortly after first midwife visit (before 10 weeks)
Hepatitis B	This virus is transmitted via contact with bodily fluids, in this context – from mother to baby during birth. The virus attacks the liver, causing inflammation and sometimes liver failure, scarring and/or cancer. Chronic disease is more likely in babies and children who are infected with the virus[17]. Screening aims to reduce the number of babies who have hepatitis B, and subsequently develop severe liver disease. https://www.nhsinform.scot/illnesses-and-conditions/stomach-liver-and-gastrointestinal-tract/hepatitis-b/	Maternal blood test Between 8-12 weeks
Syphilis	Syphilis is a bacterial illness that can be transmitted from a mother to her baby during pregnancy and/or childbirth. If a woman has syphilis during pregnancy (at any of its three clinical stages), there is a risk of the unborn baby developing congenital syphilis. Screening aims to reduce the number of miscarriages and stillbirths due to syphilis. It also aims to reduce the number of babies born with congenital syphilis as this can lead to serious life changing or life altering problems.	Maternal blood test Between 8-12 weeks
HIV	Human Immunodeficiency Virus is a virus which is transmitted through bodily fluids, in this context - from mother to baby during pregnancy, birth and breastfeeding. This virus attacks elements of the immune system, weakening it and making a person susceptible to both common and rarer infections and illness. Screening aims to reduce the number of babies born with HIV, and therefore the associated consequences of living with this illness.	Maternal blood test Between 8-12 weeks

[16] NHS: Blood tests during pregnancy
[17] NHS: Hepatitis B

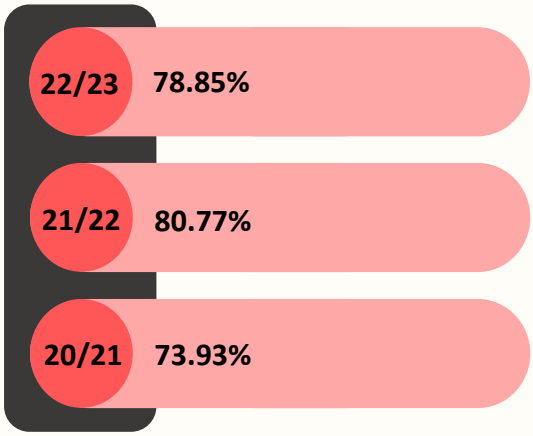
Condition	Rationale	Test and Timing
Down's Syndrome, Edward's Syndrome and Patau's Syndrome (trisomy 13, 18 or 21)	These syndromes are genetic conditions, most of which are caused by a chance mutation. In all of these syndromes, the baby has an extra copy of a particular chromosome (chromosomes are where genetic material is held in the body, and we usually have a pair of each of the 23 chromosomes). Pregnancies where the baby has a form of Edward's and Patau's syndrome have a higher risk of miscarriage and stillbirth. Those who survive can have severe medical problems, and some may have a form which is life-limiting. Down's syndrome is not considered to be a life-limiting condition, but children born with this can have a higher risk of certain medical conditions. Screening for these syndromes allows families to make informed and supported decisions about the risk of their baby having the conditions, and offers the choice of going on to have an invasive diagnostic test.	Maternal blood test and ultrasound scan *Can choose to screen for all, some, or none of the conditions* Between 11-14 weeks *If the woman is between 14-20 weeks, then they can only be screened for trisomy 21, and only with the blood test*
Fetal anomaly	This test is a detailed ultrasound scan, usually performed by a sonographer. The fetal anomaly ultrasound scan identifies serious fetal anomalies which are incompatible with life or associated with morbidity. It also identifies anomalies which may benefit from intervention during the pregnancy, or soon after the birth of the baby. The scan can be dependent on the position of the baby, maternal weight, fluid around the baby and scarring in the abdomen from previous procedures. It also is unable to identify anything that might develop later on in pregnancy, or any problems that aren't structural in nature.	Ultrasound scan Between 18-21 weeks

Condition	Rationale	Test and Timing
	Conditions that can be identified at the fetal anomaly screening include: • Anencephaly • Open spina bifida • Cleft lip • Diaphragmatic hernia • Gastroschisis • Exomphalos • Serious cardiac anomalies • Bilateral renal agenesis • Lethal skeletal dysplasia • Edwards syndrome • Patau's syndrome Detecting any developmental issues during pregnancy allows for early support to be offered to parents in order for them to make informed decisions. It also enables interventions to be carried out in utero if required, and for plans to be made around birth and early life with the aim of improving outcomes.	

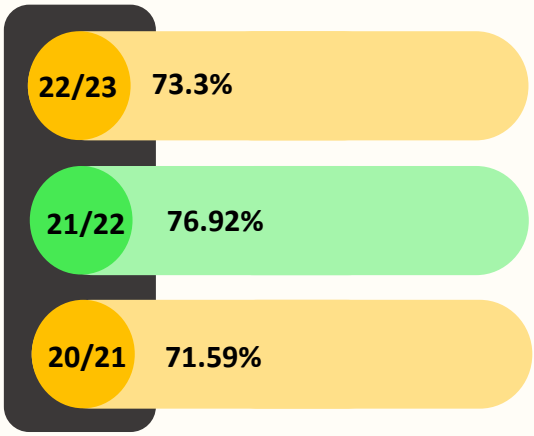
Haemoglobinopathies

The percentage of women offered haemoglobinopathy testing increased slightly in 2021/22 (90.61% to 92.86%) but then declined again in 2022/23 (91.83%). It is unclear whether the pregnancies that were recorded as not being offered testing were genuinely not offered or whether this was not recorded correctly on the BadgerNet.

Percentage of pregnancies in NHS Borders where a haemoglobinopathy screening result was available



Percentage of pregnancies in NHS Borders where the screening result was available by 10 weeks + 0 days



The percentage of pregnancies where a screening test result for haemoglobinopathies was available also increased in 2021/22 but declined slightly again in 2022/23, though not to as low as 2020/21. In none of these years however was the essential national target met.

Women should receive a haemoglobinopathy screening result by 10 weeks + 0 days' gestation. In 2020/21 and 2022/23, the essential national target for this was met. In 2021/22 there was again an apparent increase compared to the other two years, and the desirable national criteria was met in this time period.

	Total number on whom an antenatal screening sample was performed	Number of women with an abnormal haemoglobinopathy screen at any gestation
April 2022 – March 2023	869	342
April 2021 – March 2022	884	254
April 2020 – March 2021	894	200

Table 6 The number of women who had a haemoglobinopathy screening result, and the number of abnormal results in NHS Borders for April 2020 - March 2021, April 2021 - March 2022 and April 2022 - March 2023 (BadgerNet)

The number of women with an abnormal result at screening has been increasing over the last three years, and understandably, so too have the number of babies born to mothers with an abnormal result.

We have not been able to obtain information regarding the completion of the Family Origin Questionnaire due to resourcing issues within our local laboratory.

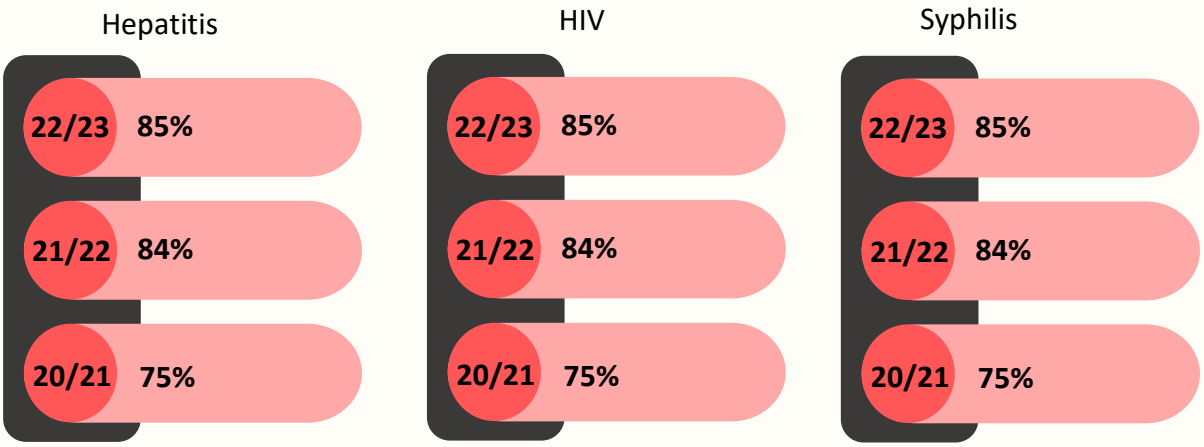
We were also unable to obtain numerator data for the final KPIs in this section (timely offer of prenatal diagnosis, timely reporting of newborn positive screen, and timely receipt into specialist care) as the information was not available to pull within the local IT system.

Infectious Disease Screening

There are three tests offered for infectious diseases in the first trimester; hepatitis B, syphilis and human-immunodeficiency virus (HIV).

The percentage of women offered hepatitis B, syphilis and HIV testing in NHS Borders has remained fairly similar over the past 3 years, with a slight increase in 2021/22 (91% to 93%), and then decline again in 2022/23 (92%).

Percentage of pregnancies in NHS Borders where a screening result was available



The percentage of women who have had a hepatitis B, syphilis and HIV screening result available in NHS Borders has been the same each year for the past three years. It is not surprising that these are the same, given that the tests are offered and conducted at the same time if consent is given.

For each of these three tests, the percentage of pregnancies with a result available has been increasing. This is potentially due to a decline in the number of women who had a test performed but no result available (decreased from 143 in 2020/21 to only 58 in 2022/23). The numbers of women who were recorded as not having been offered these tests has varied over the last years (92 in 2020/21, 67 in 2021/22 and 77 in 2022/23).

We were unable to access data regarding test turnaround times due to resourcing within our local laboratory.

We were also unable to obtain numerator data for certain KPIs for hepatitis B (treat/intervene, timely assessment of women with hepatitis B, and timely neonatal vaccination and immunoglobulin) as the information was not available to pull within the local IT system.

There have been no cases of maternal syphilis or HIV recorded over the last three years on the IT system or within our sexual health service, and so the last KPI for syphilis (3.3 – treat/intervene) as well as HIV (4.3 – treat/intervene) is not applicable.

Down's Syndrome, Edward's Syndrome and Patau's Syndrome

There are no national targets for the coverage of trisomy 13, 18 or 21 screening in Scotland. In Borders, the percentage of eligible women for whom a completed trisomy 13, 18 or 21 screening result was available from the first trimester has varied across the years from 2020 to 2023; 58% in 2020-2021, rising to 68% in 2021-2022 and dropping a little again to 65% in 2022-2023.

	% of screens in Second trimester
April 2022 – March 2023	9.3%
April 2021 – March 2022	8.7%
April 2020 – March 2021	13.7%

Table 7 Percentage of second trimester screens (trisomy 13, 18 and 21) for NHS Borders between 1st April 2020 and 31st March 2023 (Down's syndrome screening laboratory)

Ideally screening should take place in the first trimester, but a small percentage of women are screened in the second trimester. The percentage in NHS Borders has been improving over the past 3 years and is consistently below the Scottish figures, which is the preferred situation.

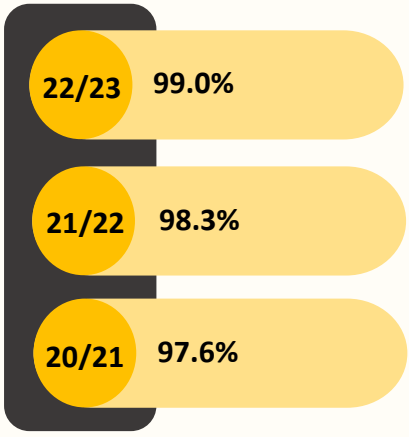
	Percentage who declined Down's syndrome screening	Percentage who declined Edward's and Patau's syndrome screening
April 2020 – March 2021	14%	15%
April 2021 – March 2022	12%	11%
April 2022 – March 2023	17%	7%

Table 8 Number and percentage of women who declined screening for Down's syndrome, and Edward's/ Patau's syndrome between April 2020 and March 2021 (BadgerNet)

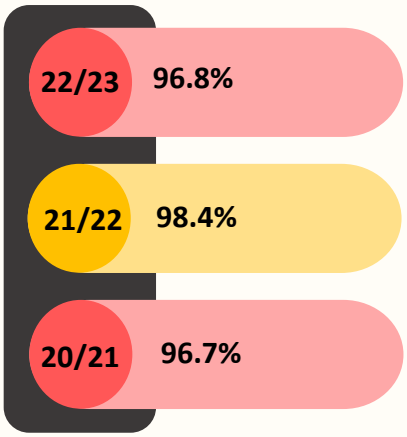
The figures in the table above show the percentage of women who have declined screening for both Down's syndrome and Edward's/Patau's syndrome, which were taken from BadgerNet. It is unclear how well this is documented within the IT system, and reliability is slightly called into question by the differences in decline rates between the syndromes (given that the screening for these syndromes is offered at the same time).

Percentage of completed request forms for trisomy in NHS Borders

First Trimester



Second Trimester



A request form for trisomy screening is considered incomplete if it is missing any of the following information: sufficient information for the woman to be uniquely identified, woman's correct date of birth, maternal weight, family origin, smoking status, ultrasound

Within NHS Borders, there has been an improvement in the percentage of complete request forms for first trimester trisomy screening over the past 3 years, with all year's meeting the essential national target for this. There had been an improvement in the second trimester request forms between 2020/21 and 2021/22, but this has declined again in 2022/23. NHS Borders only met the essential national target in 2021/22 for second trimester screening.

All samples sent by NHS Borders were within the correct gestation – none were sent at gestations that were considered too early or too late.

	Number of samples arriving too late for analysis
April 2022 – March 2023	5
April 2021 – March 2022	4
April 2020 – March 2021	4

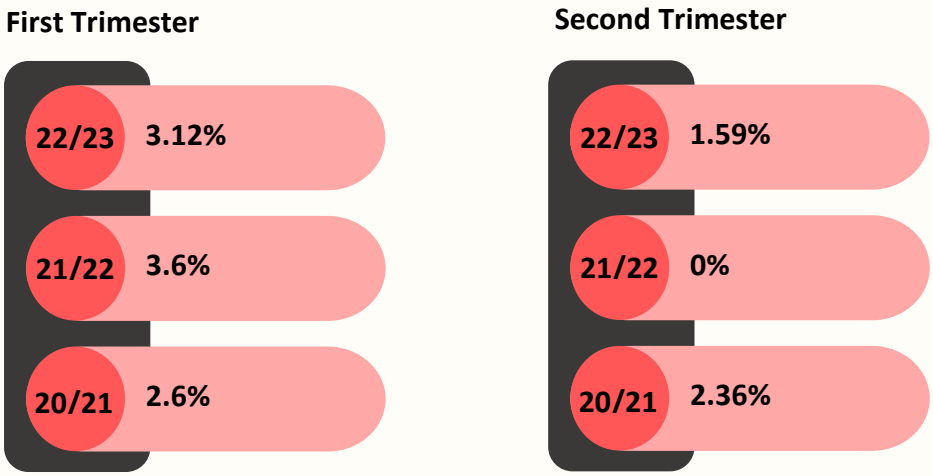
Table 9 Number of samples arriving late to the lab from NHS Borders in 2020/21, 2021/22 and 2022/23

There is a consistent pattern of some samples arriving at the laboratory too late for analysis (samples have 72 hours to arrive at the laboratory, after which due to sample degradation they are unable to be analysed and a further sample is required for analysis).

Issues within the postal service are felt to be the major factor in samples not being transferred to the laboratory within the appropriate timeframe. Official postal strikes from May 2022 had

a notable significant impact on the delivery of samples, but there have been ongoing problems with the standard of the postal service out with this timeframe.

Screen Positive Rate for Trisomy 21 in NHS Borders



The screen positive rate for trisomy 21 screening in the first trimester in NHS Borders declined a little between 2021/22 and 2022/23, but the rate across all three of the previous years has not met the essential national target.

For second trimester screening, the total percentage of women with an increased chance of any of these syndromes rose between 2021/22 and 2022/23, but Borders was again out with the national essential range. These lower results may be associated with a lower than expected detection rate.

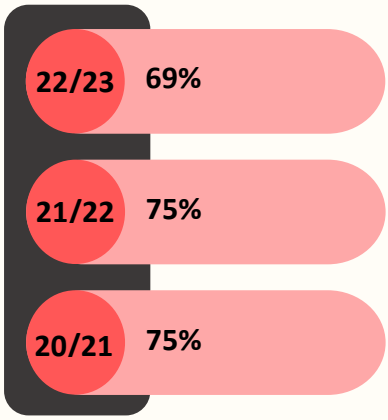
It is important to note due to the size of NHS Borders, the numbers actually screening positive for these syndromes are very small. The percentages should therefore be interpreted with caution.

It was not possible to obtain details about the time to intervention within Borders – that data could not be pulled from the IT system.

From the information recorded on BadgerNet it appears that every woman who was given a higher chance result over the past three years chose to not have any further testing. This means that no pre-natal diagnosis for Down's syndrome was performed, and so KPI 5.7 is not applicable.

Fetal Anomaly Scan

Percentage of women being scanned between 18+0 and 22+6 weeks in NHS Borders



The percentage of women being scanned within the target range of 18+0 weeks and 22+6 weeks has declined between 2021/22 and 2022/23. The number with no scan data recorded in BadgerNet has increased over the last 3 years (162 in 2020/21, 191 in 2021/22 and 245 in 2022/23), so this may be a potential explanation for the apparent drop in percentage of women scanned within the target timeframe.

The number of women having a fetal anomaly scan, but outside of the target window declined from 84 in 2020/21 to 48 in 2021/22. This remained stable at 49 in 2022/23.

There were very low numbers of pregnancies with a fetal anomaly detected over the past 3 years, although they have been increasing slightly (3 in 2020/21, 8 in 2021/22 and 11 in 2022/23).

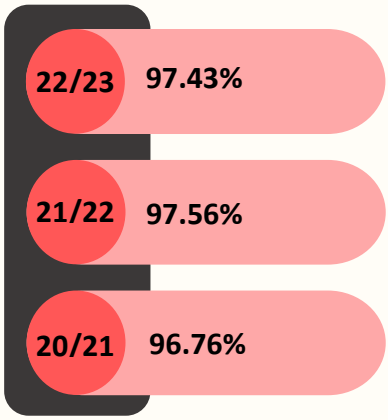
Although we were able to find out the number of scans that had an anomaly detected, we were unable to obtain data specifically regarding serious cardiac anomaly (and how many went on to have this confirmed). We were also unable to obtain data for time to intervention post-scan, as well as diagnosis as this requires referral to a tertiary centre (which for NHS Borders means a referral out of Board).

Screening tests in newborn period

Condition	Rationale	Test and Timing
Hearing	There can be many reasons for hearing loss in neonates and early childhood, from genetic causes to infections. It can be difficult for parents and carers to identify reduced hearing in this age group, and so a formal hearing test is offered in the first few weeks of life, in order to identify those with a likelihood of hearing loss. The aim of this test is to detect any problems with hearing as early as possible. This means that support and information can be offered to families (who often have not experienced hearing loss before) in order for babies to have a better chance of developing language, speech and communication skills.	Earpiece in baby's ear, or sensors on their head/neck with an earpiece or headphone in or over their ear First few weeks of life
Blood spot test	The blood test aims to detect nine serious inherited conditions that are not identifiable from physical examination alone. These diseases are associated with various issues such as developmental problems, learning difficulties, growth restriction, anaemia, pain, breathing problems, digestive issues, life-threatening illness and even death. Detecting these conditions early enables early treatment which can improve health, and prevent severe disability and/or death. The blood spot test screens for: • sickle cell disease • cystic fibrosis (CF) • congenital hypothyroidism (CHT) • phenylketonuria (PKU) • medium-chain acyl-CoA dehydrogenase deficiency (MCADD) • maple syrup urine disease • isovalericacidaemia (IVA) • glutaricaciduria type 1 (GA1) • homocystinuria (HCU)	Blood test from a baby's heel 5 days after birth

Hearing

Percentage of babies' resident in NHS Borders being screened within 4 weeks of birth

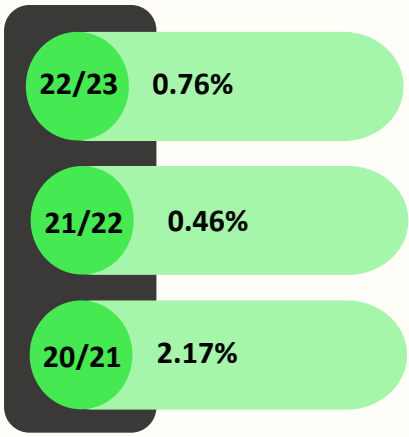


Within NHS Borders, the percentage of babies having screening within 4 weeks of birth has been consistently around 97% for the past 3 years.

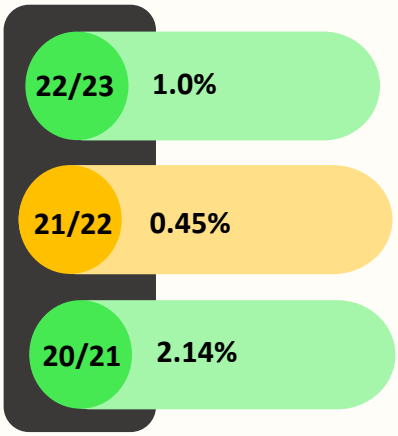
The lowest was in 2020/21, and this appears to be due to more babies missing their appointment (8 babies missed an appointment during that time frame, compared to 3 in 2021/22 and 1 in 2022/23). This is potentially related to Covid-19, as April 2020 - March 2021 was at the peak of the pandemic.

A large number of the remaining babies are either out of coverage area (8 in 2020/21, 7 in 2021/22 and 8 in 2022/23), or had their test after 4 weeks (8 in 2020/21, 10 in 2021/22 and 8 in 2022/23). Other less common reasons for not being screened include death, parental decline and the test being contraindicated.

Percentage of babies' resident in NHS Borders who do not show a clear response in both ears at AABR1



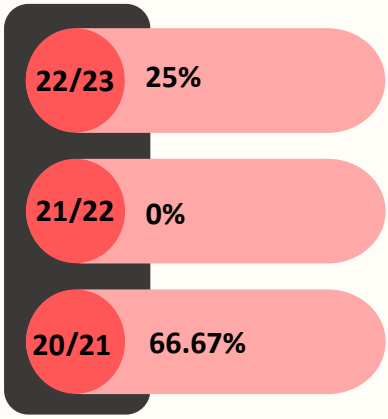
Percentage of babies' resident in NHS Borders who required an immediate onward referral to audiology



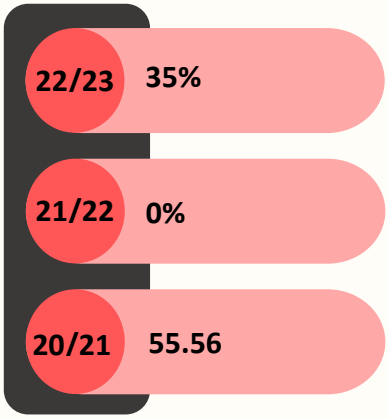
The proportion of well babies who did not show a clear response in both ears at the first test (AABR is the test type used in Borders) has been within the desirable range for all three years. The percentage of babies screened who required an immediate onwards referral to audiology has also been within essential limits for the past three years, and within the desirable range for the last two years.

Percentage of babies' resident in NHS Borders requiring audiology referral who:

Received an appointment within 4 weeks of screen or by 44 weeks gestational age



Attended an appointment within 4 weeks of screen or by 44 weeks gestational age



Only 2/3rds of the babies who required an onward referral in 2020/21 received an appointment within 4 weeks - the remaining babies were offered an appointment but it was out with the 4 week window. During the same year, just over half of babies requiring audiology review babies attended an appointment within 4 weeks. Of the remaining babies, only 2 didn't attend at all, the rest were seen but out with the 4 week window.

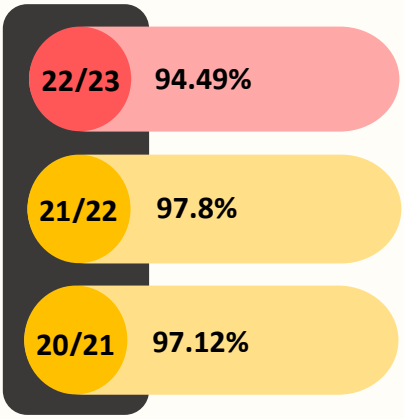
In 2021/22 a very small number of babies were referred (4). None of these babies were offered an appointment within 4 weeks and so none were seen within 4 weeks. 3 of the babies did attend an appointment at a later date, and the outcome of the 4th baby is not known.

In 2022/23, 25% of babies were offered an appointment within 4 weeks. The remaining babies were all offered an appointment but out with the 4 week window. In the same year, 25% of babies attended an appointment within 4 weeks, with the rest being seen but at a later date.

There is the potential that some of these delays were due to recovery in waiting times within the audiology service after the peaks of Covid-19. The numbers are very small with regards to these performance indicators however and so it is difficult to infer any meaningful patterns or trends.

Blood spot test

Percentage of babies' resident in NHS Borders with a bloodspot test result by 18 days of age

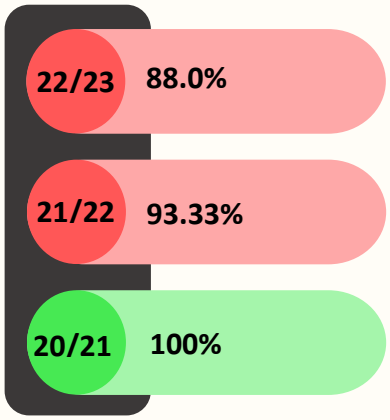


In 2020/21, most babies for whom NHS Borders was responsible had a blood spot test result recorded (99.7%), however, only 97.12% had a blood spot result recorded by 18 days of age. The reason for some blood spot tests being recorded after 18 days of age is likely due to the high number of avoidable repeat tests that were noted in that same year.

In 2021/22, 99.8% of babies for whom the board was responsible had a blood spot test recorded, but only 97.8% of these was within the 18 day time frame. Similarly, in 2022/23, 99.7% of eligible babies had a blood spot test recorded, but there was a decline in the percentage completed by 18 days of age – this dropped to 94.49% which was out with the essential national target level.

A partial explanation for this decline in performance may be that 33 of the 39 babies whose blood spot test was recorded after 18 days of life were born in November and December 2022. This was when there were postal strikes, and may explain the delay in the results being obtained. Furthermore, during this year, as a result of the conflict within Ukraine, there were babies who moved into NHS Borders from that region. It was difficult to initially locate some of these older babies and their parents, and also challenging to communicate with them vital details such as where they had to take their baby for the blood spot test. In one instance a community nurse was required to attend a hotel to explain the importance of the test and to take the blood spot test from a particular family.

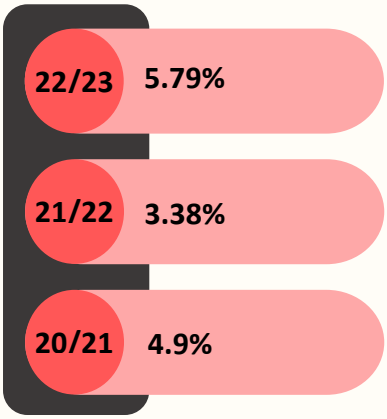
Percentage of movers-into NHS Borders who had blood spot recorded within 21 days of notifying the move



It is important that systems are in place to identify babies without a blood spot test in a timely fashion. In the Child Health Records Department (CHRD) in NHS Borders, a report is run on SIRS which can then be downloaded the next day, so that overdue reports can be chased up. This is performed twice a week (run on a Friday, downloaded on a Monday, and run on a Wednesday, downloaded on a Thursday).

One of the reasons that children may not have a blood spot test recorded is movement into the country, or from one health board to another. For this reason, CHRD keep track of babies who move into NHS Borders and their blood spot status. Performance on this measure in 2020/21 was 100% for Borders and within desirable national levels. Performance has declined over the last 2 years and fallen outside of the essential national criteria.
The reasons why a result was not recorded within 21 days are mostly due to the baby having a blood spot test but outside of the required window.

Percentage of samples requiring an avoidable repeat in NHS Borders



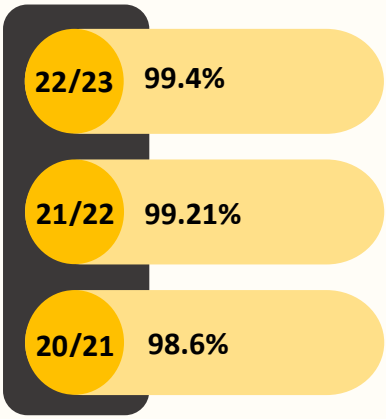
Samples which have an avoidable failure cause unnecessary pressure on the system, delays, work for staff (including laboratories), and distress for families. In all three of the previous years, Borders has been outside of the essential national target for these.

The most common reasons are due to an insufficient sample being sent to the laboratory or a missing/incorrect CHI number. Other reasons include incorrect application, sample being

from a baby who was < 4 days old, sample was compressed/not dried, samples being too long in transit, and finally the use of an expired card.

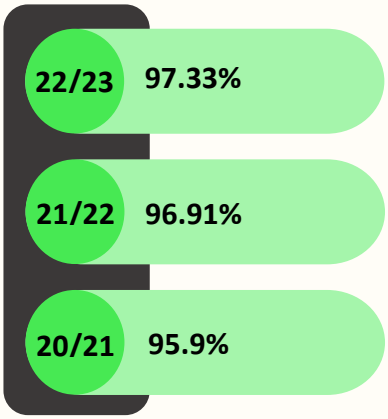
Levels in 2022/23 were the highest of the three years. Most of the increase was due to insufficient samples being sent – these were double that of the previous year. More samples were also delayed in transit compared to previous years.

Percentage of samples with a missing CHI number in NHS Borders



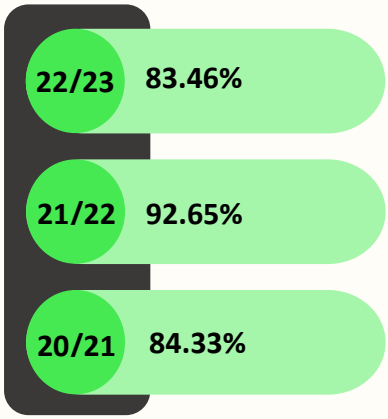
The number of samples with a valid CHI number has been slightly increasing over the last three years due to staff having a colleague double check the form where practicable.

Percentage of first blood spot samples taken between 96-120 hours of life in NHS borders



Across the previous 3 years, the majority of blood spot samples are being taken within the correct age range in NHS Borders, meeting the national desirable criteria. The percentage has also been improving across this time frame.

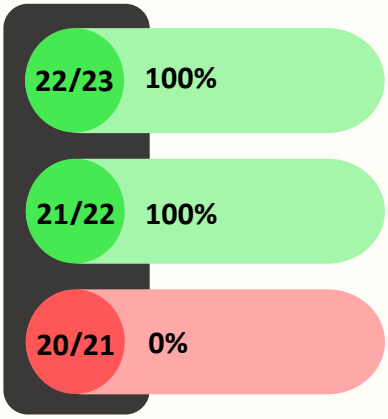
Percentage of blood spot samples received less than or equal to 3 working days of sample collection in NHS Borders



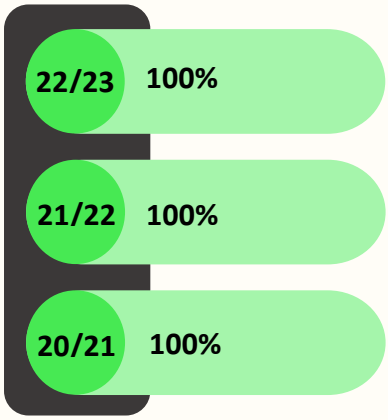
In 2022/23 there was an increase in the numbers of blood samples that were delayed in transit. Covid-19 is likely to have played a significant role in the 2020/21 low figures, but it is difficult to know the exact cause behind the decline again in 2022/23. It is possible that the postal strikes were a factor in the delay between collection and receipt in the laboratory. The team are careful about when clinics are scheduled, and consider both Scottish and English bank holidays when arranging blood tests, due to the fact that they need to be posted to the relevant labs.

Percentage of second blood spot samples taken in NHS Borders for:

Raised IRT (cystic fibrosis test) between 21 - 24 days of life

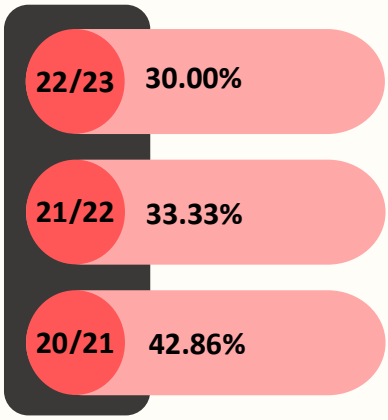


Borderline TSH between 7 - 10 days of life



With regards to second blood spot samples, and the age range at which they are taken, it is very difficult to interpret or extract any meaningful trends because the numbers in question are incredibly small. It can be highlighted that in 2021/22 and 2022/23, any repeat blood spot tests that were required for cystic fibrosis or congenital hypothyroidism were taken in the correct age windows.

Percentage of second bloodspot samples taken on or before day 28 for preterm infants (or on day of discharge if it comes before this)



Additionally, second blood spot samples for preterm infants should be taken on or before day 28 (or on day of discharge if it comes before this). Across all three years, NHS Borders is performing less well for this, and the percentage has been worsening over the three years. The blood samples appear to be taken later than required. Again, however, the numbers being analysed are very small, and so it is difficult to come to reliable conclusions regarding these.

Across all three of the years, for Scotland, 100% of all screen positive infant metabolic diseases (excluding homocystinuria), and screen positive congenital hypothyroidism were referred onwards within 3 working days.

The data is not available for NHS Borders specifically, but it would follow that the board was also at 100% for this performance metric.

Within NHS Borders between April 2020 and March 2023 there has only been one positive result from the blood spot tests. This baby was referred onwards and seen by 9 days of age.

Identified risks

There are certain risks that have been identified and are under continual review within the pregnancy and newborn screening programme in NHS Borders. This information has been taken from the local risk register.

- Within the sonography department there is a risk of lack of staffing causing interruption to the fetal anomaly scanning programme. The sonography workforce is proactively managed, along with their workload to mitigate this risk. There are further risks that a screening result might be inaccurately interpreted or documentation incomplete. This is kept under review, helped by the small team who work closely together, sharing best practice.
- There is a risk that women may miss the opportunity to have screening. This risk is mitigated by keeping staff training up to date, and having clear protocols and guidance for the screening programme.
- There is a risk that samples may be delayed in getting to the relevant laboratories. Clinics are planned around Scottish and English bank holidays, courier and transport

needs are regularly reviewed, and NSD are currently reviewing their logistical role in coordinating courier transport.

- There are challenges around collecting robust local data to monitor the pregnancy and newborn screening programme. Plans are in place to look at the data collection and reporting process going forward, with a public health practitioner currently working on a data quality project in this area, and creating a BAU process for maternity.
- There is a risk that screening results may not be acted upon. This ties into the work above around monitoring the data, and auditing whether or not any positive results have been actioned.
- There is a risk that a baby may miss the opportunity for blood spot testing. There are robust checks within the child health records department to monitor blood spot testing, and follow up any babies who do not have a blood spot test recorded until a result is obtained.
- There was a risk identified due to the lack in UNHS screening manager cover, but an interim manager has since been appointment to the role.
- There is a risk that during the transition to a new CHI system, a period of downtime could impact on the blood spot screening programme and cause babies to be missed. This was discussed nationally and reassurance was given that the downtime would be minimal.
- There is a risk that that the Board Screening Co-ordinator is not notified of an incident or adverse event, particularly when staff change job role. It was decided that maternity services and child health staff need to inform the Board Screening Co-ordinator, the Screening Services Manager and the Director of Public Health of any impending, actual or near miss screening incidents or adverse events within our Board immediately upon discovery.
- There was a final risk noted about patients receiving outdated information if the leaflets on BadgerNet were not kept up to date. It was noted that the leaflets on BadgerNet are automatically updated by Clevermed.

Adverse events

There has been one adverse event in 2022/2023. NHS Borders identified that there were three babies referred for onwards audiology assessment who had a delay in receiving an appointment for diagnostic investigation in Lothian due to a misunderstanding around the correct protocol. A PAG was held to investigate the concerns and develop actions to prevent any further occurrences of this issue. As a result of this, a new screening SOP for protocol, communication and escalation within the hearing screening programme was to be implemented. In addition, there was an action to strengthen the communication across the programme with stakeholders including robust clear communication pathways between NHS Borders and NHS Lothian regarding any policy procedural changes.

Equality

Across all of the screening programmes it is a policy to make them as accessible as possible. Screening is provided as close to home as is feasible within the resources available. For example, the breast and DES programmes use mobile units which visit different areas of the Borders, the cervical programme is carried out through primary care, and the AAA programme uses some community venues to provide options across Borders. In many programmes, appointments are also available in evenings or weekends, in order to improve accessibility.

In addition to this, Borders is in the process of developing an action plan to respond to the PHS Equity in Screening Strategy which will focus directly on the equity of programmes in the Board, as well as a Health Inequalities Strategy which has scope over all of health, healthcare and outcomes, including screening.

Furthermore, there are some specific initiatives that have been taking place within Borders to improve accessibility and screening uptake for all of the population. These include the Confident Conversations initiative with the Wellbeing Service and Health Improvement Team, staff training sessions, and outreach education in the community. There is also work being carried out with the learning disability community to enhance communication and reporting around screening (Bridging the Gap initiative, and ensuring that specific screening programme attendances are explicit questions within the new Learning Disability annual assessment questionnaire).

This year's cancer screening inequalities grant is funding a project which will focus on the impact pregnancy has on cervical screening uptake and defaulting in NHS Borders. Work is beginning in August 2023, and recommendations will be made which will involve midwives, health visitors, GP admin and call-recall to reduce the number of pregnant women who default from cervical screening during pregnancy and do not attend for screening after delivery. This group are at high risk of not being invited again until 5 years after their last invitation.

Conclusion

Looking across all of the screening programmes, NHS Borders tends to perform quite well in comparison to Scotland and other health boards.

In particular, uptake of screening in the AAA, bowel, breast and cervical programmes in Borders was consistently higher than the Scottish average over the last three years. Furthermore, the AAA (April 2020 – March 2023), bowel (Nov 2020 - Oct 2022) and breast (April 2018 - March 2021) programmes in the health board did meet the required essential national targets laid out in the HIS standards and KPIs with regards to screening uptake during their respective time frames.

On the other hand, there are areas were performance was below required national HIS standards and national KPIs.

The percentage of those taking part in cervical screening in NHS Borders following an invitation in both 2020/21 (74.60%), and 2021/22 (74.1%) did not meet the national standard of 80%. In addition, there is a wide variation in uptake within this programme across age categories (61% in 25-29 age group, compared to 71.6% in 60-64 age group in 2021/22).

Furthermore, it is worth noting the stark differences in uptake that are seen across deprivation categories in many of the programmes. The latest data shows that the gap in uptake of screening between the most and the least deprived areas of Borders was 10.6% for AAA, 17.3% for breast, 16.1% for bowel and 14.9% for cervical screening. In most cases, uptake in the most deprived category does not meet the national standards in Borders, whereas it is comfortably attaining them within the least deprived groups. Although not measured within national standards or KPIs, nor readily available in national data, it is known that there are many other inequalities that are also experienced within the screening programmes. These include differences in uptake due to accessibility (particularly felt in rural areas like the Borders), ethnicity, language barriers and learning difficulties. Much work will be done to reduce these inequalities through the action plan that NHS Borders will be producing in response to the PHS Equity in Screening Strategy.

Participants that receive a positive bowel screening result are normally referred for further investigation to endoscopy services within NHS Borders. Further investigation waiting times remain challenging, with the majority of patients within NHS Borders being referred between 4-8 weeks, whereas this should ideally be under 4 weeks. It should be noted that although these waiting times are challenging, Borders is still performing better than Scotland for bowel screening participants when it comes to colonoscopy investigation waiting times.

It is important that any tests a patient has are accurate and complete. Two programmes are worth noting here; within the AAA service, Borders had more USS encounters where the aorta could not be visualised compared to Scotland, and the colonoscopy completion rate in Borders was lower than Scotland.

Many of the issues highlighted within this report where NHS Borders does not appear to meet national standards or KPIs could be attributed to the Covid-19 pandemic, and backlog of patients as a result. Other barriers to meeting some of the standards include postal issues, or problems with national laboratories that are out of the control of the local board.

Data access and quality are another issue that has been flagged whilst compiling this report. There have been no formal published KPIs for the DES programme during the time period that this report is concerned with. This is not Borders specific - it is a national issue and due to a multitude of compounding factors including Covid-19, a new IT system, as well as a change to the screening pathway, all of which occurred in the last 3 years. A report is due next year, and locally, performance and safety is being managed with management performance data within the call-recall office.

Significant issues also exist with meeting the national standards for the Pregnancy and Newborn Screening programme in Borders. This has been raised before through the clinical governance and quality committee, however, the challenge remains around providing assurance of this programme due the scattered nature of the data across teams, systems and borders, as well as the fact that the maternity IT system (BadgerNet) is not set up in the most effective or efficient way to extract required information. Therefore, the task of measuring the performance of the programme requires a large amount of intense resource, which is not dedicated, and this remains a high risk to providing assurance to the board around the performance of this programme.

Finally, it is worth highlighting some of the areas of good practice that are being seen within the different programmes. Accessibility is being improved, with appointments being offered in different areas of the Borders where possible, as well as at different times of day and weekends. Within the DES programme, appointments are accommodated for inpatients in the BGH, and telephone contact made with invitees to reduce DNAs. There are initiatives which try to improve uptake of screening such as Confident Conversations, specific staff screening training, outreach community education sessions, and specific learning disability work to improve conversations around screening in this group, alongside more accurate recording of decision making.

In addition, given that screening provides the opportunity to meet and engage with those who may not otherwise attend a healthcare setting, it is important to note the huge number of potential encounters that the screening programmes in Borders offers. If everyone who was eligible for screening in the health board participated in the relevant programmes, this would equate to just over 180,000 points of contact over a 3 year period (see table 10 below). This is a fantastic example of ‘Making Every Contact Count’, where screening provides a platform to promote other areas of health and wellbeing, as well as sign-posting to local services.

Screening programme	Average number of eligible individuals in Borders in a screening cycle
AAA	859 yearly
Bowel	45,748 2-yearly
Breast	13,108 3-yearly
Cervical	27,523 yearly
DES	5,554 yearly
Pregnancy	974 yearly
Newborn	776 yearly

Table 10 Average number of eligible individuals for each of the screening programmes in Borders for a typical screening cycle

Looking forward

There are projects and developments occurring across many of the different screening programmes going forward.

In light of the National Services Division review of Breast Screening, the service has been considering what framework of services might best meet the needs of the South East Scotland population and demography. The conclusion is that the service would be very keen to lead on a trial of the Satellite Screening Centre concept, along with a pilot of post-code based invitation if that were feasible.

Nationally, there are new standards in consultation for the bowel screening programme. More locally, a bid was submitted for cancer research UK funding from Borders which has reached the final stages. The aim of this funding is to deliver and evaluate a targeted service innovation project to improve colorectal cancer outcomes.

The DES programme has launched a national appointment SMS reminder service, as well as online booking, but neither are yet to be implemented by NHS Borders or Lothian. There is also the aim for DES collaborative training for screeners (level 3 diploma) to recommence in 2024. In addition, NEC are developing a software tool to assist call-recall managers to smooth the distorted demand curve following Covid-19 recovery. There is also work in development around analysing and publishing KPIs for this programme, following the significant changes seen over the last 3 years.

Within the cervical screening programme there is a national audit ongoing, regarding women listed as having a total hysterectomy. There is also work in progress to create a colposcopy to SCCRS interface which will improve the quality of data in SCCRS and reduce the requirement

for duplicate data entry. Scottish Government is also awaiting the results of the NHS England self-sampling studies (HPValidate), to decide whether this should be incorporated into the national cervical screening programme. As mentioned previously, more locally work has begun on a new project related to defaulting on cervical screening during pregnancy.

Finally, a data quality project is being scoped out within pregnancy and newborn screening, with the hope that a public health practitioner within the team will spend time looking at the quality of the pregnancy and newborn data, leading to a discussion of the most effective and efficient ways of managing and reporting on this data going forward.

Recommendations

- Work is required around the data quality and availability for the pregnancy and newborn programme. The process and software needs to be reviewed, alongside possible training for those on the frontline around data entry into the IT system. Assurance of the performance of this programme remains challenging, dedicated resource should be part of this.
- Given the stark differences in uptake in most of the programmes across deprivation categories, wide buy-in from across the Borders is requested for both the Equity in Screening strategy action plan, and the Health Inequalities Strategy to ensure that these differences can be addressed in useful and enduring ways. These will include plans to improve uptake across all of the programmes, but particularly the cervical and DES programmes where uptake is below national targets.
- Continuation of quality of the AAA USS, and colonoscopy tests should be reviewed locally to decide if further training is required to improve non-completion rates.
- Waiting times for colonoscopy remains challenging, this should continue to be monitored closely with clear escalation routes.
- Await formally published KPIs for the DES programme, assisting the national process for this where necessary, and cascading the results once available.
- Overall strengthen the monitoring and evaluation of all of the programmes, with dedicated resource for each programme. This could be enhanced with use of IT and the development of screening dashboards which update regularly, and from which data can be pulled easily.

Appendices

Summary of NHS Borders AAA screening programme data, and performance against national standards (April 2020 – March 2023)

		Essential / Desirable	April 2020 - March 2021	April 2021 - March 2022	April 2022 - March 2023
1.1	Percentage of eligible population who are sent an initial offer to screening before age 66	Essential ≥ 90% Desirable 100%	99.50%	98.30%	100.00%
1.2a	Percentage of eligible population who are tested before age 66 and 3 months	Essential ≥ 75% Desirable ≥ 85%	87.90%	87.90%	
1.3a	Percentage of eligible population who are tested before age 66 and 3 months by Scottish Index of Multiple Deprivation (SIMD) quintile	Essential ≥ 75% Desirable ≥ 85%	1: 84.2% 2: 86.5% 3: 86.5% 4: 89.4% 5: 95.3%	1: 83.8% 2: 83.1% 3: 87.2% 4: 89.9% 5: 94.4%	
1.4a	Percentage of annual surveillance appointments due where men are tested within 6 weeks of due date	Essential ≥ 90% Desirable 100%	67.70%	96.30%	
1.4b	Percentage of quarterly surveillance appointments due where men are tested within 4 weeks of due date	Essential ≥ 90% Desirable 100%	68.80%	88.50%	
2.1a	Percentage of screening encounters where aorta could not be visualised	Essential < 3% Desirable < 1%	1.40%	6.20%	6.00%
2.1b	Percentage of men screened where aorta could not be visualised	Essential < 3% Desirable < 1%	1.00%	5.00%	
2.2	Percentage of images which did not meet the quality assurance audit standard and required immediate recall	Essential < 4% Desirable < 1%	3.00%	0.00%	
3.1	Percentage of men with AAA ≥ 5.5cm seen by vascular specialist within two weeks of screening	Essential ≥ 75% Desirable ≥ 95%	100.00%	N/A	N/A

3.20	Percentage of men with AAA ≥ 5.5cm deemed appropriate for intervention who were operated on by vascular specialist within eight weeks of screening	Essential ≥ 60% Desirable ≥ 80%	N/A	N/A	N/A
4.1	30-day mortality rate following open elective AAA surgery	Essential < 5% Desirable < 3.5%	2.1% all of Scotland 2016/17 - 2020/21		
4.2	30-day mortality rate following elective Endovascular Aneurysm Repair intervention	Essential < 4% Desirable < 2%	0% all of Scotland 2016/17 - 2020/21		

Summary of NHS Borders bowel screening programme data, and performance against national standards (1st Nov 2020 - 31st Oct 2022)

		Essential / Desirable	1st Nov 2020 - 31st Oct 2022
HIS Standard	Overall uptake of screening - percentage of people with a final outright screening test result, out of those invited	60% of men	69.30%
		60% of women	74.60%
HIS Standard	Overall uptake of screening by deprivation category: First quintile	60%	61.9%
	Overall uptake of screening by deprivation category: Second quintile	60%	66.8%
	Overall uptake of screening by deprivation category: Third quintile	60%	72.5%
	Overall uptake of screening by deprivation category: Fourth quintile	60%	74.5%
	Overall uptake of screening by deprivation category: Fifth quintile	60%	78.0%
	Percentage of people with a positive screening test result	N/A	2.80%
HIS Standard	Time from screening test referral date to date colonoscopy performed (95% in < 31 days)	95% in < 31 days	28.70%
	Percentage of people with a positive screening test result going on to have a colonoscopy performed	N/A	80.90%
HIS Standard	Percentage of people that had a completed colonoscopy	90%	92.80%
	Percentage of colonoscopic complications	N/A	0%
	Percentage of people that had a cancer detected	N/A	0.11%
	Percentage of people with colorectal cancer staged as Dukes' A	N/A	39%
	Percentage of people with colorectal cancer staged as Dukes' B	N/A	24.40%
	Percentage of people with colorectal cancer staged as Dukes' C	N/A	31.70%
	Percentage of people with colorectal cancer staged as Dukes' D	N/A	4.90%

	Percentage of people with colorectal cancer staged as Dukes' Not known	N/A	0%
	Percentage of people with colorectal cancer where the stage has not yet been supplied	N/A	0%
	Percentage of people with colorectal cancer that has a recorded stage	N/A	100%
	Percentage of people screened that had a polyp cancer detected	N/A	0.036%
	Percentage of cancers that were polyp cancers	N/A	31.70%
	Percentage of people with adenomas detected	N/A	0.845%
	Percentage of people with high risk adenomas detected	N/A	0.13%
	Positive Predictive Value for colorectal cancer	N/A	6%
HIS Standard	Positive Predictive Value for adenoma as the most serious diagnosis	35%	44.70%
	Positive Predictive Value for high risk adenoma as the most serious diagnosis	N/A	7.10%
	Positive Predictive Value for high risk adenoma as the most serious diagnosis or colorectal cancer	N/A	13.10%
	Positive Predictive Value for adenoma as the most serious diagnosis or colorectal cancer	N/A	50.70%
	Percentage of people with a colorectal cancer that is a malignant neoplasm of the colon	N/A	53.70%
	Percentage of people with a colorectal cancer that is a malignant neoplasm of the rectosigmoid junction	N/A	12.20%
	Percentage of people with a colorectal cancer that is a malignant neoplasm of the rectum	N/A	34.10%

Summary of NHS Borders breast screening programme data, and performance against national standards (April 2018 - March 2021)

		Essential / Desirable	April 2018 - March 2021
Attendance rate (percentage of women invited)		Essential ≥ 70% Desirable ≥ 80%	78.00%
Invasive cancer detection rate (per 1000 women screened)	Initial screen (Prevalent) in response to first invitation (50-52 years old)	Essential ≥ 2.7 Desirable ≥ 3.6	6.80
	Subsequent screen (Incident) (previous screen within 5 years) (53-70 years old)	Essential ≥ 3.1 Desirable ≥ 4.2	7.10
Small (<15mm) invasive cancer detection rate (per 1000 women screened)	Initial screen (Prevalent) in response to first invitation (50-52 years old)	Essential ≥ 1.5 Desirable ≥ 2.0	3.40
	Subsequent screen (Incident) (previous screen within 5 years) (53-70 years old)	Essential ≥ 1.7 Desirable ≥ 2.3	4.90
Non-invasive cancer detection rate (per 1000 women screened)	Initial screen (Prevalent) in response to first invitation (50-52 years old)	Essential ≥ 0.5	0.70
	Subsequent screen (Incident) (previous screen within 5 years) (53-70 years old)	Essential ≥ 0.6	1.80
Standardised Detection Ratio (SDR) (observed invasive cancers detected divided by the number expected given the age distribution of the population)		Essential ≥ 1.0 Desirable ≥ 1.4	1.60
Recalled for assessment rate (percentage of women screened)	Initial screen (Prevalent) in response to first invitation (50-52 years old)	Essential < 10% Desirable < 7%	6.40%
	Subsequent screen (Incident) (previous screen within 5 years) (53-70 years old)	Essential < 7% Desirable < 5%	2.90%
Benign biopsy rate (per 1000 women screened)	Initial screen (Prevalent) in response to first invitation (50-52 years old)	Essential < 1.5 Desirable < 1.0	1.40
	Subsequent screen (Incident) (previous screen within 5 years) (53-70 years old)	Essential < 1.0 Desirable < 0.75	0.30

Summary of NHS Borders breast screening programme data, and performance against national standards (April 2020 – March 2022)

		Essential / Desirable	1st April 2020 to 31st March 2021	1st April 2021 to 31st March 2022
HIS Standard	Overall uptake of screening - percentage of people with a final outright screening test result, out of those invited	80%	74.60%	74.10%
HIS Standard	Overall uptake of screening by deprivation category: First quintile	80%	61.90%	65.14%
HIS Standard	Overall uptake of screening by deprivation category: Second quintile	80%	66.75%	71.84%
HIS Standard	Overall uptake of screening by deprivation category: Third quintile	80%	72.50%	74.65%
HIS Standard	Overall uptake of screening by deprivation category: Fourth quintile	80%	74.51%	75.09%
HIS Standard	Overall uptake of screening by deprivation category: Fifth quintile	80%	77.99%	80.02%

Summary of NHS Borders pregnancy and newborn screening programme data, and performance against national standards (April 2020 - March 2023)

		Essential / Desirable	April 2020 - March 2021	April 2021 - March 2022	April 2022 - March 2023
1.1	Haemoglobinopathies: Antenatal Coverage	≥ 95.0%/ ≥ 99.0%	73.93%	80.77%	78.85%
1.2	Haemoglobinopathies: Timeliness of antenatal screen	≥ 50.0%/ ≥ 75.0%	71.59%	76.92%	73.30%
1.3	Haemoglobinopathies: Completion of Family Origin Questionnaire	≥ 95.0%/ ≥ 99.0%	Unknown	Unknown	Unknown
1.4	Haemoglobinopathies: Timely offer of prenatal diagnosis (PND) to women at risk of having an affected infant	TBD	Unknown	Unknown	Unknown
1.5	Haemoglobinopathies: Timely reporting of newborn screen positive	≥ 90.0 % / ≥ 95.0%	Unknown	Unknown	Unknown

1.6	Haemoglobinopathies: Timely receipt into specialist care	≥ 90.0 %/ ≥ 95.0%	Unknown	Unknown	Unknown
2.1	Hepatitis B: Coverage	≥ 95.0%/ ≥ 99.0%	75.00%	84.00%	85.00%
2.2	Hepatitis B: Test turnaround time	≥ 95.0%/ ≥ 97.0%	Unknown	Unknown	Unknown
2.3	Hepatitis B: Treat/Intervene	≥ 97.0%/ ≥ 99.0%	Unknown	Unknown	Unknown
2.4	Hepatitis B: Timely assessment of woman with Hepatitis B	≥ 70.0%/ ≥ 90.0%	Unknown	Unknown	Unknown
2.5	Hepatitis B: Timely neonatal vaccination and immunoglobulin	≥ 97.0%/ ≥ 99.0%	Unknown	Unknown	Unknown
3.1	Congenital Syphilis: Coverage	≥ 95.0%/ ≥ 99.0%	75.00%	84.00%	85.00%
3.2	Syphilis: Test turnaround time	≥ 95.0%/ ≥ 97.0%	Unknown	Unknown	Unknown
3.3	Syphilis- Treat/Intervene	≥ 97.0%/ ≥ 99.0%	N/A	N/A	N/A
4.1	HIV: Coverage	≥ 90.0%/ ≥ 99.0%	75.00%	84.00%	85.00%
4.2	HIV: Test turnaround time	≥ 95.0%/ ≥ 97.0%	Unknown	Unknown	Unknown
4.3	HIV: Treat/Intervene	≥ 97.0%/ ≥ 99.0%	N/A	N/A	N/A
5.1	Down's syndrome: Coverage	N/A	N/A	N/A	N/A
5.2	Down's syndrome screening: Test turnaround time	First Trimester: Only available for all of Scotland			
		Second Trimester: Only available for all of UK			
5.3	Down's syndrome screening: Completion of laboratory request forms	≥ 97.0% / 100.0%	First Trimester: 97.6%	First Trimester: 98.3%	First Trimester: 99%
			Second Trimester: 96.7%	Second Trimester: 98.4%	Second Trimester: 96.8%

5.4	Down's syndrome screening: Time to intervention	≥ 97.0% / ≥ 99.0%	Unknown	Unknown	Unknown
5.5	Down's syndrome screening: Test performance – Screen Positive Rate (SPR) singleton pregnancies only	First Trimester: 1.8-2.5% / 1.9-2.4%	2.60%	3.60%	3.12%
		Second Trimester: 2.5-3.5%/ 2.7-3.3%	Second Trimester: 2.36%	Second Trimester: 0%	Second Trimester: 1.59%
5.6	Down's syndrome screening: Test performance – Detection Rate (DR)	Only available for East of Scotland			
5.7	Down's syndrome screening: Diagnose	N/A			
6.1	Fetal Anomaly: Coverage of the fetal anomaly ultrasound	≥ 90.0%/ ≥ 95.0%	75.00%	75.00%	69.00%
6.2	Fetal Anomaly: test performance of the fetal anomaly ultrasound	≥ 50.0% for each serious cardiac anomaly	Unknown	Unknown	Unknown
6.3	Fetal anomaly: Time to intervention (18+0 to 20+6 fetal anomaly ultrasound)	≥ 97.0%	Unknown	Unknown	Unknown
6.4	Fetal anomaly: Diagnose	90.00%	Unknown	Unknown	Unknown
7.1	The proportion of babies eligible for newborn hearing screening for whom the screening process is complete by 4 weeks corrected age.	> 98% / > 99.5%	96.76%	97.56%	97.43%
7.2	The proportion of well babies tested using the AOAE protocol who do not show a clear response in both ears at AOAE1.	< 27% / < 22%	N/A	N/A	N/A
7.3	The proportion of well babies tested using the AOAE protocol who do not show a clear response in both ears at AOAE2.	< 6% / < 5%	N/A	N/A	N/A

7.4	The proportion of well babies tested using the AABR protocol who do not show a clear response in both ears at AABR1.	< 15% / < 12%	2.17%	0.46%	0.76%
7.5	The proportion of babies with a screening outcome who require an immediate onward referral to audiology for a diagnostic assessment.	< 3% / < 2%	2.14%	0.45%	1.00%
7.6	The proportion of babies with a no clear response result in in one or both ears or other result that that requires an immediate onward referral for audiological assessment who receive an appointment for audiological assessment within the required timescale (within 4 weeks of screen completion or by 44 weeks gestational age).	> 97% / > 99%	66.67%	0.00%	25.00%
7.7	The proportion of babies with a no clear response result in in one or both ears or other result that that requires an immediate onward referral for audiological assessment who attend for audiological assessment within the required timescale (within 4 weeks of screen completion or by 44 weeks gestational age).	> 90% / > 95%	55.56%	0.00%	25.00%
8.1	Newborn Blood Spot: Coverage (NHS Board responsibility at birth)	≥ 95.0% / ≥ 99.0%	97.12%	97.80%	94.49%
8.2	Newborn Blood Spot: Coverage (Movers in)	≥ 95.0% / ≥ 99.0%	100.00%	93.33%	88.00%
8.3	Newborn Blood Spot: Avoidable repeat tests	≤ 2.0% / ≤ 1.0%	4.90%	3.38%	5.79%
8.4	Newborn Blood Spot: Timely identification of babies with a null or incomplete result recorded on the Child Health Information System (CHIS)	Ideally daily, minimum weekly	Twice a week (run on a Friday, downloaded on a Monday, and run on a Wednesday, downloaded on a Thursday)		
8.5	Newborn Blood Spot: CHI number is included on the bloodspot card	≥ 98.0% / ≥ 100.0%	98.60%	99.21%	99.40%
8.6	Newborn Blood Spot: Timely sample collection	≥ 90.0% / ≥ 95.0%	95.90%	96.91%	97.33%

8.7	Newborn Blood Spot: Timely receipt of the sample in the laboratory	≥ 95.0% / ≥ 99.0%	84.33%	92.65%	83.46%
8.8	Newborn Blood Spot: Timely taking of a second bloodspot sample for CF screening	≥ 95% / ≥ 70%	0.00%	100.00%	100.00%
8.9	Newborn Blood Spot: Timely taking of a second bloodspot sample following a borderline CHT screening	≥ 95.0% / ≥ 99.0%	100.00%	100.00%	100.00%
8.10	Newborn Blood Spot: Timely taking of a second bloodspot sample for CHT screening for preterm infant	≥ 95.0% / ≥ 99.0%	42.86%	33.33%	30.00%
8.11	Newborn Blood Spot: Timely processing of CHT and IMD (excluding HCU) screen positive samples		100.00%		
8.12	Newborn Blood Spot: Timely entry into clinical care		100.00%		