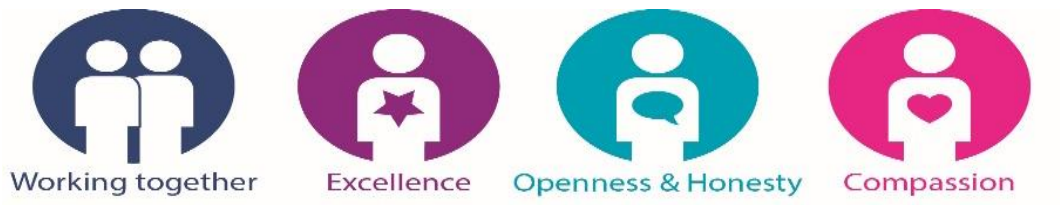
HSC Public Health Agency

Infectious Diseases in Pregnancy Screening Programme

Northern Ireland Infectious Diseases in Pregnancy Screening programme annual report.

April 2021 to March 2022



Document Title	Northern Ireland Infectious Diseases in Pregnancy Screening Programme Performance Report April 2021-March 2022
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Approved by	Senior Management Team PHA (SMT) on 17th August 2026

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1.0 Executive summary

The Infectious Diseases in Pregnancy Screening (IDPS) Programme in Northern Ireland offers screening to all eligible pregnant women for human immunodeficiency virus (HIV), hepatitis B and syphilis infections and for susceptibility to rubella infection. The screening blood tests are routinely offered at the booking appointment, ideally by 10 weeks[1] gestation, or at the earliest opportunity thereafter when a woman presents to maternity services.

This annual report provides an overview of the performance of the Northern Ireland IDPS programme in relation to the seven national standards between 1st April 2021 to 31st March 2022 [2]. The Northern Ireland IDSP Programme met the achievable (highest) level of performance for four of these standards (standards 1-4); two (out of three) parts of standard 5 and one (out of two) parts of standard 7. It achieved the acceptable level in standard 6 and failed to achieve the acceptable level in one part of standard 5 and one part of standard 7.

It should be noted that small numbers affect the performance percentages dramatically and also that there are valid reasons for not achieving some of the standards such as babies being stillborn and not eligible for the hepatitis B vaccine.

In summary: -

- Coverage for the IDPS programme remains very high (99.98%), with only a small number of women declining screening.
- 100% of the screening samples were turned around within 8 working days.
- 100% of women who screened positive for HIV or hepatitis B were reviewed within the ten-day standard.
- 82.24% of women with hepatitis, who were newly diagnosed or known cases with high infectivity markers, were seen within six weeks of the result notification.
- All eligible babies born to women with hepatitis received their hepatitis B vaccine and hepatitis B immunoglobulin within 24 hours of birth.

Areas for improvement include:

- Review, within ten days, of women screened positive for syphilis infection.
- Review by hepatology, within six weeks, of women screened positive for hepatitis B infection.
- Uptake of postnatal MMR vaccination, for women identified as susceptible to rubella.

There were no cases of mother to child transmission of the infections screened for during 2021/2022 in Northern Ireland.

The programme is commissioned and quality assured by the Public Health Agency (PHA). Monitoring against nationally agreed standards for screening is an important element of quality assurance for the IDPS programme and allows those involved in its organisation and delivery to identify potential areas for improvement.

2.0 Background

The objective of IDPS is to enable the identification of HIV, hepatitis B and syphilis infection in early pregnancy, thus allowing early intervention. Pathways are in place for women with positive screening results to be referred to specialist services for review and treatment if necessary, thus improving the health of the mother and reducing the risk of mother to child transmission (MTCT) of HIV, hepatitis B and syphilis.
Pregnant women who are identified as susceptible to rubella, with no documented evidence of two previous measles, mumps, and rubella (MMR) vaccinations, are offered an MMR vaccination postnatally, prior to discharge from hospital, to help prevent rubella infection in future pregnancies. They are also offered a second MMR, if necessary, by the GP at least 4 weeks later, depending on their previous vaccination history, which their GP should have access to.

There are various failsafe systems in place to ensure all pregnant women are offered IDPS screening and that every woman screened has a result reported. The weekly failsafe report, sent to the antenatal screening coordinators (ANSC) in each trust, lists women who have missing blood results 14 days after her booking date. In addition, the daily mismatch report will pick up results which cannot cross the electronic interface between the Northern Ireland Blood Transfusion Service (NIBTS) laboratory IT system and the Northern Ireland Maternity IT System (NIMATS), due to a mismatch of details e.g. name changes.
More information on the IDPS Programme is available at:
https://www.nidirect.gov.uk/articles/antenatal-infectious-disease-screening

3.0 Performance against standards.

Performance of the Northern Ireland IDPS Programme between 1st April 2021 and 31st March 2022 against the national standards is summarised below. Due to small numbers of women screening positive for infection in some Trusts, the figures are only reported for the whole of Northern Ireland.

In 2021/2022 there were seven national standards against which the performance of the IDPS Programme was monitored. Each standard has two performance thresholds: an acceptable level and an achievable level.

The acceptable threshold is the lowest level of performance which screening services are expected to attain. All screening services should aim to exceed the acceptable threshold and agree service improvement plans to meet the achievable threshold. Screening services not meeting the acceptable threshold are expected to put in place recovery plans to deliver rapid and sustained improvement.

The achievable threshold represents the level at which the screening service is likely to be running optimally. All screening services should aspire to attain and maintain performance at or above this level.[3]

3.1 Standards 1-3: Coverage for HIV, hepatitis B, syphilis and rubella

These standards measure the number of eligible, pregnant women offered and accepting screening for HIV, hepatitis B and syphilis who have a confirmed result within the reporting period.

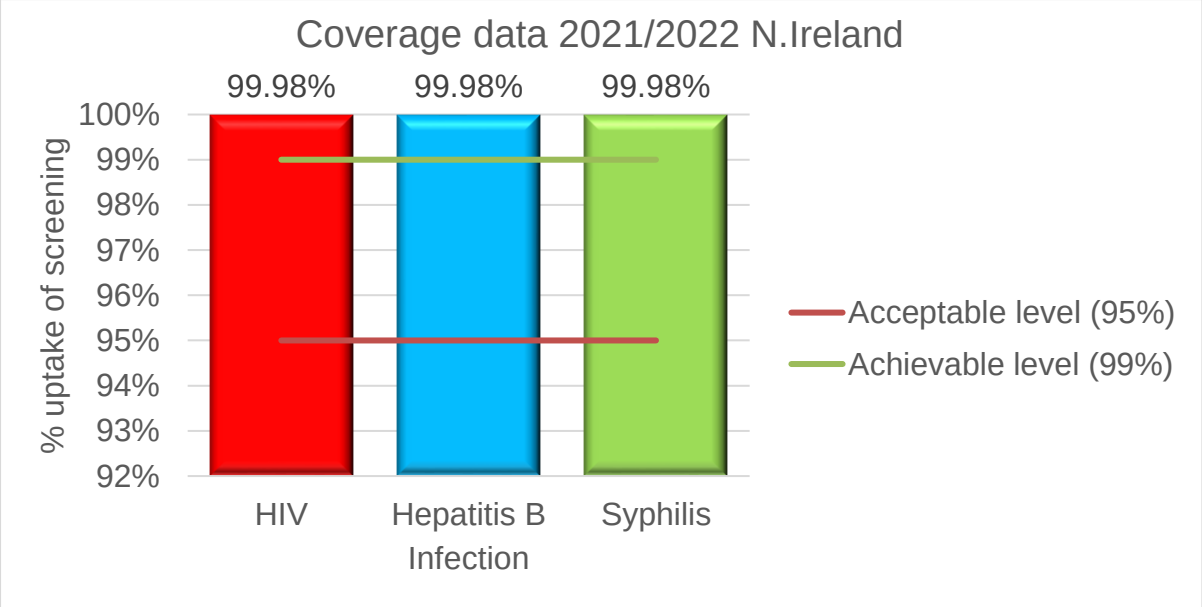
(Acceptable level: ≥ 95.0%, Achievable level: ≥ 99.0%)

- 21,309/ 21,314 (99.98%) of pregnant woman accepted IDPS screening for HIV, hepatitis B and syphilis.

  Achievable level exceeded.

Figure 1 below, show that the Northern Ireland programme has performed above the achievable level for this standard, with only a small number of women declining screening.

Figure 1: Programme coverage 2021/2022



3.2 Standard 4: Test turnaround time (TTT) for HIV, hepatitis B and syphilis.

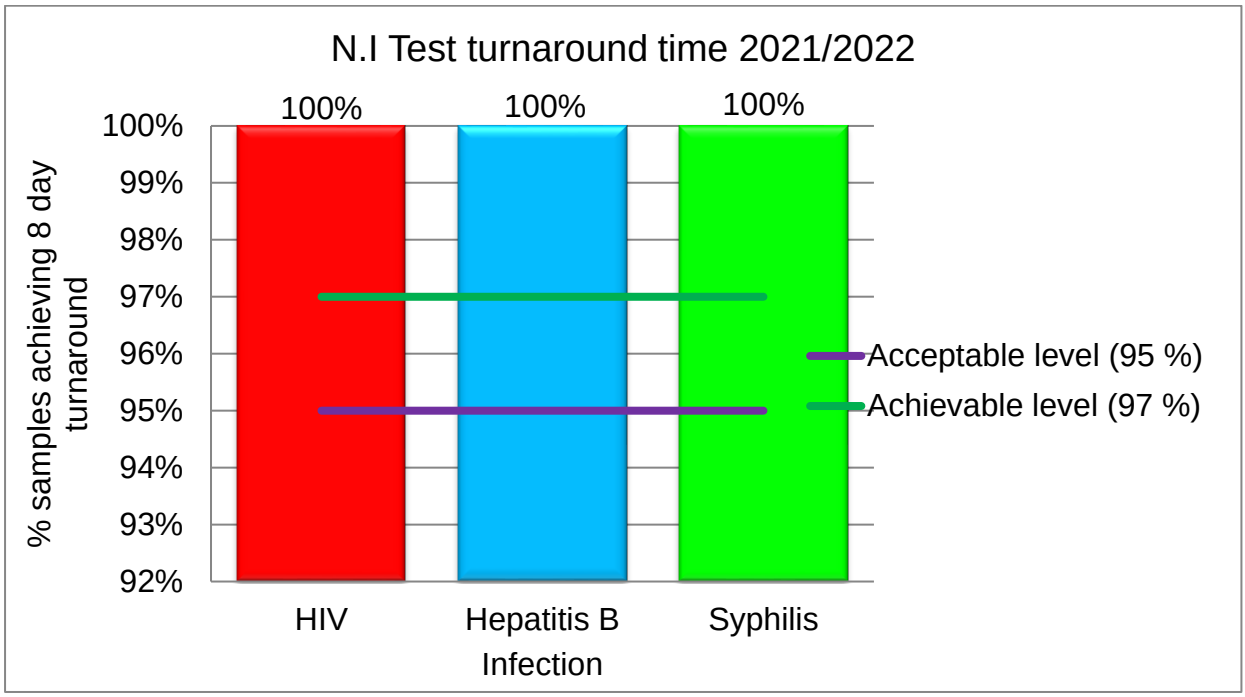
This standard measures the number of results for each infection (confirmed screen positive or negative) reported to maternity services within 8 working days of sample receipt in the laboratory.

(Acceptable level: ≥ 95.0%, Achievable level: ≥ 97.0%)

- 100.0 **%** of all results, both positive and negative, were turned around within eight working days of sample receipt. (Figure 2 below).

  Achievable level exceeded.

Figure 2: Test turnaround time of IDPS samples.



3.3 Standard 5: Referral and timely assessment of screen positive and known positive women (HIV, hepatitis B and, syphilis)

This standard measures the number of women with confirmed screen positive results for HIV, hepatitis B or syphilis who attended for a screening assessment appointment, by an antenatal screening coordinator, within 10 working days of receipt of the result by maternity services.

(Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)

- 100.0% of women screened positive for HIV were seen within 10 working days of receipt of result

  Achievable level exceeded.

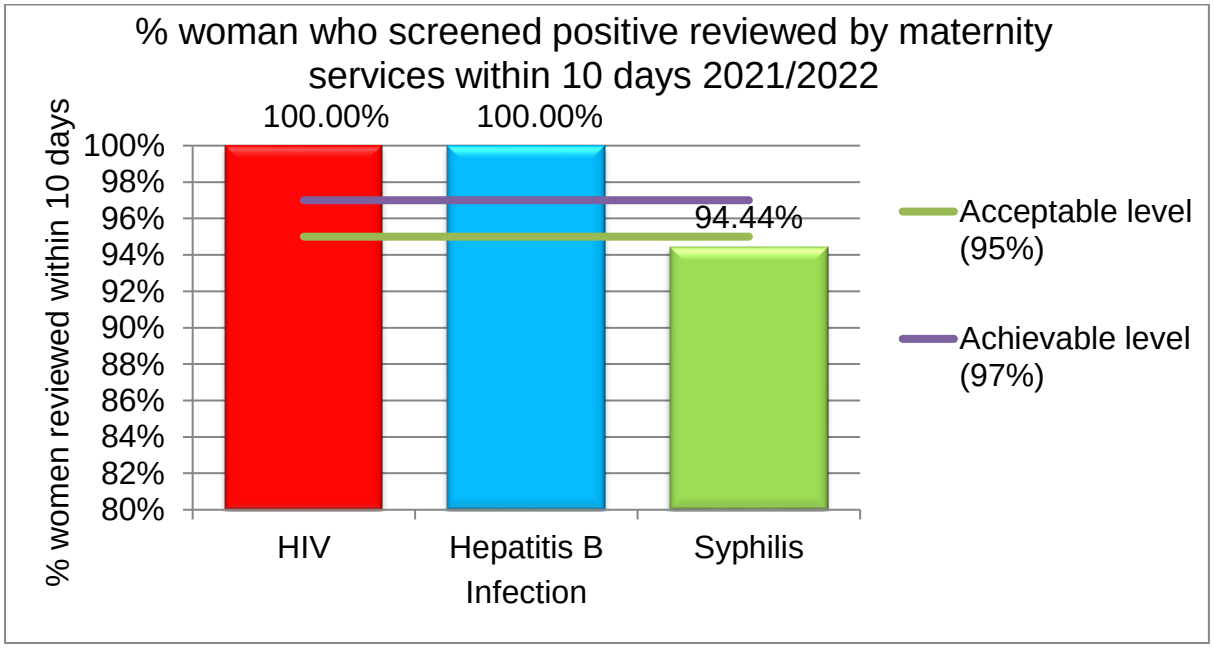
- 100.0% of women screened positive for hepatitis B were seen within 10 working days of receipt of result.

  Achievable level exceeded.

- 94.4% of women screened positive for syphilis were seen within 10 working days of receipt of result (It should be noted that there were very small numbers involved).

  Acceptable level not met. (Figure 3 below)

Figure 3: Review of women with a positive infection screen within 10 working days



3.4 Standard 6: Diagnosis/ intervention - timely assessment by hepatology service of women with hepatitis B.

This standard measures the number of pregnant women who are confirmed as screen positive for hepatitis B, attending for specialist assessment by a hepatologist within six weeks of the positive result being reported to the maternity service including:

- all women who are newly diagnosed as hepatitis B positive.
- women already known to be hepatitis B positive with high infectivity markers detected in the current pregnancy.

(Acceptable level: ≥70.0%, Achievable level: ≥ 90.0%)

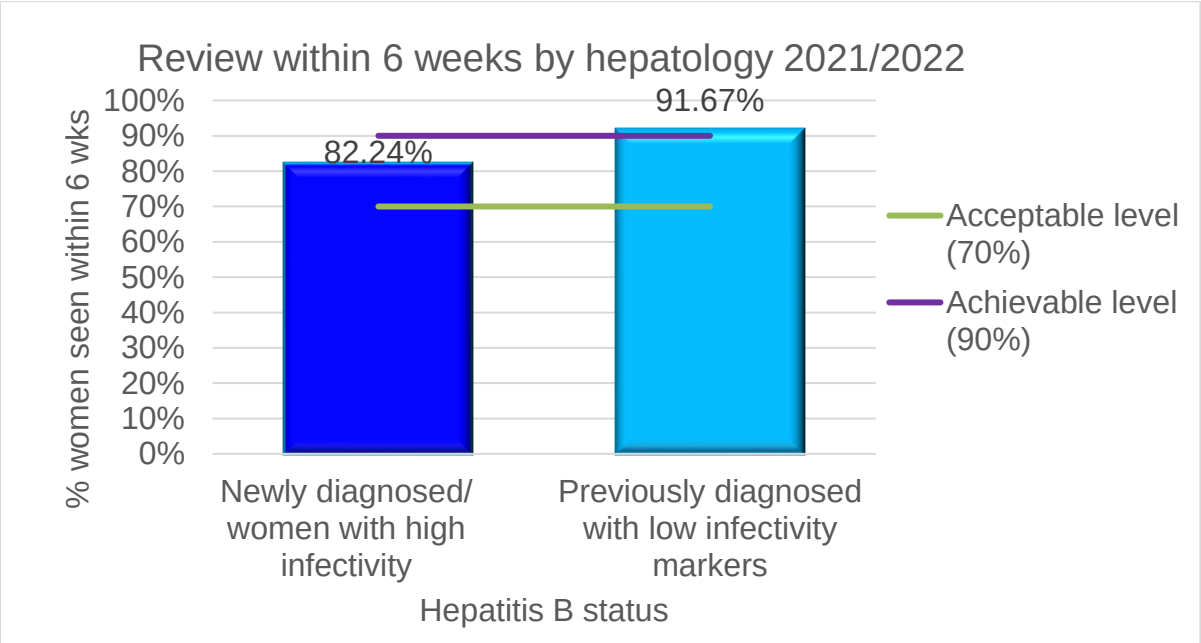
- 88.2% of women, either with a new diagnosis of hepatitis B, or already known to have hepatitis B with high infectivity markers, were seen within 6 weeks of the receipt of the positive result.

Acceptable level exceeded. (Figure 4)

Although not part of the national standards, data for previously diagnosed women with hepatitis B who have low infectivity markers are also monitored.

- 91.7% of women testing positive for hepatitis B, previously diagnosed and with low infectivity markers, were seen within 6 weeks of the receipt of the positive result. (Figure 4)

Figure 4: Diagnosis/ Intervention - specialist review by hepatology within 6 weeks for women with hepatitis.



3.5 Standard 7: Intervention / treatment - timely neonatal hepatitis B vaccination and immunoglobulin.[1]

This standard measures the proportion of babies born in the reporting period, to women with hepatitis B, receiving their first hepatitis B vaccination within 24 hours of birth and the proportion of babies receiving hepatitis B immunoglobulin (HBIG) within 24 hours (if they require it).

(Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)

- 96.0% of babies born to women with hepatitis received the hepatitis B vaccine within 24 hours of birth.

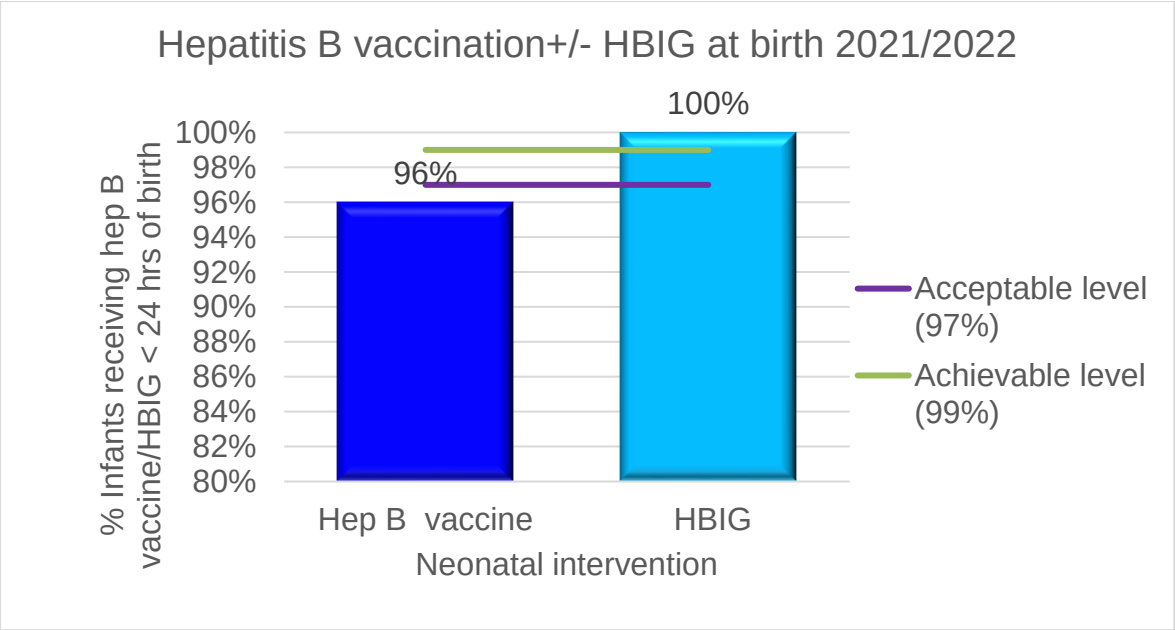
  Acceptable level not met. This was because a small number (n<5) of babies were born deceased and were therefore ineligible for the vaccine. However, they are still included in the denominator for calculating performance. (Figure 5)

- 100.0% of babies born to women with hepatitis B and requiring HBIG had the HBIG within 24 hours of birth.

  Achievable level exceeded. (Figure 5)

[1] In addition to routine childhood immunization with hepatitis B vaccine at 2, 3 and 4 months of age, babies on the selective hepatitis B pathway receive additional hepatitis B vaccination as soon as possible after birth (within 24 hours), at 1 month and 1 year old.

Figure 5: Neonatal hepatitis B vaccination/HBIG administration within 24 hours.



3.6 Rubella susceptibility screening and the offer of the MMR vaccination to all women screened susceptible to rubella following delivery.

Although there are no national standards relating to rubella screening, performance is monitored by the IDPS Programme in Northern Ireland.

- **21,309/ 21,314 (99.98%) of pregnant woman accepted IDPS screening for rubella susceptibility.**
- Of all women screened, 22.96% tested susceptible to rubella at antenatal booking in 2021/2022.
- 22.8% of all women delivered in 2021/2022 were rubella susceptible.
- 54.51% of rubella susceptible women were: given the MMR vaccination following delivery and prior to discharge; provided evidence of a previous full MMR vaccination history, or had a contraindication to MMR.

4.0 Programme developments

The key developments within the IDPS Programme during 2021/2022 include:

- September 2021 - the MMR codes for postnatal vaccination administration were revised on NIMATS to improve data capture and women were actively encouraged to provide evidence of previous MMR vaccinations.
- November 2021 - the first stakeholders meeting was held, bringing together all those professionals involved in the screening pathway. The remit of this

group is to ensure a safe, quality assured programme is provided for all women and that national performance standards are met and maintained.

- November 2021 a pilot was undertaken in the Northern HSC Trust to encourage women, who screened susceptible to rubella, to provide evidence of previous MMR vaccinations in order to reduce unnecessary postnatal MMR vaccinations.

- January 2022 - work commenced on the development of regional guidelines for hepatitis B screening and the selective neonatal immunisation pathway[2][3]

- January 2022 - A new version of the "late booker form" was commissioned and distributed for use across trusts. The form now has a sample bag attached in line with the other screening blood forms. The purpose of the bespoke form is to draw attention to the sample as it enters the Regional Virology laboratory (RVL), so that staff know to expedite the testing of the sample.

5.0 Condition specific performance data

5.1 HIV

Table 1: HIV data

Measure	Value
Number of confirmed HIV positive results *	9
Screen positive women attending for screening assessment within ten working days (Acceptable level: ≥ 97.0%, Achievable level: ≥ 99%)	9/9 (100%)
Prevalence of HIV per 1,000 women screened	0.42

* NB: Some were new diagnoses and some women were already known to have HIV.

5.2 Hepatitis B

Table 2: Hepatitis B data

Measure	Value
Number of positive results (Figure 7)	29

[2] In addition to routine childhood immunization with hepatitis B vaccine at 2, 3 and 4 months of age, babies on the selective hepatitis B pathway receive additional hepatitis B vaccination as soon as possible after birth (within 24 hours), at 1 month and 1 year old.

Newly diagnosed women or women with high infectivity markers (Figure 7)	17
Known positive women with low infectivity markers (Figure 7)	12
Screen positive women attending for screening assessment within ten working days (Figure 7) (Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)	29 (100.0%)
Women with hepatitis B (new positive or high infectivity) seen for specialist assessment within six weeks (Figure 8) (Acceptable level: ≥70.0%, Achievable level: ≥ 90.0%)	15/17 (88.2%)
Known positive women with low infectivity markers seen for specialist assessment within six weeks (Figure 8)	11/12 (91.7%)
Babies born to hepatitis B positive women receiving first dose vaccination within 24 hours (Figure 9) (Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)	96.0% (< 5 babies deceased at birth)
Babies born to hepatitis B positive women receiving immunoglobulin (if required) within 24 hours (figure 9) (Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)	100%
Prevalence of hepatitis B per 1,000 women screened.	1.36

Reasons given for non-attendance with a hepatologist within six weeks were a combination of system related factors such as appointments not being made within the 6-weeks' timeframe and patient related factors, such as women leaving the country and not returning within the 6-weeks' time frame or women cancelling their appointment.

Figure 7 - Hepatitis B data

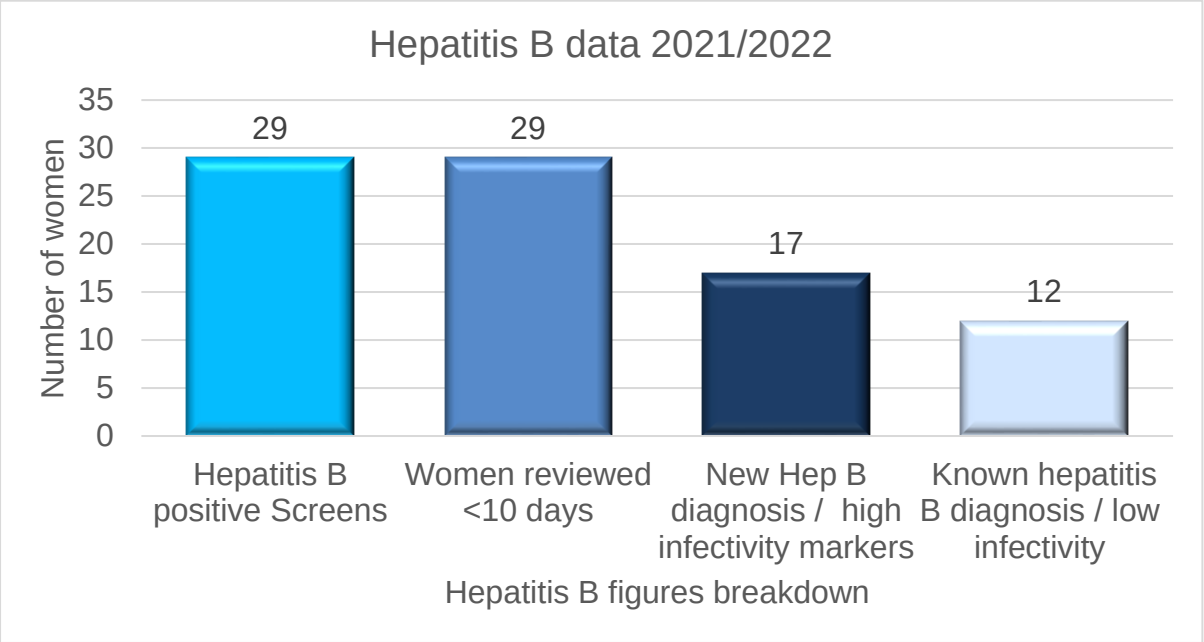


Figure 8 - Diagnosis / Intervention

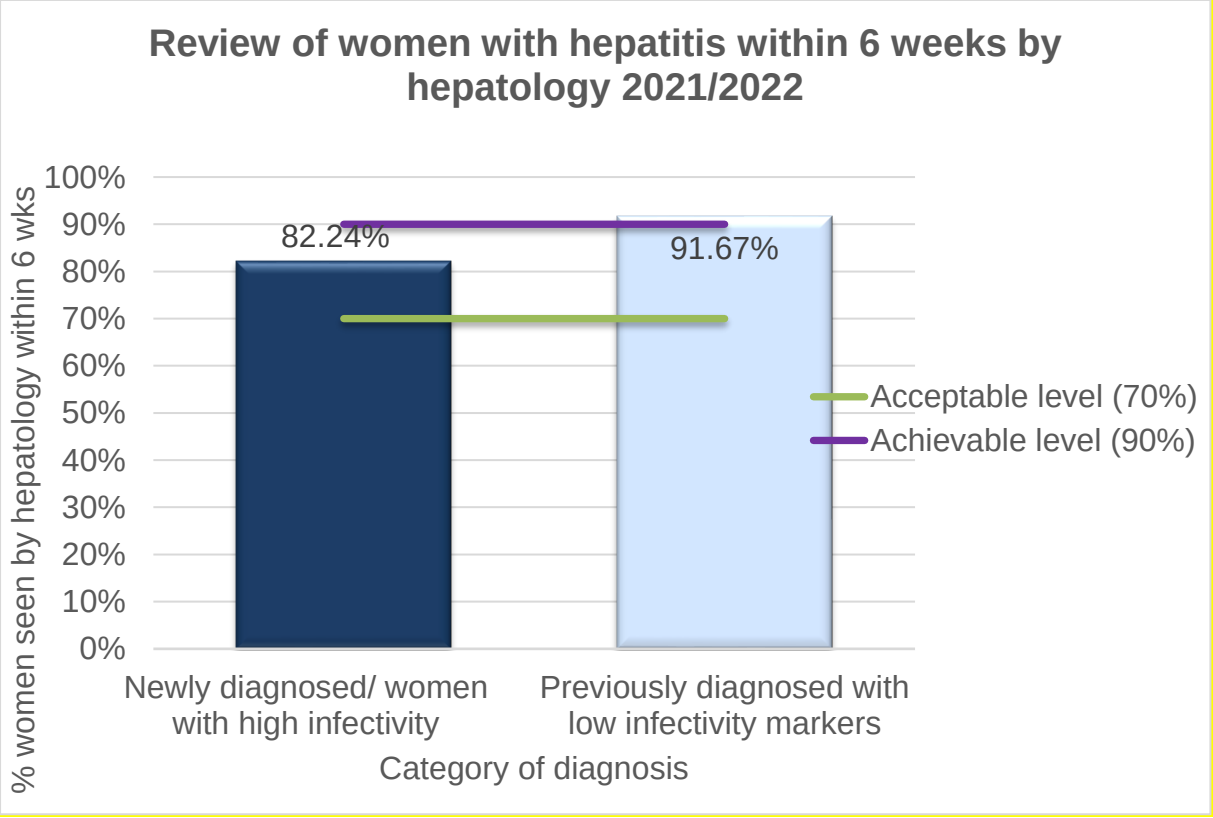
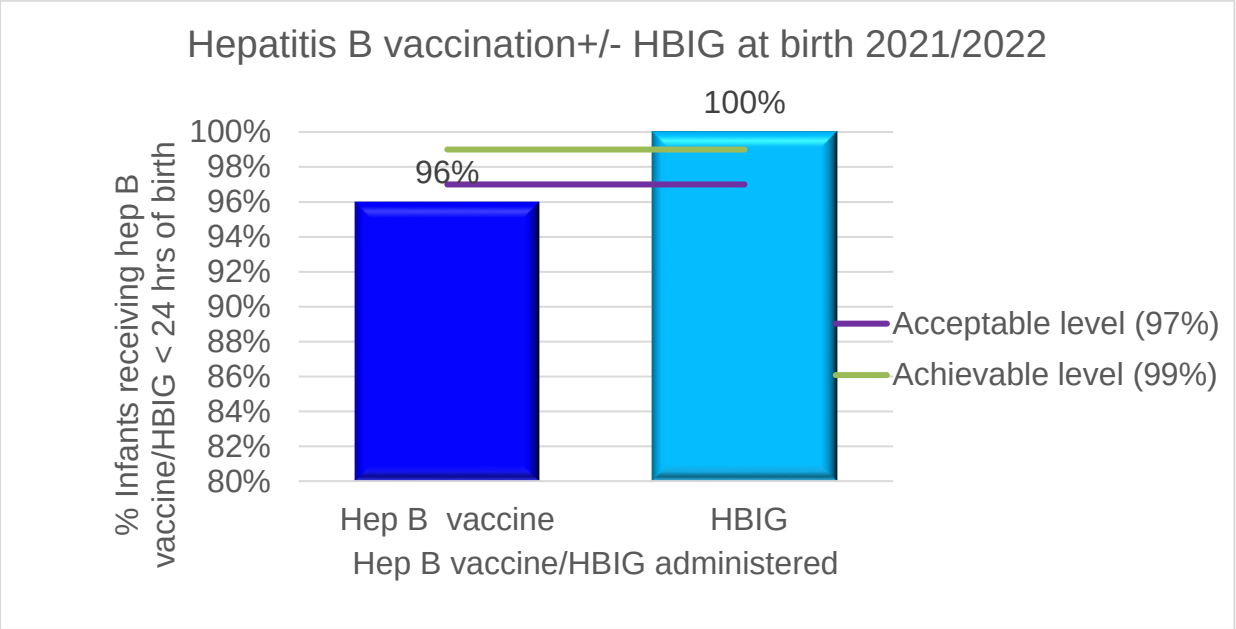


Figure 9 - Intervention / treatment of the neonate



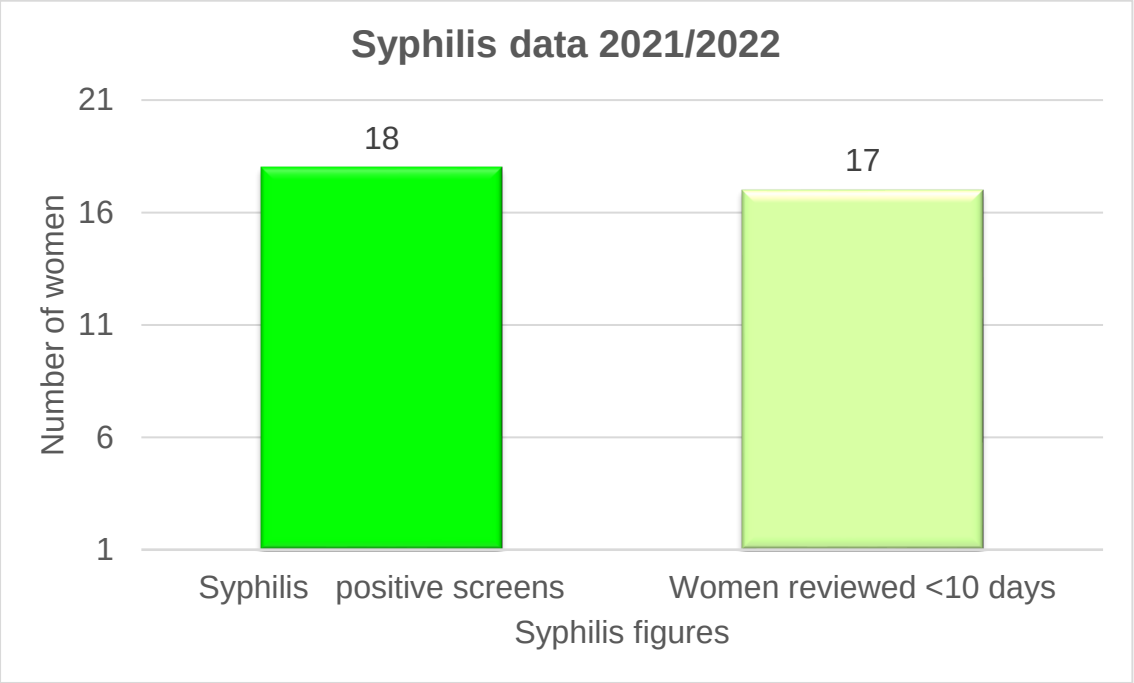
Although the achievable threshold was not achieved for vaccination of the babies at birth, the data relate to a very small number and the reasons for not meeting the threshold were identified (see table 2 above).

5.3 Syphilis

Table 3: - Syphilis data

Measure	Value
Coverage (Acceptable level: ≥ 95.0%, Achievable level: ≥ 99.0%) 5 women declined screening due to woman's choice or reasons unknown.	21,309 / 21,314 (99.98%)
Results reported within eight working days (Acceptable level: ≥ 95.0%, Achievable level: ≥ 97.0%)	100%
Number of positive results (Figure 10)	18
Screen positive women attending for screening assessment within ten working days (Figure 10) (Acceptable level: ≥ 97.0%, Achievable level: ≥ 99.0%)	17/18 (94%)
Prevalence of syphilis per 1,000 women tested	0.85

Figure 10: Syphilis data



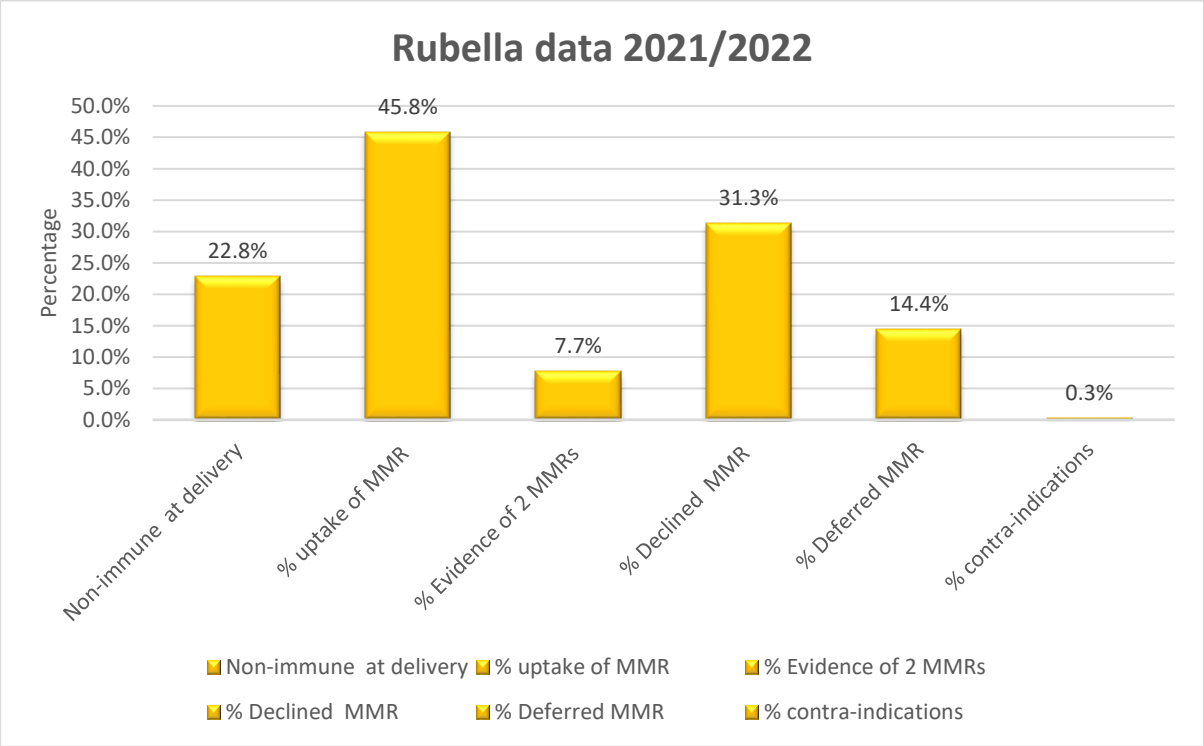
5.4 Rubella

Table 4: Rubella data

Measure	Value
Coverage (Acceptable level: ≥ 95.0%, Achievable level: ≥ 99.0%) 5 women declined screening due to woman's choice or reason unknown.	21,309 / 21,314 (99.98%)
Results reported within eight working days	100.0%
Number of women who booked and screened susceptible to rubella in 2021/2022	4,892 (23.0%)
Number of women delivering in 2021/2022 who had screened susceptible to rubella at booking (figure 11)	4,919/ 21,570 (22.8%)
Number of rubella susceptible women who accepted and were given the MMR vaccine post-delivery and prior to discharge from hospital (figure 11)	2,255 (45.8%)

Rubella susceptible women who provided evidence of 2 MMR vaccinations previously (figure 11)	378 (7.7%)
Women with contraindications to the MMR vaccine (figure 11)	15 (0.3%)
Women who deferred their MMR vaccination (figure 11)	707 (14.37%)
Women who declined the MMR vaccine (figure 11)	1,542 (31.35%)
Prevalence on rubella susceptible women per 1,000 women screened.	229.57

Figure 11: Rubella susceptibility and MMR vaccination data 2021/2022



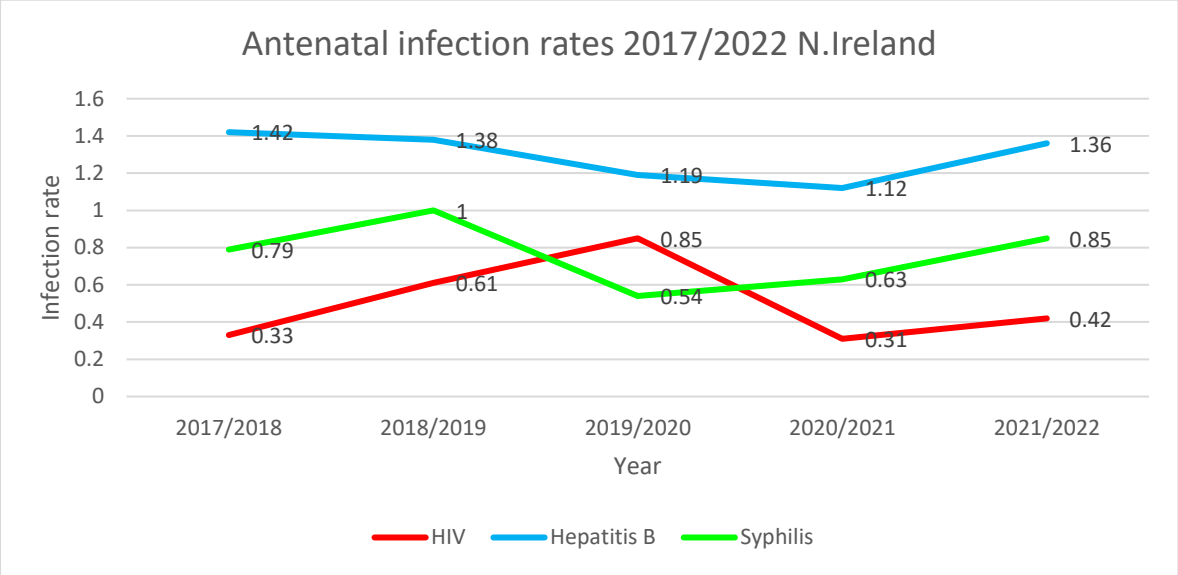
6.0 Trend data

6.1 Infection rates

56 women out of 21,309 screened positive for one of the three infections which equates to a rate of 2.63 per 1,000 women screened. Figure 12 below shows the

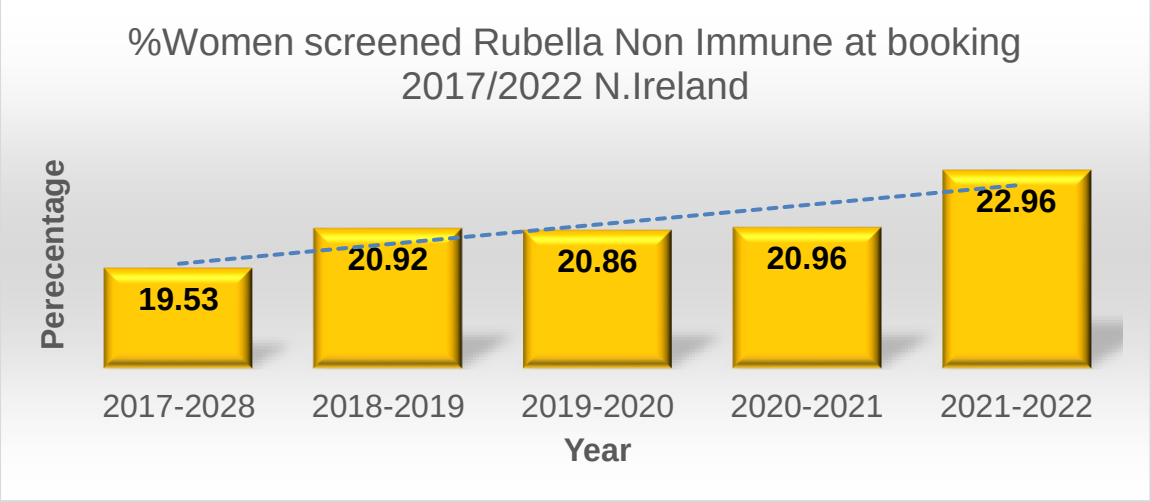
individual trend rates for each infection and the slight fluctuations in the rates over the last five years, with rates increasing slightly for all three infections in 2021/2022.

Figure 12: Antenatal infection rates, for HIV, hepatitis B and syphilis in Northern Ireland from, 2017/2022.



6.2 Rubella susceptibility rates

Figure 13 - Rubella susceptibility at booking trend data

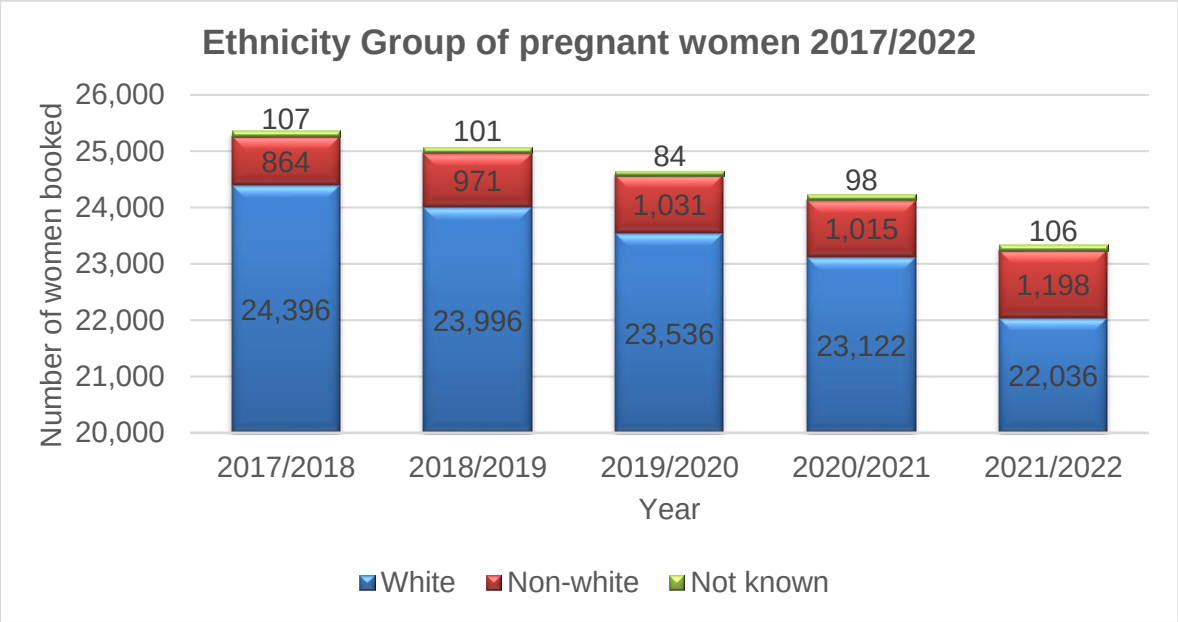


The number of women screened susceptible to rubella in the last 5 years has seen a very gradual increase. This may be due to an increase in the number of women moving into Northern Ireland who may not been vaccinated with MMR.

6.3 Ethnicity trends

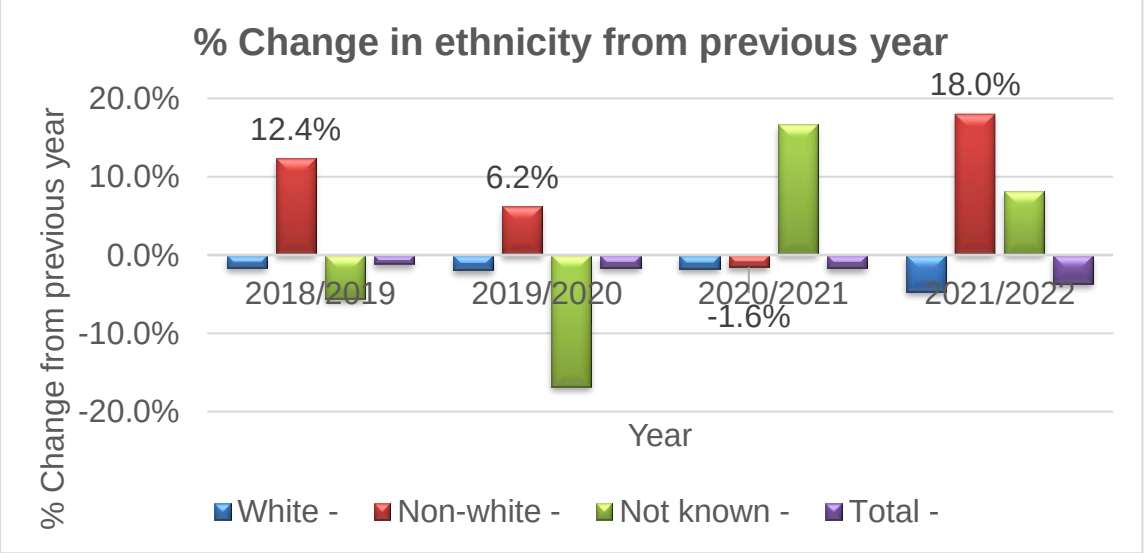
See below for details on ethnicity trends over the last five years.

Figure 14 - Ethnicity of women booking for maternity services



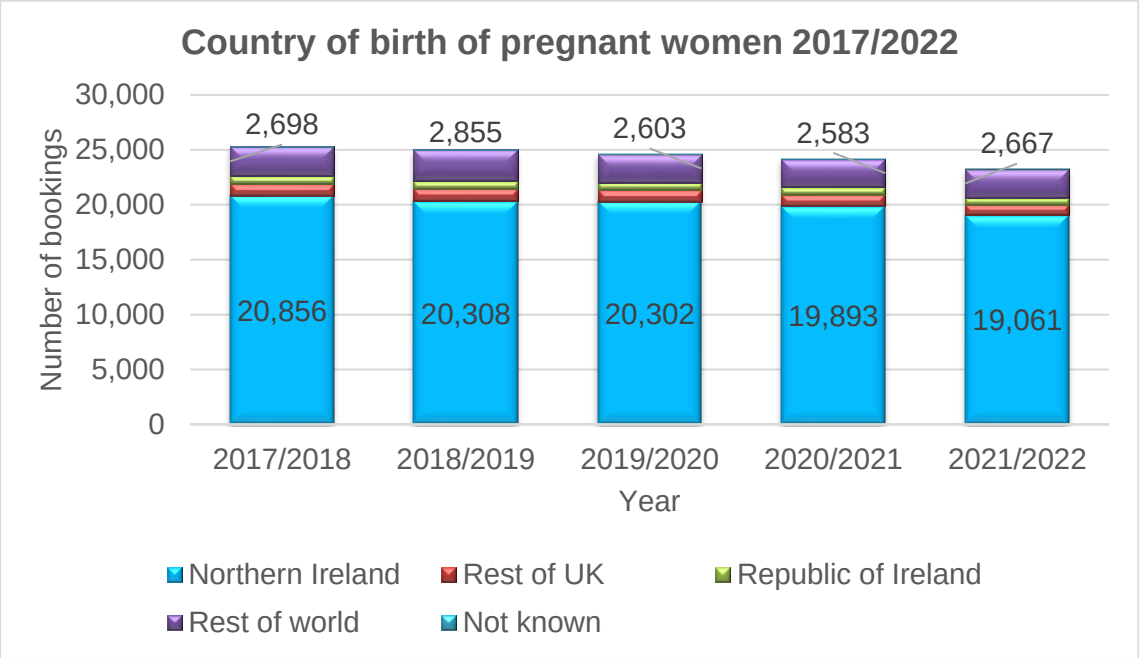
The above figure shows that whilst there is a steady decline in the overall numbers of women booking, there is an increase in the numbers of women whose ethnicity is recorded as non-white booking over the last five years.

Figure 15: Percentage change in ethnicity from previous year



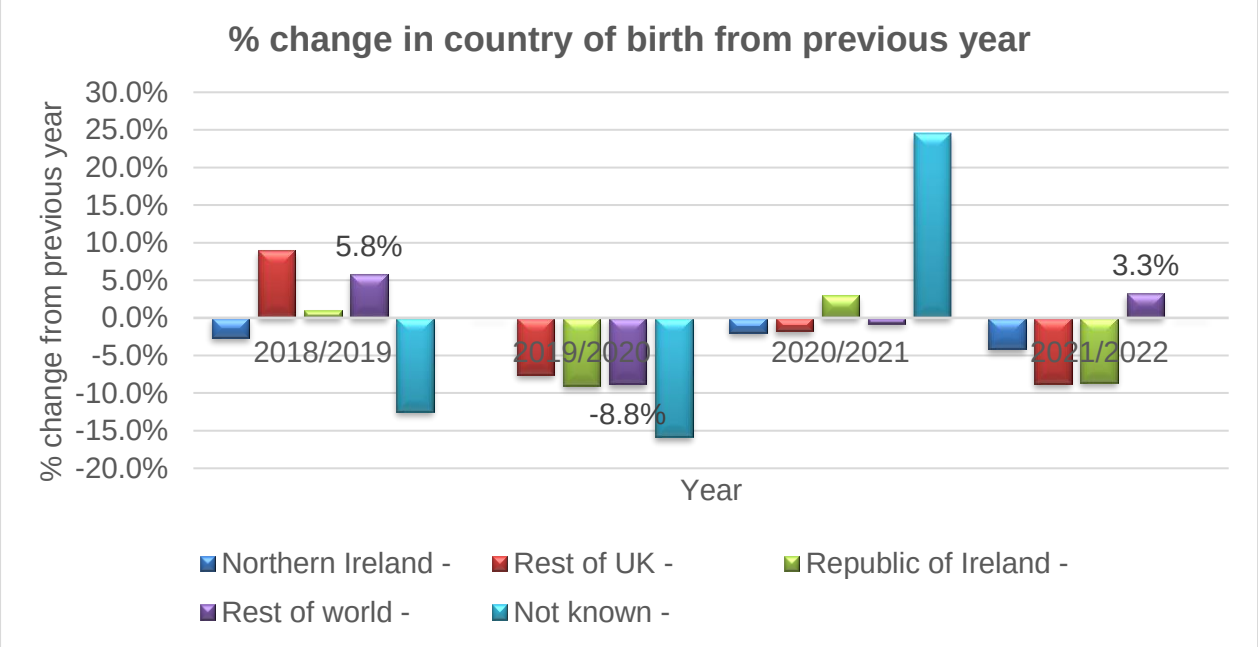
The above figure shows that the percentage of people with non-white ethnicity dropped from previous years during COVID, but then increased again in 2021/2022.

Figure 16 - Country of birth of women booking for maternity services



The above figure shows a slight drop in the number of women booking for maternity services who were born outside of the UK and Republic of Ireland during the pre-COVID and COVID years of 2019/2021 and then a subsequent rise in 2021/2022.

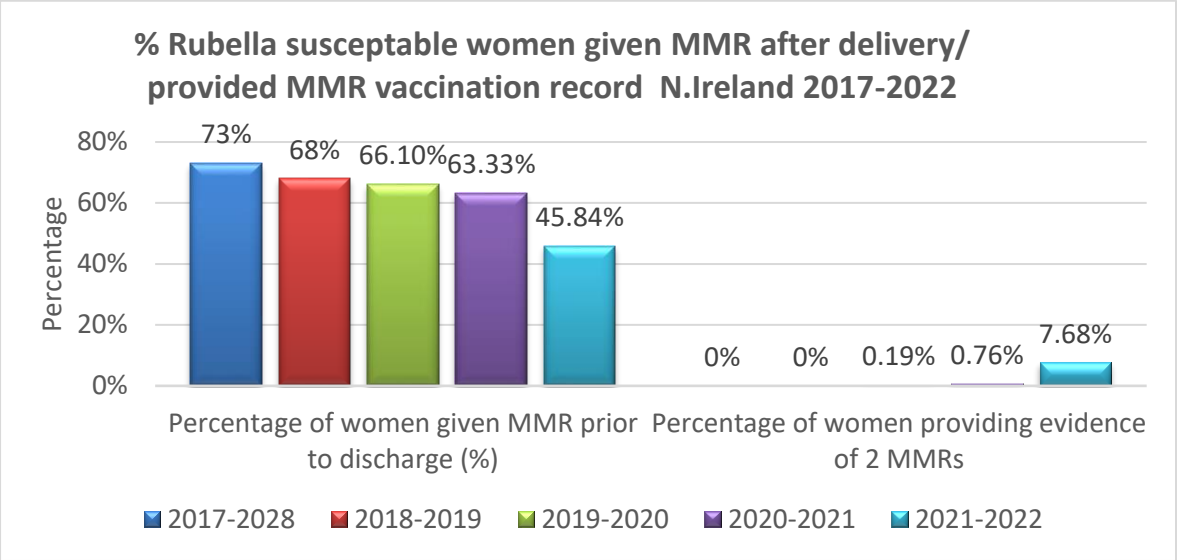
Figure 17: Percentage change in country of birth from previous year.



The above figure confirms that there was a drop in the percentage of women born outside of the UK and Republic of Ireland, booking for maternity services in Northern Ireland from 2019/2021, followed by a rise in 2021/2022.

6.4 MMR vaccination following delivery trends

Figure 18: - MMR vaccination following delivery trend data

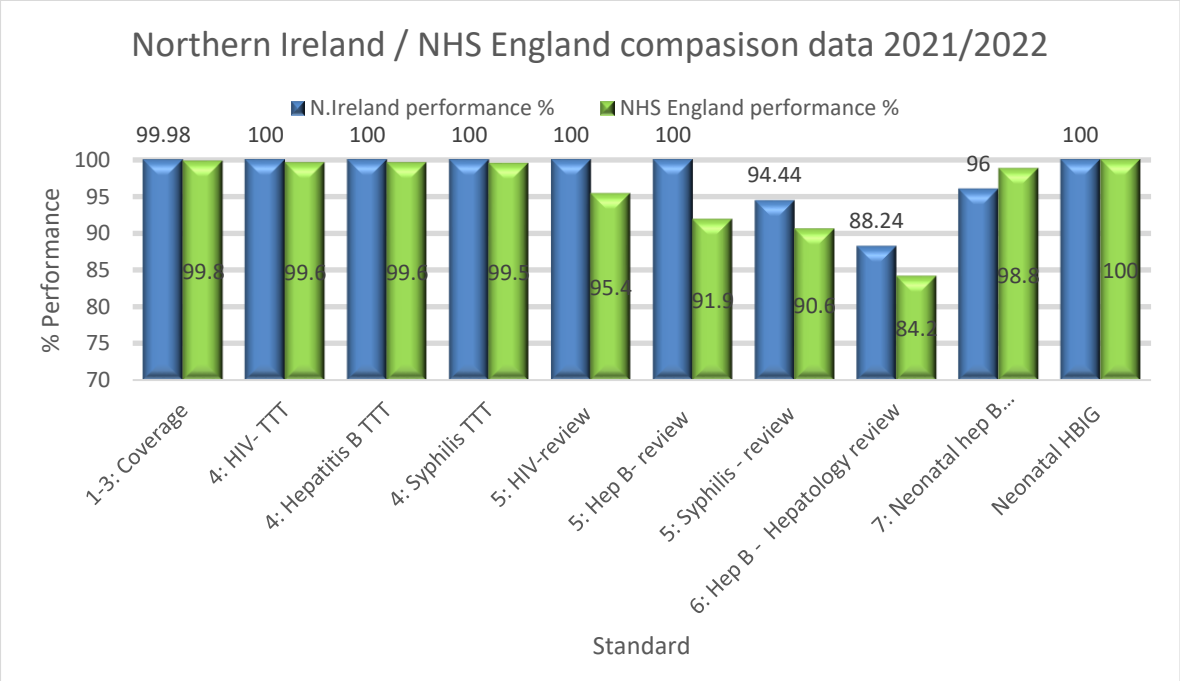


During the five-year period between 2017-2022, there has been a steady decline in the number of women accepting the MMR vaccination postnatally, with 2021/2020 seeing the biggest drop.

Performance compared to England[4]

Northern Ireland's performance against the national standards compares favourably against NHS England's performance. See Figure 19 below.

Figure 19: Performance against NHS England



6.0 Conclusion

This report provides evidence of a high level of programme performance against most of the UK national standards, whilst highlighting some areas for improvement. The NI IDPS Programme achieved higher performance levels than England for all standards, apart from standard 7 - the timely vaccinations of babies born to hepatitis B positive mothers. This was because of the small numbers involved and the fact that a small number (n<5) of babies were born deceased and therefore ineligible for the vaccine, but still included in the performance figure.

Areas for improvement include:

- the review, within ten days, of women screened positive for syphilis infection.
- the review by hepatology, within six weeks, of women screened positive for hepatitis B infection.
- the uptake of postnatal MMR vaccination, for women screened susceptible to rubella.

It should be recognised that sometimes patient related factors, that affect performance against standards, are unavoidable e.g. women leaving the country.

7.0 Next Steps

- The PHA to continue to monitor the quarterly returns for women who do not meet the national standard for review and work with Trusts to take appropriate actions.

- The antenatal screening coordinators (ANSCs) should continue close liaison with women screened positive for hepatitis, and the hepatology service, to ensure women are reminded, and encouraged, to attend their hepatology appointment and that the appointment is made within the six weeks standard.

- Midwives should continue to encourage women to provide evidence of the previous MMR vaccinations.

8.0 References

[1] NICE draft guidance on antenatal care 19th August 2021 Recommendations | Antenatal care | Guidance | NICE

[2] Gov.uk NHS England guidance. Infectious diseases in pregnancy screening standards valid for data collected from 1 April 2018 Infectious diseases in pregnancy screening standards valid for data collected from 1 April 2018 - GOV.UK (www.gov.uk)

[3] Our approach to NHS population screening standards, Public Health England, 26 July 2019. Available at: https://www.gov.uk/government/publications/population-screening-our-approach-to-screening-standards/our-approach-to-nhs-population-screening-standards#performance-thresholds

[4] Gov.uk National statistics. 2021/22 Infectious diseases in pregnancy (IDPS) programme screening report - GOV.UK (www.gov.uk)

Appendix 1: - Glossary

ANSC	Antenatal Screening Coordinator. There is an ANSC appointed in each of the five trusts across Northern Ireland who is responsible for coordinating the care of women who screen positive for infection and their babies.
CHIS	Child Health Information Services are local active clinical care records of all the children in the area, ideally containing information about an individual child's public health interventions, particularly screening, immunisations and outcomes of the 0 to 5 healthy child programme.
HBeAg	The hepatitis B envelope antigen, or HBeAg, is a marker of an actively replicating hepatitis B virus infection. Those with a positive HBeAg have active replication in their liver cells i.e. more of the virus circulating in their blood and as a result they are more infectious, with a higher likelihood of transmitting HBV to others.
HBIG	Hepatitis B immunoglobulin (HBIG) is recommended as a post exposure prophylaxis for babies whose mothers are HBeAg positive and/or have a high hepatitis B viral load. It provides a temporarily induced immunity to hepatitis B infection.
HBV	Hepatitis B virus (HBV) is a viral infection carried in the blood causing inflammation of the liver and potentially long-term damage. The virus is transmitted by contact with an infected person's blood or body fluids. Hepatitis B is vaccine preventable. HBV can be transmitted from mother to child during pregnancy or birth.

HIV	Human immunodeficiency virus belongs to a group of viruses called retroviruses. It attacks the immune system leaving the infected person vulnerable to serious infections and cancers. HIV is present in blood, genital fluids and breast milk. One way of passing on the infection is from a mother to her baby during pregnancy, birth or through breast feeding.
IDPS	Infectious Diseases in Pregnancy Screening Programme - currently screens for HIV, hepatitis B, syphilis and rubella susceptibility in pregnant women in Northern Ireland. The aim is to significantly reduce mother to child transmission (vertical transmission) of HIV, hepatitis B and syphilis by early detection, intervention and treatment to safeguard the health of the baby and the woman's own health.
MMR	Measles, Mumps and Rubella vaccine. The MMR vaccine is a safe and effective combined vaccine. It protects against three serious illnesses: measles; mumps and rubella (German measles) These highly infectious conditions can easily spread between unvaccinated people. Rubella infection in early pregnancy can have serious implications for the baby.
MTCT	Mother to child transmission - also called perinatal or vertical transmission. This occurs when an infection is passed from a mother to her baby either during pregnancy birth; or through breastfeeding.
NIBTS	The Northern Ireland blood transfusion service (NIBTS) is located in Belfast and provides IDPS for women booked prior to 20 weeks gestation. Samples initially screened positive are sent to the Regional Virology Laboratory (RVL) for confirmation.
NIMATS	The Northern Ireland Maternity System is a web based electronic system used regionally to capture geographical and clinical data on pregnant women and their babies. This includes the offer, and acceptance of, infectious diseases in pregnancy screening tests and the test results. Its functionality is being replaced by Encompass as this new IT system is rolled out across Northern Ireland.
PHA	The Public Health Agency is a multi-disciplinary, multi-professional body. Its role is to protect and improve the health and social wellbeing of the population of Northern Ireland and reduce health inequalities.
RVL	The regional virus laboratory is located in the Kelvin Buildings, on the Royal Hospitals site in Belfast. It provides IDPS for women booking at 20 weeks gestation or more and also provides confirmatory testing for samples screened positive in NIBTS.

TTT	Test turnaround time is the time from receipt of a blood sample, in the laboratory, until a result is reported to maternity services. The National Standard states that the IDPS samples should have a result reported within 8 working days.