Northern Ireland Infectious Diseases in Pregnancy Screening programme report

April 2018-March 2020

HSC Public Health Agency

Document Title	Northern Ireland Infectious Diseases in Pregnancy Screening Programme Performance Report April 2018 - March 2020
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Contents

1.0 Glossary

ANSC	Antenatal Screening Co-ordinator. There is an ANSC appointed in each of the five trusts across Northern Ireland who is responsible for co-ordinating the care of women screened positive for infection and their babies.
BHIVA	The British HIV Association is an organisation of healthcare professionals interested in the treatment and care of people with HIV.
BSO	The Business Services Organisation has been established to provide a broad range of regional business support functions and specialist professional services to the health and social care sector in Northern Ireland.
CBT	Cognitive behavioural therapy is types of talking therapy which can help people manage their problems by changing the way they think and behave. It's most commonly used to treat anxiety and depression, but can be useful for other mental and physical health problems. Women with needle phobias can benefit from this type of therapy.
HAART	Highly Active Antiretroviral Therapy is an aggressive treatment regimen used to suppress HIV viral replication and the progression of HIV disease. The usual HAART regime combines three or four different drugs.
HBeAg	The hepatitis e antigen, or HBeAg, is a marker of an actively replicating HBV 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 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 by the transfer of immunoglobulins.
HBV	Hepatitis B virus causes an infection in the liver. It can cause both acute and chronic infections.
HIV	Human immunodeficiency virus belongs to a group of viruses called retroviruses. HIV 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 Northern Ireland.
MDT	Multidisciplinary team - obstetricians, ANSCs and the wider maternity team, GUM, hepatology, pharmacists and paediatricians all work together to ensure standards are achieved and women and their babies receive optimum care.
MMR	Measles, Mumps and Rubella vaccine.The MMR vaccine is a safe and effective combined vaccine. It protects against three serious illnesses: measles; mumps; 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. It occurs when an infection is passed from a mother to her baby either during the antenatal period, intra-natal period or in the postnatal period through breastfeeding.
NIBTS	The Northern Ireland Blood Transfusion Service provides IDPS testing for women booked prior to twenty weeks gestation.
NICE	The National Institute for Health and Care Excellence - provides national guidance and advice to improve health and social care.
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 screening tests and the test results.
PHA	The Public Health Agency is a multi-disciplinary, multi-professional body with a strong regional and local presence. It has four key functions: • Health and social wellbeing improvement. • Health protection. • Public health support to commissioning and policy development. • Health and social care research and development.
RVL	The Regional Virus Laboratory provides IDPS testing for women booked after twenty weeks gestation and also provide confirmatory testing for samples screened positive in the NIBTS.
TTT	Test turnaround time - the time from receipt of a blood sample in the laboratory until a result is reported. The National Standard states that the IDPS samples should be returned within 8 working days.
UKAS	United Kingdom accreditation service is the national accreditation body for the United Kingdom, appointed by government, to assess organisations that provide certification, testing, inspection and

	calibration services. Both the NIBTS and RVL laboratories are UKAS accredited.
WHO	The World Health Organisation’s primary role is to direct international health within the United Nations' system and to lead partners in global health responses.

Northern Ireland infectious diseases in pregnancy screening programme performance report.

1st April 2018 – 31st March 2020

2.0 Executive summary

This report of the Northern Ireland Infectious Diseases in Pregnancy Screening (IDPS) programme provides an overview of performance in relation to the UK national standards.[1] Performance data in relation to the screening offer, uptake and actions taken on receipt of positive/rubella susceptible results from 1st April 2018 to 31st March 2020 are outlined.

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.

2.1 Background

The IDPS programme in Northern Ireland offers screening for: Human immunodeficiency virus (HIV); hepatitis B; syphilis; and rubella susceptibility.

In keeping with the National Institute for Health and Care Excellence (NICE) guidance,[2] the screening blood tests are routinely offered to pregnant women at the booking appointment, ideally by 10 weeks gestation or at the earliest opportunity thereafter where the woman presents to maternity services. The objective of the IDPS screening is to enable early identification of infections allowing early intervention and reduction of the risk of mother to child transmission (MTCT) of the infection. Pregnant women 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 prevent rubella infection in future pregnancies, and a second MMR if necessary by the GP at least 4 weeks later.

2.2 Headline results

Performance of the Northern Ireland IDPS programme between 1st April 2018 and 31st March 2020 against national standards is summarised below.

2.2.1 Standards 1-3: Identifying population and coverage

This standard measures the number of eligible pregnant women offered and accepting screening for HIV, hepatitis B, syphilis and rubella susceptibility and who have a confirmed result within the reporting period.

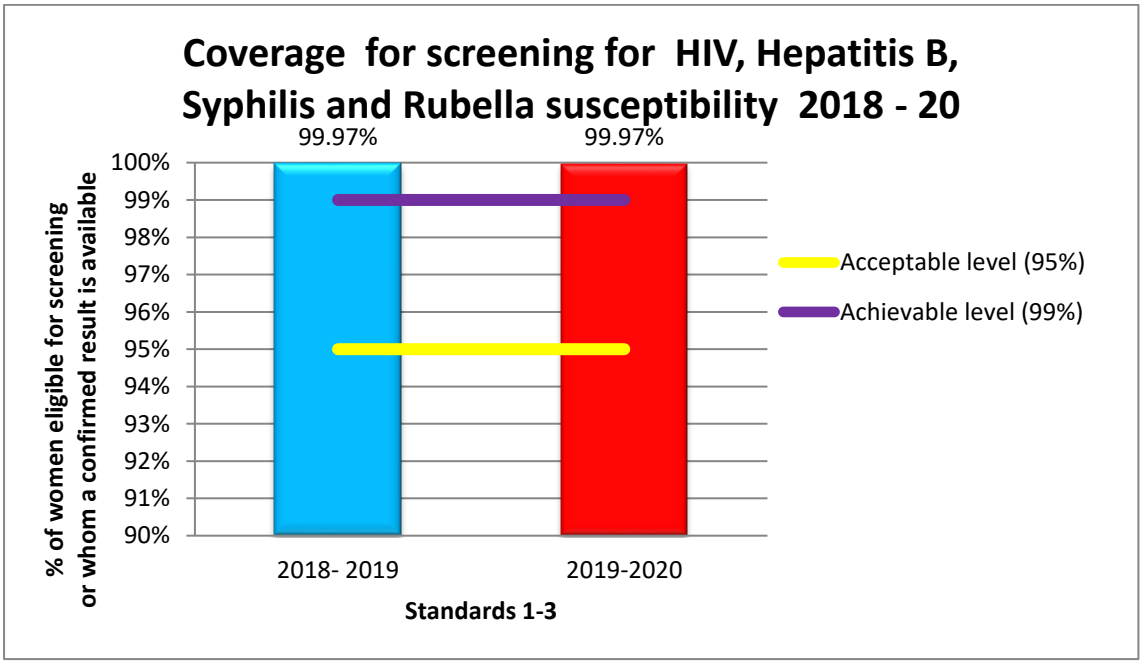
[1] https://www.gov.uk/government/publications/infectious-diseases-in-pregnancy-screening-programme-standards/infectious-diseases-in-pregnancy-screening-standards-valid-for-data-collected-from-1-april-2018
[2] www.nice.org.uk/guidance/cg62/chapter/appendix-d-antenatal-appointments-schedule-and-content

Table 1 and figure 1 below, show that Northern Ireland has achieved above the highest achievable level in this standard, with only a small number of women declining screening.

Table 1: Coverage: the proportion of women eligible for screening for whom a confirmed result is available at the end of the reporting period.

Year	Number of women screened	Percentage screened
2018-2019	23,123 / 23,131 (8 women declined screening)	99.97%
2019-2020	22,435 / 22,441 (6 women declined screening)	99.97%

Figure 1: Programme coverage 2018-20



2.2.2 Standard 4: Test turnaround time (TTT)

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.

The Northern Ireland Blood Transfusion Service (NIBTS) is United Kingdom Accreditation Service (UKAS) accredited and work to a standard of a 3-day turnaround time for all negative samples excluding samples where a repeat has been requested. Currently they cannot provide data for an 8-day turnaround for non - referred samples, however they can supply this data for screened positive samples referred from NIBTS to RVL for confirmation.

Data provided by the Regional Virology Laboratory (RVL) showed that they achieved 100% TTT for all late booking samples (defined as those taken after 20 weeks gestation) tested by them, both positive and negative. (Of note in early 2019 the late booking form was coded in order to allow data capture against this standard. Late booking data supplied by RVL for this report has not been included as the figures may be an underestimate.)

Table 2 below shows that Northern Ireland achieved the acceptable level of 95% for TTT of all HIV, hepatitis B and syphilis samples, positive and negative within 8 working days.

Table 2: Test turnaround time for all samples (both positive and negative) tested by NIBTS

Source: NIBTS	TTT all results positive and negative (% TTT <3 working days) *
2018-2019	22,196/22,949 (96.72%)
2019-2020	21, 709/22,277 (97.45%)

*NIBTS work to a standard of a 3-day turnaround time. Currently they cannot provide data for an 8-day turnaround for non - referred samples

A review of the confirmed screen positive results separately see table 3 and figure 3 below demonstrate that: -

- 100% (above the achievable level of 97%) of samples confirmed screen positive for HIV in 2018-2019 had a TTT of within 8 working days and 95% (the acceptable level - 95%) in 2019-2020 had a TTT of within 8 working days.

- 87.5 % (below the acceptable level of 95%) of samples confirmed screen positive for hepatitis B in 2018-2019 had a TTT of within 8 working days and 96.2% (above the acceptable level of 95%) in 2019-2020 had a TTT of within 8 working days.

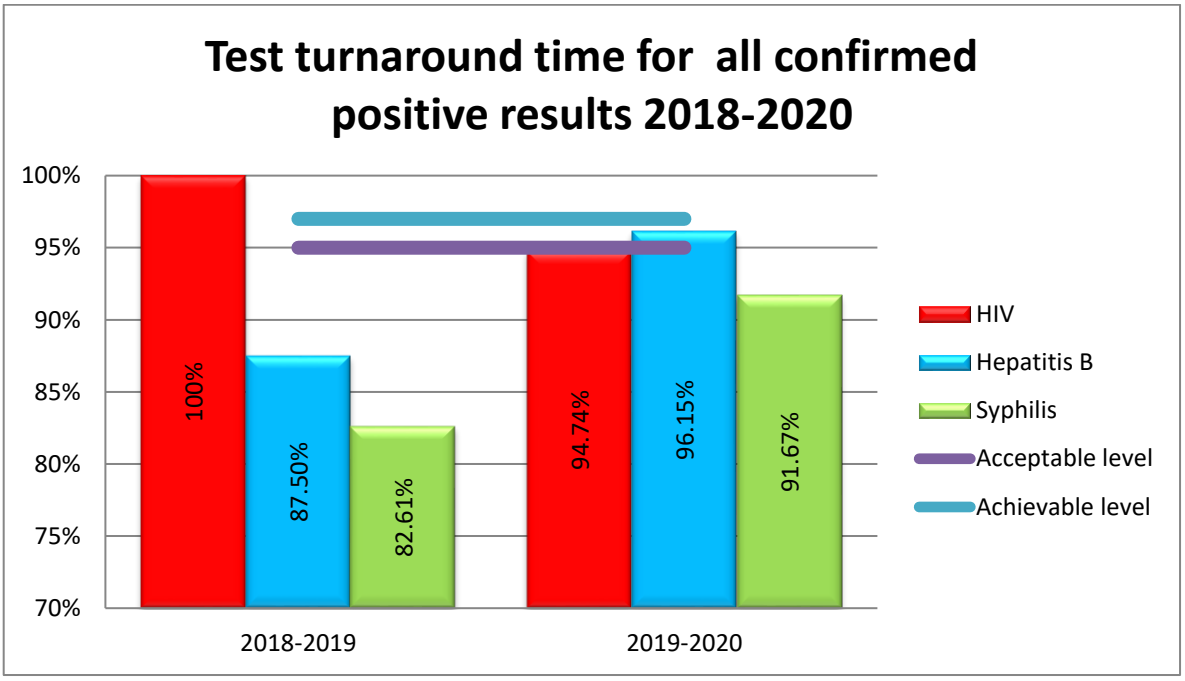
- 82.6% (below the acceptable level of 95%) of samples confirmed screen positive for syphilis in 2018-2019 had a TTT of within 8 working days and 91.7% (below the acceptable level of 95%) in 2019-2020 had a TTT of within 8 working days.

As the total numbers of samples here are relatively small (table 3), each sample's TTT has a bigger proportional impact on the collective performance against the standard.

Table 3: -Test turnaround time for samples confirmed screen positive

Test turnaround time for number (%) of confirmed screen positive samples reported within 8 working days from NIBTS / RVL	HIV	Hepatitis B	Syphilis
2018-2019	14/14 (100%)	28/32 (87.5%)	19/23 (82.6%)
2019-2020	18/19 (94.7%)	25/26 (96.2%)	11/12 (91.7%)

Figure 3: -Test turnaround time for confirmed screen positive samples



2.2.3 Standard 5: Timely assessment of women confirmed as screen positive.

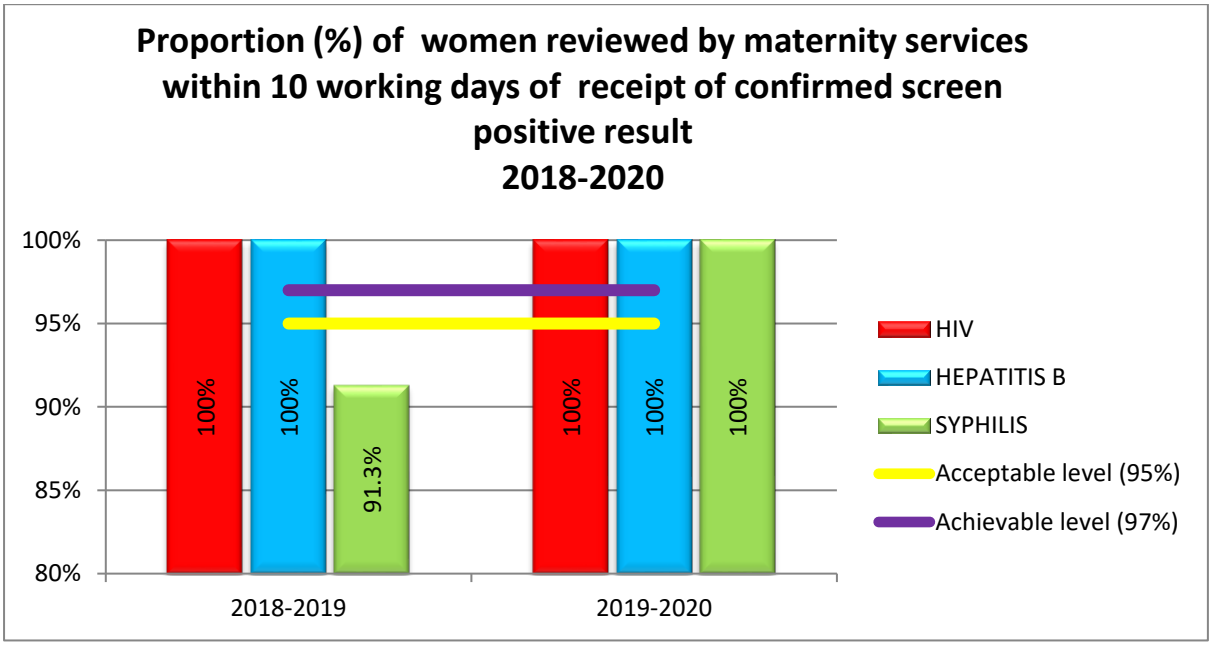
This standard measures the number of women with confirmed screen positive results for HIV, hepatitis B or syphilis who attended for a screening assessment appointment within 10 working days of the result receipt by maternity services.

Table 4 and figure 4 below demonstrate that Northern Ireland surpassed the achievable level for review of women testing positive for HIV and hepatitis B in both years, but in 2018-2019 fell under the acceptable level for the review of 2 women who tested positive for syphilis.
A review of these cases showed that all reasonable efforts had been made to arrange an appointment within the 10 days.

Table 4: Attendance at specialist maternity assessment

Number and proportion (%) of women confirmed as screen positive for infection, attending for assessment within 10 working days off result receipt.	HIV	Hepatitis B	Syphilis
2018-2019	14/14 (100%)	32/32 (100%)	21/23 (91.3%)
2019-2020	19/19 (100%)	26/26 (100%)	12/12 (100%)

Figure 4: Attendance at screening assessment appointment within 10 working days of receipt of confirmed screen positive result.



2.2.4 Standard 6: Diagnosis/intervention - Timely assessment of women with hepatitis B.

This standard measures the number of pregnant women who are confirmed as screen positive for hepatitis B positive attending for specialist assessment by a hepatologist within 6 weeks of the positive result being reported to the maternity service including:

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

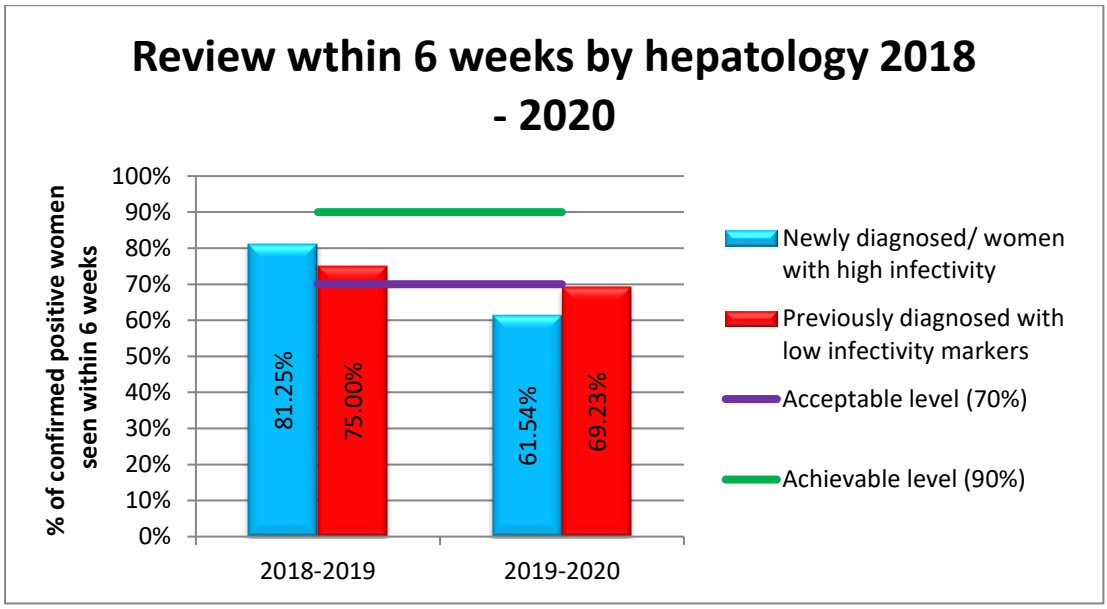
All women in Northern Ireland who are confirmed screen positive for hepatitis B are referred to hepatology even if previously known to have Hepatitis B. Although the national standard focuses on the timeliness of review by hepatology for women newly diagnosed or with high infectivity markers for hepatitis B, results for all women testing positive to hepatitis B are included in this report.

Table 5 and figure 5 below show that in 2018-2019 Northern Ireland achieved the acceptable level of 70% for all women, (either newly diagnosed or previously diagnosed), being reviewed within 6 weeks by hepatology. However, in 2019-2020 the acceptable level was not achieved for either those with new diagnosis/known diagnosis and high infectivity levels (61.5%) or for those who were previously diagnosed and had low infectivity markers (69.2%).
Review of the cases where the hepatology review exceeded 6 weeks showed that the reasons for not meeting the standard included service related and patient related factors. These included delayed appointment times, interpreting staff not available and non-attendance at appointments.

Table 5: Diagnosis / Intervention

Number (%) of women positive for hepatitis B seen by hepatology services within 6 weeks of receipt of result.	**2018-2019**	**2019-2020**
Eligible women, either with a new diagnosis of Hepatitis B or already known with high infectivity markers.	13/15 (86.67%)	8/13 (61.54%)
Eligible women testing positive for hepatitis B previously diagnosed and with low infectivity markers.	12/16 (75%)	9/13 (69.23%)

Figure 5: Diagnosis / Intervention



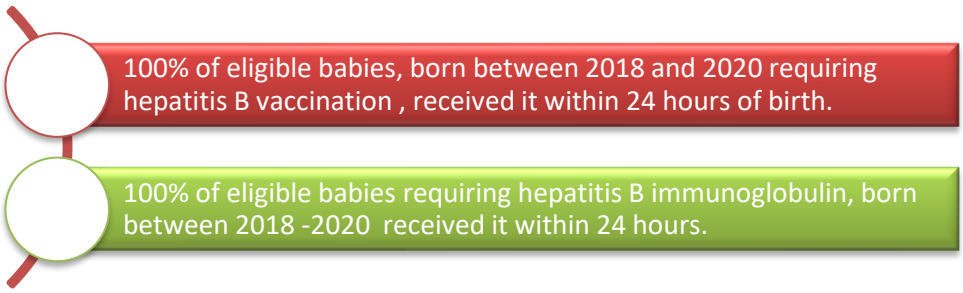
2.2.5 Standard 7: Intervention/treatment - Timely neonatal hepatitis B vaccination and immunoglobulin.

This standard measures the number of eligible babies born in the reporting period, to women with hepatitis B, receiving their first vaccination within 24 hours of birth and the percentage of eligible babies receiving the HBIG within 24 hours.

Table 6: Intervention/treatment of the neonate

Year	Number of eligible babies born receiving the hepatitis B vaccine within 24 hours of birth	Proportion of eligible babies receiving the HBIG within 24 hours.
2018-2019	35/35 (100%)	100%
2019-2020	27/27 (100%)	100%

Figure 6: -Intervention / treatment of the neonate



2.3 Conclusion

This report provides evidence of a very high level of programme performance against some standards, whilst also highlighting areas for improvement and recommendations have been made to progress against these. An audit of cases falling outside the acceptable standard levels should be reviewed in a regionally agreed process to improve performance against national standards and ensure accessibility of services for all women across Trusts and improvements in achievements against the National Standards. [1]

The national standard 4 relates to test turnaround times for reporting against all samples (both screen positive and negative). We have also specifically reviewed performance for the TTT of samples referred for confirmation from NIBTS- RVL and also all confirmed positive results, to identify potential delays which could impact upon timeliness of review and referral.

For the reporting period 2018-2020 Northern Ireland has: -

Exceeded the achievable (highest) levels in: -

- Standards 1-3 in both years 2018-2020 for screening coverage
- Standard 4 in 2019-2020 for TTT of all samples (both positive and negative)

- Standard 4 in 2018-2019 for the TTT of confirmed screen positive HIV samples.
- Standard 5 in 2018-2019 for the review by maternity services of women confirmed screen positive for HIV and hepatitis B, within 10 working days
- Standard 5 in 2019-2020 for the review by maternity services of women confirmed screen positive for HIV, hepatitis B and syphilis, within 10 working days
- Standard 7 for both years 2018-2020 for the vaccination of the babies at birth within 24 hours.

Exceeded the acceptable level in: -

- Standard 4 in 2018-2019 for the TTT for all samples (both positive and negative)
- Standard 4 in 2019-2020 for the TTT of confirmed screen positive HIV and hepatitis B samples.
- Standard 6 in 2018-2019 for the review by hepatology services of women testing positive for hepatitis B, within 6 weeks

Did not achieve an acceptable level in: -

- Standard 4 in 2018-2019 for the TTT of confirmed screen positive hepatitis B and syphilis samples.
- Standard 4 in 2019-2020 for the TTT of confirmed screen positive syphilis samples.
- Standard 5 in 2018-2019 for the review by maternity services of women testing positive for syphilis, within 10 days
- Standard 6 in 2019-2020 for the review by hepatology services of women testing positive for hepatitis B, within 6 weeks

3.0 Introduction

The Northern Ireland IDPS programme offers screening to all eligible pregnant women for HIV, hepatitis B and syphilis infections and for susceptibility to rubella infection. Achievement against National Standards 1, 2, 3 and 6 are the agreed Key Performance Indicators (KPI) for Northern Ireland currently.

This report provides an overview of the IDPS programme in Northern Ireland for the year from 1st April 2018 to 31st March 2020, including performance data in relation to National standards.

3.1 Aims of the screening programme

- To ensure that all eligible pregnant women in Northern Ireland are offered and recommended screening for HIV, syphilis and hepatitis B infections and rubella susceptibility.

- To ensure that high quality up to date information on infection screening in pregnancy is given to all eligible women, in the appropriate easy to understand

language, to enable them to make an informed choice about their screening options.[3]

- To ensure early detection and treatment of HIV and syphilis infection in pregnancy in order to significantly reduce the risk of MTCT during pregnancy, at birth or postnatally.
- To ensure early detection of hepatitis B in pregnancy so that onward referral to specialist services can happen in a timely manner and treatment commenced if necessary to reduce the risk of MTCT.
- To ensure that babies born to mothers screened positive for hepatitis B are vaccinated within 24 hours of birth and hepatitis B immunoglobulin (HBIG) given if necessary.
- To ensure that rubella susceptible mothers are adequately informed that they should avoid rubella contact in pregnancy and that they are offered MMR vaccination postnatally unless they have been previously adequately vaccinated, in order to protect against rubella infection in future pregnancies.

3.2 Rationale for the screening programme.

3.2.1 HIV

HIV infection can be transmitted from an infected mother to her baby during pregnancy, at the time of birth or by breast feeding. The risk of transmission in the absence of intervention ranges from 15 - 45%.[4] The risk of MTCT of HIV can be reduced to less than 5% through appropriate interventions. Screening in pregnancy aims to identify HIV infected mothers and, with early treatment and management, reduce the risk of MTCT.

Currently the World Health Organisation (WHO)[5] and the British HIV Association (BHIVA)[6] recommend that all pregnant women should be commenced on Highly Active Antiretroviral Therapy (HAART) as soon as possible after diagnosis, in the second trimester (or earlier if the viral load is very high) and that they should continue on the treatment for life. Correct management of the mother following diagnosis in pregnancy, and of the baby following delivery, is imperative in order to prevent MTCT. Breastfeeding is still not recommended for affected women.

Care is provided by a multidisciplinary team (MDT) encompassing obstetricians, ANSCs and the wider maternity team, genito-urinary medicine (GUM) consultants and their teams, neonatologists, paediatric infectious disease specialists and pharmacists. At the time of this report the majority of HIV positive pregnant women

[3] https://www.publichealth.hscni.net/sites/default/files/2019-06/ante%20natal%20blood%20screening%202019%20Final.pdf
[4] http://www.who.int/hiv/topics/mtct/about/en/
[5] http://apps.who.int/iris/bitstream/handle/10665/186275/9789241509565_eng.pdf;jsessionid=8DF7A3839376199A6F5DFA2034A31FC1?sequence=1
[6] https://www.bhiva.org/pregnancy-guidelines

were being delivered in the BHSCT. However, in cases where a woman has requested to deliver in her own Trust, this has been facilitated.

3.2.2 Hepatitis B

Hepatitis B infection in a baby can occur at or around the time of birth (perinatal transmission). Babies acquiring infection at this time have a high risk of becoming chronically infected with the virus (carriers). As well as being infectious to others, they are at increased risk of developing chronic liver disease and some will die prematurely from cirrhosis or hepatocellular (liver) cancer. The development of the carrier state after perinatal transmission can be prevented in over 90% of cases by appropriate vaccination, starting within four hours of birth.[7]

3.2.3 Syphilis

Syphilis infection readily crosses the placenta and may be transmitted to the foetus at any stage of pregnancy. The risk of transmission varies with syphilis stage and is greatest in early disease. Infection during pregnancy can result in miscarriage, stillbirth or congenital syphilis. Maternal infection is detectable and treatable so, with early detection in pregnancy, transmission to the baby can be prevented. See attached guidelines for management of syphilis in pregnancy.[8] [9]
Babies born with congenital syphilis may have an early manifestation of the disease (within the first two years of life) or a later manifestation (after two years of life), including stigmata of congenital syphilis.

3.2.4 Rubella

Rubella is generally a mild disease caused by a togavirus. However, rubella during pregnancy can be serious, especially in early pregnancy, as infection may cause abnormalities in the unborn baby known as congenital rubella syndrome (CRS). These can include mental impairment, cataract, deafness, cardiac abnormalities, intra–uterine growth retardation and inflammatory lesions of the brain, liver, lungs and bone marrow.[10]

Screening maternal blood for rubella susceptibility allows identification of rubella susceptible women who can then be advised to avoid rubella contact in pregnancy and can be offered the Measles, Mumps and Rubella (MMR) vaccination after delivery. Of note, vaccination during the current pregnancy is not possible given that MMR, is contraindicated during pregnancy.[11] Giving MMR postnatally provides protection against rubella in future pregnancies.

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[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628602/Greenbook_chapter__18.pdf

[8] https://www.bashhguidelines.org/media/1053/syphilis-2015.pdf

[9] http://www.publichealth.hscni.net/sites/default/files/Regional%20syphilis%20guidelines.pdf

[10] https://www.gov.uk/government/publications/vaccine-in-pregnancy-advice-for-pregnant-women/mmr-measles-mumps-rubella-vaccine-advice-for-pregnant-women

[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/147968/Green-Book-Chapter-21-v2_0.pdf

As per the Green Book Chapter 28 [12] **"**All seronegative women of childbearing age who need to be protected against rubella should be offered MMR vaccine. Satisfactory evidence of protection would include documentation of having received two doses of rubella-containing vaccine or a positive antibody test for rubella."

In May 2018 the NIMATS antenatal and postnatal letters were revised to reflect the fact that if a mother had documented evidence of having received two previous MMR vaccinations that she should be adequately protected against rubella and would not require any further MMR vaccinations regardless of her rubella screening test result.

Women screened susceptible to rubella without evidence of two previous MMR vaccinations are still offered the MMR vaccination postnatally before discharge from hospital, with their GP giving the second one, if necessary, at least 4-6 weeks later.

3.2.5 Positive results

For HIV and hepatitis B results, all confirmed screen positive results are counted even for women previously known to be positive.

It should also be noted that a confirmed screen positive result for syphilis will reflect all stages of disease, as well as a previous infection that has been successfully treated. Further diagnostic testing and clinical assessment is required to ascertain the stage of infection and whether treatment is required.

All screening blood samples taken before 20 weeks gestation are sent to NIBTS for testing and if the initial screening result is positive the sample is sent to RVL for a confirmatory test.
In the event of an initial screen positive result on the first testing assay, which is not then confirmed as screen positive in the second confirmatory test, the result will appear on the mismatch report and the ANSC will review and counsel the woman and arrange a repeat test in 3-4 weeks' time.

- If this results in a negative screen this will be classified as a false positive result and no further action will be required unless risk factors are identified.

- If the repeat result is positive the normal process for a confirmed screen positive screening result will be followed.

- If the repeat sample is also inconclusive then advice and/or referral should be sought from the infectious disease clinicians for future management.[13]

[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/148498/Green-Book-Chapter-28-v2_0.pdf

[13] NHS Infectious Diseases in Pregnancy Screening Programme Laboratory Handbook 2016 to 2017 (publishing.service.gov.uk)

All screening blood samples taken ≥ 20 weeks gestation are sent directly to RVL using the late booking form.[14] If the initial screening result is positive a confirmatory test will be performed in RVL using a different testing assay.

4.0 IDPS programme delivery

IDPS is a complex programme involving a wide range of professionals working in maternity units, laboratories, pharmacy, hepatology, genito-urinary medicine, neonatology and paediatric services. Along with the PHA, these partner organisations work closely together to ensure that pregnant women have access to safe, effective, high quality and equitable screening.

Screening tests for HIV, hepatitis B and syphilis infections and rubella susceptibility are routinely offered to all pregnant women at the maternity booking appointment, or at the earliest opportunity when a pregnant woman presents to maternity services. A blood sample is taken by a health professional, usually a midwife or maternity support worker.
The lead ANSC in each Trust, with support from at least one deputy ANSC, oversees the screening programme and ensures that positive results are followed up and appropriate referrals made. The lead/deputy ANSC arrangement ensures that essential duties are addressed continually e.g. if the lead ANSC is absent.

At a regional level, within the PHA, there is a regional antenatal infection screening programme co-ordinator and a consultant in public health who oversee quality assurance of the programme.

4.1 Failsafes

A failsafe is a backup mechanism, in addition to usual care, which ensures that if something does not go according to plan in the screening pathway, processes are in place to identify what has happened and thereafter action is taken to ensure a safe outcome.
Failsafe processes minimise the risks in the screening pathways used by population screening programmes. There are a number of failsafe processes within the IDPS programme in Northern Ireland.

4.1.1 The failsafe report

A failsafe is operational in each Trust to identify pregnant women who have not completed the antenatal infection screening (AIS) including rubella susceptibility. The failsafe report is produced electronically from the Northern Ireland Maternity System (NIMATS) on a weekly basis and is sent from Business Services Organisation (BSO) to the Trust ANSCs or their deputy for review and appropriate action. It identifies all women booked for care where:

- The screening bloods have not been initiated on NIMATS

[14] http://www.rvl-belfast.hscni.net/wp-content/uploads/2020/07/Antenatal-Screening-Request-form-M-1872-v2.pdf

- They have declined the AIS tests
- Results from the AIS tests are missing >14 days from the booking date

4.1.2 The mismatch report

Since the establishment of an electronic link between NIMATS and the NIBTS IT system, a “mismatch report” is now available on NIMATS. This report highlights all:

- Positive results
- Rubella susceptible results
- Rhesus negative blood group results and any positive antibody screens
- Rejected tests which need repeated
- Results where there is no Health and Care (H&C) number for the mother
- Results where the details on NIMATS do not match those on NIBTS
- Tests that have not been initiated on NIMATS and therefore cannot cross the systems electronically

This allows the ANSCs or their deputies to identify the above women and take appropriate action to ensure that these women are followed up in a timely manner.

4.1.3 Generic email accounts

Generic email accounts have been set up for all Trust antenatal screening teams, so that when a positive result for HIV, hepatitis B or syphilis is identified in either NIBTS or RVL, a secure email is sent to these email addresses alerting the ANSC or their deputy of the positive result and the need for action to be taken.

4.2 Programme developments

The key developments within the IDPS programme during 2018 - 2020 include: -

- In April 2018 the antenatal and postnatal NIMATS letters were changed to reflect the fact that a previous history of two MMR vaccinations should be sufficient to provide immunity against rubella. Women testing susceptible to rubella were encouraged to obtain their MMR vaccination history prior to delivery so that they wouldn’t need any further MMR vaccinations and the GPs were advised further MMR vaccinations were not required if they had evidence of two previous MMR vaccinations on their system.
- The RVL late booking form was revised in March 2019 to include a code to enable accurate late booking data to be collected in the future.

5.0 Programme standards and performance

Public Health England (PHE) published revised standards for the Infectious Diseases in Pregnancy Screening Programme for data collected from April 2018.[15]

Table 6: Northern Ireland performances against National IDPS programme standards April 2018 – March 2020

Northern Ireland Performance Against National Standards for Antenatal Infectious Disease Screening Programme, April 2018 - March 2020				
	Standard	**Northern Ireland 2018/2019**	**Northern Ireland 2019/2020**	**England[16] 2018/2019**
1-3	**Coverage: -** The total number of pregnant women booked for antenatal care during the reporting period, or presenting in labour, without previously having booked for antenatal care, for whom a confirmed screening result was available for HIV, hepatitis B or syphilis. Excluding women who: • miscarry between booking and testing • opt for termination between booking and testing • transfer out between booking and testing (do not have a result) • transfer in who have a result from a screening test performed elsewhere in the NHS in this pregnancy **Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%	23,123 / 23,131 (99.97%)	22,435 / 22,441 99.97%	99.7%

[15] https://www.gov.uk/government/publications/infectious-diseases-in-pregnancy-screening-programme-standards/infectious-diseases-in-pregnancy-screening-standards-valid-for-data-collected-from-1-april-2018
[16] https://www.gov.uk/government/statistics/antenatal-screening-standards-data-report-2018-to-2019/antenatal-screening-standards-data-report-1-april-2018-to-31-march-2019--2

	Standard	Northern Ireland 2018/2019	Northern Ireland 2019/2020	England 2018/2019
4	**Test turnaround times: HIV, hepatitis B, syphilis: -** The number of results for each infection (confirmed positive or negative) reported to maternity services ≤ 8 working days of sample receipt in the laboratory, excluding samples received that are not fit for analysis and a repeat sample is requested from the screening team. (NIBTS data is reported as a 3-day turnaround). **Acceptable level** ≥ 95.0% **Achievable level** ≥ 97.0%	**NIBTS: -** 22,196/22,949 (96.72%) RVL: - 249 / 249 (100%) **Confirmed screen positive samples: -** HIV: - 14/14 (100%) Hepatitis B: - 28/32 (87.5%) Syphilis: - 19/23 (82.6%)	**NIBTS: -** 21,709 / 22,277 (97.45%) RVL: - 640 / 640 (100%) **Confirmed screen positive samples: -** HIV: - 18/19 (94.74%) Hepatitis B: - 25/26 (96.15%) Syphilis:- 11/12 (91.67%)	99.3%
5	**Referral: timely assessment of screen positive and known positive women:-** The number of women with confirmed positive results for HIV, hepatitis B or syphilis who attend a screening assessment appointment ≤ 10 working days of result receipt by maternity services. **Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%	**HIV** 14/14 (100%) **Hep B** 32/32 (100%) **Syphilis** 21/23 (91.3%)	**HIV** 19/19 (100%) **Hep B** 26/26 (100%) **Syphilis** 12/12 (100%)	**HIV** 89.3% **Hep B** 80% **Syphilis** 81.2%

	Standard	Northern Ireland 2018/2019	Northern Ireland 2019/2020	England 2018/2019
6	**Diagnosis/intervention: timely assessment of women with hepatitis B: -** the number of eligible pregnant women with hepatitis B who are booked in the reporting period, who have been seen by a hepatologist within 6 weeks, including: - • all women who are newly diagnosed with hepatitis B. • women already known to have hepatitis B with high infectivity markers detected in the current pregnancy, with high infectivity as defined as: - ➢ HBsAg positive and HBeAg positive ➢ HBsAg positive, HBeAg negative and anti-HBe negative ➢ HBsAg positive where e-markers have not been determined ➢ having acute hepatitis B during pregnancy ➢ HBsAg seropositive and known to have an HBV DNA level equal or above $1x10^6$IUs/ml in an antenatal sample **Acceptable level** ≥ 70.0% **Achievable level** ≥ 90.0%	13/16 (81.25%)	8/13 (61.54%)	86.2%
7	**Intervention/treatment: timely neonatal hepatitis B vaccination and immunoglobulin: -** The number or percentage of babies born in the reporting period to women with hepatitis B receiving first dose of vaccination +/- immunoglobulin within 24 hours of birth. (Due to small number data this is only reported as a percentage). **Acceptable level** ≥ 97% **Achievable level** ≥ 99%	35/35 (100%) of eligible babies received their Hep B vaccination 100% of babies requiring HBIG received it.	27/27 (100%) of eligible babies received their Hep B vaccination 100% babies requiring HBIG received it.	98.9% 96.6%

6.0 Coverage data for all infections.

All women whether they are known to be positive for HIV, hepatitis B or syphilis are offered screening in each pregnancy.

In Northern Ireland there is no difference in the acceptance of testing for HIV, hepatitis B, syphilis or rubella. Data from 2018-2020 shows that women, who declined screening, declined all the tests- see below. Over the last two years the number of eligible women who were offered and accepted screening for HIV, hepatitis B, syphilis or rubella susceptibility, and had a reported result within the reporting period, has remained consistently high with only a small number of people declining screening.

2018/2019 coverage data

- 23,123 / 23,131 (99.97%) of eligible women were screened for all four infections
- 8 women declined screening for all four infections

2019/2020 coverage data

- 22,435 / 22,441 (99.97%) of eligible women were screened for all four infections
- 6 women declined screening for all four infections

7.0 HIV performance data

7.1 HIV confirmed screen positive samples

2018-2019

- 14 women were confirmed screen positive for HIV infection during 2018/2019
- 13/14(93%) women with a confirmed screen positive samples for HIV were women previously known to have HIV.

2019-2020

- 19 women were confirmed screen positive for HIV infection during 2019/2020
- 16/19 (84%) women with a confirmed screen positive samples for HIV were women previously known to have HIV.

7.2 Test Turnaround Time for all screen positive HIV samples referred from NIBTS to RVL for confirmation

2018/2019

- 29/34 (85.29%) of samples initially screened positive in NIBTS and referred to RVL for confirmatory testing had a TTT of within 8 working days

- The median TTT for all referred samples was 9 working days (range 3-11 working days)

2019/2020

- 40/43 (93.02%) of samples initially screened positive in NIBTS referred to RVL for confirmation had a TTT of within 8 working days

- The median TTT for all referred samples was 6 working days (range 3-10 working days)

7.3 Test Turnaround Time for samples confirmed screen positive for HIV.

2018/2019

- 14/14 (100%) of confirmed screen positive for HIV results were reported to maternity services within 8 working days.

- The median TTT for samples confirmed screen positive for HIV was 5 working days (range 3-8 days)

2019/2020

- 18/19 (94.74%) of confirmed HIV positive results were reported to maternity services within 8 working days.

- The median TTT for samples confirmed screen positive for HIV was 4working days (range 3-9 days)

7.4 HIV referral: timely assessment of women who screen positive for HIV

During 2018 - 2020 100% of women confirmed screen positive for HIV were seen by maternity services for initial assessment within 10 working days from receipt of a positive result. This exceeds the achievable level standard of 97% and compares favorably with performance in England in 2018-2019 (89.3%).

8.0 Hepatitis B performance data.

8.1 Hepatitis B confirmed screen positive samples.

2018/2019

- 32 women in total were confirmed screen positive for hepatitis B infection.

- There were 8 late booking samples (>20 weeks gestation) tested and confirmed positive in RVL.

- 16/32 (50%) women with a confirmed screen positive hepatitis B sample were women who were newly diagnosed and/or women who had high infectivity markers.

2019/2020

- 26 women in total were confirmed screen positive for hepatitis B infection.
- There were 5 late booking samples (>20 weeks gestation) confirmed positive in RVL.
- 13/26 (50%) women who were confirmed screen positive were either newly diagnosed and/or women who had high infectivity markers.

8.2 Test Turnaround Time for all screen positive hepatitis B samples referred to RVL for confirmation.

2018/2019

- 53/58 (91.38%) of samples initially screened positive in NIBTS and referred to RVL for confirmatory testing were turned around within 8 working days.
- Median TTT for all referred samples was 6 working days (range 2-10 working days)

2019/2020

- 54/56(96.43%) of samples initially screened positive in NIBTS and referred to RVL for confirmatory testing were turned around within 8 working days.
- Median TTT for all referred samples was 5 working days (range 2-11 working days)

8.3 Test Turnaround Time for confirmed screen positive hepatitis B samples.

2018/2019

- 24/58 referred samples were confirmed as screen positive for hepatitis B by RVL
- 20/24 (83%) had a TTT of within 8 working days.
- The median TTT for samples confirmed as screen positive for hepatitis B was 6 working days (range 2-10 working days)

2019/2020

- 20/56 referred samples were confirmed as screen positive for hepatitis B by RVL

- 19/20 (95%) had a TTT of within 8 working days.

- The median TTT for samples confirmed as screen positive for hepatitis B was 6 working days range (3-11 days)

8.4 Hepatitis B referral: timely assessment by maternity services of women who screen positive for hepatitis B.

During 2018-2020 all women (100%) confirmed as screen positive for hepatitis B were seen by maternity services for initial assessment within the standard of 10 working days from receipt of the positive result. This is an improvement from 80% in 2017-18 and compares favorably with performance in England during 2018-2019 (80%).

8.5 Diagnosis/intervention: timely assessment by hepatology of women who screen positive for hepatitis B.

All women in N Ireland who are confirmed as screen positive for hepatitis B are referred to hepatology, even if previously known to be positive for the condition. In relation to referral to specialist services, the national standard focuses on the timeliness of review by hepatology for newly diagnosed women or women previously known to have hepatitis B if they have high infectivity markers for hepatitis B. However, within this report data is included for all women confirmed as screen positive for hep B.

2018/2019

- 13/16(81.25%) of eligible women newly diagnosed or women with high infectivity markers in Northern Ireland were seen by hepatology within 6 weeks

- 12/16(75%) of eligible women confirmed as screen positive for hepatitis B, previously diagnosed and who have low infectivity markers, were seen within 6 weeks

2019/2020

- 8/13 (61.54%) of women newly diagnosed in Northern Ireland or women with high infectivity markers were seen by hepatology within 6 weeks.

- 9/13 (69.23%) of eligible women confirmed as screen positive for hepatitis B, previously diagnosed and who have low infectivity markers, were seen within 6 weeks.

Performance in this area in 2019/2020 did not meet the acceptable standard of 70%. Review of the cases that didn't meet the standard showed there were a range of service and patient related factors for not meeting the 6-week review. These

included delayed appointment times (4 cases), interpreters not being available (2 cases), and non-attendance at appointments (4 cases).

8.6 Vaccination of babies at birth.

The PHA Health Protection Service monitors vaccine coverage for the neonatal hepatitis B vaccination programme for infants born to hepatitis B positive mothers.

2018/2019

- 35/35 (100%) eligible babies born to women who tested positive for hepatitis B received a first dose of monovalent hepatitis B vaccine within 24 hours of birth.

- 100% of those babies who also required the hepatitis B immunoglobulin (HBIG) at birth received it within 24 hours.

2019/2020

- 29/29 (100%) eligible babies born to women who tested positive for hepatitis B received a first dose of monovalent hepatitis B vaccine within 24 hours of birth.

- 100% of those babies who also required the hepatitis B immunoglobulin (HBIG) at birth received it within 24 hours.

8.7 Follow on vaccinations of babies after discharge.

Coverage of hepatitis B vaccine is measured at 12 months and 24 months.

2018/2019

- In 2018/2019 (12-month age birth cohort Apr 2017- Mar 2018), 96.0% of babies born to mothers testing positive for hepatitis B, received a hepatitis B containing vaccine. Depending on when they were born they were given it under 2 different schedules, so received either three or five doses of hepatitis B vaccine by 12 months.

- In 2018/2019 (birth cohort April 2016 - Mar 2017), 92.0% of babies born to mothers testing positive for hepatitis B received four doses of hepatitis B vaccine by 24 months.

2019/2020

- In 2019/2020 (birth cohort April 2017 - Mar 2018), 76.0% of babies born to mothers testing positive for hepatitis B received a hepatitis B containing vaccine. Depending on when they were born, they received it under 2 different schedules and would have received either four or six doses of hepatitis B vaccine by 24 months.

- In 2019/2020 (12-month age birth cohort Apr 2018 - Mar 2019), 82.9% of babies born to mothers testing positive for hepatitis B, received five doses of hepatitis B vaccine (either monovalent or hexavalent) by 12 months.

9.0 Syphilis performance data.

9.1 Syphilis confirmed screen positive samples.

2018/2019

- 23 samples in total were confirmed as screen positive for syphilis infection
- 6 of these were late booking samples taken >20 wks gestation and tested in RVL
- 13/23 (56.52%) of the women were known to have a previous syphilis infection

2019/2020

- 12 samples in total were confirmed as screen positive for syphilis infection
- 10/12 (83.33%) of the women were known to have a previous syphilis infection

9.2 Test turnaround time for screen positive syphilis samples referred to RVL for confirmation.

2018/2019

- 34/41 (82.93%) of samples initially screened positive for syphilis in NIBTS and referred from NIBTS to the RVL for confirmatory testing had a TTT of within 8 working days of receipt.
- The median TTT for all referred syphilis samples was 7 working days (range 4-10 working days)

2019/2020

- 25/26 (96.15%) of samples initially screened positive for syphilis in NIBTS and referred to the RVL for confirmatory testing had a TTT of within 8 working days of receipt
- The median TTT was 5 working days (range 3- 10 working days).

9.3 Test turnaround time for confirmed positive syphilis samples

2018/2019

- 13/17 (77%) of confirmed screen positive syphilis samples tested in NIBTS had a TTT of within 8 working days

- The median TTT for samples confirmed as screen positive for syphilis was 8 days (working days range 5-10)

2019/2020

- 9/10 (90%) of confirmed screen positive syphilis samples tested in NIBTS had a TTT of within 8 working days

- The median TTT for samples confirmed as screen positive for syphilis was 6 working days (range 4-10)

9.4 Syphilis -Time to intervention.

2018/2019

21/23 (91.30%) of women confirmed as screen positive for syphilis were seen by maternity services within 10 working days of the result being received by maternity services. A review of women who were confirmed as screen positive for syphilis and did not meet the 10-day standard showed that all efforts were made to arrange an appointment within the 10 days, but due to patient related factors this was not possible.

2019/2020

12/12 (100%) of women confirmed as screen positive for syphilis were seen by maternity services within 10 working days of the result being received by maternity services.

9.5 Rubella performance data

The proportion of women identified as susceptible to rubella in both years was 21% and although steps were taken to try to encourage women to present their MMR vaccination history to avoid further vaccinations, anecdotal evidence suggests that this did not happen often. The regional annual audit of the offer and uptake of MMR postnatally revealed that only 66 - 68% of women who had tested susceptible to rubella actually received the MMR vaccination postnatally prior to discharge, with most women either declining it or deferring it to get it with their GP.

2018/2019

- 4,857/23,123 (21%) women tested susceptible to rubella.

- 3,186/4,674 (68%) of women who delivered during 2018/2019 and tested susceptible to rubella were given the MMR vaccination prior to discharge from hospital following delivery.

2019/2020

- 4,679 / 22,435 (20.86%) women tested susceptible to rubella.

- 3,141 / 4,751 (66%) of women who delivered during 2019/2020 and tested susceptible to rubella were given the MMR vaccination prior to discharge from hospital following delivery.

The most common reason identified for the MMR not being given postnatally by maternity services was that it was deferred for the GP to give and the second most common reason was that the patient declined the vaccine.

10.0 Trends

Infection rates for HIV, hepatitis B and syphilis

Antenatal infection rates for HIV, hep B and syphilis for 2018 - 2020 are shown below. All rates in Northern Ireland for HIV, hepatitis B and syphilis are lower than reported rates in England for the same time period.

2018/2019

- 0.61 per 1,000 eligible pregnant women screened had a confirmed screen positive result for HIV
- 1.38 per 1,000 eligible pregnant women screened had a confirmed screen positive result for hepatitis B
- 1.0 per 1,000 eligible pregnant women screened had a confirmed screen positive result for syphilis

2019/2020

- 0.85 per 1,000 eligible pregnant women screened had a confirmed screen positive result for HIV
- 1.19 per 1,000 eligible pregnant women screened had a confirmed screen positive for hepatitis B
- 0.54 per 1,000 eligible pregnant women screened had a confirmed screen positive result for syphilis

Figure 6 Antenatal Infection rate for HIV, hepatitis B and syphilis in Northern Ireland from 2016-2020.

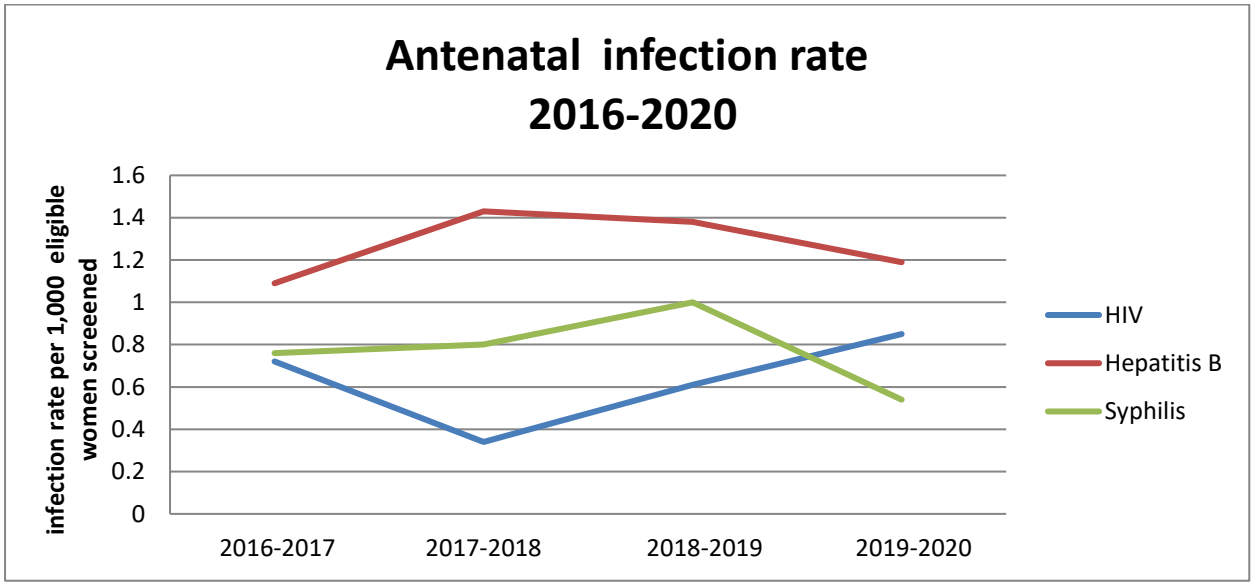

Figure 6 shows there has been slight fluctuations in the infection rates across all 3 infections in the last four years in Northern Ireland.

11.0 Conclusions

In Northern Ireland, pregnant women are offered screening for HIV, hepatitis B and syphilis infection, regardless of their previous history of infection, as well as testing for rubella susceptibility, early in pregnancy or as soon as possible after presenting to maternity services. Pathways are in place for women with positive screening results to reduce the risk of MTCT of HIV, hepatitis B and syphilis. Women who are susceptible to rubella are identified and offered MMR vaccination postnatally to protect future pregnancies, unless they can provide evidence of two previous MMR vaccinations.

This report provides evidence of a very high level of programme performance against some of the national standards, whilst highlighting areas for improvement in other standards.

For the reporting period 2018-2020 Northern Ireland has: -

Exceeded achievable (highest) levels in: -

- Standard 1- 3 for screening coverage for HIV, hepatitis B, syphilis and rubella.
- Standard 4 in 2019-2020 for TTT of all samples positive and negative
- Standard 4 in 2018-2019 for the TTT of confirmed screen positive HIV samples.
- Standard 5 in 2018-2019 for the review of women confirmed screen positive for HIV and hepatitis

- Standard 7 in both years 2018-2020 for the vaccination of the babies at birth

Reached the acceptable level in: -

- Standard 4 in 2018-2019 for the TTT for all samples positive and negative.
- Standard 4 in 2019-2020 for the TTT of confirmed screen positive HIV and hepatitis B samples.
- Standard 5 in 2018-2019 for review by hepatology of women confirmed screen positive for hepatitis B.
- Standard 6 in 2018-2019 for the review by hepatology within 6 weeks of women testing positive for hepatitis B.

Did not achieve an acceptable level in: -

- Standard 4 in 2018-2019 for the TTT of confirmed screen positive hepatitis B and syphilis samples.
- Standard 4 in 2019-2020 for the TTT of confirmed screen positive syphilis samples.
- Standard 5 in 2018/2019 for the 10-day review and referral of women testing positive for syphilis.
- Standard 6 in 2019-2020 - for the review by hepatology within 6 weeks of women testing positive for hepatitis B.

The RVL reported a 100% TTT within 8 working days for the late booking samples tested by them, in both years.

Standard 4 – Although the national standard only measures the TTT for all samples both positive and negative we have also looked at the TTT for confirmed positive samples and this has shown an improvement over the two years 2018-2020 for confirmed screen positive hepatitis B and syphilis samples. Although, there was a slight drop in the TTT for the confirmed screen positive HIV samples in 2019-20 and this equates to one sample not meeting the standard.

Standard 5 - the timely assessment of confirmed screen positive women by maternity services has shown an excellent improvement since 2017- 2018 when 80% of women testing positive for hepatitis B were seen within the 10 days, to 100% of women testing positive for hepatitis B being seen within 10 days in 2018-2020.

As the total numbers of confirmed screen positive cases are relatively low each individual case has a greater proportional impact on the collective performance against the standard, e.g. 21 women testing positive for syphilis out of 23 were followed up within 10 days in 2018-19 giving a rate of 91.3% which was below the

acceptable standard of 95 %. A review of these cases showed that all reasonable efforts were made to arrange an appointment within the 10 days.
Standard 6 – In 2018 -19 (86.67%) of women testing positive for hepatitis B who were newly diagnosed or previously known to have hepatitis B and had high levels of infectivity were reviewed by hepatology services within 6 weeks which meets the acceptable standard of 70%. Unfortunately, in 2019 - 2020 this decreased to 61.54% and did not meet the acceptable standard. This was mainly due to issues with availability of interpreters or women not attending appointments. The reasons for this need to be better understood to further improve the accessibility of the service for these women.

Although the proportion of women susceptible to rubella in 2018-19 and 2019-20 (21%) has not changed much since the last report in 2017/2018 when it was 20%, the uptake of the MMR vaccination postnatally has decreased from 73% in 2017/2018 to 66 - 68% in 2018/2020. Women have been encouraged to present evidence of previous MMR vaccinations; however related data from NIMATS does not suggest that this has had an impact on the reasons for women not taking the MMR postnatal prior to discharge. The main reasons given for not having an MMR before discharge are either deferral or refusal. Further information should be sought to understand the reasons why vaccinations are being deferred and/or declined.

12.0 Recommendations

12.1 Timely review of women who are confirmed screen positive for infection

A process of continuous audit should be in place to review cases where a woman falls outside the national standard for review within 10 working days of a confirmed screen positive result being received by maternity services. This can help to identify potential barriers, help efforts to improve service accessibility and ensure that all women are reviewed in a timely manner.

12.2 Timely assessment of women confirmed screen positive for hepatitis B

A process of continuous audit should be in place to review cases where a woman confirmed screen positive for hepatitis B, falls outside the national standard of review by hepatology within 6 weeks of the positive result being received by maternity services. Liaison with hepatology services and identifying potential barriers can help efforts to improve service accessibility and allow all women to be reviewed in a timely manner.

12.3 Test turnaround times

Where a positive result does not meet the TTT of 8 working days a review should take place to identify areas of potential delay, or if improvements could be made.

12.4 MMR vaccinations post-delivery

Reasons for deferral of the MMR vaccination at delivery should be investigated to see if improvements could be made on the uptake of the MMR vaccination prior to discharge for women identified as susceptible to rubella.

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