Northern Ireland Infectious Diseases in Pregnancy Screening programme annual report

April 2017-March 2018

HSC Public Health Agency

Document Title	Northern Ireland Infectious Diseases in Pregnancy Screening Programme Performance Report April 2017 – March 2018
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Approved by	Senior Management Team PHA (SMT) on 18th November 2020

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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 a type of talking therapy which can help people manage their problems by changing the way they think and behave. Its 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.
KPI	Key Performance Indicators (KPIs) are the critical (key) indicators of progress toward an intended result. KPIs provides a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most.
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.
PPV	Positive predictive value - the probability that women with a positive screening test truly have the disease.
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 results should be returned within 8 working days.
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 2017 – 31st March 2018

2.0 Executive summary

This Annual Report of the Northern Ireland Infectious Diseases in Pregnancy Screening (IDPS) programme provides an overview of performance in relation to the UK National Standards from 2016. The National Standards were revised in 2016 and formally indorsed by Northern Ireland in October 2018. Performance data in relation to the screening offer, uptake and positive/rubella susceptible results from 1st April 2017 to 31st March 2018 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 and syphilis infections and for rubella susceptibility.

In keeping with the National Institute for Health and Care Excellence (NICE) guidance,[1] the screening blood tests are routinely offered at the mother's pregnancy booking appointment, ideally by 10 weeks gestation, or at the earliest opportunity thereafter where the woman presents to maternity services. The objective of IDPS screening is to enable early identification of infections allowing early intervention and reduction of the risk of mother to child transmission (MTCT). Pregnant women identified as susceptible to rubella are offered two postnatal measles, mumps and rubella (MMR) vaccinations - to prevent rubella infection in future pregnancies.[2] The first one is offered prior to discharge from hospital and the second one at least 4-6 weeks later by her GP.

2.2 Headline results

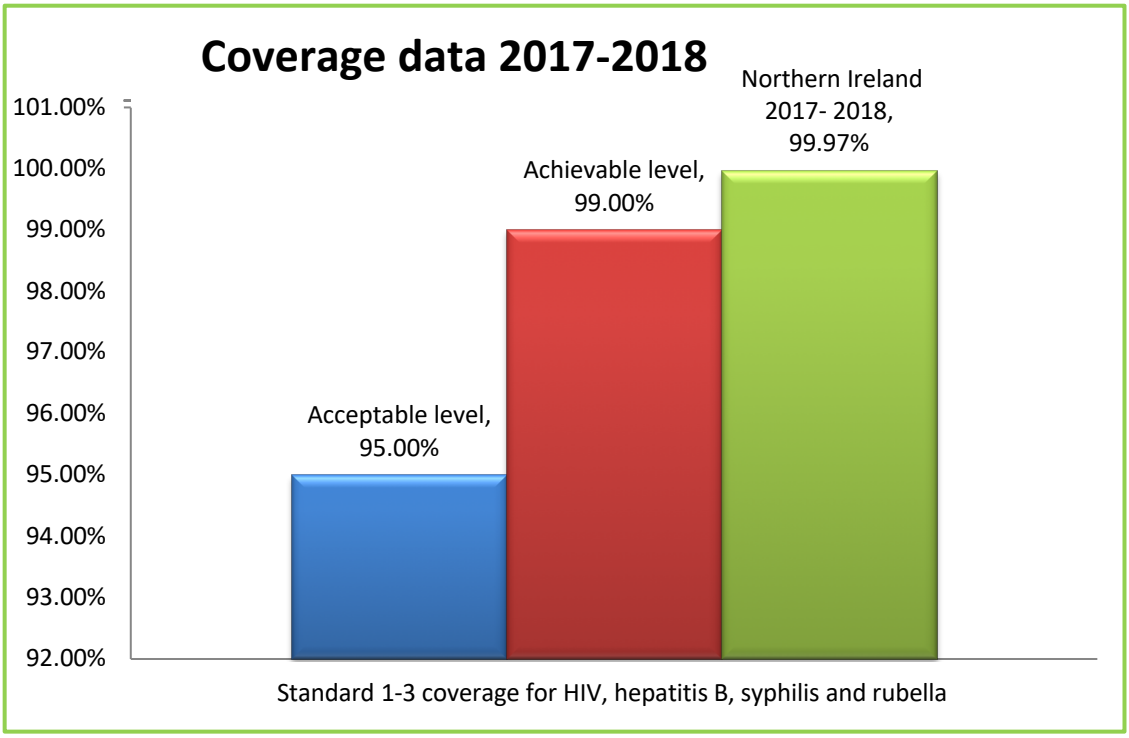
The agreed Key Performance indicators for the Northern Ireland IDPS for this reporting period are:-

[1] www.nice.org.uk/guidance/cg62/chapter/appendix-d-antenatal-appointments-schedule-and-content
[2] In 2016 screening for rubella susceptibility was discontinued in England, Scotland and Wales. However, this is currently being reviewed in Northern Ireland.

- Uptake of the screening tests for HIV, hepatitis B and syphilis.
- The proportion of pregnant women who are hepatitis B positive attending for specialist assessment within 6 weeks of the positive result being reported to maternity service.

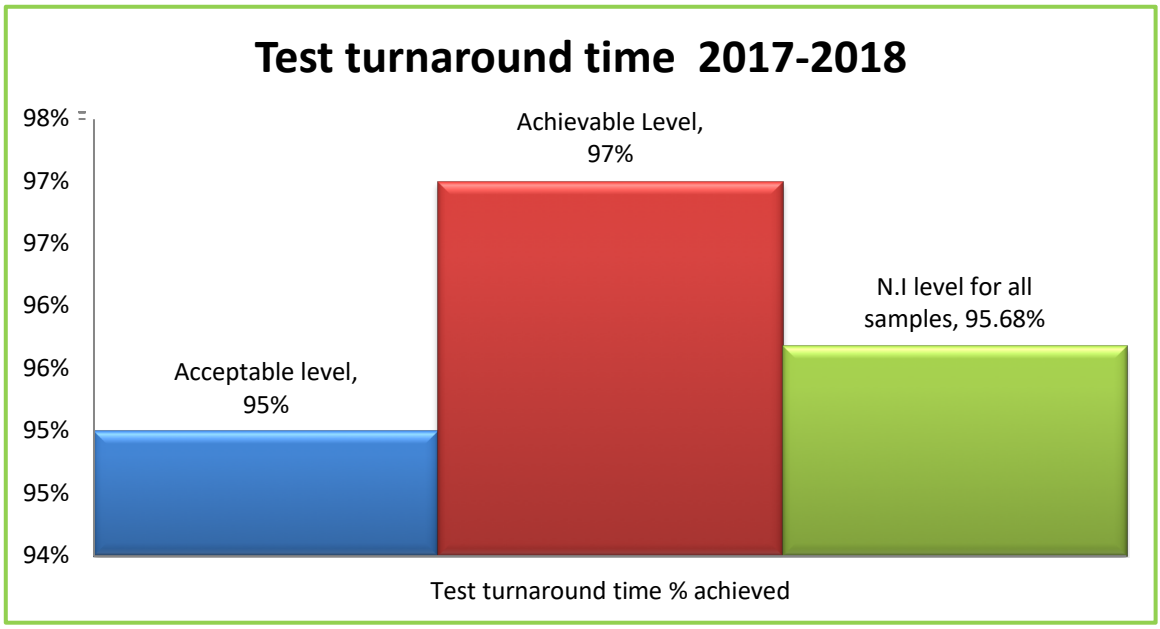
Performance of the Northern Ireland IDPS programme between 1st April 2017 and 31st March 2018 against National Standards is summarised below. Standards are measured against two levels, acceptable or achievable.

2.2.1 Standards 1-3: Identifying population and coverage



- 23,814/23,822 (99.97%) women identified as eligible for infectious diseases in pregnancy screening, consented to screening and had a screening result confirmed within the reporting period.
- This exceeded the coverage rates in England.
- 8 (0.03%) women declined screening.

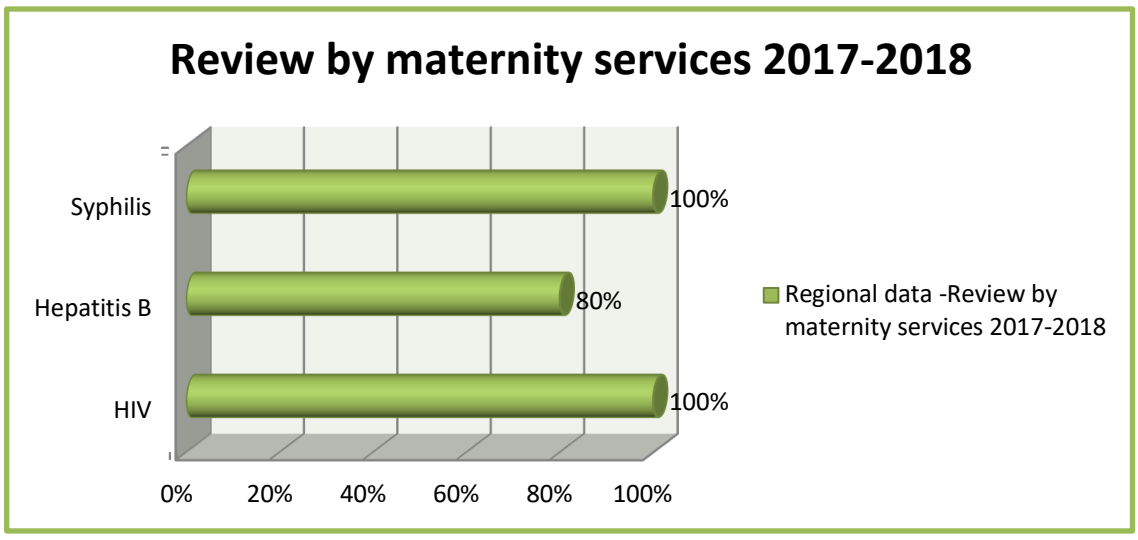
2.2.2 Standard 4: Test turnaround time (TTT)



All samples tested - both positive and negative

- 22,793/23,822 (95.68%) of all samples tested were reported within 3 working days of sample receipt. (The National Standard is within 8 days, but we are unable to provide data for an 8 working day turn around as the labs work to a 3 day turnaround standard.) This still met acceptable levels.

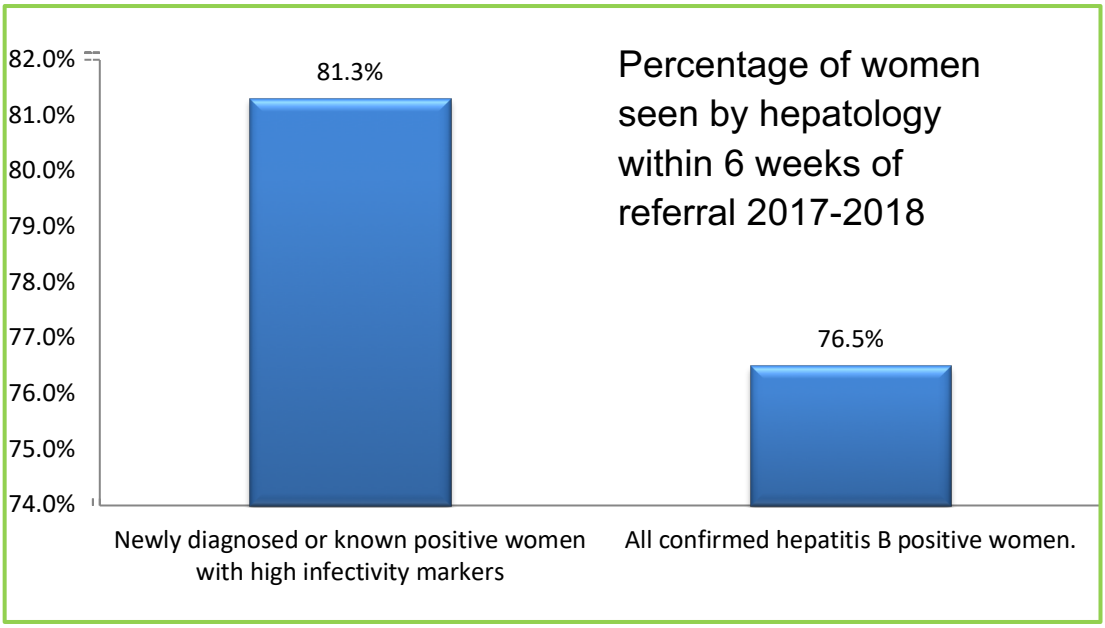
2.2.3 Standard 5: Time to intervention - Review by maternity services following receipt of a positive result



The numbers seen by maternity services within 10 working days of receipt of a positive result were as follows:

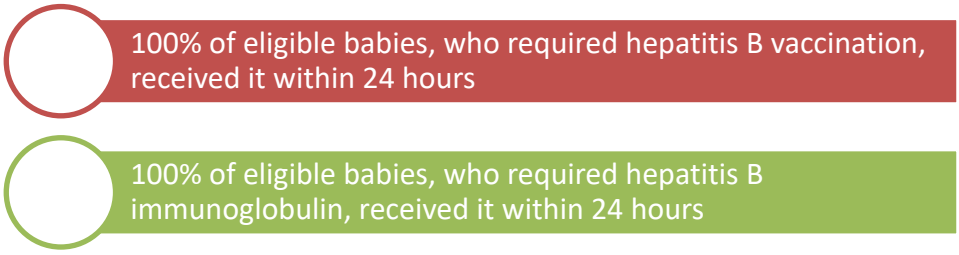
- HIV- 8/8 (100%)
- Hepatitis B - 27/34 (80%)
- Syphilis -19/19 (100%)
- Although the HIV and syphilis results are excellent the hepatitis B result is similar to England which reported only 78.2% of hepatitis B positive women being seen within the 10 working days.
- Of note no English region met the acceptable threshold for any of the infections.

2.2.4 Standard 6: Time to intervention - Review of women, who tested positive for hepatitis B, by hepatology services



This standard is reported in line with a previous local agreement, whereby women who tested positive for hepatitis B, should be reviewed within 6 weeks of the referral being received by hepatology. All women who have confirmed positive results for hepatitis B are referred to Hepatology even if previously known.
This is slightly different to the National Standard which measures the number of women attending for specialist treatment within 6 weeks of the positive result being reported to the maternity services and also only measures the number of newly diagnosed women or women with high infectivity markers.
For the purposes of this report, data is provided for all women who have confirmed positive results; and for women newly diagnosed in Northern Ireland or women with high infectivity markers. The acceptable level for this standard is 70%.

2.2.5 Standard 7: Immunisation of babies



2.3 Conclusions

This report provides evidence of a high level of programme performance at a regional level for 2017/2018.

It shows that we have exceeded achievable levels in most standards and also outperformed England in most standards. Several areas require some further enhancement in performance levels and recommendations have been made to achieve these.

3.0 Introduction

The Northern Ireland IDPS programme offers screening to all eligible pregnant women for human immunodeficiency virus (HIV), hepatitis B and syphilis infections and for susceptibility to rubella infection. This report provides an overview of the IDPS programme in Northern Ireland for the year from 1st April 2017 to 31st March 2018, including performance data in relation to National standards. Standards 1, 2, 3 and 6 are Key Performance Indicators (KPI) in Northern Ireland for the programme.

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]

[3] https://www.publichealth.hscni.net/sites/default/files/2019-06/ante%20natal%20blood%20screening%202019%20Final.pdf

- 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 hepatitis B positive mothers are vaccinated within 24 hours of birth and 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 < 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 were being delivered in the BHSCT. However, in cases where a woman has requested to deliver in her own Trust, this has been facilitated.

[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

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]

Screening in pregnancy aims to identify women who have hepatitis B infection and to provide effective interventions, including onward referral to a hepatologist and immunisation of the baby, to reduce the risks of perinatal transmission.

Treatment with antiviral drugs during pregnancy has also been shown to be effective in reducing the risk of MTCT in some women, depending on their hepatitis B e antigen marker (HBeAg) and viral load. In these cases the baby will require hepatitis B immunoglobulin (HBIG) as well as vaccination at birth.

All previous sexual partners, previous siblings and household contacts are also identified, if possible, and offered screening and / or immunisation to reduce the risk of hepatitis transmission to them.

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

For babies born up to 1st August 2017:- they should by one year of age have received four doses of monovalent hepatitis B vaccine (at birth, one, two and twelve months of age) and then receive a booster vaccine along with their pre-school vaccinations around three years and six months.

Babies born after the 1st August 2017 will fall under the selective immunisation programme for babies at risk of hepatitis B. They will continue to receive a vaccination at birth, one month and twelve months of age, but will also get the universal hepatitis B vaccination in the form of Hexavalent 6-1 vaccine at two months three months and four months of age. In total they will receive 6 hepatitis B vaccinations.

Some babies born to mothers with a higher infectivity may also require hepatitis B immunoglobulin at birth. All babies will have serology testing carried out at one year old to check for HBV infection.

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

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.

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

[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

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. 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.

The screening tests are processed by the Northern Ireland Blood Transfusion Service (NIBTS). If a sample is screen positive it is then transferred to the Regional Virology Laboratory (RVL) in BHSCT which provides confirmatory testing for HIV, hepatitis B, and syphilis infection. All screening samples taken at or after 20 weeks of pregnancy are managed in line with an agreed late booking protocol and tested by the RVL.

5.0 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.

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

5.2 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.

5.3 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 can be sent to these email addresses alerting the ANSC or their deputy of the positive result and the need for action to be taken. Rubella susceptibility is reported via a hard copy result being sent to the test request source area.

6.0 Programme developments

6.1 New appointments

Within this reporting year there have been many changes within the antenatal screening team:-

- On the 19th June 2017 Lorna Hawe took up the position of Regional Antenatal Infection Screening Programme Co-ordinator 3 days a week, but still maintained her position in the NHSCT as Antenatal Screening Co-ordinator for 2 days a week.
- Allison Wilson was appointed as Antenatal Screening Co-ordinator in the NHSCT 3 days a week.
- In March 2018 Nora O'Neill left her position as Antenatal Screening Co-ordinator in the SHSCT to take up a position in teaching with the Clinical Education Centre (CEC) and Kate Maxwell took up her position in the SHSCT as Antenatal Screening Co-ordinator.

We would like to acknowledge and thank Nora O'Neill for her dedication and commitment to the antenatal screening programme over many years and wish her good luck in her new career pathway.
We would also like to welcome Allison and Kate as new members to the team and look forward to working with them for many years ahead.

6.2 Key developments

The key developments within the IDPS programme during 2017- 2018 include:-

- The National UK standards were formally endorsed by Northern Ireland in October 2018.

- The regional syphilis guidelines were updated and published in March 2018.
- The universal hepatitis B vaccination for all babies was introduced for all babies born after August 2017.
- The neonatal selective immunisation programme continued for babies at risk of hepatitis B.

7.0 Data collection

Northern Ireland Maternity System (NIMATS) is in use across all maternity units in Northern Ireland. At the booking visit, once consent has been obtained and the screening tests taken, the tests are initiated on NIMATS. This allows results to be automatically downloaded from NIBTS to NIMATS as they become available. This information is then used to provide performance data.

Completed data are reported quarterly by the five Health and Social Care Trusts (HSCT) to the PHA for collation and analysis at both individual Trust and overall Northern Ireland levels.

7.1 Data Limitations

These data must be interpreted with caution due to a number of caveats. For example, several factors may affect the number of 'bookings' and the number of results recorded. These include:

- A woman may initially book for maternity care in one unit but transfer to another unit. Her NIMATS data will be transferred across to the second unit, along with her blood results. However, there is the potential that the blood results could be counted twice - in the initial booking unit and again in the unit she is transferred to.
- Work has progressed with NIMATS to reduce double counting by removing transfers in from other units from the quarterly reports so that they will only be counted in the Trust of booking. This should be reflected in future reports.
- A woman may transfer into Northern Ireland from elsewhere in the United Kingdom (UK) or from the Republic of Ireland (ROI) and may already have had her booking bloods taken. There is a variance across Trusts whether or not all her tested will be repeated or just the rubella test since rubella testing in the rest of the UK has ceased. Even if not repeated the results are usually still recorded on NIMATS, so will still be counted in the figures.
- Due to the fact that the late booking form was not coded the RVL had difficulty retrieving accurate data on test turnaround time for late booking samples.
- The late booking form is to be revised to include a code which will be recorded on the RVL system, making it easier to report more accurate data on late booking TTTs in the future.

7.2 Positive results

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

It should also be noted that a positive screening 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 tests < 20 weeks gestation are sent to NIBTS for testing and if the initial screen is positive the sample is sent to RVL for a confirmatory test. The reported data does not include false positive results (i.e. when the subsequent diagnostic test is negative). In the event of an initial screen positive result on the first testing assay which is not then confirmed as positive in the second confirmatory test, counselling and reassurance is given to the woman and a repeat test will be performed in a further 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.

Screening blood tests ≥20 weeks gestation will be sent directly to RVL using the late booking form and if initially screened positive they will do their own confirmatory testing.[12]

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

8.0 Programme standards and performance

Public Health England (PHE) published revised Infectious Diseases in Pregnancy Screening Programme Standards on the 30th March 2016; and the revised Handbook for Laboratories on the 25th July 2016. For the reporting period April 2017- March 2018 the March 2016 standards have been used to report against.

Table: 3 Northern Ireland performances against National IDPS programme standards April 2016 – March 2017 [13]

Northern Ireland Performance Against National Standards for Antenatal Infectious Disease Screening Programme, April 2016- March 2017				
	Standard		**Northern Ireland 2017-2018**	**England 2017-2018**
1	**Identifying population and coverage: HIV screening -** to provide assurance that screening is offered to all eligible women and each woman accepting screening has a confirmed screening result.	**Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%.	23814 / 23822 99.97%	99.6%
2	**Identifying population and coverage: hepatitis B screening** - To provide assurance that screening is offered to all eligible women and each woman accepting screening has a confirmed screening result.	**Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%.	23814 / 23822 99.97%	99.5%
3	**Identifying population and coverage: syphilis screening -**To provide assurance that screening is offered to all eligible women and each woman accepting screening has a confirmed screening result.	**Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%	23814 / 23822 99.97%	99.5%

13 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/529070/IDPS_Programme_Standards_2016_to_2017.pdf

	Standard		Northern Ireland 2017-2018	England 2017-2018
4	**Test: turnaround time (HIV, hepatitis B, syphilis) -**The proportion of antenatal screening samples for HIV, hepatitis B and syphilis where a result is available (confirmed positive or negative) and reported to maternity services **within 8 working days of sample receipt in the screening laboratory in line with the IDPS laboratory handbook. (NIBTS data is reported as a 3 day turnaround).**	**Acceptable level** ≥ 95.0% **Achievable level** ≥ 97.0%	**All samples positive and negative**:- 22,793/23,814 95.7% **Positive HIV samples** 7/8 (87.5%) **Positive Hepatitis B samples** 28/34 (82%) **Positive Syphilis samples** 16/19 (84%)	99.3%
5	**Time to intervention: timely assessment for screen positive and known positive women -**The proportion of pregnant women attending for specialist assessment within 10 working days of the positive result or known status being reported to maternity services. *Specialist assessment* is a face-to-face appointment with a member of the multidisciplinary team (for example ANSC/specialist midwife/clinical nurse specialist). The assessment as per local protocol will support and inform appropriate triage of women for clinical management by the medical team in pregnancy (for example a HIV physician, hepatologist, paediatric infectious diseases physician or consultant in genito-urinary medicine).	**Acceptable level** ≥ 95.0% **Achievable level** ≥ 99.0%	**HIV** 8/8 100% **Hep B** 27/34 80% **Syphilis** 19/19 100%	**HIV** 90.7% **Hep B** 78.2% **Syphilis** 79.5%

	Standard		Northern Ireland 2017-2018	England 2017-2018
6	**Time to intervention: timely assessment of women with hepatitis B -**The proportion of pregnant women who are hepatitis B positive attending for specialist assessment with a Hepatologist within 6 weeks of the referral being received by hepatology. (In line with previous local agreement).	**Acceptable level** ≥ 70.0% **Achievable level** ≥ 90.0%	New diagnosis and high infectivity women 13/16 81.3% All confirmed positive women 26/34 77%	84%
7	**Intervention and treatment: hepatitis B- timely neonatal hepatitis B vaccination and hepatitis B immunoglobulin (HBIG) -** The proportion of babies born in the reporting period to women with hepatitis B receiving first dose of vaccination +/- immunoglobulin within 24 hours of birth.	**Acceptable level** ≥ 97% **Achievable level** ≥ 99%	33/33 100% of eligible babies of mothers booked 2017-2018 received hepatitis B vaccination. 7/7 100% of eligible babies requiring HBIG received it.	98.9% 97.9%

9.0 Condition specific performance data

9.1 HIV performance data

9.1.1 HIV Coverage

- 23,814/23,822 (99.97%) eligible women were screened between 1st April 2017 and 31st March 2018.
- 8 women declined screening.
- There were 32 initial screened positive samples referred from NIBTS to RVL for confirmatory testing.

9.1.2 HIV Test turnaround time

- 22,793/23,814 (95.7%) of all samples both positive and negative were turned around within 8 working days meeting the National Standard.
- 30/32 (94%) of all the samples referred from NIBTS to RVL were turned around in 8 working days.
- 7/8 (88%) of HIV positive samples were turned around in 8 working days with the one sample not reaching the target being turned around in 10 working days.

9.1.3 HIV Time to intervention

- 8/8 (100%) of women who had tested HIV positive were reviewed by maternity services within the National Standard of 10 working days.
- Of the women who tested positive 75% were already known to HIV services.

9.2 Hepatitis B performance data

9.2.1 Hepatitis B Coverage

- 23,814/23,822 (99.97%) eligible women were screened for hepatitis B between 1st April 2017 and 31st March 2018.
- 8 women declined screening.
- There were 78 samples in total referred from NIBTS to RVL for confirmatory testing, following an initial screen positive for hepatitis B.
- There were 5 late booking samples testing positive in RVL.
- The total number of women testing positive for hepatitis B between 1st April 2017 and 31st March 2018 was 34. (1.42 per thousand women tested)
- Of these 34 women, 16 were those with new diagnoses to Northern Ireland or women with high infectivity markers.

9.2.2 Hepatitis B Test turnaround

- 22,793/23,814 (95.7%) of all samples both positive and negative were turned around within 8 working days meeting the National Standard.
- 69/78 (88.5%) of all samples referred from NIBTS to RVL for confirmatory testing were turned around within 8 working days.
- 23/29 (79.3%) of the confirmed positive samples were returned within 8 working days, with the remaining 6 being returned in 9 working days.

9.2.3 Hepatitis B Time to intervention

Review by maternity services:-

- 14/16 (87.5%) of women who had a new diagnosis to Northern Ireland or women with high infectivity markers were seen within 10 working days of result receipt.
- 27/34 (80%) of all women who had tested positive to hepatitis B were reviewed by maternity services within 10 working days of the result being received. The longest number of days to be seen was 27 days.
- 26/34 (77%) women who tested positive were previously known to hepatology services with only 8 new diagnoses.
- 100% of the women who had tested positive to HBeAg were previously known to hepatology services and some were already attending hepatology and on Tenofovir for a high viral load.

Review by hepatology services

Data this year will still reflect a previously agreed local standard that hepatology would see the women within 6 weeks of the referral being received by them. (The National Standard measures the number of women attending for specialist treatment within 6 weeks of the positive result being reported to the maternity services). The National Standard will be reported against in future reports.

All 34 women were referred to hepatology services.

- 13/16 (81.3%) of women newly diagnosed in Northern Ireland or women with high infectivity markers were seen by hepatology within 6 weeks of referral receipt.

- 26/34 (76.5%) of all women who were confirmed hepatitis B positive were seen within 6 weeks of the referral being received by hepatology, which is an increase from 63% last year. This is due to an improved referral process.

9.2.4 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.

- 33/33 (100%) eligible babies born to hepatitis B positive mothers who booked between 1st April 2017 and 31st March 2018 received a first dose of monovalent hepatitis B vaccine within 24 hours of birth.

- 7/7 (100%) of these babies requiring the hepatitis B immunoglobulin (HBIG) at birth received it within 24 hours.

- The introduction of the universal Hepatitis B vaccination programme for all babies born after 1st August 2017 means that there will be a combination of babies on both programmes during this reporting year.

9.2.5 Follow on vaccinations of babies after discharge

Babies born between 1st April 2017 and 31st July 2017

Babies at risk of hepatitis B born between the above dates will follow the previous vaccination schedule which was that by one year of age an infant should have received four doses of monovalent hepatitis B vaccine (at birth, one, two and twelve months of age). They then should receive a booster dose along with their pre-school vaccinations.

- There were 8 at risk babies born between 1st April 2017 and 31st July 2017.
  8/8 (100%) received 3 doses by 12 months.
  7/8 (87.5%) received 4 doses by 24 months.

- 7/8 (87.5%) were tested by 24 months and tested negative for hepatitis B .

Babies born after 1st August 2017

Babies at risk of hepatitis B born after the above date will receive 3 doses of monovalent hepatitis B vaccine (at birth, one month and at twelve months of age) and will also receive the Infanrix hexa vaccine at two months, three months and four months. (A total of six hepatitis B vaccinations).

- There were 17 at risk babies born between 1st August 2017 and 31st March 2018.
  17/17 (100%) received 3 doses by 12 months.
  16/16 (100%) of eligible babies received 4 doses by 24 months.
  11/16 (68.8%) of eligible babies were tested by 24 months and tested negative to hepatitis B .

Total babies born between 1st April 2017 and 31st March 2018

In total there were 25 babies born between 1st April 2017 and 31st March 2018. 25/25 (100%) received 3 doses by 12 months.
23/24 (95.8%) of eligible babies received 4 doses by 24 months.
18/24 (75.0%) of eligible babies were tested by 24 months and tested negative to hepatitis B.

9.3 Syphilis performance data

9.3.1 Syphilis Coverage

- 23,814/23,822 (99.97%) eligible women were screened for syphilis between 1st April 2017 and 31st March 2018.
- 8 women declined screening (0.034%).
- There were 47 samples in total which were referred to the RVL for confirmatory testing following an initial screen positive.

9.3.2 Syphilis -Test turnaround time

- 22,793/23,814 (95.7%) of all samples both positive and negative were turned around within 8 working days meeting the National Standard.
- 41/47 (87.2%) of all samples referred from NIBTS to RVL for confirmation were turned around in≤ 8 working days.
- 16/19 (84%) of the positive results had a turnaround time of 8 working days or less. Maximum turnaround was 15 days.

9.3.3 Syphilis - Time to intervention

- 18 out of 19 women required follow-up.
- 18/18(95%) of women requiring follow-up were seen by maternity services within 10 working days of the result received by maternity services

- 5/19 (29.4%) of the women who had tested positive women were previously known.

9.4 Rubella performance data

In April 2016 NIBTS awarded the contract for rubella testing to Abbotts Diagnostics. It has been assessed as suitable for use in diagnostic screening by the National Health Service Blood Transfusion (NHSBT) evaluation group and all National External Quality Assessment Services (NEQAS) exercises performed to date by NIBTS using the "new" assay have all been satisfactory with no errors.

The assay used by this company uses a different chemistry than previous testing assays and this correlates with an increase in the number of samples testing as rubella non-immune.

- 23,814/23,822 (99.97%) eligible women were screened for rubella susceptibility.
- 8 women declined screening (0.034%).
- 4650/23822 (20%) women tested susceptible to rubella (195.19 per thousand women tested).

Women testing susceptible to rubella are offered MMR vaccination postnatally before discharge from hospital and then a second MMR with their GP 4-6 weeks postnatally.

- 4,420/22,941(19%) of women delivered between 1st April 2017- 31st March tested susceptible to rubella.
- 3,206/4,420 (73%) of those testing susceptible to rubella received their first MMR vaccination prior to discharge from hospital.

An audit undertaken by the ANSCs showed that there were several maternal, neonatal and other related factors documented as to why MMR had not been given prior to discharge. These included deferral for vaccine to be given by GP, a history of 2 vaccines being given previously or previous immunity, maternal or neonatal illness, contraindication – such as anaphylaxis, decline and no availability of the vaccine/staff to prescribe.

10.0 Trends

10.1 Infection rates

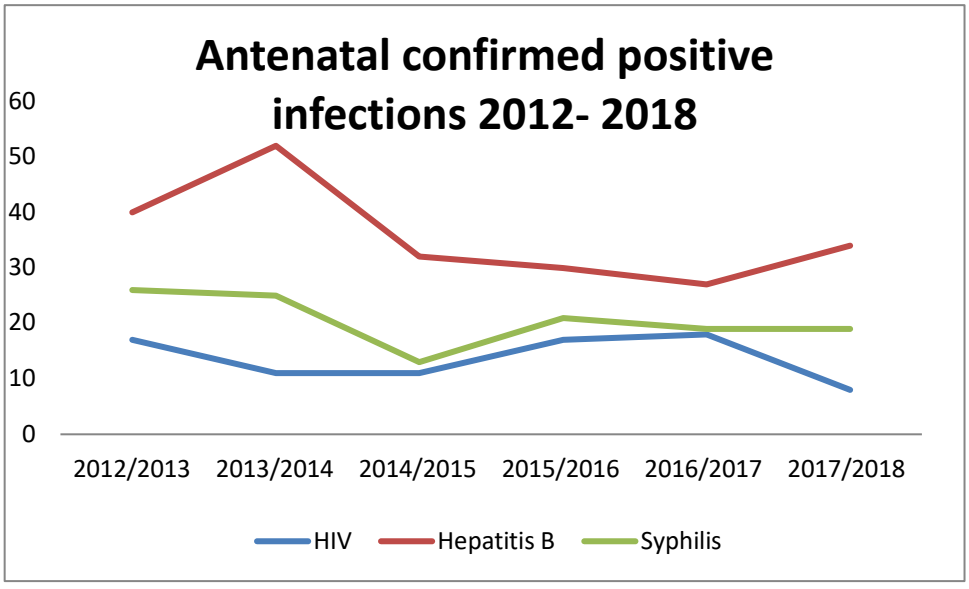
61 women tested positive for one of the three infections which equates to a rate of 2.54 per 1,000 women screened.

- HIV N.I - 8 (0.33 per thousand women tested).
- HIV England -1.36 per thousand women tested
- Hepatitis B N.I - 34 (1.42 per thousand women tested.)
- Hepatitis B England - 4.16 per thousand women tested.
- Syphilis N.I - 19 (0.79 per thousand women tested.)
- Syphilis England - 1.39 per thousand women tested.
- Rubella N.I susceptible - 4650 (195.19 per thousand women tested.)

All rates in N.Ireland for HIV, hepatitis B and syphilis are much lower than reported rates in England for the same time period.

10.2 Trends in Antenatal HIV, Hepatitis B and Syphilis infections

These figures include all confirmed positive cases both new and previously known.

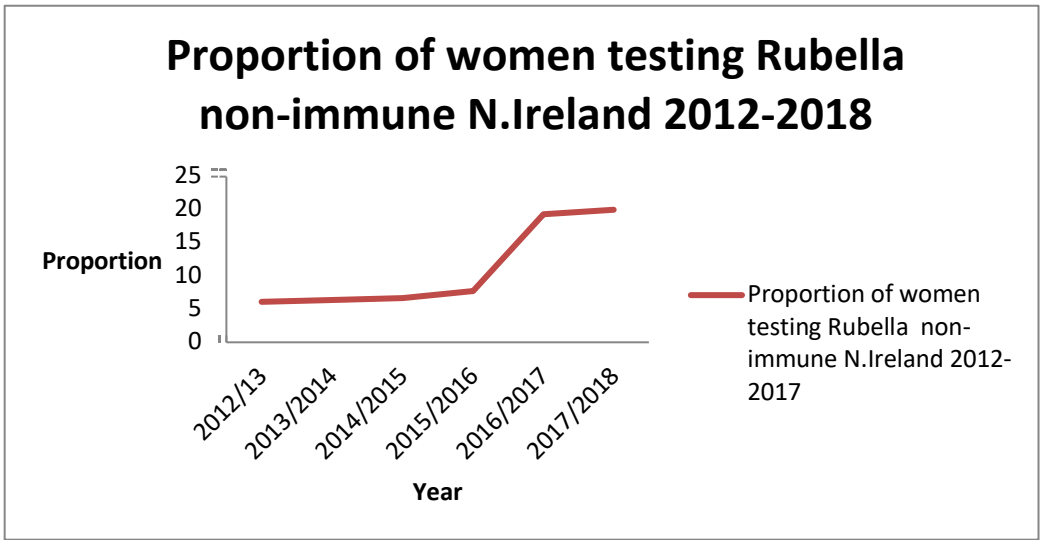


- HIV positive cases more than halved from 18 last year to 8 this year.
- Hepatitis B positive cases rose from 27 last year to 34 this year.

- Syphilis positive cases dropped by from 20 last year to 19 this year.

10.3 Trends in Rubella susceptibility

The number of women testing susceptible to rubella this year was 20% of all women tested which is similar to last year, where 19.3% of women screened, tested susceptible to rubella.



11.0 Conclusions and recommendations

11.1 Conclusions

In Northern Ireland, pregnant women are offered screening for HIV, hepatitis B and syphilis infection as well as screening 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 postnatal MMR vaccination to protect future pregnancies.
This report provides evidence of a high level of programme performance in relation to most of the national standards at a regional level for 2017/2018, whilst some areas for enhancement have been highlighted.

We have exceeded achievable (highest) levels in Standards 1-3, Standard 5 for HIV and syphilis and Standard 7. When compared with Public Health England's data for the same reporting period[14] we are actually performing better than England in most of the standards.

Standard 4 – although we met the National Standard for all samples, both positive and negative, the TTT for positive samples has shown a small decline since last

[14] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/870570/AntenatalScreeningStandardsDataReport201718v1.1.pdf

year. The differences are related to having small numbers of positive cases where even one sample over the time scale has a large effect on reported percentages.

Standard 5 – the timely assessment of screen positive women by maternity services for HIV and syphilis is 100%.The timely assessment of screen positive women has declined since last year in regard to hepatitis B. It does not meet the acceptable level, but is similar to that reported in England.

Standard 6 – the timely assessment by a specialist in hepatology has improved through local modification of processes. From this year on we should be able to report against the new criteria.

11.2 Recommendations

11.2.1 Hepatitis B

A system of continuous audit should be set up for the timely assessment of screen positive women with hepatitis B.

11.2.2 Rubella

A pilot should be set up to obtain information on the MMR vaccination history on women testing susceptible to rubella in order to inform how the programme is taken ahead.

11.2.3 Laboratories

Systems and processes in the laboratories should be reviewed to see if improvements could be made regarding the TTT for positive results to ensure the achievable standards are reached.

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