

**The Infectious Diseases in Pregnancy
Screening Programme**

Northern Ireland 2004-2008

Report of the Regional Antenatal Infection
Screening Group

March 2010

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Executive Summary

Background

1. The Northern Ireland Infectious Diseases in Pregnancy Screening (IDPS) Programme currently offers screening to women during pregnancy for syphilis, hepatitis B (HBV) and human immunodeficiency virus (HIV) infection and rubella non-immunity. The aim of the programme is to:
 - Prevent mother to child transmission of infection during pregnancy, at birth or after by breast feeding.
 - Prevent a rubella infection in future pregnancies.
2. This Report of the IDPS Programme in Northern Ireland, for 2004 to 2008, has been produced by the Regional Antenatal Infection Screening Group.
3. The Report provides an overview of each of the four infections, an analysis of the data collected for the first five years of programme monitoring and sets out both generic and infection specific developments that have improved the overall programme quality.
4. A number of generic programme developments in relation to data collection, failsafe systems and communication pathways have improved the quality, organisation and delivery of the programme across Northern Ireland. There have also been a number of additional infection specific developments within the programme which have improved infection outcomes.

Data Collection

5. Programme data on offer, uptake and outcome of screening is provided on a quarterly basis from each Trust and is forwarded to *Communicable Diseases Centre Northern Ireland* for collation.
6. Analysis of data for each of the infections screened for is based on the percentage of women offered screening, percentage uptake and percentage testing positive for HIV, HBV, syphilis or rubella non-immune.
7. The denominator used for data is number of women booked (used by three Trusts), and number of women delivered (used by two Trusts). The different denominators does not allow for meaningful comparison between all Trusts.
8. There are difficulties around interpreting the number of positive results due to women transferring between Trusts and there is no standard definition of a positive syphilis result for programme reporting. Other UK countries have acknowledged similar problems and work is ongoing with the National Screening Committee to address this.

Findings

9. For all four infections, across all Trusts the percentage of women offered screening in 2004 was over 90%, with a steady increase to over 98% in 2008. The uptake of testing has remained uniformly over 99% between 2004 and 2008. For all four infections there is no significant difference in the percentage offered and the percentage actually tested.

10. The number of bookings in the Northern, Southern and Western Health and Social Care Trusts (HSCT) have increased by 18% from 2004 (13,150) to 2008 (15,538). The number of deliveries in the Belfast and South Eastern HSCTs has increased by 13% from 2004 (9,921) to 2008 (11,198).
11. While the proportion of positive tests for HBV, syphilis and HIV remains low, this still indicates a significant burden of disease.

Recommendations

12. Data collection should be standardised across the five Trusts, using a common denominator thus allowing comparisons between Trusts.
13. The reporting of syphilis positive results should be standardised to comprise only those cases with active syphilis requiring treatment of the mother and/or baby.
14. Consideration should be given to using the Health & Care Number in order to minimise duplication of counting.
15. The uptake of the MMR vaccine after delivery in those women shown to be rubella non-immune should be audited.
16. The immunisation and outcome of children born to HBV positive mothers should be audited.
17. All babies born to HIV and syphilis positive mothers identified by the screening programme should be followed up to monitor the effectiveness of interventions and treatments provided.

1. INTRODUCTION

The Report of the Infectious Diseases in Pregnancy Screening (IDPS) Programme in Northern Ireland for 2004 to 2008 is produced by the Regional Antenatal Infection Screening Group. The Report aims to provide an overview of the IDPS Programme together with an analysis of the screening uptake and results of the programme from January 2004 to December 2008. Significant developments at Regional, now legacy Health and Social Care Board and Trust levels are highlighted throughout the Report. The objectives of this Report are to:

- Describe the current screening programme, its rationale and policy background.
- Describe how the programme is monitored.
- Detail the results of the programme 2004-2008.
- Describe recent significant programme developments at Regional, HSC Board and Trust level.
- Make recommendations for the continued development of the programme where appropriate.

The Report is structured in such a way as to address its objectives largely through a focus on each of the four infections.

The Regional Antenatal Infection Screening Group was originally set up in 1999 as the Regional Hepatitis B Antenatal Screening Group but broadened its remit in 2003 to include syphilis, rubella non-immunity and HIV antenatal screening when HIV infection was added into the infectious diseases in pregnancy screening programme. The remit of the Group is to:

- Oversee a regional programme of antenatal screening for hepatitis B (HBV), rubella non-immunity, syphilis, and HIV.
- Provide guidance to the health service on any new recommendations from the National Screening Committee on antenatal infections screening.
- Monitor the screening programme's uptake, standards and quality assurance.
- Identify any infection screening issues which require to be taken forward regionally.

Appendix A lists the members of the group.

2. BACKGROUND TO PROGRAMME

The Northern Ireland IDPS Programme currently offers screening to women during pregnancy for syphilis, hepatitis B and human immunodeficiency virus (HIV) infection and rubella non-immunity. The Report gives an outline of the Infectious Diseases in Pregnancy Screening Programme and includes a section on each infection.

2.1 *The aims of the screening programme*

- Prevent mother to child transmission of infection during pregnancy, at birth or after by breast feeding.
- Prevent a rubella infection in future pregnancies.

Screening for Hepatitis B, syphilis infections and rubella non-immunity has occurred in Northern Ireland for many years, and has been underpinned more recently by policy statements (Box A). HIV infection screening has been in place since April 2003. A Regional Antenatal and Newborn Screening Co-ordinator was appointed in April 2005 with a remit to develop and support the provision of high quality screening practice throughout Northern Ireland that meet the national standards.

2.2 *Overview of Policy*

Box A: Summary of policy background to the Northern Ireland Antenatal Infections Screening Programme

Policy Circular	Information / Action Required
Screening of Pregnant Women for Hepatitis B and Immunisation of Babies at Risk HSS(MD)17/98	Standards for delivery and monitoring of the Hep B screening programme
CMO Update No18 March 2001	National Screening Committee recommends continuation of routine antenatal syphilis screening
Increased transmission of infectious syphilis in Northern Ireland HSS(MD)24/01	Continue to offer and recommend antenatal syphilis screening in pregnancy
Infection Screening for Pregnant Women and Reduction of Mother to Baby Transmission HSS(MD)11/02	Formalised the arrangements for antenatal screening for Hep B, syphilis and rubella Implementation of HIV screening by April 2003 Set targets for the HIV programme: <ul style="list-style-type: none"> • 100% of pregnant women offered an antenatal HIV test by April 2004 • An initial uptake of antenatal HIV testing to a minimum of 50% by April 2004

	<ul style="list-style-type: none"> • An uptake of antenatal HIV testing of 90% by April 2005
Arrangements for antenatal infection screening in Northern Ireland HSS (MD) 26/2002	Further information on antenatal infections screening <ul style="list-style-type: none"> • Provision of information for women and obtaining consent • Specialist management of pregnant women with HIV infection • Monitoring uptake of HIV, hepatitis B, syphilis and rubella • Interim quality standards • Underwriting life insurance for HIV/AIDS
CMO Update No 23 December 2002	Prevention of congenital syphilis – the importance of antenatal syphilis screening in pregnancy
Screening for Infectious Diseases in Pregnancy. Standards to Support the UK Antenatal Screening Programme. DH August 2003	Generic and disease-specific standards for antenatal screening for rubella, syphilis, HIV and hepatitis B
Screening for infectious diseases in pregnancy: Standards to support the UK antenatal screening programme HSS(MD) 13/2008	Attention to <ul style="list-style-type: none"> • Regional audit of antenatal infections screening programme: report and recommendations • UK standards for the antenatal infections screening programme • NICE antenatal and postnatal care guidelines in relation to booking by 14 weeks gestation and offer of MMR vaccination for rubella non-immune women post delivery and prior to hospital discharge

3. PROGRAMME DEVELOPMENTS

Since April 2003 there have been significant developments in the programme in relation to data collection, failsafe systems and communication pathways which have improved the quality, organisation and delivery of the programme across the region (Box B).

Box B: Programme Developments

- The work of the Regional Antenatal Infection Screening Group has led to improved communication between all health professionals and service areas involved in the provision and maintenance of the programme.
- The appointment of a regional antenatal and newborn screening coordinator to oversee the programme.
- Collaborative working between the Directorate of Information Systems and Maternity Units on the Northern Ireland Maternity Information System (NIMATS) has led to IT developments which have improved the data collection for monitoring and performance management and enhanced the failsafe systems for quality assurance of the programme.
- The appointment of local antenatal screening coordinators to oversee the programme in all but one Trust.
- The use of one report form and one blood sample to screen for HIV, hepatitis B and rubella instead of the two previously used.
- The development of maternity unit IT links with Northern Ireland Blood Transfusion Service (NIBTS) and training of staff to allow remote access to results.
- Agreed communication pathways between maternity units and the laboratories involved in the programme for the reporting of screen positive results.
- The inclusion of both generic antenatal screening and specific infection screening into the curriculum for all midwifery students at Queens University Belfast.
- Development of a specific antenatal and newborn screening module offered at levels 3 and 4 for postgraduate nursing/midwifery students at Queens University Belfast, commencing in 2009.
- The provision of antenatal screening study days by the Beeches Management Consultancy for post graduate midwives.
- The development of laboratory late booking form and late booking protocol for units to ensure the appropriate and timely management of women accessing maternity services at a late stage of pregnancy.

The merger of Trusts as part of the Review of Public Administration has resulted in greater uniformity of programme management.

An audit of Antenatal Infection Screening against the Screening for Infectious Diseases in Pregnancy: Standards to Support the UK Antenatal Screening Programme (DH August 2003) was undertaken in 2005. All Maternity services and laboratories involved in antenatal infection screening completed a questionnaire. The

audit report stated that while the overall screening programme was meeting its primary function in safeguarding against the acquisition of serious perinatal infection further quality assurance measures were recommended. The Regional Audit of Antenatal Screening Programme: Report and Recommendations (HSS (MD) 13/08) was published in 2007 and made 33 recommendations. The Report can be accessed via www.gain-ni.org/Audit/audit.pdf.

Additional infection specific developments within the programme are included with each of the infections reported on.

4. SURVEILLANCE METHODOLOGY

4.1 Data Flows

Antenatal screening data (Box C) for the preceding quarter are provided by Trusts to the legacy Board co-ordinator and also forwarded to Communicable Disease Surveillance Centre (CDSC) (NI) who collate and analyse the data by Trust, legacy Health Board and for Northern Ireland as a whole. This analysis is fed back to the Regional Antenatal Infections Screening group annually.

Box C: Screening data collected by CDSC (NI)

- (i) Total number of antenatal bookings per quarter for each maternity unit in the Northern Health and Social care Trust (NHSCT), Southern Health and Social Care Trust (SHSCT) and Western Health and Social Care Trust (WHSCT).
- (ii) Total number of births (live and still) per quarter for each maternity unit in the Belfast Health and Social Care Trust (BHSCT) and South Eastern Health and Social Care Trust (SEHSCT).
- (iii) Number of women offered testing.
- (iv) Number of women declining testing.
- (v) Total number of women tested.
- (vi) Number of positive results for hepatitis B surface antigen, HIV and syphilis, and the number of rubella antibody negative tests.

There are 10 maternity units in Northern Ireland, all of which report to their respective legacy Board co-ordinator. Seven units use the Northern Ireland Maternity System (NIMATS) IT programme with the remainder using other electronic or paper registers.

Analysis of data for each of the infections screened for is based on the following parameters, collected for each quarter:

Percentage offered screening

- Numbers of women offered the test/ Numbers of women booked for care (or delivered) * 100

Percentage uptake

- Numbers tested/ Numbers offered * 100

Percentage HIV, Syphilis, Hepatitis B positive

- Number tests positive/ Number tests performed * 100

Percentage Rubella non-immune

- Number tests non-immune/ Number tests performed * 100

4.2 Limitations of data

The main difficulty in interpreting the monitoring data has been around the denominator used.

- ❖ The number of women booking for antenatal care is difficult to define and subject to variation across Trusts. For example:
 - Women may initially book in one unit but transfer to another unit where they will re book but not have their screening bloods redone.
 - Some women book but on receiving a scan to confirm pregnancy are diagnosed to have miscarried and are therefore not offered screening tests.
 - Some women attend units in labour, have screening bloods completed but are never booked within that unit.
 - Some women can be booked in one quarter and have their screening bloods taken in another quarter or indeed have bloods taken in one quarter and have their results within another quarter.
- ❖ The different approach used by the SEHSCT and BHSCT compared with other HSC Trusts does not allow meaningful comparison between Trusts.

There are also difficulties around interpretation of positive results:

- An individual may contribute to a positive result at more than one reporting unit, if transfer of care has taken place.
- There is no standard definition of a positive syphilis result for programme reporting.

The problems in interpretation and definition are recognised UK wide and being considered nationally.

4.3 Developments in methodology

During 2006, a questionnaire survey of Trusts showed variation in the definition of booking used, and the comparability of the numerator and denominator. While greater awareness of the data collection process has led to improvements in the data reporting for Trusts, the problem of booking definition remains.

As a result of the difficulty in defining what constitutes a booking, the BHSCT and SEHSCT piloted the collection of data based on births (live and still) at units in their Trust areas. Data for these Trusts presented in this Report are based on this approach. While this has the advantage of providing an accurate and reproducible denominator definition, it will not measure performance against total bookings for care as originally envisaged and will not capture positive/non-immune results for

booked pregnancies which miscarry. Other UK countries have acknowledged similar problems and work is ongoing within the National Screening Committee to address this.

5. SURVEILLANCE RESULTS

Key data summary points:

1. For all four infections, across all Trusts the percentage of women offered screening (number offered/number booked x 100%, SHSCT, NHSCT and WHSCT; and number offered/number delivered x100%, SEHSCT and BHSCT) has remained over 90% since 2004 steadily increasing to over 98% being offered in 2008.
2. The uptake of the screening test (number tested/number offered x100%) has remained uniformly over 99% between 2004 and 2008.
3. The number of bookings in the NHSCT, SHSCT and WHSCT have increased by 18% from 2004 (13,150) to 2008 (15,538).
4. The number of deliveries in the BHSCT and SEHSCT has increased by 13% from 2004 (9,921) to 2008 (11,198).
5. For all four infections there is no significant difference in the percentage offered and the percentage actually tested.
6. While the proportion of positive tests for hepatitis B, syphilis and HIV remains low, this still indicates a significant burden of disease.

Each infection-specific section is structured to provide, where appropriate, background epidemiology, clinical features, aims of screening, potential for intervention, any policy standards, results of programme, developments to the programme and recommendations for future action. More detailed statistics are available at Appendix B.

5.1 Rubella

Background

Rubella is generally a mild disease caused by a togavirus. However, it is serious for pregnant women, as rubella infection in pregnancy can result in fetal loss or in congenital rubella syndrome (CRS). CRS presents with one or more of the following:

- Cataracts and other eye defects
- Deafness
- Cardiac abnormalities
- Microcephaly
- Intra-uterine growth retardation

- Inflammatory lesions of brain, liver, lungs and bone marrow.

Infection in the first eight to ten weeks of pregnancy results in damage in up to 90% of surviving infants with multiple defects common. The risk of damage declines to 10-20% with infection occurring between 11 and 16 weeks gestation. Fetal damage is rare with infection after 16 weeks of pregnancy, with only deafness being reported following infections up to 20 weeks. Some infected infants may appear normal at birth but perceptive deafness may be detected later.

Rubella immunisation for schoolgirls was introduced in the UK in 1970 to prevent rubella infection in pregnancy. Universal immunisation against rubella using MMR vaccine was introduced in 1988. In October 1996, a two-dose MMR schedule was introduced. A single dose of a rubella-containing vaccine confers around 95-100% protection. All identified rubella non-immune women should be offered immunisation following delivery.

On average over the past 5 years, 31 cases of rubella have been notified annually in Northern Ireland. However, there have been no laboratory confirmed cases since 2006.

Aims of screening

Screening maternal blood for rubella non-immunity has occurred in Northern Ireland since the 1970s and allows identification of those women who are non-immune to rubella. They can then be offered vaccination with MMR after delivery, to prevent infection in future pregnancies. As it is a live vaccine, MMR is contraindicated during pregnancy.

Policy

Continued screening for rubella non-immunity in pregnancy is supported by the UK National Screening Committee (NSC). The continuation of the screening programme in Northern Ireland was endorsed in HSS (MD) 11/02 *Infection Screening for Pregnant Women and Reduction of Mother to Baby Transmission*.

Results

Update of screening in 2008:

In the NHSCT, SHSCT and WHSCT:

The percentage of bookings offered screening ranged from 98.4% - 100% among the Trusts, and from 96.8% - 100% among the individual reporting units.

The proportion of tests shown to be non-immune ranged from 0.39% - 3.07% among the individual reporting units.

In the BHSCT and SEHSCT:

98.7% and 98.8% of deliveries had been offered the screening test.

The proportion of tests shown to be non-immune ranged from 2.06% - 4.42% among the individual reporting units.

Trends:

The proportion of non-immune tests has declined since 2004. This is likely to be explained by a change in how non-immunity is classified; namely that the threshold for rubella susceptibility changed from <15iu/ml to <10iu/ml.

Table 1: Percentage offered [offered/booked (NHSCT, SHSCT and WHSCT) and offered/delivered (BHSCT and SEHSCT)] and by calendar year

	2004	2005	2006	2007	2008
NHSCT	97.9%	99.1%	98.7%	99.3%	98.4%
SHSCT	91.3%	96.1%	98.6%	98.2%	99.7%
WHSCT	100%	100%	100%	100%	100%
BHSCT	85.7%	88.0%	92.7%	91.4%	98.7%
SEHSCT	87.6%	90.7%	93.8%	92.8%	98.8%

Table 2: Percentage Uptake [tested/offered] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	99.6%	99.3%	99.8%	99.9%	100%
SHSCT	99.7%	99.7%	99.8%	99.9%	100%
WHSCT	99.9%	99.9%	100%	100%	99.9%
BHSCT	99.3%	99.1%	98.9%	98.6%	99.8%
SEHSCT	99.6%	99.8%	99.8%	99.4%	100%

Table 3: Percentage Non-immune [non-immune /tested] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	5.1%	1.9%	1.6%	1.7%	2.8%
SHSCT	4.2%	1.7%	1.1%	1.4%	0.9%
WHSCT	4.0%	1.5%	1.8%	2.1%	2.6%
BHSCT	5.1%	4.2%	2.6%	3.0%	4.3%
SEHSCT	3.9%	2.9%	1.7%	2.0%	2.2%

Developments

Post partum vaccination of rubella non-immune women has transferred from community provision to hospital provision. All women are now offered vaccination prior to discharge or within a week of delivery if the woman has had a home birth. This was recommended by the NICE Guideline: Routine Postnatal Care of Women and Their Babies. CG 37; 2006, and the Regional Audit of Antenatal Screening Programme: Report and Recommendations, 2007.

5.2 Syphilis

Background

Syphilis infection in a pregnant woman can result in miscarriage, stillbirth or a congenitally infected baby. The organism can cross the placenta and directly infect the fetus.

Vertical transmission rates vary depending on the stage of syphilis infection in the mother. In pregnant women with untreated early syphilis 70-100% of infants will be infected with stillbirth occurring in up to one third of cases. Infection in pregnancy can cause intrauterine growth retardation, stillbirth, hydrops fetalis or premature delivery. Babies born with congenital syphilis can have early manifestation of the disease (within first 2 years of life) or late manifestation (after 2 years of life) including stigmata of congenital syphilis.

In common with other regions in the UK, there has been an increase in syphilis diagnoses made at Northern Ireland GUM clinics in the past 8 years.

Aims of screening

Screening in pregnancy is to identify women with a syphilis infection and offer treatment which will reduce the risks of fetal loss or the baby acquiring congenital infection. Earlier identification and treatment will also improve the woman's health.

Policy

Screening for syphilis in the antenatal period has been ongoing in Northern Ireland since the 1970s. The Chief Medical Officer (CMO) Update No 18, March 2001 and Health and Social Services circulars HSS (MD) 24/01 and HSS (MD) 11/02 (Box A) reiterated the need for continuation of the antenatal screening programme. In 2006 the NSC recommended that although rare the increase of syphilis infection within the UK merited the continuation of the antenatal screening programme.

Results

Update of screening in 2008:

In NHSCT, SHSCT and WHSCT:

The percentage of bookings offered screening ranged from 98.4% - 100% among the Trusts, and from 96.8% - 100% among the individual reporting units.

The proportion of tests shown to be positive ranged from 0% - 0.42% among the individual reporting units.

In BHSCT and SEHSCT:

98.6% and 98.8% of deliveries had been offered the screening test.

The proportion of positive tests in those delivered ranged from 0% - 0.33% among the individual reporting units.

Trends:

There is no discernable trend in the number of positive tests over time.

Table 4: Percentage offered [offered/booked (NHSCT, SHSCT and WHSCT) and offered/delivered (BHSCT and SEHSCT)] and by calendar year

	2004	2005	2006	2007	2008
NHSCT	97.9%	99.1%	98.7%	99.3%	98.4%
SHSCT	91.3%	96.2%	98.6%	98.0%	99.7%
WHSCT	100%	100%	100%	100%	100%
BHSCT	85.9%	88.1%	92.8%	91.8%	98.6%
SEHSCT	87.7%	90.7%	93.7%	92.7%	98.8%

Table 5: Percentage Uptake [tested/offered] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	99.5%	99.3%	99.8%	99.8%	99.8%
SHSCT	99.4%	99.4%	99.7%	99.9%	99.9%
WHSCT	99.6%	99.8%	99.8%	99.9%	100%

BHSCT	99.1%	99.1%	98.8%	98.5%	99.7%
SEHSCT	99.4%	99.4%	99.7%	99.2%	99.9%

Table 6: Percentage positive [positive/tested] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	0.0%	0.0%	0.0%	0.0%	0.1%
SHSCT	0.2%	0.1%	0.1%	0.2%	0.3%
WHSCT	0.0%	0.0%	0.0%	0.0%	0.1%
BHSCT*	0.0%-0.3%	0.0%-0.1%	0.0%-0.0%	0.0%-0.02%	0.0%-0.1%
SEHSCT*	0.0%-0.1%	0.0%-0.2%	0.0%-0.3%	0.0%-0.2%	0.0%-0.2%

*Where more than one type of syphilis test is used the positivity range is given for both tests.

Developments

In 2006 the Regional Antenatal Infections Screening Group set up a subgroup to develop guidance for maternity services in the management of syphilis positive women and their babies. Guidelines for the Management of Syphilis Positive Pregnant Women and their Infants was published in 2007 (HSS (MD) 29/2007). These guidelines cover the identification of syphilis positive women through the antenatal screening programme, the care and management of women and their babies, and the follow up post delivery.

5.3 HIV

Background

HIV infection can be transmitted from infected mothers to their babies during pregnancy, at the time of birth or by breast feeding. Without any treatment HIV infection in children results in chronic disease and about 20% of HIV infected children develop AIDS or die in the first year of life. By the age of 6 years, about 25% of HIV positive children will have died and most of those surviving will have had some illness because of their infection. The long term outcome is unknown, but all children with HIV will benefit from early life prolonging treatment.

If diagnosed early, the risk of mother to baby transmission of HIV can be reduced from 25-40% to less than 2%. Interventions that can reduce mother to baby transmission are:

- Use of antiretroviral drugs in mother and baby.
- Delivery by caesarean section.
- Abstaining from breastfeeding.

The annual number of first-UK diagnoses of HIV made in Northern Ireland has been increasing from 1999 and more than doubled between 2003 and 2004. There is evidence of an increasing proportion of diagnoses being made in heterosexuals. Cumulative data show around 70% of diagnoses acquired heterosexually were

acquired outside the UK. Of those acquired within the UK, around half have been acquired through exposure to partners themselves exposed abroad.

Aims of screening

Screening in pregnancy aims to identify HIV infected mothers and, with early treatment and appropriate care, to reduce the risk of mother to infant transmission to less than 2%.

Policy

Routine antenatal screening for HIV was introduced into Northern Ireland in 2003 [HSS (MD) 11/02 (Box A)] and uptake targets were set:

- 100% of pregnant women being offered an antenatal HIV test by April 2004.
- An initial uptake of antenatal HIV testing to a minimum of 50% by April 2004.
- An uptake of antenatal HIV testing of 90% by April 2005.

HSS Boards and Trusts were required to have arrangements in place for women identified as HIV positive to be referred to a genito-urinary specialist and consultant obstetrician with relevant expertise and for the woman to be offered appropriate treatment and care to reduce to a minimum the risk of mother to child transmission.

Results

Update of screening in 2008:

In NHSCT, SHSCT and WHSCT:

The percentage of bookings offered screening ranged from 98.4% - 100% among the Trusts, and from 96.8% - 100% among the individual reporting units.

The proportion of tests shown to be positive ranged from 0% - 0.12% among the individual reporting units.

In BHSCT and SEHSCT:

98.6% and 98.8% of deliveries had been offered the screening test.

The proportion of positive tests in those delivered ranged from 0% - 0.15% among the individual reporting units.

Trends:

The proportion of tests shown to be positive remains at low levels with no obvious trend since 2004.

The majority of pregnancies and deliveries of HIV-infected women in Northern Ireland are managed in the regional centre at the Royal Jubilee Maternity Hospital. The proportion of deliveries shown to be positive for HIV, therefore, may reflect the policy of largely centralised care, rather than increased prevalence in the BHSCT.

Table 7: Percentage offered rates [offered/booked (NHSCT, SHSCT and WHSCT) and offered/delivered (BHSCT and SEHSCT)] and by calendar year

	2004	2005	2006	2007	2008
NHSCT	97.9%	99.1%	98.7%	99.3%	98.4%
SHSCT	91.1%	96.1%	98.5%	98.2%	99.7%
WHSCT	100%	100%	100%	100%	100%
BHSCT	85.2%	87.9%	92.3%	91.2%	98.6%
SEHSCT	87.7%	90.7%	93.8%	92.8%	98.8%

Table 8: Percentage Uptake rates [tested/offered] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	98.8%	98.7%	99.6%	99.8%	99.8%
SHSCT	98.9%	98.8%	99.1%	99.9%	99.8%
WHSCT	99.0%	99.6%	99.6%	99.9%	99.9%
BHSCT	98.3%	98.9%	98.7%	98.7%	99.8%
SEHSCT	99.2%	99.2%	99.7%	99.2%	99.8%

Table 9: Percentage Positive rates [positive/tested] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	0.0%	0.0%	0.02%	0.0%	0.02%
SHSCT	0.0%	0.0%	0.0%	0.03%	0.1%
WHSCT	0.0%	0.0%	0.03%	0.0%	0.0%
BHSCT	0.1%	0.1%	0.1%	0.1%	0.1%
SEHSCT	0.0%	0.0%	0.0%	0.0%	0.02%

Developments

The publication of the Northern Ireland Guidelines for the Antenatal, Intrapartum and Postnatal Care of HIV Positive Women and Management of the HIV-Exposed Infant (HSS (MD) 24/2006) sets out the management and care for pregnant women and their infants.

A protocol for the management of antenatal screening HIV results was issued to the service in October 2006. It sets out the responsibilities and actions required of each clinical area involved in the antenatal HIV screening process.

The 2007 Regional Audit of HIV Diagnosis and Management in Northern Ireland audited the management and care of pregnant HIV positive women and their infants. It found in general women were managed according to the recommended guidelines and made some recommendations for the improvement of care.

All pregnant women living in Northern Ireland and diagnosed during their pregnancy, all infants born to HIV infected women, and all children with HIV infection (including those who were born abroad and came to Northern Ireland later) are reported to the

National Study of HIV in Pregnancy and Childhood (NSHPC) which is the confidential national (UK and Ireland) active reporting scheme www.nshpc.ucl.ac.uk

5.4 Hepatitis B

Background

Hepatitis B infection can be transmitted from infected mothers to their babies at or around the time of birth (perinatal transmission). Babies acquiring infection at this time have a high risk of becoming chronic carriers of the virus. Such carriers as well as being infectious to others are at increased risk of developing chronic liver disease and some will die prematurely from cirrhosis or hepatocellular carcinoma. The development of the carrier state after perinatal transmission can be prevented in around 90-95% of cases by appropriate immunisation, commencing at birth, of all infants born to infected mothers.

Aims of screening

Screening in pregnancy is to identify women with a hepatitis B infection and provide immunisation for the baby which will reduce the risks of perinatal transmission. All household and sexual contacts should be identified and offered immunisation to reduce the risk of hepatitis B infection.

Policy

HSS (MD) 17/98: Screening of Pregnant Women for Hepatitis B and Immunisation of Babies at Risk outlined the following requirements for the hepatitis B screening programme:

- There should be a HPSS (legacy) Board co-ordinator.
- Tests should be carried out in accredited laboratories.
- Measures should be in place to detect mothers later in pregnancy or even at the time of delivery.
- The immunisation of babies at birth and the delivery of a complete course of immunisation.
- All babies should be followed up and other household members should be immunised.
- There should be follow up and referral of infected mothers to hepatology/gastroenterology.
- There should be local performance monitoring and audit of the programme.

Results

Update of screening in 2008:

In NHSCT, SHSSCT and WHSSCT:

The percentage of bookings offered screening ranged from 98.4% - 100% among the Trusts, and from 96.8% - 100% among the individual reporting units.

The proportion of tests shown to be positive ranged from 0% - 0.19% among

the individual reporting units.

In BHSCT and SEHSCT:

98.7% and 98.8% of deliveries had been offered the screening test.

The proportion of tests shown to be positive ranged from 0% - 0.3% among the individual reporting units.

Trends:

The proportion of positive tests has declined since 2004.

Table 10: Percentage offered rates [offered/booked (NHSCT, SHSCT and WHSCT) and offered/delivered (BHSCT and SEHSCT) and by calendar year

	2004	2005	2006	2007	2008
NHSCT	97.9%	99.1%	98.7%	99.3%	98.4%
SHSCT	91.3%	95.9%	98.5%	98.2%	99.7%
WHSCT	100%	100%	100%	100%	100%
BHSCT	85.5%	87.9%	92.7%	91.4%	98.7%
SEHSCT	87.6%	90.6%	93.8%	92.8%	98.8%

Table 11: Percentage Uptake rates [tested/offered] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	99.4%	99.2%	99.8%	99.9%	99.9%
SHSCT	99.6%	99.6%	99.6%	99.9%	99.9%
WHSCT	99.8%	99.9%	99.9%	100%	99.9%
BHSCT	99.2%	99.1%	98.8%	98.6%	99.8%
SEHSCT	99.5%	99.6%	99.8%	99.3%	99.9%

Table 12: Percentage Positive rates [positive/tested] by Trust and by calendar year

	2004	2005	2006	2007	2008
NHSCT	0.2%	0.1%	0.1%	0.1%	0.04%
SHSCT	0.1%	0.1%	0.0%	0.1%	0.1%
WHSCT	0.1%	0.03%	0.0%	0.2%	0.1%
BHSCT	0.4%	0.2%	0.2%	0.2%	0.1%
SEHSCT	0.3%	0.2%	0.1%	0.1%	0.2%

Developments

Legacy EHSSB Professional Guidance for the Antenatal Screening Programme for Hepatitis B, published in 2007.

Legacy NHSSB Protocol for Immunisation and Follow-up of Babies Born to Hepatitis B Positive Mothers, published in 2006.

Both of these documents set out the roles and responsibilities of health professionals to ensure the appropriate management and follow up of babies born to Hepatitis B positive mothers.

Late booking samples are now sent to NIBTS as well as the Regional Virology Laboratory to ensure all babies enter the vaccination programme.

The Health Protection Agency (HPA) collects information about the uptake of immunisation among children through their immunisation uptake surveillance COVER (cover of vaccination evaluated rapidly) system.

COVER reporting commenced 2008 in Northern Ireland by the Communicable Diseases Surveillance Centre (CDSC)NI.

CONCLUSIONS

Over the last five years the Northern Ireland Infectious Diseases in Pregnancy Screening Programme has met the aims of the National Screening Committee's Infectious Diseases in Pregnancy Screening Programme. Since monitoring began in 2004 the offer and uptake has been consistently over 90% with offer over 98% and uptake over 99% in 2008. There have been a number of generic programme and infection specific developments which have improved the overall quality and management of the programme to ensure all women booked are offered testing and that the results of women tested are reported on in a timely manner.

Although there has been steady improvement in the collation and reporting of data from the Trusts two further clarifications would allow maximum benefit from the data collection. There should be a consistent denominator used for monitoring purposes and an agreed definition for reporting a positive syphilis result. The UK NSC has acknowledged difficulties in this area and work is ongoing at national level to address these complicated issues.

PROGRAMME RECOMMENDATIONS

The monitoring process

Data collection should be standardised across the five Trusts, using a common denominator thus allowing comparisons between Trusts.

The reporting of syphilis positive results should be standardised to comprise only those cases with active syphilis requiring treatment of the mother and/or baby.

Consideration should be given to using the Health & Care Number in order to minimise duplication of counting.

Programme outcomes

Uptake of MMR vaccine after pregnancy in those women shown to be rubella non-immune should be audited.

The immunisation and outcome of children born to Hepatitis B positive mothers should be audited.

All babies born to HIV and syphilis positive mothers identified by the screening programme should be followed up to monitor the effectiveness of interventions and treatments provided.

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APPENDIX B

RUBELLA

Table 13: % Offered/booked (NHSCT, SHSCT, WHSCT) and % Offered/delivered (BHSCT & SEHSCT), by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	83.4%	91.7%	91.8%	79.6%	99.0%
	2	86.2%	87.2%	92.9%	94.0%	98.6%
South Eastern	3	80.3%	85.3%	89.2%	90.0%	97.1%
	4	91.2%	93.2%	95.7%	94.0%	99.4%
Northern	5	99.1%	99.6%	99.6%	99.8%	99.2%
	6	95.1%	97.7%	96.8%	98.1%	96.8%
Southern	7	99.2%	100.0%	99.8%	99.0%	99.9%
	8	79.9%	90.4%	96.7%	96.8%	99.4%
Western	9	100.0%	100.0%	100.0%	100.0%	100.0%
	10	100.0%	100.0%	100.0%	100.0%	100.0%

Table 14: % Tested/offered by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	99.9%	100.0%	100.0%	99.8%	100.0%
	2	99.2%	98.9%	98.7%	98.4%	99.7%
South Eastern	3	99.6%	100.0%	99.8%	99.0%	100.0%
	4	99.6%	99.7%	99.8%	99.6%	99.9%
Northern	5	99.7%	99.1%	99.9%	99.9%	100.0%
	6	99.6%	99.6%	99.7%	99.8%	99.8%
Southern	7	99.6%	99.6%	99.8%	100.0%	100.0%
	8	100.0%	99.9%	99.9%	99.9%	99.9%
Western	9	99.9%	99.9%	100.0%	100.0%	99.9%
	10	99.9%	100.0%	100.0%	99.9%	100.0%

Table 15: % Non-immune/tested by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	5.59%	4.20%	2.88%	2.60%	3.61%
	2	4.97%	4.16%	2.56%	3.09%	4.42%
South Eastern	3	3.99%	2.63%	1.29%	1.71%	2.43%
	4	3.82%	2.96%	1.85%	2.06%	2.06%
Northern	5	4.98%	1.71%	1.51%	1.88%	2.68%
	6	5.25%	2.24%	1.96%	1.44%	2.97%
Southern	7	4.73%	1.96%	1.49%	2.24%	1.23%
	8	3.18%	1.40%	0.48%	0.00%	0.39%
Western	9	5.02%	1.81%	2.26%	2.14%	3.07%
	10	1.87%	0.75%	0.73%	1.94%	1.69%

SYPHILIS

Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	84.1%	91.7%	91.9%	79.5%	98.8%-99.0%
	2	86.3%	87.3%	93.0%	93.2%-98.5%	98.5%
South Eastern	3	80.4%	85.5%	89.2%	90.0%	97.0%
	4	91.2%	93.1%	95.6%	93.8%	99.4%
Northern	5	99.1%	99.6%	99.6%	99.8%	99.2%
	6	95.1%	97.7%	96.8%	98.1%	96.8%
Southern	7	99.2%	100.0%	99.8%	99.0%	99.9%
	8	79.9%	90.5%	96.7%	96.7%-97.5%	99.2%-99.7%
Western	9	100.0%	100.0%	100.0%	100.0%	100.0%
	10	100.0%	100.0%	100.0%	100.0%	100.0%

Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	99.9%	99.9%	100.0%	99.8%	99.8%
	2	98.9%	98.9%	98.5%	98.1%-98.3%	99.7%
South Eastern	3	99.5%	100.0%	99.7%	98.9%	100.0%
	4	99.4%	99.2%	99.8%	99.3%	99.8%
Northern	5	99.7%	99.3%	99.9%	99.9%	99.9%
	6	98.9%	99.3%	99.6%	99.5%	99.5%
Southern	7	99.2%	99.2%	99.9%	100.0%	100.0%
	8	99.8%	99.7%	99.5%	99.8%	99.8%
Western	9	99.6%	99.8%	99.8%	100.0%	99.9%
	10	99.6%	99.9%	99.9%	99.9%	100.0%

Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	0.11%-0.33%	0.00%-0.10%	0.00%	0.00%	0.00%-0.08%
	2	0.00%-0.05%	0.00%-0.05%	0.00%	0.0%-0.02%	0.02%
South Eastern	3	0.00%	0.00%	0.00%	0.00%-0.09%	0.00%-0.09%
	4	0.09%-0.13%	0.13%-0.17%	0.24%-0.32%	0.15%-0.22%	0.15%-0.24%
Northern	5	0.00%	0.00%	0.00%	0.00%	0.00%
	6	0.00%	0.00%	0.00%	0.00%	0.27%
Southern	7	0.37%	0.10%	0.06%	0.22%	0.42%
	8	0.00%	0.00%	0.05%	0.04%-0.12%	0.00%-0.17%
Western	9	0.00%	0.00%	0.00%	0.00%	0.00%
	10	0.00%	0.00%	0.00%	0.00%	0.21%

*Where more than one type of syphilis test is reported the positivity range is given.

HIV

Table 19: % Offered/booked (NHSCT, SHSCT, WHSCT) and % Offered/delivered (BHSCT & SEHSCT), by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	83.3%	91.7%	91.8%	79.4%	99.0%
	2	85.6%	87.0%	92.4%	93.7%	98.5%
South Eastern	3	80.1%	85.5%	89.3%	90.0%	97.1%
	4	91.3%	93.1%	95.7%	93.9%	99.4%
Northern	5	99.1%	99.6%	99.6%	99.8%	99.2%
	6	95.1%	97.7%	96.8%	98.1%	96.8%
Southern	7	99.2%	99.9%	99.8%	99.0%	99.9%
	8	79.4%	90.3%	96.4%	96.7%	99.2%
Western	9	100.0%	100.0%	100.0%	100.0%	100.0%
	10	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20: % Tested/offered by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	99.9%	99.9%	99.5%	99.7%	99.8%
	2	97.9%	98.6%	98.5%	97.8%	99.8%
South Eastern	3	99.5%	99.8%	99.7%	98.9%	100.0%
	4	99.0%	99.0%	99.6%	99.3%	99.8%
Northern	5	99.5%	98.9%	99.8%	99.9%	99.9%
	6	97.3%	98.3%	99.3%	99.7%	99.7%
Southern	7	98.7%	98.4%	98.8%	100.0%	99.9%
	8	99.3%	99.6%	99.5%	99.9%	99.7%
Western	9	99.0%	99.4%	99.5%	99.9%	99.8%
	10	98.8%	99.9%	99.7%	99.7%	100.0%

Table 21: % Positive/tested by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	0.00%	0.00%	0.00%	0.00%	0.00%
	2	0.09%	0.07%	0.11%	0.08%	0.15%
South Eastern	3	0.00%	0.00%	0.00%	0.00%	0.00%
	4	0.00%	0.00%	0.00%	0.00%	0.03%
Northern	5	0.00%	0.00%	0.00%	0.00%	0.03%
	6	0.00%	0.00%	0.08%	0.00%	0.00%
Southern	7	0.00%	0.00%	0.00%	0.02%	0.12%
	8	0.00%	0.00%	0.00%	0.04%	0.00%
Western	9	0.00%	0.00%	0.00%	0.00%	0.00%
	10	0.00%	0.00%	0.08%	0.00%	0.00%

HEPATITIS B

Table 22: % Offered/booked (NHSCT, SHSCT, WHSCT) and % Offered/delivered (BHSCT, SEHSCT), by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	83.9%	91.7%	91.7%	79.6%	99.0%
	2	85.9%	87.1%	92.9%	94.0%	98.6%
South Eastern	3	80.1%	85.2%	89.3%	90.0%	97.0%
	4	91.2%	93.1%	95.7%	94.0%	99.4%
Northern	5	99.1%	99.6%	99.6%	99.8%	99.2%
	6	95.1%	97.7%	96.8%	98.1%	96.8%
Southern	7	99.2%	99.9%	99.8%	99.0%	99.9%
	8	79.9%	90.0%	96.5%	96.7%	99.2%
Western	9	100.0%	100.0%	100.0%	100.0%	100.0%
	10	100.0%	100.0%	100.0%	100.0%	100.0%

Table 23: % Tested/offered by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	100.0%	100.0%	100.0%	99.8%	100.0%
	2	99.0%	98.9%	98.5%	98.4%	99.7%
South Eastern	3	99.5%	100.0%	99.7%	98.9%	100.0%
	4	99.5%	99.4%	99.8%	99.5%	99.9%
Northern	5	99.7%	99.1%	99.9%	99.9%	100.0%
	6	98.8%	99.5%	99.7%	99.8%	99.7%
Southern	7	99.5%	99.4%	99.8%	100.0%	100.0%
	8	99.8%	99.8%	99.4%	99.8%	99.7%
Western	9	99.8%	99.8%	99.8%	100.0%	99.9%
	10	99.8%	99.9%	100.0%	100.0%	100.0%

Table 24: % Positive/tested by HSCT, by calendar year						
Trust	Unit code number	2004	2005	2006	2007	2008
Belfast	1	0.11%	0.10%	0.30%	0.00%	0.00%
	2	0.49%	0.16%	0.15%	0.20%	0.17%
South Eastern	3	0.31%	0.00%	0.00%	0.19%	0.09%
	4	0.26%	0.22%	0.20%	0.07%	0.30%
Northern	5	0.14%	0.13%	0.13%	0.12%	0.00%
	6	0.50%	0.08%	0.08%	0.07%	0.14%
Southern	7	0.13%	0.14%	0.00%	0.10%	0.19%
	8	0.00%	0.00%	0.00%	0.13%	0.04%
Western	9	0.12%	0.04%	0.00%	0.11%	0.11%
	10	0.00%	0.00%	0.00%	0.43%	0.07%