Acknowledgements

This report was produced by Health Protection Agency North West.

The report was produced and edited by
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(Health Protection Agency North West Regional Epidemiology Unit).

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We would like to thank the maternity units (midwives and other nurses) for returning the data. We are aware that there are significant difficulties with antenatal screening surveillance due to time and IT constraints.

We would also like to thank Health Protection Units:
Cheshire & Merseyside, Greater Manchester and Cumbria & Lancashire,
for coordinating collection of the data.
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1. Executive Summary

This report presents uptake rates for screening of HIV, hepatitis B, syphilis and rubella in pregnancy, as well as positive rates for HIV, hepatitis B and syphilis, and rubella susceptibility rates. All data is for the period January 2009 to December 2009 for the North West region, with a breakdown of data for each zone: Cheshire & Merseyside, Cumbria & Lancashire and Greater Manchester. This report also presents recommendations based on its key findings.

Key findings for January to December 2009:

- **REPORTING RATE** The proportion of maternity units reporting in 2009 was slightly less than the previous year. Quarterly figures were missing for three maternity units in 2009 (98% surveillance reporting rate); while in 2008, only one maternity unit was unable to provide data for all quarters (99% surveillance reporting rate).

- **ANTENATAL SCREENING BOOKINGS** The total number of women booked for antenatal screening in 2009 was over 89,000 (range 86,359 to 89,443). This is slightly lower than the previous year (decrease of 1.6% since 2008).

- **HEPATITIS B SCREENING UPTAKE** Regional uptake of hepatitis B screening in pregnancy was 95.83% (range 94.49% to 98.52%), compared to the government target of 100%. This is a slight increase compared to uptake in 2008 (95.28%).

- **HIV SCREENING UPTAKE** Regional uptake of HIV screening in pregnancy was 93.75% (range 91.19% to 97.79%), compared to the government target of 90%. This is an increase compared to uptake in 2008 (91.49%). Since 2004 there has been a marked improvement in uptake of HIV screening, with a corresponding decrease in the proportion of women who declined a test (pages 9 and 12).

- **SYPHILIS SCREENING UPTAKE** Regional uptake of syphilis screening in pregnancy was 96.82% (range 94.44% to 99.54%). This is a slight increase compared to uptake in 2008 (95.97%).

- **RUBELLA SCREENING UPTAKE** Regional uptake of rubella screening in pregnancy was 96.31% (range 95.00% to 99.82%). This is a slight increase compared to uptake in 2008 (95.49%).

- **HEPATITIS B POSITIVITY** 1 in 335 women (235 / 78,732, 0.30%) reported by maternity units were hepatitis B surface antigen positive (Greater Manchester reported the highest number of positives, with 156). This is a 5.2% decrease in the number of positive cases compared with 2008 (248), although the positive rate has remained stable (0.30% in 2008 and 2009).

- **HIV POSITIVITY** 1 in 902 women (87 / 78,512, 0.11%) reported by maternity units were HIV antibody positive (Greater Manchester reported the highest number of positives, with 41). This is a 5.4% decrease in the number of positive cases compared with 2008 (92), although the positive rate has remained stable (0.11% in 2008 and 2009).

- **SYPHILIS POSITIVITY** 1 in 1159 women (66 / 76,512, 0.09%) reported by maternity units were syphilis antibody positive (Greater Manchester reported the highest number of positives, with 40). This is a decrease of 15.4% in the number of positive cases compared to 2008 (78), although the positive rate remained stable (0.09% in 2008 and 2009).

- **RUBELLA SUSCEPTIBILITY** 1 in 32 women (2323 / 75,185, 3.09%) reported by maternity units were rubella susceptible (Greater Manchester reported the highest number of antibody negatives, with 1026). This is a decrease of 0.6% in the number of positive cases compared to the previous year (2337), however there was an increase of 4.4% in the susceptibility rate (2.96% in 2008 and 3.09% in 2009).

Many units had difficulty extracting and validating data so results should be interpreted with caution (see caveats on page 7).
2. Introduction

Welcome to the 2009 Antenatal Screening Surveillance Report for the North West region. Previous reports can be found online at: [http://www.hpa.org.uk](http://www.hpa.org.uk).

Antenatal screening surveillance for infectious diseases was introduced to the North West region in July 2003 as part of the national surveillance programme. There are four infections currently included in the programme: HIV, hepatitis B, rubella and syphilis. The aim of antenatal screening for infectious diseases is to:

- Promote a positive health outcome in mother and child
- Detect, diagnose, advise, treat and follow-up mother and newborn child
- Prevent mother-to-child transmission of infection
- Prevent infection in future pregnancies.

### Reasons to screen for ...

<table>
<thead>
<tr>
<th>Infectious Disease</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV</strong></td>
<td>The human immunodeficiency virus is a retrovirus that attacks and destroys T-lymphocytes, resulting in immune suppression that eventually leads to acquired immune deficiency syndrome (AIDS). The positive effect of screening and early maternal diagnosis has the potential to reduce the mother to baby transmission rate from 25% to less than 2%.</td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>Hepatitis B is an infectious disease of the liver caused by the hepatitis B virus, resulting in both acute and chronic infection. If the virus is transmitted from mother to baby there is about a 90% risk of the child developing chronic infection, which may result in liver cirrhosis or liver cancer later in life. A programme of newborn vaccination, if completed to specified timescales, has a 95% protective effect against HBV infection.</td>
</tr>
<tr>
<td><strong>Syphilis</strong></td>
<td>Syphilis is a sexually transmitted disease caused by the <em>treponema pallidum</em> bacterium. It is passed on through direct sexual contact. Mother to baby transmission is via the placenta. If a pregnant woman has an untreated syphilis infection, the foetal loss rate is around 50%, and those that survive suffer considerable morbidity which may include anatomical and sensory abnormalities.</td>
</tr>
<tr>
<td><strong>Rubella</strong></td>
<td>Rubella is caused by the rubella virus. It can pass through a pregnant woman's bloodstream to infect her unborn child. Exposure of the foetus to primary rubella infection in utero can be catastrophic, especially in the first 16 weeks of pregnancy; i.e. in the first 8-10 weeks of pregnancy it results in severe foetal damage in up to 90% of cases. Women who are identified as not having rubella specific antibody are offered the MMR vaccine in the postnatal period, which would provide protection for future pregnancies.</td>
</tr>
</tbody>
</table>
Since July 2003, antenatal screening data have been requested retrospectively on a quarterly basis from each maternity unit in the North West region. Data collection is coordinated by the three Health Protection Units (HPUs) in the North West: Cheshire & Merseyside, Cumbria & Lancashire and Greater Manchester, on behalf of the Health Protection Agency (HPA) North West Regional Epidemiology Unit. A standard proforma (see Appendix 1) is used to request the data directly from the lead midwife at each maternity unit.

What data is requested from the maternity units?

- the total number of antenatal bookings for each maternity unit by quarter
- number of women offered testing
- number of women declining testing
- total number of women tested
- number of positive results for hepatitis B (surface antigen), HIV and syphilis, and the number of rubella antibody negative results.

From January 2005 onwards, information has also been collected on the source of the antenatal booking data. From January 2009, reports of positive hepatitis B and HIV include a breakdown of those cases which have been previously diagnosed, retested and newly diagnosed.

Data are collated at Health Protection Unit level before being sent to the HPA North West Regional Epidemiology Unit where they are analysed and presented here in this report. HPA North West also send a regional annual return to the Health Protection Agency, Centre for Infections, HIV & Sexually Transmitted Infections Department at Colindale.

There are currently 31 maternity units in the North West region reporting to the antenatal screening surveillance programme:

<table>
<thead>
<tr>
<th>Zone</th>
<th>No. of maternity units reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>9</td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>10</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>12</td>
</tr>
</tbody>
</table>

A breakdown of maternity units by zone can be seen in Appendix 2 (page 19).

4. Data Quality

All data are provided from quarterly returns from maternity units. HPA North West is unable to independently validate data received from maternity units. In addition, data may be submitted or corrected at a later date. Therefore, all data presented are provisional.

Many maternity units have had difficulty in extracting and validating the data due to time pressures on the unit, and varying levels of resources available. Data are collected from a variety of sources, and there is no common protocol for the initial recording of the data, so datasets can be inconsistent. Data items are sometimes missing from the data collection forms, so a number of data caveats have been applied when carrying out the analysis and calculating the uptake and positive/susceptibility rates (see page 7). All the data received are included in the analysis, unless otherwise stated.

It should be noted that for this report, HPA North West have agreed a modified set of data caveats and methods of analysis with other HPA regions, in order to improve national consistency of antenatal screening data. North West historical figures have been revised in accordance with these new caveats, so previous years’ data in this report may differ slightly from those presented in earlier annual reports. It should also be noted that hepatitis B and HIV positivity has been calculated using data on newly diagnosed, previously diagnosed and retested cases (data which was not available for previous years, so this should be considered when comparing annual positivity for these infections).

(Continued on page 7)
4. Data Quality (cont.)

Concerns have been raised about the accuracy of screening data submitted to the HPA by St Mary’s Hospital in Manchester, and this is currently under investigation. Inaccurate or anomalous data submitted by other maternity units have been excluded from sub-regional and regional calculations. Please consider these points when interpreting the data.

5. Antenatal Screening Data Caveats

Uptake Rate

- The uptake rate is calculated as the total number of women tested divided by the number of women booked.
- Where the number of women booked in a maternity unit is unavailable but the number of women offered testing is given, the number offered will be used when calculating the regional and sub-regional uptake rate.
- Where both the number of women booked and the number of women offered testing is unavailable for a maternity unit, the uptake rate cannot be calculated.
- Where the number of women tested is unavailable, the uptake rate cannot be calculated.
- For records where uptake calculations are clearly incorrect (i.e. below 20% or above 110%) and cannot be resolved, these records will be excluded from the uptake calculation.
- For records where quarterly uptake is over 100% but less than or equal to 110%, the number tested will be used in place of the number of bookings (uptake will equal 100%).
- To calculate the regional annual uptake, the sum of all numerators (number of tests) for eligible records will be divided by the sum of all denominators (number of bookings) for eligible records.

Declined Rate

- The regional rate of declined antenatal screening is calculated as the total number of women who declined testing divided by the number of women offered testing.
- If data on number offered are given separately for each infection, the greatest number of offers in that quarter is used as the denominator in the decline calculation for all infections.
- For records where the number declined or offered is missing, these records will be excluded from the uptake calculation.
- To calculate the regional annual declined rate, the sum of all numerators (number declined) for eligible records will be divided by the sum of all denominators (number offered) for eligible records.

Positive Rate

- The regional hepatitis B surface antigen and HIV antibody positive rate is calculated using the formula:

\[
\frac{\# \text{ previously diagnosed} + \# \text{ newly diagnosed}}{\# \text{ tested} + \# \text{ previously diagnosed} - \# \text{ retested}} \times 100
\]

- If the number previously diagnosed and/or retested is missing, the regional hepatitis B and HIV positive rates will be calculated as the number of women testing positive divided by the number of women tested. This formula will also be used to calculate syphilis and rubella positive rates.
- Records where the number positive (or rubella antibody negative) and/or number tested is unavailable will be excluded from the regional positive rate calculation.
## 6. Regional Reporting Rate

### Table 1: Number and percentage of returns submitted by maternity units each quarter

<table>
<thead>
<tr>
<th></th>
<th>Jan-Mar 09</th>
<th>Apr-Jun 09</th>
<th>Jul-Sep 09</th>
<th>Oct-Dec 09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>8/9 (89%)</td>
<td>9/9 (100%)</td>
<td>8/9 (89%)</td>
<td>8/9 (89%)</td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>10/10 (100%)</td>
<td>10/10 (100%)</td>
<td>10/10 (100%)</td>
<td>10/10 (100%)</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>12/12 (100%)</td>
<td>12/12 (100%)</td>
<td>12/12 (100%)</td>
<td>12/12 (100%)</td>
</tr>
<tr>
<td>North West Region</td>
<td>30/31 (97%)</td>
<td>31/31 (100%)</td>
<td>30/31 (97%)</td>
<td>30/31 (97%)</td>
</tr>
</tbody>
</table>

Please refer to data caveats (page 7).

North West maternity units submitted 98% of their data in 2009, which was a slight decrease from the previous year (99% in 2008). Data was missing for three North West maternity units in Cheshire & Merseyside — one omission in each of Quarters 1, 3 and 4. Greater Manchester and Cumbria & Lancashire units achieved 100% surveillance reporting rate, which was consistent with the previous year (Figure 1).

![Figure 1: Annual reporting rates across the North West, 2004 to 2009](image)
North West uptake rates were over 90% for all infections (Table 2). Highest uptake rates were in syphilis (96.82%) and rubella (96.31%) screening, followed by hepatitis B (95.83%). Uptake of HIV screening was lower than other infection screening at 93.75%. Uptake rates for all 4 infections increased from the previous year (Figure 2), with the most notable increase in HIV screening uptake (from 91.49% in 2008).

Uptake rates varied across zones, with Cumbria & Lancashire achieving the highest uptake rates for all 4 infections. The lowest uptake rates for infections occurred in Greater Manchester, where screening uptake rates decreased for all 4 infections. In Cheshire & Merseyside, uptake rates increased significantly for all 4 infections between 2008 and 2009.

It is expected that maternity units should achieve 100% uptake of syphilis, hepatitis B and rubella screening in pregnancy. Trusts are expected to achieve 90% coverage of HIV screening in pregnancy (National antenatal HIV targets, England HSC 199/183).

### Table 2: Annual screening uptake levels for hepatitis B, HIV, syphilis and rubella (2009)

<table>
<thead>
<tr>
<th></th>
<th>% (Number) Hepatitis B</th>
<th>% (Number) HIV</th>
<th>% (Number) Syphilis</th>
<th>% (Number) Rubella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>95.83% (24,683 / 23,570)</td>
<td>94.03% (25,586 / 24,059)</td>
<td>98.36% (21,643 / 21,289)</td>
<td>95.12% (24,709 / 23,504)</td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>98.52% (23,703 / 23,353)</td>
<td>97.79% (23,703 / 23,178)</td>
<td>99.54% (23,705 / 23,595)</td>
<td>99.82% (23,703 / 23,661)</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>94.49% (41,048 / 38,786)</td>
<td>91.19% (40,154 / 36,617)</td>
<td>94.44% (41,011 / 38,729)</td>
<td>95.00% (41,020 / 38,971)</td>
</tr>
<tr>
<td>North West Region</td>
<td>95.83% (89,434 / 85,709)</td>
<td>93.75% (89,443 / 83,854)</td>
<td>96.82% (86,359 / 83,163)</td>
<td>96.31% (89,432 / 86,136)</td>
</tr>
</tbody>
</table>

Please refer to data caveats (page 7).

North West uptake rates were over 90% for all infections (Table 2). Highest uptake rates were in syphilis (96.82%) and rubella (96.31%) screening, followed by hepatitis B (95.83%). Uptake of HIV screening was lower than other infection screening at 93.75%. Uptake rates for all 4 infections increased from the previous year (Figure 2), with the most notable increase in HIV screening uptake (from 91.49% in 2008).

Uptake rates varied across zones, with Cumbria & Lancashire achieving the highest uptake rates for all 4 infections. The lowest uptake rates for infections occurred in Greater Manchester, where screening uptake rates decreased for all 4 infections. In Cheshire & Merseyside, uptake rates increased significantly for all 4 infections between 2008 and 2009.

It is expected that maternity units should achieve 100% uptake of syphilis, hepatitis B and rubella screening in pregnancy. Trusts are expected to achieve 90% coverage of HIV screening in pregnancy (National antenatal HIV targets, England HSC 199/183).

### Figure 2:
Quarterly uptake rates for each infection across the North West
8. Uptake Rates by Zone

Please refer to data caveats (page 7).

Figure 3: Hepatitis B antenatal screening uptake rate by zone, July 2003—December 2009 (North West)

Figure 4: HIV antenatal screening uptake rate by zone, July 2003—December 2009 (North West)
8. Uptake Rates by Zone (cont.)

**Figure 5:** Syphilis antenatal screening uptake rate by zone, July 2003—December 2009 (North West)

**Figure 6:** Rubella antenatal screening uptake rate by zone, July 2003—December 2009 (North West)
North West rates of declined antenatal screening were highest for HIV at 6.18%, followed by hepatitis B at 4.07% (Table 3). These two infections had lower declined rates in 2009 than in the previous year (8.25% for HIV and 4.07% for hepatitis B). Rates of declined screening increased for syphilis (2.82% on 2008) and rubella (2.25% in 2008).

Cumbria & Lancashire achieving the lowest rates of declined screening in the North West, with rates decreasing from the previous year for all 4 infections. The highest declined rates for infections occurred in Greater Manchester, where rates increased for hepatitis B, syphilis and rubella (HIV decreased slightly from 8.83%). In Cheshire & Merseyside, declined rates decreased for all 4 infections between 2008 and 2009.

Overall, North West rates of declined antenatal screening have fallen since 2005, with rates of declined HIV screening decreasing significantly each year since 2004 (Figure 7). Syphilis and rubella declined rates have remained low, despite the 2008-2009 increase.

Table 3: Annual screening declined levels for hepatitis B, HIV, syphilis and rubella (2009)

<table>
<thead>
<tr>
<th>Region</th>
<th>% (Number) Hepatitis B</th>
<th>% (Number) HIV</th>
<th>% (Number) Syphilis</th>
<th>% (Number) Rubella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>4.20% (1,134 / 26,990)</td>
<td>5.78% (1,560 / 26,990)</td>
<td>1.51% (361 / 23,957)</td>
<td>2.47% (667 / 26,990)</td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>1.38% (330 / 23,884)</td>
<td>2.11% (503 / 23,884)</td>
<td>0.27% (64 / 23,884)</td>
<td>0.03% (8 / 23,884)</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>5.56% (2,274 / 40,921)</td>
<td>8.81% (3,607 / 40,921)</td>
<td>5.72% (2,342 / 40,921)</td>
<td>5.08% (2,014 / 39,648)</td>
</tr>
<tr>
<td>North West Region</td>
<td>4.07% (3,738 / 91,795)</td>
<td>6.18% (5,670 / 91,795)</td>
<td>3.12% (2,767 / 88,762)</td>
<td>2.97% (2,689 / 90,522)</td>
</tr>
</tbody>
</table>

Please refer to data caveats (page 7).
Table 4: Annual hepatitis B (sAg), HIV and syphilis antibody positive results (2009)

<table>
<thead>
<tr>
<th>Region</th>
<th>% (Number)</th>
<th>% (Number)</th>
<th>% (Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hepatitis B</td>
<td>HIV</td>
<td>Syphilis</td>
</tr>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>0.21%</td>
<td>0.11%</td>
<td>0.03%</td>
</tr>
<tr>
<td>(54 / 25,342)</td>
<td>(29 / 25,739)</td>
<td>(7 / 23,652)</td>
<td></td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>0.11%</td>
<td>0.07%</td>
<td>0.08%</td>
</tr>
<tr>
<td>(25 / 23,545)</td>
<td>(17 / 23,368)</td>
<td>(19 / 23,786)</td>
<td></td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.14%</td>
</tr>
<tr>
<td>(156 / 29,845)</td>
<td>(41 / 29,405)</td>
<td>(40 / 29,074)</td>
<td></td>
</tr>
<tr>
<td>North West Region</td>
<td>0.30%</td>
<td>0.11%</td>
<td>0.09%</td>
</tr>
<tr>
<td>(235 / 78,732)</td>
<td>(87 / 78,512)</td>
<td>(66 / 76,512)</td>
<td></td>
</tr>
</tbody>
</table>

Please refer to data caveats (page 7).

In the North West, 1 in every 335 women tested (0.30%) was hepatitis B positive in 2009, with 1 in 902 (0.11%) positive for HIV and 1 in 1159 (0.09%) testing positive for syphilis. Comparison with 2008 regional rates indicates that positive rates for hepatitis B, HIV and syphilis remained stable.

Positive rates for hepatitis B, HIV, and syphilis were highest in Greater Manchester. Lowest rates occurred in Cumbria & Lancashire. Increases were recorded in Greater Manchester’s hepatitis B positive rate (from 0.44% in 2008), as well as in Cumbria & Lancashire’s HIV (from 0.03% in 2008) and syphilis positivity (from 0.05% in 2008). Cumbria & Lancashire’s hepatitis B positive rate decreased in 2009 (from 0.15% in 2008); and the HIV positive rate in Greater Manchester also decreased (from 0.16% in 2008).

From 2009, a breakdown of positives into previously diagnosed, retested and newly diagnosed has been requested on the antenatal screening proforma sent to maternity units. Not all maternity units were able to provide this data in 2009, but it is hoped that completeness will be improved for 2010 reporting, so that analysis of the data will be possible.

Figure 8: Quarterly positive rates for Hepatitis B, HIV and syphilis across the North West
11. Positive Rates by Zone - Hepatitis B, HIV and Syphilis

Figure 9: Hepatitis B antenatal screening positive rate by zone, July 2003—December 2009 (North West)

Figure 10: HIV antenatal screening positive rate by zone, July 2003—December 2009 (North West)

Figure 11: Syphilis antenatal screening positive rate by zone, July 2003—December 2009 (North West)
12. Rubella Susceptibility Rates

**Table 5: Annual rubella susceptibility results (2009)**

<table>
<thead>
<tr>
<th>Region</th>
<th>% (Number) Rubella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire &amp; Merseyside</td>
<td>2.68% (603 / 22,523)</td>
</tr>
<tr>
<td>Cumbria &amp; Lancashire</td>
<td>3.04% (694 / 22,798)</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>3.44% (1026 / 29,864)</td>
</tr>
<tr>
<td>North West Region</td>
<td>3.09% (2323 / 75,185)</td>
</tr>
</tbody>
</table>

Please refer to data caveats (page 7).

1 in 32 women (3.09%) was rubella susceptibility in 2009. Comparison with the 2008 rate indicates that the rubella susceptibility rate has increased in the North West (from 2.96% in 2008). The rubella susceptibility rate increased in the North West between the quarters April-June 2007 and April-June 2008 (Figure 12). The rate then decreased in July-September 2008, but since then it has continued to steadily increase. It should be noted that in 2008 and 2009, the North West rubella susceptibility rate was at its highest level since 2003.

The regional increase in rubella susceptibility since 2008 reflects the increase in Cheshire & Merseyside from 1.92% in 2008 to 2.68% in 2009. The rubella susceptibility rate decreased in Cumbria & Lancashire, and remained stable in Greater Manchester; however these areas did record the highest susceptibility rates in the region.

**Figure 12:** Rubella antenatal screening susceptibility rate by zone, July 2003—December 2009 (North West)
13. Booking Data Sources

Maternity units derive booking information from various sources in order to complete the data collection proforma for HPA NW. The source of the booking data is indicated on each completed quarterly pro forma. From 2005 and up to 2008, maternity units had two data source options on the pro forma: ‘Maternity Source’ (data extracted from computerised or paper records held at the maternity unit); or ‘Laboratory Source’ (data based on laboratory records of the number of samples sent for testing for each infection). From 2009, the data sources on the pro forma have become more specific, with six options for maternity units to choose from.

Table 6: Number and proportion of booking data sources submitted by maternity units, 2006-2008

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Numbers</th>
<th>Proportion of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Maternity source</td>
<td>80</td>
<td>78</td>
</tr>
<tr>
<td>B = Laboratory source</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>128</td>
</tr>
</tbody>
</table>

Note: Table excludes returns for which booking source was missing or marked as ‘unknown’.

From 2006 to 2008, the proportion of data from maternity sources gradually decreased, although maternity sources still comprised the majority of the data submitted (Table 6). Data from laboratory sources accounted for an increasing proportion of North West antenatal screening data—a trend which has been noted in the national data.

In 2009, a new proforma was used to collect antenatal screening data. This proforma replaced options A (Maternity source) and B (laboratory source) with options C to H, allowing more detailed information on data sources to be recorded. (Note: several maternity units submitted data for 2009 using the old proforma, so their sources have been recorded as either A or B.)

Figure 13: North West Antenatal Screening Data Sources, 2009

Hospital trust laboratory figures were the predominant source of 2009 antenatal screening data, comprising 36.7% of the total (Figure 13). However, a considerable proportion derived from maternity unit sources such as IT systems (20.0%) and manual collection (20.0%). In total, maternity sources accounted for 48.3% of the 2009 data, with 37.5% based on laboratory sources. 14.2% of data returns were based on a combination of sources.

It should be noted that the process of extracting data to complete the antenatal screening proforma is often a complicated one. Maternity and laboratory computer systems are often completely separate and lack a common protocol for recording data, so datasets can be inconsistent. Also, some maternity units report collated data from more than one source. The effect this has on the quality of the data should be taken into consideration.
14. Conclusion

The data presented in this report show that although uptake of antenatal screening is improving, antenatal infections remain an important public health issue for the North West.

Screening uptake for all infections has continued to improve in the North West in 2009, with over 90% regional uptake rates achieved for all four infections. Uptake rates for HIV screening in the North West are now at their highest levels since screening began (from 72.14% in 2004 to 93.77% in 2009). Rates of declined antenatal screening remain higher for HIV than for other infections, but this is decreasing overall. The positive rate for hepatitis B in the North West remains higher than for other infections, although there were no increases in positive rates for hepatitis B, HIV or syphilis in 2009. Sub-regionally, Greater Manchester recorded decreasing uptake rates for all four infections, as well as an increase in the hepatitis B positive rate; highlighting the need for continued awareness of antenatal screening and the importance of continuing to screen for infections in pregnancy.

The continued regional increase in rubella susceptibility is reflected in the national figures for 2005-2007, which show an increase year on year (Infectious Diseases in Pregnancy Screening Programme: 2007/08 Annual Report and 2005-2007 Surveillance Data—Health Protection Agency & UK National Screening Committee). In the North West, the regional increase has been influenced by the significant increase in the rubella susceptibility rate for the Cheshire and Merseyside area. The reason for the overall increase is unclear. It is possible that women who have been immunised, though immune, have lower antibodies than those who were immune due to natural infection. This may have become more marked over time, due to reduction in natural infection. Other possibilities are that the test “cut off” used to determine susceptibility is too high, or that different tests are used by different laboratories. Further investigation nationally may help to identify the cause of the increase.

Maternity sources continue to account for the majority of booking data in the North West, although data from laboratory sources have comprised an increasing proportion in recent years. The new proforma design has made it possible to see that combined booking sources also account for a considerable proportion of North West data. More in-depth analysis of booking sources should be possible once 2010 data is available to compare with booking information for 2009.

The benefits of antenatal screening in identifying maternal infection with hepatitis B, HIV, syphilis, and lack of immunity to rubella need to be emphasised. All four infections have very serious consequences for babies, and identifying these infections through screening can allow implementation of highly effective interventions which can prevent mother to baby transmission.

15. Recommendations

- Healthcare professionals within maternity services need to be supported so that they understand the benefits of antenatal infection screening and so that they can explain to women the reasons for being offered a test.
- Adequate resources should be provided and maintained to accommodate the number of women being booked for screening.
- Uptake of all screening should continue to be improved within maternity services across all zones, particularly in those where recent uptakes have decreased.
- IT systems for data collection within trusts need to be developed / improved at maternity unit and laboratory level.
- A standard protocol for all maternity units should be introduced, which would ensure the consistency of data being recorded.
- Trusts should consider auditing interventions and outcomes where there has been a positive / rubella negative result.
- More detailed information on booking data sources should be continue to be collected, via the revised Health Protection Agency antenatal screening proforma (2009 version).
- Possible causes of increasing rubella susceptibility should be investigated.
**Appendix 1: Quarterly Data Collection Form For Use By Maternity Units, 2009**

**HEALTH PROTECTION AGENCY NORTH WEST**

National Data Collection for Antenatal Screening for Infectious Diseases

**Trust:**

Maternity Unit: ________________________________

Data collected for time period: ________________________________

Name/Job Title of Person completing return: ________________________________

Contact Tel No: ________________________________ Date of completion: ________________________________

**Booking:** The point at which the woman sees a midwife for an antenatal booking history, and details of the current pregnancy are documented. This should include all initial bookings relevant to this maternity unit/acute trust. It is recognised that a small proportion of women who book in one quarter will have booking bloods taken in another quarter. It is also recognised that not all women who book will go on to deliver or indeed have bloods taken.

Number of women booked for antenatal care

**Data Sources:** This is the method used to derive the booking figures. Please tick one of the following:

- [ ] Maternity unit IT systems
- [ ] Maternity unit manual collection
- [ ] Laboratory figures for numbers of tests (NBS lab)
- [ ] Laboratory figures for numbers of tests (hospital trust lab)
- [ ] Combination of more than one data source
- [ ] Other (for example audit or number of ultra sound scans)

All women booked for antenatal care

Please include all women tested for the infectious susceptibility in this pregnancy, regardless of whether they were previously diagnosed.

<table>
<thead>
<tr>
<th>Screening test</th>
<th>Offered</th>
<th>Declined</th>
<th>Tested</th>
<th>Number of positive results</th>
<th>Number of negative results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubella Antibody</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

1 Number of positive results: This should include all women with confirmed current infections

2 Number of negative results: All results with an antibody concentration of less than 10 IU/mL

**Previously diagnosed women**

In order to prevent double counting of previously diagnosed women and to capture accurate data please provide the following information on women who were diagnosed previous to this pregnancy. Please refer to the definitions of a, b, and c below before completing these values.

<table>
<thead>
<tr>
<th>Screening Test</th>
<th>Number previously diagnosed women (total)</th>
<th>Number of previously diagnosed women that have been re-tested in this pregnancy</th>
<th>Number of newly diagnosed women this pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Definitions**

a. These are all women who were diagnosed before this pregnancy (regardless of whether or not they were retested when they were booked for this pregnancy).

b. These are women who were diagnosed positive before this pregnancy (included in column a) but who were retested when they booked for this pregnancy.

c. These are women who tested positive for the first time when they were booked for this pregnancy.
## Appendix 2: Participating North West Maternity Units

<table>
<thead>
<tr>
<th>Cheshire &amp; Merseyside</th>
<th>Cumbria &amp; Lancashire</th>
<th>Greater Manchester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrowe Park Hospital, Wirral</td>
<td>Blackpool Victoria Hospital, Blackpool</td>
<td>Fairfield General Hospital, Bury</td>
</tr>
<tr>
<td>Countess of Chester Hospital, Chester</td>
<td>Edith Watson Women's Health Unit, Burnley General Hospital, Burnley</td>
<td>Salford Royal (formerly Hope Hospital), Salford</td>
</tr>
<tr>
<td>Highfield Maternity Unit, Widnes (Halton Community Midwifery Service)</td>
<td>Cumberland Infirmary, Carlisle, East Cumbria **</td>
<td>Leigh Infirmary, Wigan *****</td>
</tr>
<tr>
<td>Mid Cheshire Women’s Health Unit, Leighton Hospital, Crewe</td>
<td>Furness General Hospital, Barrow in Furness</td>
<td>North Manchester General Hospital, Manchester</td>
</tr>
<tr>
<td>Liverpool Women's Hospital, Liverpool (inc University Hospital Aintree, Liverpool) *</td>
<td>Ormskirk &amp; District General Hospital, Ormskirk ***</td>
<td>Rochdale Infirmary, Rochdale</td>
</tr>
<tr>
<td>Macclesfield District General Hospital, Macclesfield</td>
<td>Royal Blackburn Hospital</td>
<td>Royal Bolton Hospital, Bolton</td>
</tr>
<tr>
<td>Southport &amp; Formby Maternity Unit, Southport</td>
<td>Royal Lancaster Infirmary, Lancaster</td>
<td>Royal Oldham Hospital, Oldham</td>
</tr>
<tr>
<td>Warrington Hospital, Warrington</td>
<td>Sharoe Green &amp; chorley Antenatal Clinic, Preston ****</td>
<td>St Mary's Hospital for Women &amp; Children, Manchester</td>
</tr>
<tr>
<td>Whiston Hospital, Prescot</td>
<td>West Cumberland Hospital, Whitehaven, West Cumbria</td>
<td>Stepping Hill Hospital, Stockport</td>
</tr>
<tr>
<td></td>
<td>Helme Chase Maternity Unit, Westmoreland General Hospital, Kendal</td>
<td>Tameside General Hospital, Ashton-under-Lyne</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trafford General Hospital, Manchester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wythenshawe Hospital, Wythenshawe, Manchester</td>
</tr>
<tr>
<td><strong>9 Maternity Units</strong></td>
<td><strong>10 Maternity Units</strong></td>
<td><strong>12 Maternity Units</strong></td>
</tr>
</tbody>
</table>

* Data from University Hospital Aintree, Liverpool were merged with Liverpool Women’s Hospital data, with effect from 1st March 2004.

** Data from Cumberland Infirmary include data from Penrith Hospital Maternity Unit.

*** Data from Ormskirk District General Hospital include data from Christiana Hartley Maternity Unit.

**** Data from the Sharoe Green Unit includes data from Chorley & South Ribble District Hospital.

***** Data from Leigh Infirmary include data from Royal Hartley Maternity Unit, Billinge.
### Appendix 3: North West Antenatal Screening Contact Details

#### Health Protection Agency North West
Regional Epidemiology Unit,  
DBH House,  
105 Boundary Street,  
LIVERPOOL,  
L5 9YJ.  
Tel: 0151 482 5688
Mrs Stefanie Davies,  
Regional Surveillance Officer  
Mrs Kathy Chandler,  
Regional Surveillance Officer  
Dr Catherine Quigley,  
Regional Epidemiologist

#### Greater Manchester Health Protection Unit
Floor 7B, Sentinel House,  
Albert Street,  
Eccles,  
Manchester,  
M30 0NJ.  
Tel: 0161 786 6710
Mrs Jeanette Kempster,  
Health Protection Specialist  
Ms Helen Hughes,  
Epidemiology & Surveillance Analyst  
Dr Erika Duffell,  
Surveillance Lead

#### Cheshire & Merseyside Health Protection Unit
Merseyside Health Protection Field Team,  
Suite D, Moorgate Point,  
Moorgate Road, Knowsley Industrial Park,  
Kirkby, L33 7XW.  
Tel: 0151 290 8360
Dr Roberto Vivancos,  
Sexual Health Lead  
Ms Maria Davies,  
Epidemiologist / Surveillance Analyst  
Dr Hilary Thurston,  
Surveillance Lead

#### Cumbria & Lancashire Health Protection Unit
1st Floor, York House,  
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Foxhole Road,  
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PR7 1YN.  
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Surveillance & Information Officer  
Dr Steve Gee,  
Surveillance Lead  
Sohail Ashraf,  
Children’s Health Lead