Provision of accelerated hepatitis B vaccination schedule to babies born to hepatitis B positive mothers within Wales
Audit for 2002-2004
Executive Summary

The UK is considered to have a low prevalence of hepatitis B with a rate of approximately 0.3% amongst the general population (WHO). Unprotected sexual intercourse with an infected person and intravenous drug use are consistently the most common route of infection in the UK. As a result of relatively low numbers of hepatitis B infected individuals within the UK, a targeted vaccination policy is practiced for those considered “at risk” which include the following groups: Babies born to an infected mother; injecting drug users; close family contacts of a case or carrier; inmates of custodial institutions and; frequent travellers to high prevalence countries.

This report aimed to provide:

- An examination of the current process by which these ‘at-risk’ babies are identified and notified to the National Public Health Service for Wales (NPHS) co-ordinator for follow up in the 3 regions
- An audit on the delivery and completeness of hepatitis B vaccination schedules for babies delivered throughout Wales for 2002/2004
- Recommendations for strengthening links with related health care personnel.

Key Findings:

- There is regional variation in the rates of notifications of babies born to infected mothers, with the highest rates observed in Gwent and Cardiff
- Identification of antenatal specimens remains difficult as there is still no one indicator on laboratory request forms which specifically identifies the sample as originating from an ante-natal visit.
- A further audit on the efficacy of existing policy on vaccination of babies born to infected mothers is required in order to ensure all are receiving timely vaccination
- The uptake of serology test to establish immunity in vaccinated infants within the Cardiff area was low
Introduction/Methodology
The UK is considered to have a low prevalence of hepatitis B with a rate of approximately 0.3% amongst the general population (WHO). The principal methods of transmission of hepatitis B differ between high and low prevalence countries. Low prevalence countries, according to the WHO, include Western Europe and North America. High prevalence countries, categorised by a prevalence of 8% or more of the population infected, include Asia, Sub-Saharan Africa, Middle and Far East and Southern parts of Eastern and Central Europe. In the UK, unprotected sexual intercourse with an infected person and intravenous drug use are consistently the most common route of infection whereas in high prevalence areas, transmission from an infected mother to her baby or horizontal transmission in childhood accounts for the majority of new infections (DoH 2006).

As a result of relatively low numbers of hepatitis B infected individuals within the UK, a targeted vaccination policy is practiced for those considered “at risk”.

These groups include:
- Babies born to an infected mother
- Injecting drug users
- Close family contacts of a case or carrier
- Inmates of custodial institutions
- Frequent travellers to high prevalence countries

Perinatal transmission of hepatitis B is a significant risk for the infant of an infected mother; with babies infected at birth or soon after having a 90% risk of chronic carriage. Early identification of hepatitis B positive mothers through antenatal screening, and provision of protection through the timely delivery of passive and active immunisation can significantly reduce the risk of infection to the baby.

Following advice from the National Screening Committee, the Department of Health (HSC 89/127) outlined the need for initiation of antenatal screening for hepatitis B in the UK to be implemented from 2000. A Welsh Health Circular 98 (36) outlined arrangements to be implemented by all Health Authorities in Wales by April 1999. In addition to the offer of screening for mothers, arrangements for the delivery of the appropriate vaccination schedule to the infants, monitoring and audit of this process were outlined.

In 2003, in response to concerns regarding the inconsistent delivery of this process throughout Wales, a report was produced evaluating the entire process from hospital screening to community delivery of hepatitis B vaccination to the babies. Recommendations were made as a result of this report to enable regular monitoring and audit to be undertaken, and to improve systems of notification of hepatitis B mothers to an identified co-ordinator within the NPHS for follow up.

This audit was undertaken to review process set up since the original report in 2003. Information was obtained by telephone survey with Health Protection Nurses throughout Wales responsible for the follow up of these babies.
Findings

Table 1. Total number of babies notified requiring hepatitis B vaccination in 2002/3

<table>
<thead>
<tr>
<th>Region</th>
<th>Bro Taf</th>
<th>Gwent</th>
<th>Swansea/Neath/Port Talbot and Bro Morgannwg</th>
<th>Dyfed Powys</th>
<th>North Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of babies notified for follow up in 2002/3</td>
<td>35</td>
<td>15</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>No. completing the 4 dose schedule</td>
<td>21</td>
<td>11</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>No. of incomplete 4 dose schedules</td>
<td>10</td>
<td>2</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>No. moved out of area before completion of schedule</td>
<td>4*</td>
<td>2*</td>
<td></td>
<td>4*</td>
<td></td>
</tr>
<tr>
<td>Post immunisation serology performed</td>
<td>6 (all completed 4 dose schedule)</td>
<td>6 awaiting results on 2003 cohort</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Health Protection Teams in all new areas of residence are informed of move into area, number of vaccines received so far and need for serological testing.

1. Minor inconsistencies still exist within the 3 regions of Wales with regards to the process of notification of hepatitis B positive mothers to a designated person within the NPHS
2. The processes for identification and surveillance have been amended in North Wales since January 2004 to ensure notification of these “at risk” infants to the NPHS co-ordinator for follow up.
3. The areas of Swansea, Neath, Port Talbot and Bro Morgannwg received no formal notifications of hepatitis B mothers during the period of 2002/2003. This failure to notify was recognised and efforts to resolve it have been addressed. A protocol (based on the current South East Region policy) for the referral of babies to an NPHS co-ordinator for follow up has now being agreed and is operational.
4. Local links with the NPHS and both screening and community midwives have been strengthened with the aim of ensuring complete and seamless follow up of all at-risk infants and their family contacts.
5. There was low uptake of the final serology test after completion of the accelerated schedule.
6. Within the Cardiff area, local phlebotomy services provided to primary care were often unable to take blood from infants so attendance at Paediatric Outpatients Department at University Hospital of Wales or St Davids Hospital was advised.

**Recommendations**

- There is a need to strengthen links between the hepatitis B coordinators within the NPHS and local screening and community midwives throughout Wales. The new care pathway, currently being developed, should act as an extra failsafe to ensure babies are not missed and contacts unidentified.

- Regular audit of hepatitis B ante-natal screening is required to include both the number of tests offered and the number performed.

- Formal links are required between the Communicable Disease Surveillance Centre (CDSC) and midwifery departments, with a view to collecting the data directly from the antenatal midwifery departments.

- The uptake of serology tests within the Cardiff area needs to be improved. The follow up process has changed since the 2002/3 time period, with vaccine reminder letters sent to GP practices at around the child’s 1st birthday highlighting the importance of the serology test. Audit of the birth cohort born in 2004 will provide information to determine the impact of the interventions.

- A Local Enhanced Service needs to be agreed with Local Health Boards to provide re-imbursement for GP’s for the cost and administration of hepatitis B vaccine to those at-risk.
Appendix 1 – Questions asked verbally of Public Health Nurses

All these questions relate to babies born to mothers with chronic hepatitis B.

1. What processes and policies are in place in your area to identify:
   i. babies born to mothers with chronic hepatitis B and;
   ii. to co-ordinate the vaccination?

2. How many notifications have been received 2002 – 2003?

3. How many babies born to infected mothers received their full course of vaccinations?

4. How many babies received an incomplete course of vaccinations?

5. How many babies moved out of the area

6. How many immunology tests were undertaken 2002 – 2004?