

Summary of neonatal hepatitis B immunisation in Wales – 2017

Background

This report summarises uptake and timeliness of the first three doses of hepatitis B immunisation and uptake trends in babies born to hepatitis B positive mothers during 2017 who were notified to the Public Health Wales Health Protection Team. Uptake and timeliness of the dose of hepatitis B immunisation due at 12 months and serology in babies born to hepatitis B positive mothers in 2016 are also presented.

Hepatitis B infection can be passed from an infected mother to her baby during birth. Babies infected in this way are very likely to become chronically infected, so can infect others. The risk of infection at birth can be reduced by over 90% by timely vaccination.

Babies born from 1st August 2017 are eligible for the new hexavalent ('6 in 1') vaccine that includes hepatitis B and replaced the '5 in 1' (DTaP/IPV/Hib combined diphtheria, tetanus, pertussis, inactivated polio and *Haemophilus influenzae* type B vaccine) vaccine scheduled at 2, 3 and 4 months of age. These babies should receive doses of monovalent Hepatitis B vaccine at 0 and 1 months, the '6 in 1' vaccine as scheduled at 2, 3 and 4 months and monovalent vaccine at 12 months, a total of six doses of Hepatitis B containing vaccine. For the purpose of monitoring whether at risk babies are protected from Hepatitis B, this report focuses on uptake and timeliness of hepatitis B containing vaccine at 0, 1, 2 and 12 months.

The data in this report are taken from the All Wales Neonatal Hepatitis B Immunisation database. The database was developed to assist the Public Health Wales Health Protection Team in the monitoring and follow up of hepatitis B immunisation in babies born to hepatitis B positive mothers. The database also allows Public Health Wales to monitor uptake and timeliness of hepatitis B vaccination in neonates and young children born to infected mothers. Data contained in this report were extracted on 29th August 2018.

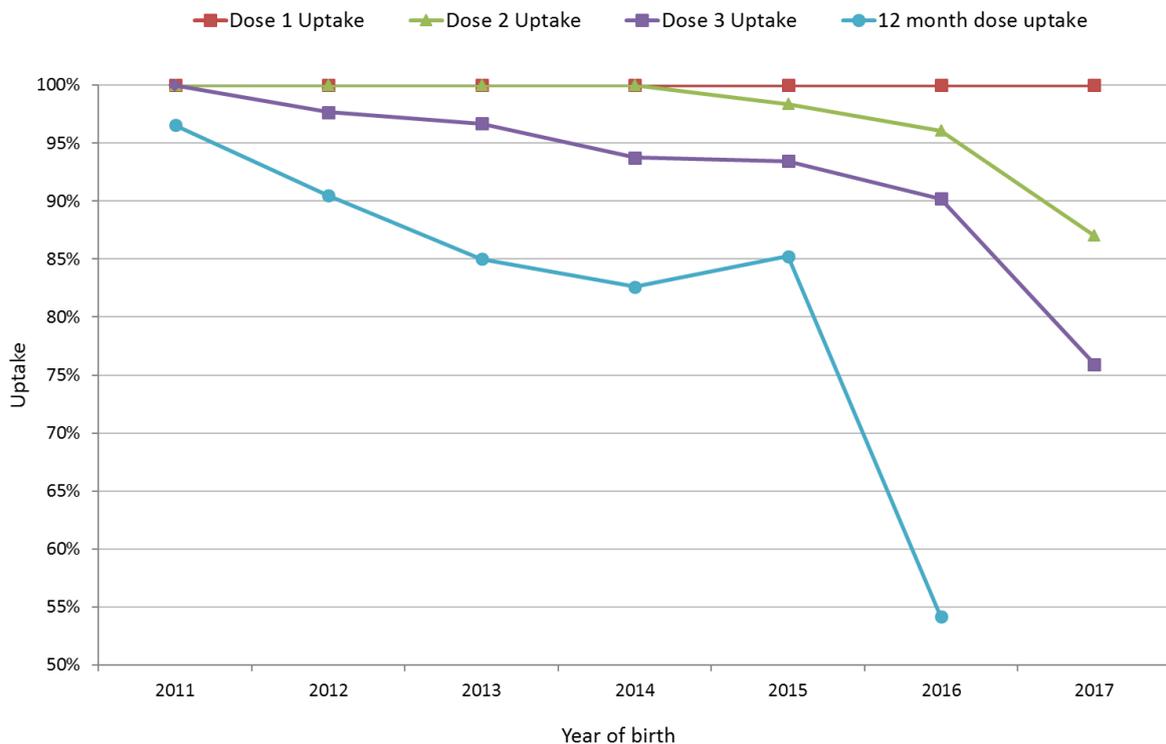


Table 1. Uptake and timeliness of neonatal hepatitis B immunisation in Wales, babies born to hepatitis B positive mothers and resident in Wales during 2016 and 2017

| | Year of birth | Immunisation Required | Immunisation Received | | Immunisation Received on time | |
|--------------------------------------|---------------|-----------------------|-----------------------|-----|-------------------------------|-----|
| | | (n) | (n) | (%) | (n) | (%) |
| HBIG^{1,2} | | 5 | 5 | 100 | 5 | 100 |
| Dose 1² | 2017 | 54 | 54 | 100 | 53 | 98 |
| Dose 2³ | | 54 | 49 | 91 | 30 | 61 |
| Dose 3⁴ | | 54 | 44 | 82 | 27 | 61 |
| Dose at 12 months⁵ | 2016 | 48 | 28 | 58 | 10 | 36 |

¹ Hepatitis B Immunoglobulin. Not required for all neonates.
² Recommended to be given on the day of birth or the next day
³ Recommended interval: within 25 - 36 days after dose 1
⁴ Recommended interval: within 25 - 36 days after dose 2
⁵ Recommended interval: within 334 – 396 days of birth

Figure 1. Trends in uptake (%) of hepatitis B immunisations¹ in babies born to hepatitis B positive mothers from 2011 to 2017.



¹Uptake timeliness of the dose due at 12 months for babies born in 2017 was not available at this time at the time which data were extracted for this report.

Table 2. Trends in the timeliness of hepatitis B immunisations in babies born to hepatitis B positive mothers from 2011 to 2017.

| Percent received on time | Year of birth | | | | | | |
|--------------------------------------|---------------|------|------|------|------|------|------|
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Dose 1 ¹ (%) | 100 | 100 | 100 | 100 | 98 | 98 | 98 |
| Dose 2 ² (%) | 50 | 70 | 55 | 58 | 53 | 51 | 61 |
| Dose 3 ³ (%) | 67 | 48 | 64 | 56 | 56 | 52 | 61 |
| Dose at 12 months ^{4,5} (%) | 61 | 61 | 71 | 68 | 46 | 36 | - |

¹The timely interval for dose 1 is on the day of birth or the next day, for the purpose of this report.

²The timely interval for dose 2 is between 25 and 36 days after dose 1, for the purpose of this report.

³The timely interval for dose 3 is between 25 and 36 days after dose 2, for the purpose of this report.

⁴The timely interval for due at 12 months is between 334 – 396 days after birth, for the purpose of this report

⁵ Uptake timeliness of dose due at 12 months for babies born in 2017 is not available at this time.

Findings

1. During 2017, 56 babies born to hepatitis B mothers were reported to the Health Protection Team, one more than in 2016. Two babies are not included because they were lost to follow up.
2. Hepatitis B immunoglobulin (HBIG) is recommended to be administered to babies born to highly infectious mothers. HBIG was indicated for 9% (5/54) of neonates born to hepatitis B positive mothers in Wales during 2017, compared to 14% in 2016. As in the last five years, HBIG was delivered to 100% of these neonates and all received it on their day of birth or the next day (Table 1).
3. Uptake of the first dose of hepatitis B immunisation was 100% in 2017, the same as in the previous six years, with 98% of the neonates receiving their first dose on time (on their day of birth or the next day) (Table 1).
4. Uptake of the second dose of hepatitis B immunisation was 91% in 2017, compared to 96% in 2016. Sixty-one per cent of the babies received their second dose between 25 and 36 days after their first dose, an increase from 51% in 2016 (Table 1).
5. Uptake of the third dose of hepatitis B immunisation was 82%, a decrease compared to 2016 (90%). Sixty-one per cent of the babies received their third dose between 25 and 36 days after their second dose (Table 1).
6. Uptake of the fourth dose of hepatitis B immunisation was 58% in babies born to hepatitis B positive mothers in 2016, a large decrease compared to babies born in 2015 (85%). Thirty-six per cent of the babies received their fourth dose between 334 and 396 days of birth, a decrease compared to 46% of babies born in 2015.
7. Of the babies born to hepatitis B positive mothers and resident in Wales in 2016, 23% (11/48) were serologically tested for hepatitis B surface antigen by 18 months of age. None of the babies tested were found to have acquired hepatitis B infection.

Discussion

This is the sixth annual report of uptake of hepatitis B immunisation in neonates born to hepatitis B positive mothers in Wales. The report contains information on the first three doses of hepatitis B vaccination for babies born during 2017 as well as information on the fourth dose of the schedule and serological testing for babies born during 2016. All of these babies born during 2017 should have received their first, second and third doses of hepatitis B vaccine and the 12 month dose of the vaccine and tested for serology if born during 2016, by the time data for this report were extracted (29th August 2018).

These data show that, as with the previous six years, all of the babies born to hepatitis B positive mothers, who were resident in Wales during 2017 and notified to Public Health Wales received HBIG (if indicated) in a timely manner. All babies received the first dose of the hepatitis B immunisation schedule, and 98% of babies received the first dose on time. Five babies did not receive their second dose of vaccine compared to two babies born in 2016. Higher proportion of babies received their second vaccine dose on time compared to 2016. The proportion of babies receiving their third dose decreased for the sixth consecutive year. In 2017, 18% of babies did not receive their third dose of the vaccine, compared to 10% in 2016.

The proportion of babies who received their vaccination dose due at 12 months decreased after a slight increase last year, again part of a long-term downward trend. However, the proportion of babies receiving dose four on time was the lowest since reporting through the All Wales Neonatal Hepatitis B Immunisation database began. Although uptake and timeliness of the first doses remains high, it is of concern there is a significant long-term trend in decreasing uptake of later doses. Babies who do not complete the full immunisation course or who receive hepatitis B immunisation doses late could be at risk of developing hepatitis B infection. The proportion of babies serologically tested decreased compared to babies born in 2015 and was under 30%. Testing serology is essential to determining whether infection from hepatitis B was effectively prevented.

All babies born after 1st of August 2017 are to receive the new hexavalent combination vaccine in the routine childhood vaccination schedule (DTaP/IPV/Hib/HepB). Of 20 babies eligible, all apart from two received their third dose of hepatitis B vaccine as part of the new '6 in 1' schedule.

For more information on the introduction of the hexavalent ("6 in 1") vaccine including hepatitis B into the routine immunisation schedule see <https://gov.wales/docs/dhss/publications/170809whc039en.pdf>

For more information on neonatal hepatitis B immunisations consult 'The Green Book' at <http://immunisation.dh.gov.uk/category/the-green-book/>

Quarterly coverage figures for neonatal hepatitis B immunisations are available from the [Public Health Wales COVER reporting scheme](#)

Report prepared by Public Health Wales Vaccine Preventable Disease Programme and Communicable Disease Surveillance Centre with the Health Protection Team.