

# Summary of neonatal hepatitis B immunisation in Wales – 2018

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## 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 2018 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 2017 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.

From 1st August 2017 all babies became 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 19<sup>th</sup> August 2019.

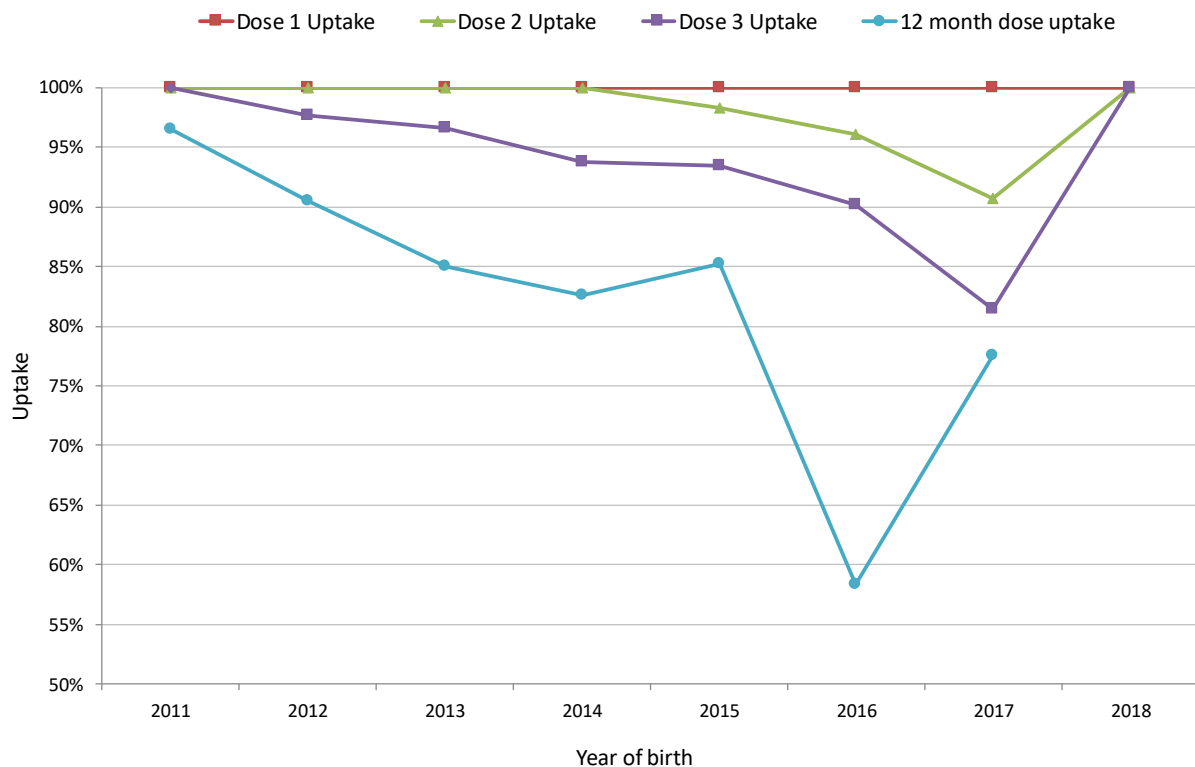


**Table 1. Uptake and timeliness of neonatal hepatitis B immunisation in Wales, babies born to hepatitis B positive mothers and resident in Wales during 2017 and 2018**

	Year of birth	Immunisation		Immunisation		
		Required (n)	Received (n)	Received (%)	Received on time (n)	Received on time (%)
<b>HBIG<sup>1,2</sup></b>		3	3	100	3	100
<b>Dose 1<sup>2</sup></b>	<b>2018</b>	52	52	100	52	100
<b>Dose 2<sup>3</sup></b>		52	52	100	30	60
<b>Dose 3<sup>4</sup></b>		52	52	100	44	85
<b>Dose 4<sup>5</sup></b>	<b>2017</b>	49	38	78	20	53

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

**Figure 1. Trends in uptake (%) of hepatitis B immunisations<sup>1</sup> in babies born to hepatitis B positive mothers from 2011 to 2018.**



<sup>1</sup>Uptake 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 2018.**

Percent received on time	Year of birth							
	2011	2012	2013	2014	2015	2016	2017	2018
Dose 1 <sup>1</sup> (%)	100	100	100	100	98	98	98	100
Dose 2 <sup>2</sup> (%)	50	70	55	58	53	51	61	60
Dose 3 <sup>3</sup> (%)	67	48	64	56	56	52	61	85
Dose at 12 months <sup>4,5</sup> (%)	61	60	71	68	46	36	78	-

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

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

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

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

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

## Findings

1. During 2018, 55 babies born to hepatitis B mothers were reported to the Health Protection Team, one less than in 2017. Three 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 6% (3/52) of neonates born to hepatitis B positive mothers in Wales during 2018, compared to 9% in 2017. 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 2018, the same as in the previous seven years, with 100% 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 100% in 2018, compared to 91% in 2017. Fifty-nine per cent of the babies received their second dose between 25 and 36 days after their first dose, a slight decrease from 61% in 2017 (Table 1).
5. Uptake of the third dose of hepatitis B immunisation was 100%, an increase compared to 2017 (82%). Eighty-five 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 78% in babies born to hepatitis B positive mothers in 2017, an increase compared to babies born in 2016 (58%). Fifty-three per cent of the babies received their fourth dose between 334 and 396 days of birth, an increase compared to 36% of babies born in 2016.
7. Of the babies born to hepatitis B positive mothers and resident in Wales in 2017, 37% (18/49) 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 seventh 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 2018 as well as information on the fourth dose of the schedule and serological testing for babies born during 2017. All of these babies born during 2018 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 2017, by the time data for this report were extracted (19<sup>th</sup> August 2019).

These data show that, as with the previous seven years, all of the babies born to hepatitis B positive mothers, who were resident in Wales during 2018 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 all babies received the first dose on time. All babies received their second dose of vaccine, with 59% of babies receiving their second vaccine dose on time, a slight decrease compared to 2017. The proportion of babies receiving their third dose increased to 100% following a six-year downward trend. In 2018, 85% of babies received their third vaccine dose on time.

The proportion of babies who received their vaccination dose due at 12 months increased after a period of long-term downward trend. The proportion of babies receiving dose four on time was the highest since reporting through the All Wales Neonatal Hepatitis B Immunisation database began, after the lowest reported uptake seen in 2016. Following the introduction of the hexavalent combination vaccine (DTaP/IPV/Hib/HepB) in the routine childhood vaccination schedule, this report shows an increase in the uptake of the second and third scheduled vaccine doses in babies at high risk of chronic hepatitis B infection. This follows after a long term downward trend in uptake between 2011 and 2017. 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 increased compared to babies born in 2016, however it remained low at under 40%. Testing serology is essential to determining whether infection from hepatitis B was effectively prevented.

Of the 52 babies born during 2018, thirteen received their second dose of hepatitis B vaccine as part of the new hexavalent combination vaccine (DTaP/IPV/Hib/HepB) in the routine childhood vaccination schedule. All babies received the hexavalent combination vaccine for their third dose.

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.**