

# Summary of neonatal hepatitis B immunisation in Wales – 2022

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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 2022 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 2021 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 11<sup>th</sup> January 2024.

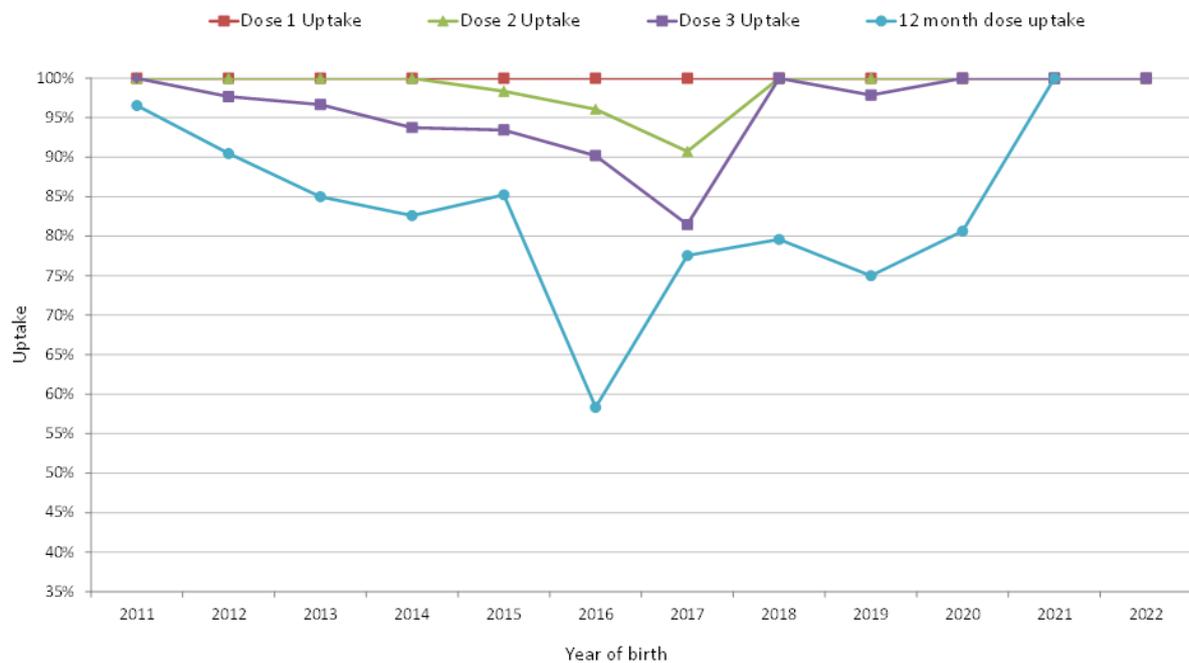


**Table 1. Uptake and timeliness of neonatal hepatitis B immunisation in Wales, babies born to hepatitis B positive mothers and resident in Wales during 2021 and 2022**

Year of birth	Immunisation Required	Immunisation Received		Immunisation Received on time	
	(n)	(n)	(%)	(n)	(%)
<b>HBIG<sup>1,2</sup></b>	3	3	100	3	100
<b>Dose 1<sup>2</sup></b>	25	25	100	25	100
<b>Dose 2<sup>3</sup></b>	25	25	100	10	40
<b>Dose 3<sup>4</sup></b>	25	25	100	15	60
<b>Dose 4<sup>5</sup></b>	17	17	100	11	65

<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 2022.**



<sup>1</sup>Uptake timeliness of the dose due at 12 months for babies born in 2022 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 2022.**

Percent received on time	Year of birth											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Dose 1 <sup>1</sup> (%)	100	100	100	100	98	98	98	100	100	100	100	100
Dose 2 <sup>2</sup> (%)	50	70	55	58	53	51	61	60	51	50	40	40
Dose 3 <sup>3</sup> (%)	67	48	64	56	56	52	61	85	63	63	64	60
Dose at 12 months <sup>4,5</sup> (%)	61	60	71	68	46	36	53	74	64	72	65	-

<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 2022 is not available at this time.

## Findings

1. During 2022, 26 babies born to hepatitis B mothers were reported to the Health Protection Team, two less than in 2021. One baby is not included in this report 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 12% (3/25) of neonates born to hepatitis B positive mothers in Wales during 2022, compared to 16% in 2021. As in the last eight 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 2022, the same as in the previous ten 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 2022, the same as in 2021. Forty per cent of the babies received their second dose between 25 and 36 days after their first dose, remaining stable compared to 2021 (Table 1).
5. Uptake of the third dose of hepatitis B immunisation was 100%, the same as in 2021. Sixty 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 100% in babies born to hepatitis B positive mothers in 2021, an increase compared to babies born in 2020 (81%). Sixty-five percent of the babies received their fourth dose between 334 and 396 days of birth a decrease compared to 72% of babies born in 2020.
7. Of the babies born to hepatitis B positive mothers and resident in Wales in 2021, 65% (11/17) 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

The report contains information on the first three doses of hepatitis B vaccination for babies born during 2022 as well as information on the 12-month dose of the schedule and serological testing for babies born during 2021. All of these babies born during 2022 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 2021, by the time data for this report were extracted (11<sup>th</sup> January 2024).

These data show that, as with the previous ten years, all of the babies born to hepatitis B positive mothers, who were resident in Wales during 2022 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 40% of babies receiving their second vaccine dose on time, remaining stable compared to 2021. The proportion of babies receiving their third dose remained stable at 100%. In 2022, 60% of babies received their third vaccine dose on time.

The proportion of babies who received their vaccination dose due at 12 months on time decreased compared to the previous year to 65%, from 72%. 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, third and fourth 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 remained stable compared to babies born in 2020. Testing serology is essential to determining whether infection from hepatitis B was effectively prevented.

Of the 25 babies born during 2022, seven 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.

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/sites/default/files/publications/2019-07/hepatitis-b-immunisation-for-babies-born-on-or-after-1-august-2017.pdf>

For more information on neonatal hepatitis B immunisations consult 'The Green Book' at <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>

Quarterly coverage figures for neonatal hepatitis B immunisations are available from the [COVER - National childhood immunisation uptake data - Public Health Wales \(nhs.wales\)](https://www.nhs.uk/health-protection-team/coverage-figures-for-neonatal-hepatitis-b-immunisations)

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