2023 Annual SHOT Report – Supplementary information

Chapter 27: Anti-D immunisation in pregnancy

No previous pregnancy (NPP) n=7

There were 7 new cases in 2023, cumulative to date 139 cases.

Summary of 2023 NPP data

In 2023 the number of cases where anti-D has been detected before or after 28 weeks is evenly distributed; there were 4 cases detected before 28 weeks, 2 cases before 12 weeks (at 9 and 11 weeks gestation) and 2 cases after 12 weeks (at 26 and 27 weeks gestation). The 3 cases detected at or after 28 weeks include 2 cases where immune anti-D was detected between 28-32 weeks gestation and 1 case at delivery (at 38 weeks gestation). For the cases where the immune anti-D was detected before 12 weeks it is unknown the reason of alloimmunisation.

Routine antenatal anti-D prophylaxis

Of the cases eligible to receive routine antenatal anti-D prophylaxis (RAADP) (n=3), one patient received RAADP at 31 weeks gestation (delayed), while other patient did not receive RAADP as the appointment was not booked, this error detected at delivery. Only one of these 3 patients received RAADP adequately at 28 weeks gestation.
RAADP should be offered to all D-negative women who have not been previously alloimmunised. RAADP has been shown to reduce antenatal alloimmunisation from 1% to 0.35% of pregnancies. The NICE guidelines (TA156) cover RAADP for women who are D-negative (NICE 2008, BSH Qureshi et al., 2014).

For those 2 cases where immune anti-D was detected at 26 and 27 weeks gestation, RAADP was administered, as in one case the antibody was assumed to be prophylactic in its origin even though there were no records of previous anti-D immunoglobulin (Ig) administration while in the other case the anti-D was not regarded as immune leading in both cases to unnecessary administration of RAADP.

Case 27.5: Immune anti-D assumed to be prophylactic in its origin

At delivery immune anti-D was identified with a quantification level of 14.6IU/mL. The baby was delivered at 39+3 weeks gestation and required phototherapy as treatment. When the case was reviewed it was noted that the immune anti-D had been detected at 27+4 weeks gestation but it had been misinterpreted as passive (prophylactic) anti-D. A dose of anti-D Ig had been issued 5 months prior to the first antibody detection however that dose was not given. Miscommunication and assumptions resulted in the patient not being monitored throughout the pregnancy including the immune anti-D levels, placing the baby at risk of HDN.

Cell-free fetal DNA

Issues were identified associated to understanding and following correct processes for cell-free fetal DNA (cffDNA). The cffDNA was offered to 2 patients where immune anti-D had been detected

before 12 weeks gestation, while cffDNA was not performed in the 5 eligible cases. Of these, in one case the test was not offered to the patient and in 2 cases there was no guidelines or pathway in place for antenatal fetal D screening test.

Potential Sensitising Events

There were 3 cases of potential sensitising events (PSE) reported during pregnancy; two antepartum haemorrage/PV Bleeding (APH/PVB) before 12 weeks gestation (at 7 and 9 weeks gestation). None of these patients received anti-D Ig post-PSE even though in one case it was reported PVB with abdominal pain. As per current BSH guidelines for the use of anti-D Ig (Qureshi, et al., 2014), a minimum of 250IU should have been administered within 72 hours following PSE.

Outcomes

Pregnancy outcomes were reported in all NPP cases, all 7 live births. With regards to neonatal intervention for haemolytic disease of the fetus and newborn (HDFN), 3 babies required phototherapy and 1 baby required phototherapy and exchange transfusion.

When was the alloimmune anti-D detected?

The cumulative data shows that in majority of cases, immune anti-D is first detected at delivery, 62/139 (44.6%), followed by at or after 28 weeks gestation, 47/139 (33.8%), confirming the higher risk of immunisation in the third trimester of pregnancy.

Table 27.1: Time of detection of alloimmune anti-D

	Number of new cases 2023	Number of cases cumulative to 2023
Before 28 weeks	4	23
At or after 28 weeks, before delivery	2	47
At delivery	1	62
Other	0	2*
No information	0	5
Total	**7**	**139**

**Alloimmune anti-D was detected 6 months postpartum after large FMH of 12.7mL at delivery managed correctly, Alloimmune anti-D was detected 3 months postpartum prior to a surgical procedure, twin pregnancy managed correctly.*

What was the weight and body mass index at booking?

Even though the weight is more often reported than the body mass index (BMI), the later represents a more accurate value as a health indicator. In 2023, the BMI has been included in the analysis and when not reported, effort have been made to obtain this data. Please, report the weight as well as the BMI to understand the obesity as a risk factor for alloimmunisation in pregnancy. Using average female height in the United Kingdom (UK) 80Kg would equate to obesity in most women. When assessing the BMI that considers the height and weight of the patient, a BMI over 30 would be considered as obese.

As shown on the table below (Table 27.2), the BMI can help identify more accurately cases of obesity. When only weight was taken into account 2 patients were considered to be obese (weight

> 80Kg), however when this health indicator was assessed using the BMI at booking it was identified that 4 patients were obese (BMI >30) which represents more than 50% of the total number of NPP cases in 2023..

Table 27.2: Weight and BMI at booking

Booking weight in kg	Number of new cases 2023	Number of cases cumulative to 2023
<68	3	51
68-80	1	17
>80 (obese)	2	20
No information	1	51
Total	**7**	**139**
Booking BMI		
18.5-24.9	1	
25-29.9	1	
>30 (obese)	4	
No information	1	
Total	**7**	

Did the women receive appropriate RAADP?

In 4 cases the immune anti-D was detected prior to 28 weeks gestation; 2 cases between 12 and 28 weeks gestation and 2 cases before 12 weeks gestation. Of the cases where immune anti-D was detected after 28 weeks (n=3), one was at delivery. From the 3 eligible cases to receive RAADP, one patient received RAADP at 28 weeks gestation. For the other two patients, one did not receive injection as appointment was not booked and one received the RAADP after 30 weeks (at 31 weeks gestation). Two patients received RAADP incorrectly as anti-D had been present in samples taken at 26 and 27 weeks gestation but not regarded as immune (Case 27.5 above).

Table 27.3: Details of RAADP for eligible cases

RAADP regimen	Number of new cases 2022	Number of cases cumulative to 2022
Single dose 1500IU at 28-30 weeks	1	88
Single dose 1500IU after 30 weeks (delayed)	1	3
Two dose regimen 500IU	0	1
Not given	1	21
Unknown	0	2
Total eligible cases	**3**	**115**

Was cffDNA testing performed?

The 2023 data identifies issues relating to the cffDNA screening test. To all eligible cases the cffDNA testing was not implemented or offered, while testing was offered to patients who had already immune anti-D identified prior to 12 weeks gestation. The cffDNA screening test is only suitable for patients who have not been previously immunised. For patients who are known to have produced red cells antibodies, the eligible test is the non-invasive fetal genotyping, this information is not collected by SHOT. It is important that correct information on the maternal antibody status is reported to the test provider to ensure that appropriate testing is performed.

Table 27.4: cffDNA testing

cffDNA test	Number of cases 2023	Details
Not performed	5	2 No guidelines or pathway in place for antenatal fetal screening 1 Not offered to the patient 1 No history prior to 29+4 weeks gestation (living abroad) 1 No reason provided
Performed	2	2 Predicted D-positive fetus (known immune anti-D cases)
No information	0	
Total	**7**	

Details of potentially sensitising events (PSE)

There were 3 cases of PSE; 2 cases of APH/PVB, one at 7 weeks gestation and one at 9 weeks gestation, none received anti-D Ig post-PSE. In one of these cases was also reported abdominal pain. There was one case of fall/abdominal trauma at 25 weeks gestation with administration of 1500IU anti-D Ig within the correct time frame.

Table 27.5: Details of potentially sensitising events

Number of PSE	Details	Management
2 cases of APH/PVB	At 7 and 9 weeks gestation	No anti-D Ig administered
1 case of fall/abdominal trauma	At 25 weeks gestation	Kleihauer (KLH) sample taken and 1500IU anti-D Ig administered within 72 hours post-PSE
3 cases	No PSE reported	
1 case	No information given	

Pregnancy outcomes in NPP case

In 2023, the outcome for all the pregnancies were live births with 5 babies requiring treatment for signs and symptoms of HDFN.

Table 27.6: Outcome of pregnancies reported in 2023

Number of cases	Outcome	Treatment required
7	Live births	2 No treatment required 4 Phototherapy 1 Phototherapy and exchange transfusion

Previous pregnancies (PP) n=35

The index pregnancy in these cases refers to the current pregnancy – the pregnancy in which alloimmune anti-D was first detected.

Summary of 2023 PP data

There were 35 new PP cases in 2023, including 16 cases where immune anti-D was found in the first trimester (≤12 weeks gestation). Review of the cumulative data identifies that in 149/388 (38.4%) cases the first antibody detection occurred in the first trimester. In these cases, it is the data set from previous pregnancy that is most likely to provide the reasoning for alloimmunisation, assuming that no other relevant transfusion/transplantation history has changed between previous and current pregnancies. In cases where the immune anti-D is detected later in the pregnancy, after the first trimester, it is the details of the current pregnancy, including PSE and management of pregnancy that can reveal the potential risk factors for alloimmunisation to occur. In these cases, the contribution value of the details from previous pregnancy is less certain.
In the 2023 data there was one case where the immune anti-D was first detected at delivery in previous pregnancy, but it was assumed to be prophylactic in its origin, being identified as immune at booking in current pregnancy.

Beyond 40 weeks gestation

In 2023, there were 2 cases where the pregnancy was extended beyond 40 weeks gestation; one case in previous pregnancy and one case in index pregnancy.

National Health Service (NHS) maternity statistics 2022-2023 indicate that 12.5% of pregnancies are extended beyond 40 weeks: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2022-23.

Weight and BMI at booking

In 2023 there has been an effort to collect not only the weight but also the BMI at booking as the later can reveal the potential of obesity as a risk factor for alloimmunisation in pregnancy. In fact, the 2023 data already shows the impact of including the BMI as part of the analysis as if only assessing obesity with weight, there were 7 cases which would fall under the obesity category (>80 Kg) while when the same data set was analysed including the BMI there were 12 patients identified as obese i.e., BMI >30. It is important that to understand the risk of alloimmunisation associated to

obesity, analysis include the most accurate data set as possible. However, there is a recognition that throughout the year of SHOT reporting, the weight has been the value more often reported rather than the BMI.

Maternity Services Monthly Statistics for 2023 indicate that 22% of pregnant women at 15 weeks gestation had a BMI between 30 and 39.9 (obese) and 4% had a BMI >40 (severely obese) in England: https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/november-2023-experimental-statistics.

RAADP

The RAADP data in preceding pregnancies suggests a developed and embedded process with the eligible patients receiving RAADP, even though in one case injection was given at 31 weeks gestation whereas in five cases the gestation of when RAADP was administered was not provided. In the index pregnancies, the eligible patients received RAADP correctly (n=10) except a D-variant patient who was regarded as D-positive throughout pregnancy.

cffDNA

In preceding pregnancies, the cffDNA was only performed in one case, where fetus was predicted to be D-positive. In 10 cases there was no information if cffDNA had been performed and in 24 cases the test was not performed. No guidelines or pathway in place for antenatal fetal screening was reported as the reason in half of the cases (12/24).

PSE

There were 6 PSE reported in preceding pregnancies; 4 cases where immune anti-D was detected in the first trimester in index pregnancy while in 2 cases immune anti-D was detected later in index pregnancy at 28 weeks gestation. Reported were 2 terminations of pregnancy (TOP) with no records if anti-D Ig was given following procedure, 1 miscarriage at 10 weeks with conservative management, 1 case of intrauterine death (IUD) and stillbirth with a high FMH volume and 2 cases of APH/PVB.

Detection of immune anti-D

In the 2023 data there were 16 PP cases where anti-D was detected in the first trimester (at ≤12 weeks gestation) and 19 PP cases where anti-D was detected beyond the first trimester.

Outcome of pregnancy

Of the 35 PP cases there were 2 miscarriages and 32 live births. The outcome was unknown in one case as the patient moved abroad. Interventions for sign of HDFN were required in 15 cases.

When was alloimmune anti-D detected in index (current) pregnancy?

Table 27.7: When alloimmune anti-D was detected

Time of anti-D detection	Number of new cases 2023	Number of cases cumulative to 2023
At booking (up to 12 weeks)	16	149
After 12 weeks to 28 weeks (includes late booking)	5	51

At or after 28 weeks	11	120
At delivery	3	55
Other	0	13*
Total	**35**	**388**

** 3 preoperative assessment following pregnancy, 3 at planned follow up of large FMH at delivery where correct dose of anti-D Ig had been given, 7 unknown.*

Where alloimmune anti-D was detected at booking in the index (current) pregnancy, only the events in the preceding pregnancy are relevant to the sensitisation (assuming no other exposure to the D antigen occurred e.g. transfusion, an unlikely event in healthy fertile women). Where anti-D is detected later in the index pregnancy, the relative contribution of events in the previous pregnancy is less certain.

Information about the pregnancy immediately preceding index (current) pregnancy

Table 27.8: Outcome of the preceding pregnancy

Outcome of preceding pregnancy	Number of cases	Details
Live birth	21	• 15 D-positive neonates • 2 D-negative neonates • 4 D-type unknown
Other	14	• 5 miscarriages (at 5, 6, 7, 10 and 12-16 weeks gestation) • 3 TOP (1 at 6 weeks gestation, 2 unknown gestation) • 1 IUD at 40 weeks • 5 information not given

What was the booking weight of preceding pregnancy? (Includes only cases where previous pregnancy resulted in live birth, in 2023 n=21)

Table 27.9: Booking weight and BMI of preceding pregnancy

Weight at booking in kg	Number of new cases 2023	Number of cases cumulative to 2023
<68	2	91
68-80	2	28
>80 (obese)	1	39
No information	16	163

Total	**21**	**321**
Booking BMI		
18.5-24.9	2	
25-29.9	1	
>30 (obese)	2	
No information	16	
Total	**21**	

Cumulatively, of the 158 women where booking weight was provided, 39 (24.7%) were obese. Data from maternity services indicate that 26% of pregnant women at 15 weeks were obese or severely obese: https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/november-2023-experimental-statistics.

To note the discrepancy when assessing obesity using the BMI rather than weight. As shown on Table 27.9 there was one case where the booking weight was between 68-80Kg however BMI was over 30, placing this patient in the obese category.

RAADP in preceding pregnancy (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.10: Details of RAADP in preceding pregnancy

RAADP	Number of new cases 2023	Number of cases cumulative to 2023
Single dose	10	201
Two doses	2	15
Given (no details on dose)	2	4
Not given	2*	37**
No information	5	64
Total	**21**	**321**

**D-variant patient treated as D-positive throughout pregnancy; one case where immune anti-D was detected at 14 weeks gestation*
***Reasons include; needle phobic, D-variant treated as D-positive, learning difficulties, concealed pregnancy, prior to RAADP introduction, delivered abroad, declined, typed incorrectly including typed incorrectly as D-positive, midwife error, one transcription error maternal D group to electronic health record, notes stated not required..*

In the 2023 data set, RAADP was administered on the gluteal muscle in one case, on the deltoid in 3 cases and in 10 cases information was not provided.

Details of cffDNA testing in preceding pregnancy (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.11: cffDNA preceding pregnancy

cffDNA test	Number of new cases 2023	Details
Not performed	15	9 No guideline or pathway in place for antenatal fetal screening 1 Not required 1 Not indicated 1 Not offered 1 D-variant patient treated as D-positive 2 No information provided
Performed	1	Predicted D-positive
No information	5	
Total	**25**	

Details of PSE in preceding pregnancy reported in 2023 (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.12: Details of PSE

Number of PSE	Details
6 PSE reported	**Appropriate management** • Miscarriage at 10 weeks gestation, conservative management, no anti-D Ig required **Inappropriate management** • APH/PVB at 26 weeks gestation. Patient had several bleeding episodes before. Patient unaware of being pregnant until 26 weeks gestation. Late booking bloods taken (at 26+5 weeks gestation), no anti-D Ig given • IUD at 40+4 weeks gestation. FMH of 56mL, 5600IU given IV 24-72 hours post IUD. Delivery of stillbirth at 40+5 weeks gestation, FMH of 4mL. 500IU administered. No further-up samples and anti-D Ig administered **Inconclusive management** • 3 sensitising events at 14 weeks gestation. For the first sensitising event 1500IU given within 24 hours post-PSE. No records if KLH sample was taken or regarding the management of the following two PSE • 2 TOP, no information available of management

31 cases had no PSE reported

Since reporting began in 2013, a total of 99 PSE have been reported in the preceding pregnancies of which 56 (56.6%) were managed correctly. Data from previous years has shown an encouraging positive picture as all the APH reported were managed appropriately. In 2023, one APH was not managed correctly as the patient was unaware of being pregnant until 26 weeks gestation, however no reasoning was given to understand why anti-D Ig injection was not administered when patient was identified to be pregnant.

Method of delivery of preceding pregnancy (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.13: Delivery details

Type	Number of new cases 2023	Number of cases cumulative to 2023
No information	1	68
Vaginal	14	154
Instrumental	0	17
Elective caesarean section (El CS)	4	41
Emergency CS (Em CS)	2	41
Total	**21**	**321**

Gestation at delivery of preceding pregnancy (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.14: Gestation at delivery of preceding pregnancy

Gestation at delivery (weeks)	Number of new cases 2023
40 weeks or less	17
More than 40 weeks	1
No information	3
Total	**21**

Cumulatively (data collected from 2015 onwards), 55 out of 300 previous pregnancies (18.3%) lasted longer than 40 weeks gestation. National Health Service (NHS) maternity statistics 2022-2023 indicate 12.5% of pregnancies are extended beyond 40 weeks: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2022-23.

Postpartum management in preceding pregnancy (for women who carried to a live birth in preceding pregnancy, in 2023 n=21)

Table 27.15a: Test for postpartum FMH

FMH test performed postpartum	Kleihauer test (K)	Flow cytometry (F)	K+F	Method not specified	No	Notes on cases where FMH test not done	Unknown
12	11	0	1	0	**3**	1 D variant treated as D-positive 2 cord D-negative	**6**

Table 27.15b: Postpartum anti-D Ig prophylaxis

What happened?	Number of new cases 2022	Number of cases cumulative to 2022
FMH test and appropriate dose of anti-D Ig	11	179
No prophylaxis	0	18**
Incorrect dose/timing of anti-D Ig	0	8**
No information	8*	92***
D-negative baby	2	25
Total	**27**	**301**

*In one case, FMH testing was done, correct anti-D Ig dose administered, but no information of administration timeframe. In 2 cases, not able to determine if correct dose was given due to absent FMH testing.
**Reasons included; immune anti-D detected at time of delivery, typed in error as D-positive, refused, from abroad, learning difficulties, needle phobic, declined, missed anti-D Ig in error, dose 250IU, dose given late, transcription error maternal D group to electronic health record
***No consent for FMH test given 500IU (n=1), not able to determine if correct dose in absence of FMH testing, no FMH test detail so not able to determine if correct dose in absence of FMH testing (n=2)

Anti-D detected at first trimester booking of index pregnancy (≤12 weeks gestation) (n=16)

The details of the preceding pregnancy may provide information on the cause of immunisation in these cases.

Table 27.16: Details of management in previous pregnancy (- =no information/unknown)

Case	Obese (booking weight >80kg/ BMI >30)	RAADP	PSE	Delivery gestation (weeks)	Delivery route	PPP	Risk factors identified
1	Data missing	Yes	-	-	-	Anti-D Ig given but no further details available	None; previous pregnancy in 2003, limited data available

2	Data missing	Yes (two doses)	No	36	Vaginal	D-positive baby, FMH (K) <2mL, 500IU anti-D Ig	Multiple pregnancies (3 live births)
3	Data missing	Yes (two doses)	No	40	Vaginal	D-positive baby, FMH (K) <2mL, 500IU anti-D Ig	Drug user, known to share IV needles
4	Data missing	Yes	No	40	Vaginal	D-positive baby, FMH (K) <2mL, 500IU anti-D Ig	Multiple pregnancies (6 live births)
5	Data missing	Data missing	TOP	-	-	-	TOP in private clinic, no information available.
6	No	Yes	APH/PVB at 26 weeks	40^{+3}	Vaginal	D-positive baby, FMH (K) <2mL, 500 anti-D Ig	Patient unaware of being pregnant until 26 weeks gestation. Several not reported PSE before 26 weeks gestation, no anti-D Ig given
7	Yes (BMI >40)	Yes	No	39	Emergency C/S	D-positive baby, FMH (K) <4mL (>2mL), sample not tested by flow cytometry, 500IU anti-D Ig given, no follow-up sample	High BMI (severe obesity). FMH testing not completed with no follow-up.
8	Data missing	Yes	No	39^{+6}	Vaginal	D-positive baby, FMH (K) <2mL, 500IU anti-D Ig	None
9	Yes (BMI >30)	Yes	IUD at 40^{+4}; FMH 56mL, 5600IU anti-D Ig given IV	Stillbirth at 40^{+5}	Vaginal	D-positive stillbirth, FMH (K) 4mL, 500IU given, no follow-up	Multiple pregnancies, high BMI, High FMH, no follow-up
10	Data missing	No	Miscarriage at 6 weeks gestation	-	-	-	None
11	Dasta missing	Yes	No	38^{+1}	Vaginal	-	Multiple pregnancies, previous

							pregnancies managed abroad
12	No	Yes	No	40^{+1}	Emergency C/S	D-positive baby, no information about FMH testing, 1500IU anti-D Ig	None, but no information on FMH after delivery
13	No	Yes	No	39^{+3}	Vaginal	D-positive baby, FMH (K) <2mL, 1500IU anti-D Ig	None
14	Data missing	Data missing	TOP at 6-7 weeks	-	-	-	None
15	Data missing	Yes	No	39^{+6}	Vaginal	D-posiitve baby, FMH (K) <2mL, 500IU anti-D Ig	None
16	Data missing	Yes	-	-	Emergency C/S	-	None

Alloimmune anti-D detected after first trimester (>12 weeks) in index (current) pregnancy n=23

Further information is requested on the index pregnancy when alloimmune anti-D is detected after the booking (first trimester) sample, as it may be that the sensitisation occurred in the index pregnancy rather than in the preceding pregnancy.

What was the booking weight and BMI of index pregnancy?

Table 27.17 : Weight and BMI at booking

Weight at booking in kg	Number of new cases 2023	Number of cases cumulative to 2023
<68	5	82
68-80	3	48
>80 (obese)	3	38
No information	8	62

Total	**19**	**230**
Booking BMI		
18.5-24.9	**3**	
25-29.9	6	
>30 (obese)	7	
No information	4	
Total	**20**	

Cumulatively, 38 out of 168 (22.6%) women where booking weight was provided, and who developed alloimmune anti-D in the index pregnancy, were clinically obese. Data from maternity services indicate that 26% of pregnant women at 15 weeks gestation were obese (BMI>30) or severely obese (BMI>40): https://digital.nhs.uk/data-and-information/publications/statistical/maternity-services-monthly-statistics/november-2023-experimental-statistics.

Further research is required to determine if obesity is an evident risk factor for alloimmunisation. For this reason, in 2023, SHOT has started to analyse the BMI alongside with weight for accurate data set. As shown on Table 27.17 the number of obese patients at booking differ when this risk factor is assessed based on the BMI rather than weight at booking.

RAADP in index pregnancy

Table 27.18: Details of RAADP

RAADP given or not	Number
Single dose 1500IU	9
Two dose 500IU	1
Not given	8*
Missing data	0

**In 7 cases, immunisation was detected before or at 28 weeks, before RAADP administration. There was one case where a D-variant patient was regarded as D-positive throughout pregnancy.*

cffDNA testing

Table 27.19: cffDNA testing

cffDNA test	Number of cases	Details
Not performed	9	6 No guideline or pathway in place for antenatal fetal D screening test 1 D-variant patient regarded as D-positive 2 No reason provided

Performed	8	6 Predicted D-positive 1 Predicted D-negative 1 Inconclusive
No information	2	

In keeping with the data regarding NPP cases and PP cases where alloimmune anti D detected in the first trimester; reported use of cffDNA testing is still limited.

Details of potentially sensitising events in index pregnancy

Table 27.20: Details of potentially sensitising events

Number of women	Details
1 case PSE reported prior to detection alloimmune anti-D	**Appropriate management** • Abdominal pain and PV bleeding at 23+5 weeks, FMH sample taken, 1500IU anti-D Ig given within 72 hours post-PSE
22 cases no PSE reported	

Outcomes of pregnancies reported in 2023

Table 27.21: Outcome of pregnancies reported in 2023

Number of cases	Outcome
32	Live births
2	Miscarriage
0	Stillbirth
0	Termination of pregnancy
1	Outcome data missing
17	No treatment
15	Treatment
6	Phototherapy
1	Phototherapy and IV fluids
2	Phototherapy and Immunoglobulin
1	Phototherapy, IV fluids, IV antibiotics and immunoglobulin
2	Phototherapy and top-up transfusions
1	Phototherapy, Immunoglobulin and exchange transfusion
1	Phototherapy, exchange transfusion and folic acid
1	Multiple transfusions

References

Qureshi, H. et al., 2014. BCSH guideline for the use of anti-D immunoglobulin for theprevention of haemolytic disease of the fetus and newborn. *Transfusion Medicine,* 24(1), pp. 1-66. doi: https://doi.org/10.1111/tme.12091.