2021 Annual SHOT Report – Supplementary information

Chapter 25: Immune Anti-D in Pregnancy

No previous pregnancy (NPP) n=11

There were 11 new cases in 2021 (no cases excluded), cumulative to date 116 cases**.**

Summary of 2021 NPP data

Whilst in the majority of NPP cases, alloimmune anti-D is detected at delivery, there continues to be an increase in cases detected prior to 28 weeks, although the causes remain unclear.

Booking weight data has improved marginally. We would encourage reporters to try and obtain this information as it is important in providing evidence for the role of obesity as a risk factor for immunisation.

Of the cases that were eligible for RAADP (n=6), 5 received RAADP between 28-30 weeks, 1 received delayed RADDP at 35 weeks.

The number of documented cases where the fetal RHD screening test has been performed when gestation appropriate prior to the subsequent detection of alloimmune anti-D has improved but remains lower than expected (n=4).

There were no documented cases of fetal genotyping from maternal blood subsequent to the detection of maternal antibodies. Documentation of testing since its introduction in 2018 continues to improve and hopefully reflects uptake of cffDNA fetal RHD screening and fetal genotyping from maternal blood and access to the results. At least 2 infants were subsequently detected to be D-negative at delivery, highlighting the missed opportunity regarding cffDNA testing uptake which may have reduced maternal concern regarding the risk of haemolytic disease of the fetus or newborn (HDFN) and resulted in less antenatal appointments and maternal anti-D quantification testing.

There were 3 cases of potential sensitising events. One was a fall/abdominal trauma at 7 weeks gestation, no anti-D Ig administered, the pregnancy outcome was a stillbirth at 28 weeks. There were 2 antepartum haemorrhages/PV bleeds. In one case the gestation at the time of the sensitisation and pregnancy outcome was not provided, there was a delay in provision of anti-D Ig, kleihauer negative. The other case was at 26 weeks gestation, kleihauer less than 2mL and 500IU intramuscular (IM) anti-D Ig was administered within 24 hours, the pregnancy resulted in a live birth and phototherapy was required due to HDFN.

In 4 cases alloimmune anti-D was first detected at or beyond 40 weeks, at the time of delivery, all had RAADP, 1 potential sensitising event, gestation 26 weeks treated appropriately, data regarding weight was missing for 2 of the cases the 2 documented were not obese.

Pregnancy outcomes were reported in 10 cases. There were 9 live births, and 1 intrauterine death. The intrauterine death was detected at 28 weeks gestation, alloimmune anti-D was detected at this

time, no quantification was performed, details of post mortem were requested - no post mortem was performed. In 4 cases alloimmune anti-D was detected at or after 40 weeks.

With regards to neonatal intervention for HDFN,1 required phototherapy.

When was the alloimmune anti-D detected?

The cumulative data shows that in the majority of cases immune anti-D is first detected at delivery.

Table 25.1: Time of detection of alloimmune anti-D

	Number of new cases 2021	Number of cases cumulative to 2021
Before 28 weeks	3	18
At or after 28 weeks, before delivery	4	40
At delivery	4	54
Other	0	2*
No information	0	2
Total	**11**	**116**

**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 booking weight?

Weight is used in place of body mass index (BMI) as weight is more fully reported than BMI. Using average female height in the United Kingdom (UK), 80kg would equate to obesity in most women.

Table 25.2: Booking weight

Weight at booking in kg	Number of new cases 2021	Number of cases cumulative to 2021
<68	3	44
68-80	2	13
>80 (obese)	2	17
No information	4	42
Total	**11**	**116**

Cumulatively, of the 74 women where booking weight was provided, 17 (22.9%) were obese. National data (NHS digital 2019) report 22% incidence of obesity in pregnant women in England. https://files.digital.nhs.uk/58/FFD7B1/msms-mar19-exp-rep.pdf

Did the women receive appropriate RAADP?

Alloimmune anti-D was detected in 3 cases prior to 28 weeks and in 2 case at 28 week weeks. The remaining 6 were eligible for RAADP, 5 received RAADP between 28-30 weeks and 1 received delayed RAADP at 35 weeks.

Table 25.3: Details of RAADP for eligible cases

RAADP regimen	Number of new cases 2021	Number of cases cumulative to 2021
Single dose 1500IU at 28-30 weeks	5	79
Single dose 1500IU after 30 weeks (delayed)	1	2
Two dose regimen 500IU	0	1
Not given	0	16
Unknown	0	2
Total eligible cases	**6**	**100**

The route was IM in all cases, in 3 cases deltoid was specified.

cffDNA testing

Table 25.4: cffDNA testing

cffDNA test	Number of cases 2021	Details
Not performed	4	3 cffDNA not available or routinely performed 1 late booking – transfer of care from Europe
Performed	4	4 fetal RHD screening test
No information	3	
Total	**11**	

The number of documented cases where the fetal RHD screening test has been performed when gestation appropriate prior to the subsequent detection of alloimmune anti-D has improved but remains lower than expected (n=4).

There were no documented cases of fetal genotyping from maternal blood subsequent to the detection of maternal antibodies. At least 2 infants were subsequently detected to be D-negative at delivery, cffDNA testing may have reduced maternal concern regarding the anti D detected and resulted in less antenatal appointments and maternal interval anti-D testing.

Details of potentially sensitising events (PSE)

There were 3 cases of potential sensitising events. One was a fall/abdominal trauma at 7 weeks gestation, no anti-D Ig administered, the pregnancy outcome was a stillbirth at 28 weeks. There were 2 antepartum haemorrhages/PV bleeds. In one case the gestation at the time of the sensitisation or pregnancy outcome was not provided, there was a delay in provision of anti-D Ig, kleihauer negative. The other case was at 26 weeks gestation, kleihauer less than 2mL and 500IU IM anti-D Ig was administered within 24 hours, the pregnancy resulted in a live birth and phototherapy was required due to HDFN.

Table 25.5: Details of potentially sensitising events

Number of PSE	Details	Management
3 cases had PSE reported	1 fall/abdominal trauma	No anti-D Ig received
	2 antepartum haemorrhage	1 delayed > 72-hour anti-D Ig 1 anti-D Ig received
6 cases	No PSE reported	
2 cases	No information given	

Pregnancy outcomes in NPP case

In the 2021 dataset pregnancy outcome was reported in 10 cases. There were 9 that resulted in a live birth, and 1 intrauterine death. The intrauterine death was detected at 28 weeks gestation, alloimmune anti-D was detected at this time, no quantification was performed, details of post mortem were requested - no post mortem was performed. In 4 cases alloimmune anti-D was detected at or after 40 weeks.

With regards to neonatal intervention for HDFN one required phototherapy.

Previous pregnancies (PP) n=45

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

Summary of 2021 PP data

There were 45 new PP cases in 2021, including 18 cases where alloimmune anti-D was found in the first trimester. Review of the cumulative cases identifies 120/317 (37.8%) cases were detected in the first trimester. Where alloimmune anti-D is 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 this demographic). Where anti-D is detected later in the index pregnancy, the relative contribution of events in the previous and index pregnancy is less certain.

In 5 cases where alloimmune anti-D was detected for the first time at delivery of index pregnancy, 2 had a gestation of more than 40 weeks ($41+^{1}$, $41+^{5}$). The cumulative data shows that 48 pregnancies where alloimmune anti-D was first detected at delivery in the index pregnancy, 17 cases (35.4%) were delivered after 40 weeks gestation. National Health Service (NHS) maternity statistics 2019-2020 indicate 15.9% pregnancies extended beyond 40 weeks. *https://www.gov.uk/government/statistics/nhs-maternity-statistics-england-2019-20*

With regards to the data of the pregnancy preceding the index pregnancy, there were 36 live births, 3 terminations, 4 miscarriages and in 2 cases no outcome detail was provided.

Cumulatively, of the 140 women where booking weight was provided, 35 (25%) were obese. National data (NHS digital 2019) report 22% incidence of obesity in pregnant women in England. https://files.digital.nhs.uk/58/FFD7B1/msms-mar19-exp-rep.pdf

The RAADP data in preceding pregnancies suggests a developed, embedded process, with the majority receiving appropriate RAADP where reported, however there are still missed opportunities to get this right. Of the 4 cases where RAADP was not provided 2 women declined, there was 1 concealed pregnancy and in the other case a transcription error occurred regarding the maternal D type documented in the electronic health record.

As with the NPP cases, very few cases report cffDNA testing. In 4 preceding pregnancies cffDNA testing was performed and predicted the fetus in 3 cases to be D-positive and in 1 case D-negative. The responses suggest a number of hospitals have still not implemented the cffDNA fetal RHD screening test.

There were 13 PSE in preceding pregnancies; 7 appropriately managed, 1 possible error in management where it is not possible to conclude in a surgical termination of pregnancy, 1 error in management due a transcription error of the maternal D-type to the electronic record and anti-D was not offered for a PSE at 32 weeks. Since reporting began in 2013, a total of 82 PSE have been reported in the preceding pregnancies of which 53 (64.6%) were managed correctly. It is encouraging to see the antepartum haemorrhages reported have been managed appropriately. It is encouraging to see the antepartum haemorrhages reported have been managed appropriately.

The maternal D-type transcription error is a root cause regarding failure to provide RAADP and treat a PSE. Appropriate IT interfaces between laboratory information management systems and the electronic health record must remove the requirement for healthcare professionals to manually enter a blood group or D-type which may be referred to regarding future management.

Four of the preceding pregnancies delivered beyond 40 weeks gestation. Cumulatively (data collected from 2015 onwards), 43 out of 230 previous pregnancies (18.7%) lasted longer than 40 weeks. National Health Service (NHS) maternity statistics 2019-2020 indicate 15.9% pregnancies extended beyond 40 week. *https://www.gov.uk/government/statistics/nhs-maternity-statistics-england-2019-20*.

Where alloimmune anti-D was identified in the first trimester in the index case (n=18), review of the preceding pregnancies highlights cases where 'ideal' management with no risk factors still resulted in immunisation. Gaps in data in these cases make analysis difficult, however there are at least 10 cases where apparently 'ideal' management still resulted in immunisation, including 2 with 3 or more prior pregnancies, 1 termination of pregnancy and 3 antepartum haemorrhages where documented management appears to be correct. Three cases did not receive RAADP (1 declined, 1 no detail provided, 1 transcription error maternal blood group and D type). Five delivered beyond 40 weeks, 7 had a potential sensitising event: 4 appear to be treated according to current guidelines, in 2 cases there were undisclosed miscarriages identified in retrospect and in 1 case there is inadequate data to conclude.

There were 27 cases of immune anti-D detected beyond the first trimester. Cumulatively, 33 out of 141 (23.4%) women where booking weight was provided, and who developed alloimmune anti-D in the index pregnancy, were clinically obese. National data (NHS digital 2019) report 22% incidence of obesity in pregnant women in England. https://files.digital.nhs.uk/58/FFD7B1/msms-mar19-exp-rep.pdf. Further research is required to determine if obesity is truly associated with increased alloimmunisation risk.

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.

There were 3 PSE's prior to detection of immune anti-D beyond the first trimester. No medical advice was sought at the time of the PSE in 2 of the cases and the other was managed appropriately.

Of the 45 PP cases there were 39 live births (1 neonatal death – no evidence of HDFN), 1 miscarriage, 1 stillbirth, 1 termination of pregnancy, outcome data was missing for 3 cases. Interventions were required in 14 cases, intervention data is missing in 3 cases. Interventions ranged from phototherapy to exchange blood transfusion.

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

Table 25.6: When alloimmune anti-D was detected

Time of anti-D detection	Number of new cases 2021	Number of cases cumulative to 2021
At booking (if first trimester)	18	120
After booking to 28 weeks (includes late booking)	7	38
At or after 28 weeks	13	100
At delivery	5	48
Other	2	11*
Total	**45**	**317**

***** *2 preoperative assessment following pregnancy, 3 at planned follow up of large FMH at delivery where correct dose of anti-D Ig had been given, 6 unknown, 1 non pregnant*

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 and index pregnancy is less certain.

In the 5 women who had alloimmune anti-D detected for the first time at delivery of index pregnancy, 2 had gestation of more than 40 weeks (41^{+1}, 41^{+5}).

The cumulative data show that of 48 pregnancies where alloimmune anti-D was first detected at delivery in the index pregnancy, 17 cases (35.4%) were delivered after 40 weeks gestation.

Information about the pregnancy immediately preceding index (current) pregnancy

Table 25.7: Outcome of the preceding pregnancy

Outcome of preceding pregnancy	Number	Details
Live birth	36	• 24 D-positive neonates • 4 D-negative neonates • 8 D-type unknown
Other	9	• 3 termination of pregnancy • 4 miscarriages • 2 no detail provided

What was the booking weight of preceding pregnancy? (includes only cases where previous pregnancy resulted in live birth)

Table 25.8: Booking weight of preceding pregnancy

Weight at booking in kg	Number of new cases 2021	Number of cases cumulative to 2021
<68	11	81
68-80	4	24
>80 (obese)	3	35
No information	18	133
Total	**36**	**273**

3 TOP and 4 miscarriages 2 unknown outcomes not included

Cumulatively, of the 140 women where booking weight was provided, 35 (25.0%) were obese. National data (NHS digital 2019) report 22% incidence of obesity in pregnant women in England. https://files.digital.nhs.uk/58/FFD7B1/msms-mar19-exp-rep.pdf.

RAADP in preceding pregnancy (for women who carried to a live birth in preceding pregnancy)

Table 25.9: Details of RAADP in preceding pregnancy

RAADP	Number of new cases 2021	Number of cases cumulative to 2021
Single dose	24	170
Two doses	1	12
Given (no details on dose)	0	2
Not given	4*	33**
No information	7	56
Total	**36**	**273**

3 TOP and 4 miscarriages 2 unknown outcomes not included

**2 declined, 1 concealed pregnancy, 1 transcription error maternal D group to electronic health record, notes stated not required.*
***Reasons include: learning difficulties, concealed pregnancy, needle phobic, prior to RAADP introduction, delivered abroad, declined, typed incorrectly, midwife error, typed incorrectly as D-positive.*

In 4 cases the route was specified as deltoid, no cases were given anti-D Ig intravenously.

Details of cffDNA testing in preceding pregnancy (for women who carried to a live birth in preceding pregnancy)

As with the NPP cases, very few cases report cffDNA testing. In 4 preceding pregnancies cffDNA testing was performed and predicted the fetus in 3 cases to be D-positive and in 1 case D-negative. The responses suggest a number of hospitals have still not implemented the cffDNA fetal RHD screening test.

Table 25.10: cffDNA preceding pregnancy

cffDNA test	Number of new cases 2021	Details
Not performed	25	22 commented cffDNA not available or routinely performed 2 no comment 1 previous pregnancy in Pakistan
Performed	4	Predicted D positive fetus n=3 Predicted D negative fetus n=1
No information	7	7 missing data 1 previous pregnancy in Romania
Total	**36**	

3 TOP and 4 miscarriages 2 unknown outcomes not included

Details of PSE in preceding pregnancy reported in 2021

Table 25.11: Details of PSE

Number of PSE	Details
13 PSE reported	**Appropriate management** • Antepartum haemorrhage 39 weeks, kleihauer < 2mL, received 1500IU anti-D Ig <24 hours • Antepartum haemorrhage, 33 weeks, kleihauer <2mL, received 1500IU anti-D Ig <24 hours • Antepartum haemorrhage, 26 weeks, kleihauer no fetal cells, received 500IU anti-D Ig 24-72 hours • Antepartum haemorrhage, 17 weeks, received 1500IU anti-D Ig 24-72 hours • Antepartum haemorrhage, 13 weeks, received 500IU anti-D Ig <24 hours • Surgical termination of pregnancy 8 weeks, received 500IU anti-D Ig <24 hours • 1 miscarriage, 12^{+4}, received 1500IU anti-D Ig 24-72 hours **Possible error in management** • Surgical termination of pregnancy omitted anti-D Ig prior to discharge **Error in management** • No anti-D Ig received for a sensitising event at 32 weeks – transcription error maternal D-type to electronic health record **Inconclusive management** • Postpartum haemorrhage, received anti-D Ig • Miscarriage no management detailed • Miscarriage no management detailed • Miscarriage 12/40 no management detailed • Termination of pregnancy no management detailed
23 cases had no PSE reported	
9 cases had no information on PSE	

Since reporting began in 2013, a total of 82 PSE have been reported in the preceding pregnancies of which 53 (64.6%) were managed correctly. It is encouraging to see the antepartum haemorrhages reported have been managed appropriately.

Method of delivery of preceding pregnancy

Table 25.12: Delivery details

Type	Number of new cases 2021	Number of cases cumulative to 2021
No information	6	65
Vaginal	19	127
Instrumental	2	14
Elective caesarean section (El CS)	5	32
Emergency CS (Em CS)	4	36
Total	**36**	**274**

3 TOP and 4 miscarriages 2 unknown outcomes not included

Gestation at delivery of preceding pregnancy

Table 25.13: Gestation at delivery of preceding pregnancy

Gestation at delivery (weeks)	Number of new cases 2021
40 weeks or less	26
More than 40 weeks	4
No information	6
Total	**36**

3 TOP and 4 miscarriages 2 unknown outcomes not included

Cumulatively (data collected from 2015 onwards), 43 out of 230 previous pregnancies (18.7%) lasted longer than 40 weeks. NHS maternity statistics 2019-2020 indicate 15.9% pregnancies extended beyond 40 week.
https://www.gov.uk/government/statistics/nhs-maternity-statistics-england-2019-20.

Postpartum management in preceding pregnancy

Table 25.14a: 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
22	17	2	2	1	**6**	1 no reason provided 4 D-negative neonates 1 transcription error maternal D group to electronic health record	**8**

3 TOP and 4 miscarriages 2 unknown outcomes not included

Table 25.14b: Postpartum anti-D Ig prophylaxis

What happened?	Number of new cases 2021	Number of cases cumulative to 2021
FMH test and appropriate dose of anti-D Ig	21	154
No prophylaxis	2*	18***
Incorrect dose/timing of anti-D Ig	0	7***
No information	9	75**
D-negative baby	4	20
Total	**36**	**274**

3 TOP and 4 miscarriages 2 unknown outcomes not included

**Declined (1), transcription error maternal D group to electronic health record (1)*
***No consent for FMH test given 500IU (1), not able to determine if correct dose in absence FMH test, no FMH test detail so not able to determine if correct dose in absence FMH (2)*
****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*

Anti-D detected at first trimester booking of index pregnancy n=18

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

Table 25.15: Details of management in previous pregnancy (- =no information/unknown)

Case	Obese (booking weight >80kg)	RAADP	PSE	Delivery gestation (weeks)	Delivery route	PPP	Risk factors identified
1	-	-	Yes	-	Vaginal	D-positive neonate FMH data missing anti-D Ig	Postpartum haemorrhage
2	No	Yes	No	39	Vaginal	D-positive neonate FMH (K) no fetal cells 1500IU anti-D Ig	None 1 previous pregnancy
3	-	No	Yes	NA	NA	NA	TOP $9+^{6}$ 500IU anti-D Ig
4	No	Yes	No	39^{+5}	Elective C-Section	D-positive neonate FMH (K) no fetal cells 1500IU anti-D Ig	None 1 previous pregnancy
5	-	Not documented	No	42	Vaginal	D-positive neonate FMH (F) <2mL 1500IU anti-D Ig	Inconclusive – no documentation RAADP 42 weeks

Case	Obese (booking weight >80kg)	RAADP	PSE	Delivery gestation (weeks)	Delivery route	PPP	Risk factors identified
6	Yes	Yes	Yes	$40+^{3}$	Emergency C-Section	D-positive neonate FMH (F) no fetal cells 1500IU anti-D Ig	Obese APH – correct management 17^{+4} , 1500IU anti-D Ig 2 previous pregnancies 1 live birth 1 miscarriage
7	-	Yes	No	41	Missing data	D-positive neonate FMH (K) no fetal cells 1500IU anti-D Ig	41 weeks
8	-	-	Yes	NA	NA	NA	Undisclosed miscarriages no medical assessment
9	-	-	-	-	-	-	Inconclusive – No record available
10	No	Yes	No	$37+^{4}$	Vaginal	D-positive neonate FMH (K) <2mL 500IU anti-D Ig	4 previous pregnancies 4 Live Births
11	No	No - declined	No	41^{+1}	Instrumental	D positive neonate FMH (K) >2<4mL declined	Declined RAADP & PPP 41^{+1}
12	-	Yes	No	40^{+5}	Vaginal	D-positive neonate FMH (K & F) <2mL 500IU anti-D Ig	40^{+5}
13	-	Yes	No	40	-	D-positive neonate FMH (K) <2mL 1500IU anti-D Ig	None 1 previous pregnancy
14	Yes	No	Not known	39^{+6}	Vaginal	No	Transcription error maternal D group to electronic health record wrong transcribed D-positive
15	-	-	-	-	-	-	Previous TOP No further record available
16	-	Yes	Yes	39	Vaginal	D-positive neonate FMH (K) <2mL 1500IU anti-D Ig	APH – correct treatment 39/40, KH <2ml, 1500IU anti-D Ig 4 previous pregnancies 4 previous live births
17	-	NA	Yes	NA	NA	NA	Undisclosed miscarriage TOP 2 live births
18	-	Yes	Yes	34	Missing data	D-positive neonate FMH (K) <2mL 1500IU anti-D Ig	APH – correct treatment 33^{+1}, KH <2ml, 1500IU anti-D Ig 1 previous pregnancy

Gaps in data in these cases make analysis difficult, however there are at least 10 cases where apparently 'ideal' management still resulted in immunisation, including 2 with 3 or more prior pregnancies, 1 termination of pregnancy and 3 antepartum haemorrhages where documented management appears to be correct. Three cases did not receive RAADP (1 declined, 1 no detail provided, 1 transcription error maternal blood group and D-type). 5 delivered beyond 40 weeks, 7 had a PSE: 4 appear to be treated according to current guidelines, in 2 cases there were undisclosed miscarriages identified in retrospect and in 1 case there is inadequate data to conclude.

Alloimmune anti-D detected after first trimester in index (current) pregnancy n=27

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 of index pregnancy?

Table 25.16: Booking weight

Weight at booking in kg	Number of new cases 2021	Number of cases cumulative to 2021
<68	13	68
68-80	5	40
>80	2	33
No information	7	47
Total	**27**	**188**

Cumulatively, 33 out of 141 (23.4%) women where booking weight was provided, and who developed alloimmune anti-D in the index pregnancy, were clinically obese. National data (NHS digital 2019) report 22% incidence of obesity in pregnant women in England. https://files.digital.nhs.uk/58/FFD7B1/msms-mar19-exp-rep.pdf. Further research is required to determine if obesity is truly associated with increased alloimmunisation risk.

RAADP in index pregnancy

Table 25.17: Details of RAADP

RAADP given or not	Number
Single dose 1500IU	14
Two dose 500IU	0
Not given	12
Alloimmune anti-D present prior to RAADP	*6*
Miscarriage	*1*
Delivered at 28/40	*1*
Declined	*1*
Did not attend	1
Predicted D-negative fetus	2
Missing data	1

cffDNA testing

Table 25.18: cffDNA testing

cffDNA test	Number of cases	Details
Not performed	16	10 test not available/ not routinely performed 1 sample no taken 1 partner D-negative 4 reason unknown
Performed	9	Test performed by international blood group reference laboratory (IBGRL) 7 D-positive, 1 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 25.19: Details of potentially sensitising events

Number of women	Details
3 cases PSE reported prior to detection alloimmune anti-D	• APH 24^{+6}, no anti-D Ig received – did not seek advice • Fall/trauma, no anti-D Ig received – did not seek advice • Fall/ trauma 12/40, 1500IU anti-D Ig received
24 cases no PSE reported	

Outcomes of pregnancies reported in 2021

Table 25.20: Outcome of pregnancies reported in 2021

Number of cases	Outcome
39	Live births (1 neonatal death – no evidence HDFN)
1	Miscarriage
1	Stillbirth
1	Termination of pregnancy
3	Outcome data missing
25	No treatment
14	Treatment
12	Phototherapy
1	Phototherapy and Immunoglobulin
1	Phototherapy, Immunoglobulin and exchange transfusion
3	Data missing

Case 25.8: Awareness and support to attend following PSE

A D-negative woman in her late 20s, weight 68kg, gravida 2 para 1 booked at 10 weeks no alloimmune anti-D detected. Maternal cffDNA result at 17 weeks was inconclusive. At 28 weeks alloimmune anti D was detected 0.1IU/mL, the highest quantification recorded was 0.5IU/mL at 32 weeks. The woman had fallen at 16,19 and 26^{+5} weeks however did not seek medical advice. The pregnancy resulted in a live birth of a D-positive baby at 38 weeks, no signs of HDFN and no treatment required. The previous pregnancy booked at 9^{+5}, cffDNA predicted a D-positive fetus, the mother received RAADP and there were no PSE. The mother delivered a D-positive baby at 39^{+5}, kleihauer showed no fetal cells, 1500IU anti-D Ig was provided.

While in this case, the baby was not affected, there was a potential risk of harm due to HDFN as anti-D Ig was not given following PSE during pregnancy. This was because the patient did not access medical help. It is important that all mothers are aware of the need to seek medical help following a PSE. Individual circumstances may still prevent the mother attending to seek advice/ treatment.