Reference Number: UHBOBS174 **Version Number: 2**	**Date of Next Review: 08/10/2022** **Previous Trust/LHB Reference Number:N/A**

Antenatal Screening Guidelines

Introduction and Aim

Antenatal Screening Wales (ASW) has produced an ASW Policy, Standards and Protocols 2015, with amendments made in 2019. ASW was asked by the Welsh Assembly Government (WAG) to establish policies, standards and a performance management framework for antenatal screening delivered by maternity services in Wales. As is part of Public Health Wales (PHW), Screening Division, who have extensive expertise in the management and provision of population based screening programmes. ASW sits within Maternal and Child Screening. Governance for the work is provided by the Quality and Clinical Governance Group and the Sub Groups.

Due to the amount of separate guidelines for Antenatal Screening, it was decided to amalgamate all relevant guidelines into one document for easy accessibility for staff.

This Document is supporting the ASW Policy, Standards and Protocols 2015 which has been updated accordingly. It incorporates a number of individual Policies, Standards and Guideline's.
http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/2b%20Standards%20and%20protocols%202019%20Final%20Version%20August%202019%20English.pdf

Objectives

The aim of this document is to enable all staff to have easy access to one document pertaining All Antenatal screening guidance. This will be reviewed periodically as per national guidance and whenever any of the attached Policies, Protocols and Guidelines change.

Scope

This policy applies to all healthcare professionals in all locations including those with honorary contracts

Equality Health Impact Assessment	*An Equality Health Impact Assessment (EHIA) has not been completed.*
Documents to read alongside this Procedure	
Approved by	*Maternity Professional Forum*

Accountable Executive or Clinical Board Director	*Ruth Walker, Executive Nurse Director*
Author(s)	*Natasha Thomas, Screening Midwife* *Annie Burrin, Antenatal clinic lead*

1.1.1.1.1.1 Disclaimer

If the review date of this document has passed please ensure that the version you are using is the most up to date either by contacting the document author or the Governance Directorate.

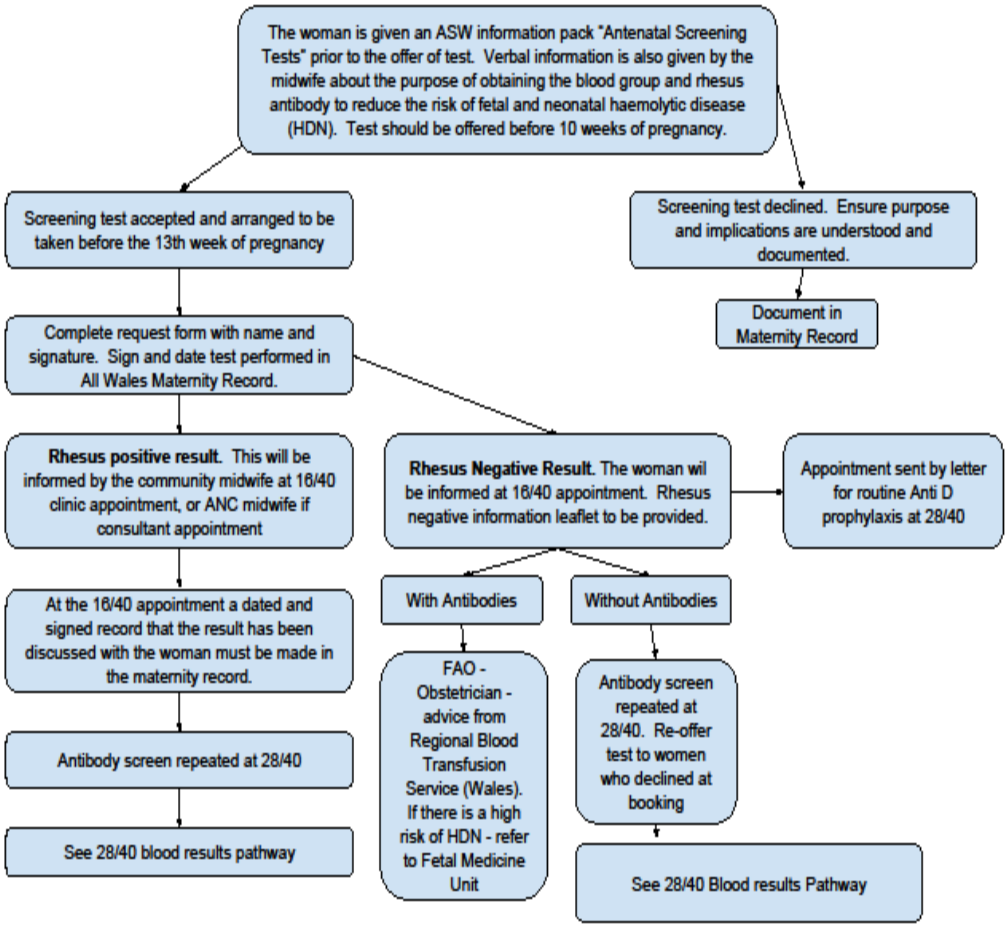
Summary of reviews/amendments

Version Number	Date of Review Approved	Date Published	Summary of Amendments
1	*12/10/2018* *09.09.2019*	*08/11/2018*	New Document amalgamating pre existing screening documents and ASW updates
2	*06/10/2019* *MPF* *11/10/2019*		ASW updated
3			HIV pathway has been removed from this document and will sit under H in main guideline for accessibility by all MDT.
4	*22/06/2020*	*22/06/2020*	Covid-19 Pandemic update Papp-a Guideline

1 Table of Contents

Contents

2 Antenatal Blood Group and Antibody Screening



- There are four main blood groups: group O, group A, group B and group AB. There is also another blood factor called the Rhesus (Rh) D group and people have a blood group and Rh group, e.g. group O RhD - positive. Rh factor is a protein found in red blood cells in about 85% of people and its presence denotes a person is Rh D-positive. If it is absent, the person is RhD-negative.

- During pregnancy there is the possibility of maternal antibodies passing from the maternal bloodstream into the fetus. This can cause a rare condition called **haemolytic disease of the fetus and new-born (HDFN)**. This most commonly occurs when the woman is RhD negative and the baby is Rh D positive, although a number of other red cell proteins (such as Kell, c, Duffy

and Kidd) may also cause maternal IgG antibody production, leading to HDFN.

- **A copy of the ASW 'Antenatal Screening Tests' pack should be provided before the woman is asked to consent to this test. Where women have a different language or communication need the midwife should ensure the ASW 'easy read' leaflets are provided as an alternative.**

- **All women who have previously had an infant affected by HDFN should be offered a referral and reviewed by 19+6 weeks gestation in a specialist unit for advice and for assessment of fetal haemolysis, irrespective of antibody level (BSH 2016).**

- **The person taking the sample must make a signed and dated record of the sample being taken in the All Wales Maternity Record.**

- **The laboratory must be appropriately accredited in accordance with United Kingdom Accreditation Service, and compliant with ISO standard 15189 for antenatal blood group and antibody screening tests**

- **The sample must be received by the local laboratory within one working day of the sample being taken.**

- **Where significant antibodies are identified, the laboratory must email the result to the relevant generic email box in Health Board within one working day of reporting.**

- **Results should be issued to the clinical team taking care of the woman during her pregnancy. Laboratories should not normally give results to health professionals following a telephone enquiry unless there is a clear indication of clinical need that affects immediate management of care.**

2.1 Rhesus D Negative, Antibody Negative Results

The woman should be informed of the implications of being Rhesus D negative.

2.2 Results of baby

If the baby is RhD-positive, non-sensitised women who are RhD-negative should be offered, and if accepted, given postnatal anti D prophylaxis by the maternity service, within 72 hours of delivery (BCSH 2014) and a record made in the Health Board approved record.

Back to Contents

3 Infections and Rashes in Pregnancy

This is a document provided by Antenatal Screening Wales to provide a basic overview for professionals; of infections and vaccinations that are relevant in pregnancy and the diagnostic tests that are available.

As per ASW, the document was written in 2017 and updated in December 2019, it is broken down into 5 sections

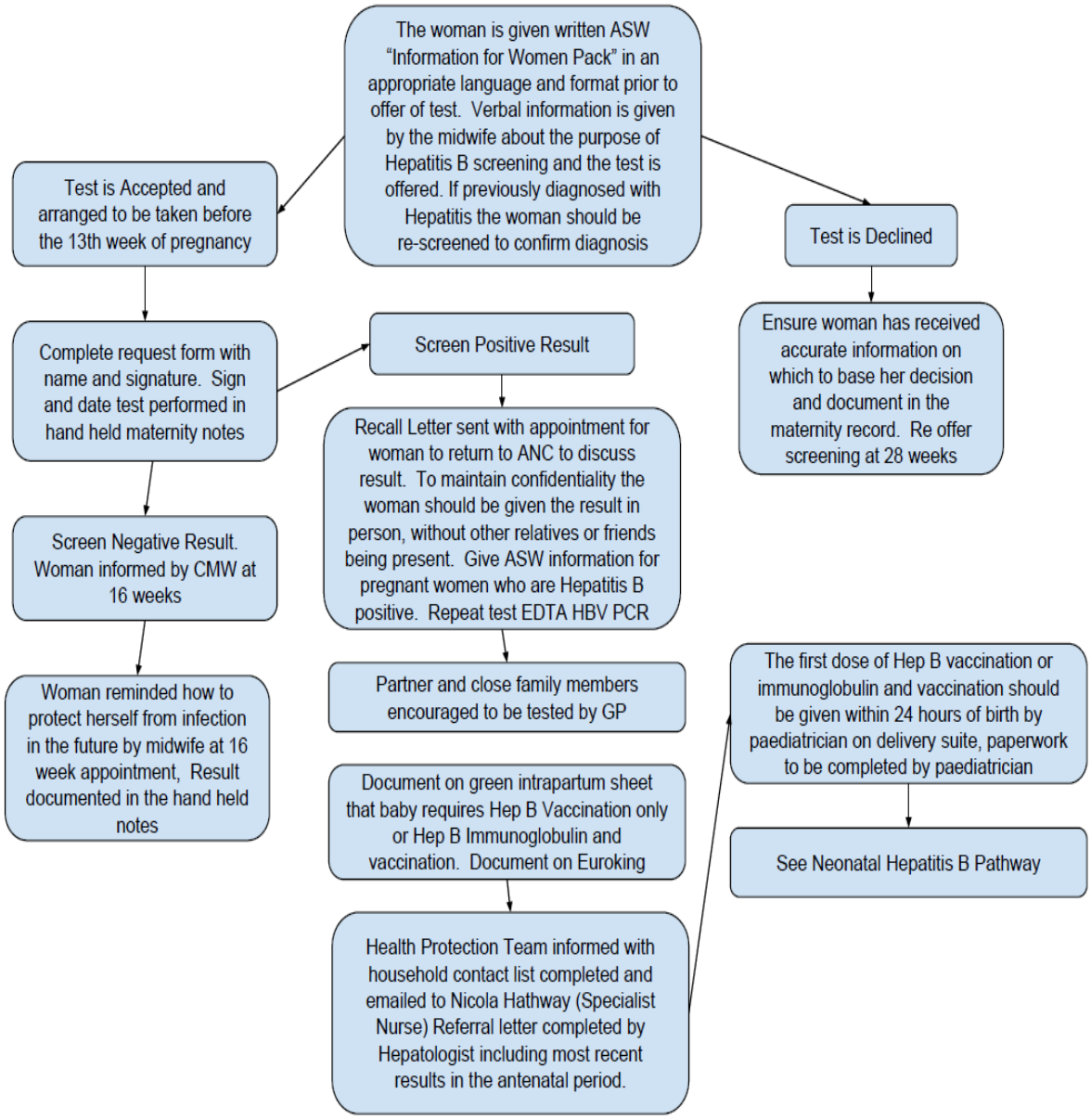
- Antenatal Screening Tests
- Vaccinations
- The diagnosis and management of rashes in pregnancy
- Infections associated with abnormal fetal ultrasound findings
- Common infections in pregnancy

The document was written to provide an easy reference tool for professionals. Any concerns or queries please contact our Virology Department.

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V3a-Final%20Infections%20in%20Pregnancy%20August%202017.pdf

Back to Contents

4 Hepatitis B Screening Pathway



- The laboratory will usually email the result to the relevant generic email box in the Health Board unless the laboratory need to discuss the result with the screening coordinator or deputy.

- The antenatal screening coordinator (or named deputy) must be informed of hepatitis B reactive test results within one working day by the laboratory.

- Babies born to women who are hepatitis B positive will require (with maternal consent) immunisation in accordance with Immunisation Against Infectious Diseases – Hepatitis B: 'The Green Book' (DOH 2017).

4.1 Reactive Result Factsheet for Women from ASW

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/968/V1%20-%20Information%20for%20women%20who%20have%20recevied%20an%20initial%20reactive%20result%20English.pdf

4.2 Reactive result fact sheet for professionals from ASW

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V1-Protocol%20for%20Hepatitis%20B%20Reactive%20Results%20in%20Pregnancy.pdf

- The virology report will stipulate on the woman's results if she has a reactive result. The report will advise accordingly when the patient needs to re- attend for repeat bloods.

- The report will usually advise repeat bloods in 3-5 weeks from the report date.
- Discuss with the woman her results and try to alleviate any initial anxieties.
- Discuss the reactive fact sheet with the woman.
- Obtain bloods following consent.
- Update E3 and the woman's hand held-notes.
- Contact the woman accordingly when the results are available.

Back to Contents

4.2.1 Hepatitis B Household Contact List

Mothers Details (Addressograph)		Contact Number:	
GP Practice, Address and Tel. Number:			
Ethnicity of Mother:			
Black-African	☐	Black-Caribbean	☐
Black –Other (specify)	☐	Chinese	☐
South Asian	☐	Other Asian	☐
White	☐	Other (specify)	☐
Interpreter Required? Yes / No		Language?	
Other Children:	Name	Address	DOB
Born in the UK? Yes / No		Any Hep B Vaccines Given? Y / N	
Born in the UK? Yes / No		Any Hep B Vaccines Given? Y / N	
Born in the UK? Yes / No		Any Hep B Vaccines Given? Y / N	
Other Household Contacts:			
Name: DOB: Relationship to Case: GP Details:			
Name: DOB: Relationship to Case: GP Details:			
Name: DOB: Relationship to Case: GP Details:			

Name: DOB: Relationship to Case: GP Details:	

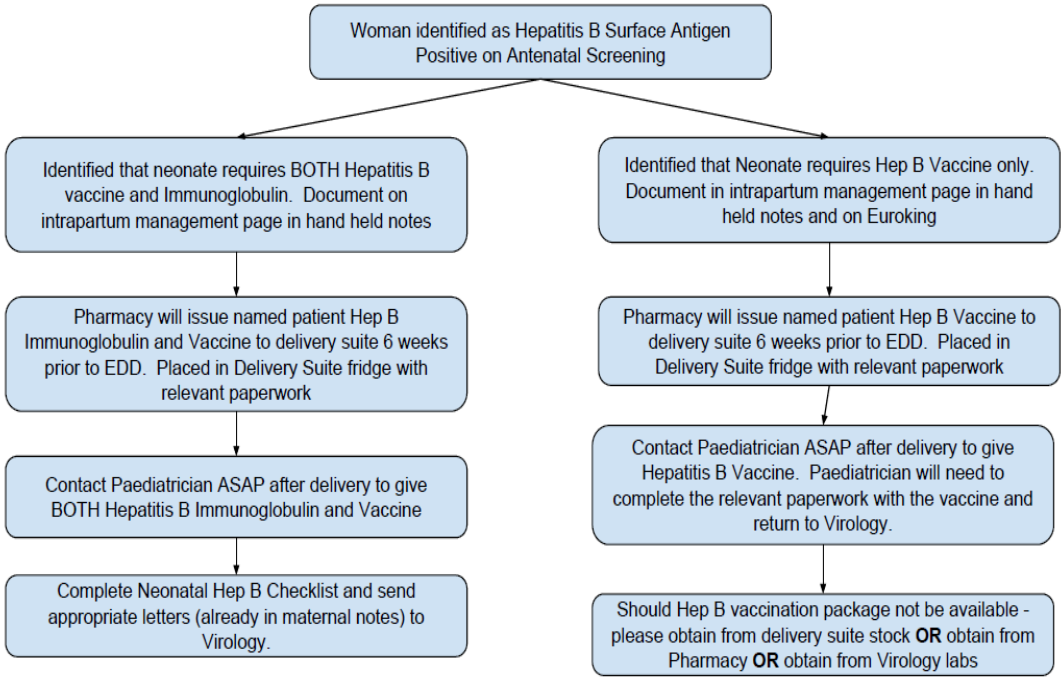
Please forward to:

Health Protection Nurse, NPHS
Public Health Wales
No2 Capital Quarter, Tyndall Street
Cardiff CF10 4BZ

4.2.2 Women Identified as Hepatitis B Surface Antigen Positive on Antenatal Screening

		Midwife Signature
Neonate Requires Vaccination Only Yes / No		
Neonates Requires Immunoglobulin **and** Vaccination Yes / No		
Named patient prescription is available in fridge	☐	
Paediatrician informed as soon as possible after delivery	☐	
Paediatrician administers wither Hep B Immunoglobulin & vaccination or Hep B vaccination only within 24 hours. Paediatrician to complete relevant paperwork and return to Paediatric Secretary	☐	
Midwife to document in maternal notes Hep B Immunoglobulin and vaccination given or Hep B vaccination given	☐	
Paediatrician to complete appropriate forms:		
• Hep B immunoglobulin & vaccine (yellow form)	☐	
• Hep B vaccination only (white form)	☐	
And return to Virology in envelope provided.	☐	

4.2.3 Neonatal Hepatitis B Pathway



4.2.4 Infections and Rashes in Pregnancy – ASW 2017; Hepatitis B

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/Infections%20and%20Rashes%20in%20Pregnancy%20Guidance%20%28revised%20edition%29%202017.pdf

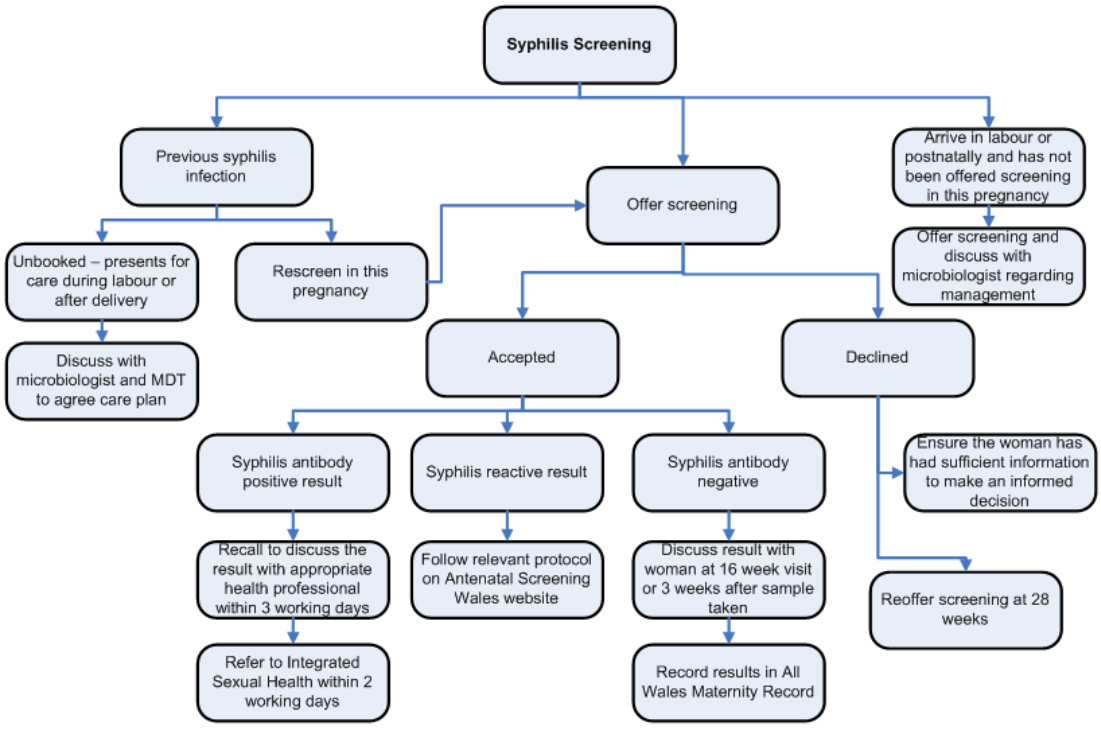
4.2.5 ASW Policy Standards and Protocols 2019

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/2b%20Standards%20and%20protocols%202019%20Final%20Version%20August%202019%20English.pdf

Back to Contents

5 Syphilis

5.1.1 Syphilis Screening Pathway



5.1.2 Referral Process to Integrated Sexual Health (ISH) / Consultant Obstetrician

- The laboratory will usually email the result to the relevant generic email box in the Health Board unless the laboratory need to discuss the result with the screening coordinator or deputy.

- The antenatal screening coordinator (or named deputy) must be informed of syphilis reactive test results within one working day by the laboratory.

- Patient informed of infection on her own and information provided (ASW patient information leaflet)

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/968/Information%20for%20women%20who%20are%20syphilis%20positive%20English.pdf

- Referral form completed – Refer to 8.4 and emailed to ISH
- Consultant Obstetric appointment to be made with Dr Aamna Ali

- Screening Coordinator to maintain database to discuss at MDT meetings
- E3 to be updated, alongside clinic card and All Wales notes (If appropriate)
- Women with a confirmed syphilis positive result should have an urgent appointment (within two working days) to Integrated Sexual Health for assessment, counselling and possible treatment.
- A birth plan (BASHH 2015) should be used to facilitate liaison with the obstetrician and paediatrician in the management of the baby.

5.1.3 Infections and Rashes in pregnancy. ASW 2017; Syphilis:

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V3a-Final%20Infections%20in%20Pregnancy%20August%202017.pdf

5.1.4 Syphilis reactive results – ASW Fact sheets for professionals

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V1-Protocol%20for%20Syphilis%20Reactive%20Results%20in%20Pregnancy.pdf

5.1.5 Syphilis reactive results – ASW Fact sheets for women

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/968/V1%20-%20Information%20for%20women%20who%20have%20recevied%20an%20initial%20reactive%20result%20English.pdf

Syphilis positive results – ASW fact sheets for women
http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/968/Information%20for%20women%20who%20are%20syphilis%20positive%20English.pdf

5.1.6 Antenatal Screening Referral for Positive Syphilis Serology

Mr/Mrs/Dr
Integrated Sexual Health (ISH)
Cardiff Royal Infirmary
Newport Road

Addressograph:

ISH Number:

Date:

EDD:

Date of Positive Screening Result:

ELISA: VDRL/RPR: Pos: TPPA:

Date referred to ISH & Confirmatory STS taken:

Midwife
Antenatal Clinic
UHW

Date:

Date first seen at ISH:

Results:

1
ELISA: VDRL/RPR: TPPA:

2
ELISA: VDRL/RPR: TPPA:

Stage of Syphilis:

Primary ☐
Secondary ☐
Early Latent ☐
Late ☐

Treatment Give:

Dates of Treatment:

1

2

3

Post Treatment Results:

Date: VDRL:

TPPA:

Has patient been treated adequately? Yes □ No □

Baby's Management:

Blood Test Only □

Blood Test and Treatment □

Maternal Follow Up Bloods:

	Date Bloods Taken	Results
1 month		VDRL:
2 months		VDRL:
3 months		VDRL:
6 months		VDRL:
1 year		VDRL:

Back to Contents

6 Genital Herpes

Genital herpes simplex virus (HSV) infection is one of the most common, viral, sexually transmitted infections. HSV can cause cold sores on the face and lips (HSV 1 usually) or sores on the genitals (HSV 2 usually). Once infected with either type the virus remains within the body for life and the symptoms can recur. The majority of women with genital herpes will have a recurrence during pregnancy. Transmission of the virus from mother to fetus typically occurs by direct contact with the virus in the genital tract during birth.

Neonatal HSV is very rare but is a serious viral infection with a high morbidity and mortality. Surveillance suggests that the incidence may be increasing. This has been attributed to the prevalence of sexually transmitted infections, demographic and social changes within the general population and improvements in diagnostic techniques. The majority of women with genital herpes give birth to healthy babies. (ASW 2017)

6.1 Management in Pregnancy

Difficulties arise in identifying patient groups. Detailed history taking is essential. There are serological tests that can differentiate between HSV 1 and HSV 2 antibodies however, these are not readily available and accessing these investigations requires a discussion with virologist at a national centre. There is a long turnaround time for these results. Please discuss with senior Doctors within Obstetrics.

N.B. Discussion with a consultant in sexual health and a consultant microbiologist/ virologist is recommended.

6.1.1 Infections and rashes in pregnancy. ASW 2017; Genital herpes in pregnancy

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V3a-Final%20Infections%20in%20Pregnancy%20August%202017.pdf

6.1.2 The most recent national guidance for Genital Herpes in pregnancy is joint BASHH/RCOG

https://www.rcog.org.uk/globalassets/documents/guidelines/management-genital-herpes.pdf

6.1.3 Additional staff members to contact for advice within CAV

Consultant in Integrated Sexual Health - CRI
Dr Laura Cunningham

Dr Rachel Drayton

Nurse at Integrated Sexual Health - CRI

Leasa Green

Stewart Attridge – Advanced Nurse Specialist

Virology Consultants – UHW – Virology Laboratory

Dr Catherine Moore

Dr Rachel Jones

Back to Contents

7 Down's, Edwards and Patau's Screening

7.1 Guidance for offering ante natal screening for Down's syndrome, Edwards syndrome and Patau's syndrome

Antenatal screening for Downs syndrome, Edwards syndrome and Pataus' syndrome, is to identify women who have an increased chance of having a baby with one of the three syndromes with a combined screening test. The main aim is to allow women and their partners to make an informed decision. This enables them to decide whether to have further screening such as Non Invasive Prenatal testing (NIPT) or to consider diagnostic testing and, if necessary make choices about continuing the pregnancy. It is important to emphasise that this is a SCREENING test and not a DIAGNOSTIC test.

The screening test for Downs syndrome, Edwards syndrome and Pataus' syndrome, should be offered to all women including twin pregnancies, the exclusion are for women with a gestational age of >18 weeks who are booking for antenatal care at Cardiff and Vale University Health Board.

It is essential that Community Midwives counsel the women during their first booking appointment in the *community to establish informed consent as Health Care Support Workers (HCSW) will be generally be running the clinic*. Women will also have access to a film clip developed by Antenatal Screening Wales (ASW) as well as literature to read. In addition, an Easy Read alternative will be available for some women to aid understanding.

The Benefits of the Combined Test:

- Offered at the time as the Dating scan
- Results are available to women earlier in pregnancy
- NIPT can be offered to women (this is not a diagnostic test and will be unavailable for twin pregnancies)
- An earlier diagnostic test will also be offered to women, including those with a twin pregnancy
- The detection rate for Combined Screening is 80% for a positive screen rate of 3.0%
- The main benefit of the combined test is that the screen positive rate is slightly lower than the quad test. So fewer women should receive a screen positive result.

The combined screening is undertaken before 14weeks +1 day of pregnancy and uses ultrasound Nuchal Translucency (NT) measurement, plus serum biochemistry testing to measure free beta hCG and pregnancy associated plasma protein A (PAPP-A). In addition, the woman's age, weight, ethnicity,

fertility details, smoking status and diabetic information will be obtained on the request card.

If the woman is too late for the Combined Screening, the Quad Test will be offered if the woman presents before 18 weeks (15+0-18+0). The Quad test is only available for singleton pregnancies. Refer to flowchart of Antenatal syndrome screening first visit process.

The Quadruple Test will be available for those women who attend later in pregnancy up to 18 weeks. This second trimester screening test will measure 4 biochemical markers Alpha-fetoprotein (AFP), Human Chorionic Gonadotrophin (HCG) Oestriol (Ue) and Inhibin A are measured and adjusted in-conjunction with woman's age, weight, smoking status, ethnicity and USS measurement to assess gestational age to give a low or high chance screening risk.

The calculation of risk is performed using quality assured computer designed for the particular combinations. The Laboratory Downs screening service is quality assured. Using ultrasound dating the QUADRUPLE test can detect about 80% of affected pregnancies for about a 4% screen positive rate. A chance factor of 1 in 150 is used as a cut off between low and high chance. (ASW revised standards and protocols 2019)

7.2 User guidelines

Prior to the test being taken:

- A copy of the revised ASW 'Information for Women' pack should be provided before the women attends the hospital screening appointment.
- The Community Midwife must ensure verbal pre- test information to include the following:
    - purpose of the test and the condition being screened for
    - test procedure
    - likelihood of detection
    - when/ how results are returned
    - meaning of a screen negative result
    - Explanation of a screen positive result
    - options available following a screen positive result
    - Explaining options available following a positive diagnosis.
    - Signposting the woman where further information can be obtained.

If screening is declined midwife to document clearly within All Wales maternity record and arrange the appointment for First trimester screening but inform the Co-ordinator that Down's syndrome Screening will not be required when booking the appointment. This is to be recorded on the appointment list.

If screening is accepted an appointment will be needed between 11^{+2} – 14^{+1} weeks gestation, however **12 weeks is an optimum time**.

If the woman's gestation is more advanced, the Booking appointment will still be required and then a Quad test offered between 15+0 – 18+0 weeks.

If a woman has a family member with Down's, Edwards or Patau's syndromes consider referral to Medical Genetic services following discussion with the woman

7.2.1 Arranging test at hospital booking

Following acceptance of screening for Downs, Edwards and Pataus' syndromes a record of verbal consent should be made in the hand held maternity record by the midwife. If an interpreter is needed, Big Word will be required. Midwife to document in the maternity record that consent has been obtained with an interpreter.

The Midwife will need to complete the biochemistry request card (Blood Form) to screen for Downs, Edwards and Pataus' Syndromes. A label indicating acceptance or decline for Dating Scan, Downs Edwards and Pataus' Syndrome

Screening and Anomaly Scan needs to be attached to the scan form confirming the scans that have been consented.

An appointment for First Trimester Screening Clinic to be arranged by the midwife at the booking appointment. Optimum time for arranging the test is 12 weeks gestation.

The woman is informed that if she fails to attend the First Trimester Clinic for Screening, a further appointment will be offered dependent on availability. The appropriate test will be offered depending on gestation.

The date and time of the First Trimester screening appointment should be documented in the hand held maternity record by the midwife.

In view of the Covid-19 Pandemic, we understand that some women will need to self- isolate if they have been symptomatic or if their household family member has been symptomatic. The guidance for self -isolating may well change during the course of the pandemic, we will try to make the appointment in a timely manner for the scans and bloods as per ASW standards, however during the course of the pandemic; we have to adhere to Welsh Government guidance to ensure that safety of all is considered at all times (March 2020 -).

7.2.2 Performing Combined Screening at Hospital

Sonographer will check if the woman has been consented for the NT screening by checking the scan form has been completed and has the completed Downs, Edwards and Pataus' syndrome consent form. If the woman was undecided at booking, a midwife within Antenatal clinic will obtain the consent and will be available if additional counselling is needed. This will be documented in the woman's handheld record.

Sonographer checks that the woman is the correct gestation following scan, if too early refer to the Health Care support worker (HCSW) who will arrange a follow up appointment for combined screening.

If this is a twin pregnancy which is already known, a double appointment will be issued. Counselling will be offered during this appointment also. ***Refer to twin pathway.***

If this is a newly diagnosed twin pregnancy, the woman will need to be counselled prior to completion of the scan. ***Please refer to twin pathway***.

The HCSW within the First Trimester clinic must ensure the Community Midwife has completed the blood forms and is aware of the results procedure.

Women's height, weight and BMI at time of the test is undertaken by HCSW and checks all details are correct.

Person taking blood sample documents in the hand held maternity record that the test has been taken (date and signature required).

Addressograph placed in Down's syndrome screening record (DSSR) with date test was obtained.

Woman informed to contact ANC if no result received within 10 working days

The Down's syndrome contact sheet should be completed by the HCSW and retained in ANC in case a high chance result is received and the woman needs to be contacted and recalled to ANC.

Blood samples are sent to the laboratory by 4pm each day.

7.2.3 Results process

Low chance Down's syndrome screening results are available within 3 working days of the blood received in the endocrine laboratory at UHW.

Results will be emailed by via Cav Sears Account to both University Hospital Wales (UHW) and University Hospital Llandough (UHL). Results to be reviewed on a daily basis and acted upon by Screening Midwife or Midwife who is experienced at interpreting the results.

Clinic List Results will be printed out by MCA running the First Trimester Screening Clinic on a daily basis in UHW and UHL.

Low chance Down's syndrome screening letter is produced by clerical support who will sign the letter on behalf of the midwife and posts it to the woman within 10 working days of blood sample being taken

Down's syndrome screening results sheet to be filed in allocated folder in office and kept for one calendar month.

High chance Down's syndrome screening results are available within 3 working days of the blood received in the laboratory

Once a high risk result has been identified by the clerical support or Midwife from First Trimester Screening Clinic- results to be referred immediately to Screening Midwife or Day Assessment Midwife (DAU) in UHW. In UHL either inform Screening Midwife or senior Midwife to action on.

Woman is contacted within 5 working days of the sample being taken using details from E3.

Appointment is made for result to be discussed with screening midwife or other health professional with suitable skills and knowledge within 24 hours of the result being given. A face to face appointment is recommended. Big Word can be used for interpretation.

Midwife should discuss having a baby with either Downs syndrome, Edwards syndrome or Patau's syndrome.

Woman with a singleton pregnancy will be offered 1.No further screening,
2. Non- Invasive Prenatal Testing (NIPT) 3.Diagnostic / Invasive screening.
Procedures and risks explained and ASW written information booklet to be provided. The National miscarriage rate given is 1% for Amniocentesis and up to 2% for CVS (ASW, 2017).

Allow sufficient time for woman to make decision about having a diagnostic test. Pregnancy choices and support is necessary for all women.

If amniocentesis is accepted it should be performed in a timely manner in Fetal Medicine Unit at UHW or at UHL. CVS will be performed in Fetal Medicine Unit.

Contact numbers given to women should further information be required.

7.3 Failsafe System

At the end of each week MCA to check the previous weeks' results to ensure all results have been received via email from Cav Sears. If, any results have not been received, lab to be contacted on EXT 42196 to enquire to whereabouts of sample. Support to be sought from Screening Midwife for any unresolved issues (or ANC Manager).

Raised AFP (≥3.0 MoMs) or Low PAPP-A (< 0.415 MoM)
For those women having a Quad test and AFP above >3.0 MoMs or Combined Test with a low PAPP-A (< 0.415 MoM) to be referred to Screening Midwife or her Deputy.

Please refer to Low Papp-a guideline which has been implemented on 22nd June 2020.

Incomplete/ incorrect information on the Down's syndrome screening request form

The Down's syndrome screening laboratory will email any incomplete or incorrect details on the request forms on a daily basis. ANC midwife/clerk will obtain CHSC and inform midwife immediately

The antenatal clinic midwife will obtain correct information and email the Downs syndrome generic email with the correct information and ring the laboratory to clarify the information has been emailed.

The antenatal clinic midwife needs to ring the laboratory on 029 20742196 to ensure they have received the amended form.

The ANC midwife/clerk will make a note in the DSSR that the result is being recalculated and result is still outstanding

ANC midwife/clerk who is checking the Down's syndrome screening book on a daily basis ensures that results have been received for the recalculated tests

A note will be made in the CHSC by the midwife that there will be a delay in receipt of result

Screening midwife requests copies of the incorrect request forms from the endocrine laboratory on a daily basis, excluding weekends.

Screening midwife emails antenatal clinic lead on a monthly basis of the error rate with the names of the midwives involved. The error rate will be given to Antenatal Screening Wales on a monthly basis.

Reference:

Antenatal Screening Wales (2015) Policy, Standards and Protocols, ASW. Revised in 2018 (version 7) for NIPT implementation in Wales.

www.antenatalscreening.wales.nhs.uk

7.4 Ultrasound measurements to be used for Combined Downs Syndrome Screening.

Measurement	**Measurement range**
Crown-rump length	20mm – 84mm

Ultrasound measurements to be used for Quad Downs Syndrome Screening.

Measurement	**Measurement range**
Head circumference HC	88mm – 147mm
HC lower than 88mm will not be accepted as a CRL measurement for gestations lower than 13 weeks. CRL is most accurate measurement for combined screening. (ASW, 2014)	

HC parameters outside this limit MAY be accepted by the Down's screening department of Biochemistry and Immunology where the above parameters are not achievable.
In Wales, the Quad test will be available up to 18 weeks and 0 days and that equates to HC measurement of 147mm.
PLEASE RING THE LAB FOR ACCEPTABLE VALUES BEYOND THE ABOVE PARAMETERS.

ONLY ONE MEASUREMENT TO BE RECORDED FOR DOWNS SYNDROME SCREENING

MEASUREMENTS FOR THE ESTIMATION OF GESTATIONAL AGE EARLY PREGNANCY ULTRASOUND

The measurements of choice for pregnancy dating are gestation dependent

Measurement	Gestational age range
Crown-rump length	6 weeks + 0 days to 13 weeks + 0 days (5mm -68 mm)
Head circumference HC**	13 weeks +1 day to 25 weeks + 6days (88mm – 240mm)
Femur length* FL **	13 weeks +1 day to 25 weeks + 6days (10mm – 47mm)

* If head measurements are not feasible or appropriate, estimation of gestational age should be made using FL.
** These measurements can be used beyond the gestation indicated, but the imprecision around the estimate will increase significantly.

The Estimated due date (EDD) should be calculated from the scan information only in early pregnancy up to 25 completed weeks gestation.

The EDD should be assigned by an obstetrician beyond 25 completed weeks.

If there are no clinical indications, a further routine appointment for an early pregnancy scan is not required if the USS is inadvertently performed after 8 weeks and 4 days and before 11 weeks and 0 days unless Down's Syndrome Screening is requested.

References

Antenatal Screening Wales (ASW) (2010) Revised Policy, Standards and Protocols to Support the Provision of Antenatal Screening in Wales. Public Health Wales: Cardiff

Fetal size and dating: charts recommended for clinical obstetric practice
P Loughna et al (2009): Ultrasound: August 2009: 17 (3):161-167

A practical solution to combined dating and screening for Down's syndrome.
Chudleigh et al (2011):. Ultrasound: 2011; 19: 154 - 157

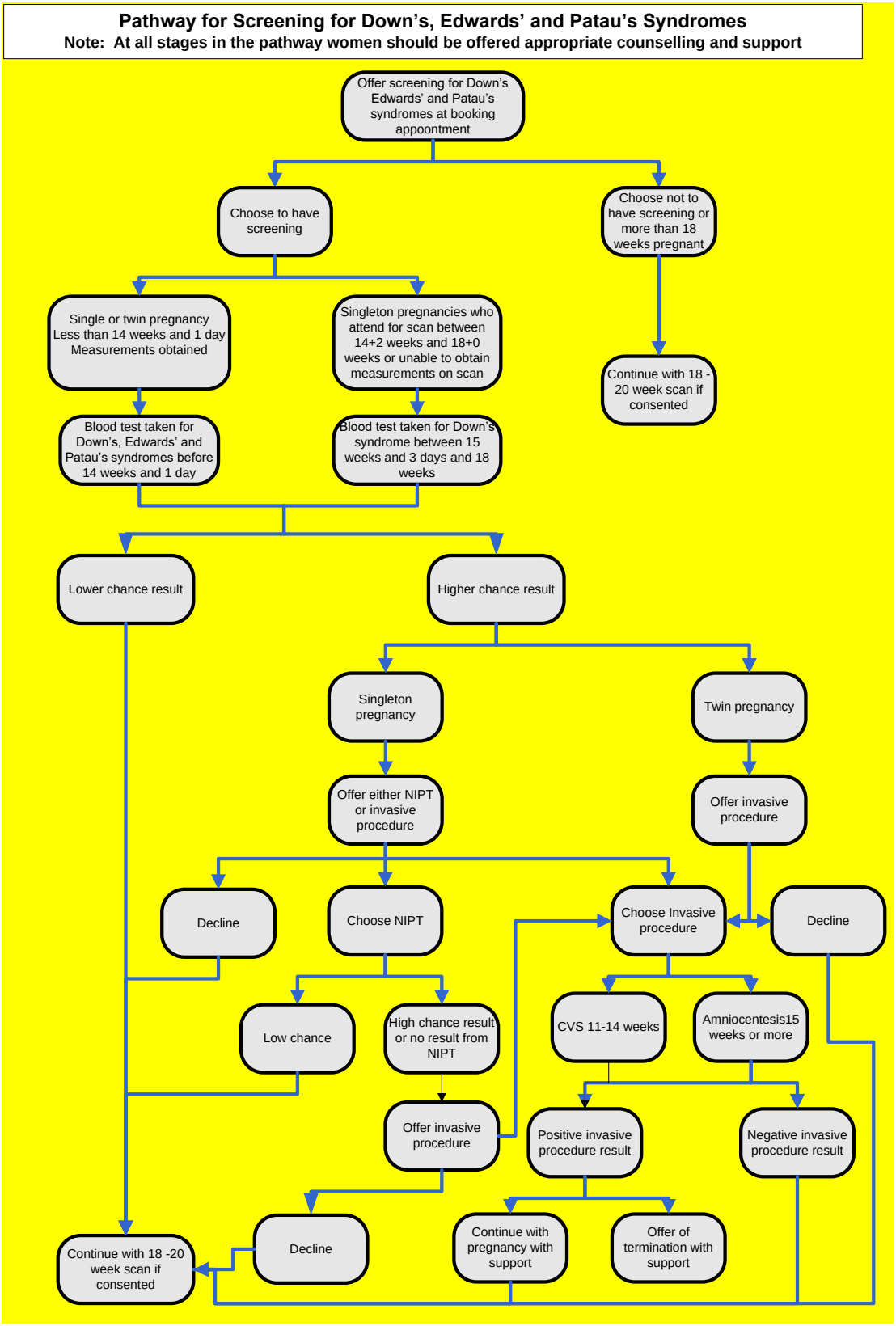
7.4.1 Vanishing twin guidance

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/Vanishing%20twin%20guidance%20for%20Down%27s%20syndrome%2C%20Edwar

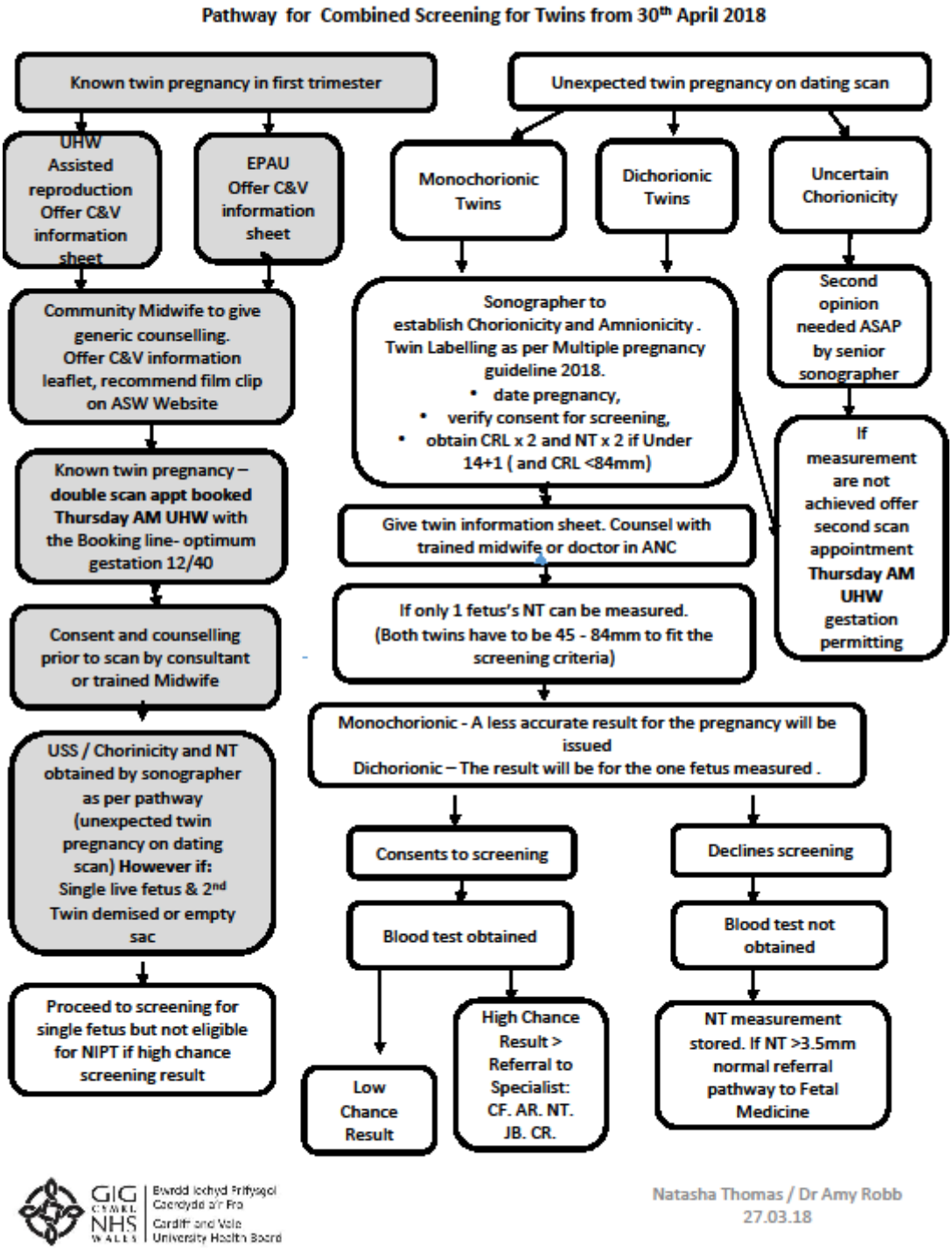
ds%27%20syndrome%20and%20Patau%27s%20syndrome%20screening%20November%202018.pdf

Back to Contents

7.5 Pathway for Screening for Down's, Edwards' and Patau's Syndromes



7.6 Twin Pathway for Down's Edwards and Patau's



7.6.1 Offering Downs syndrome, Edwards syndrome and Patau's syndrome screening when there is a failing twin pregnancy at the dating scan – please refer to vanishing twin guidance below

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/V1%20Vanishing%20twin%20guidance%20for%20Down%27s%20syndrome%20screening%20April%202018.pdf

7.6.2 Screening for Down's, Edwards' and Patau's syndromes in twin pregnancies

See Separate Guideline:

Multiple Pregnancy Guideline

7.6.3 Screening for Down's, Edward's and Patau's Syndrome in Twin Pregnancies

ASW - Crib sheet for multiple pregnancies
http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/Final%20crib%20sheet%20for%20twin%20pregnancies%20amended.pdf

Back to Contents

8 NIPT

Non –Invasive Prenatal Testing (NIPT) can be offered to women with a singleton pregnancy. The test can evaluate whether a pregnancy is at a higher chance of being affected by either Down syndrome, Edwards syndrome or Patau's syndrome. The test involves taking a sample of blood from the woman to analyse the sample for the total cell free DNA.

The result of the NIPT screening test will identify if the woman has a high or low chance of one of these three conditions.

NIPT has a better detection rate; The test will detect 99% of babies with Downs Syndrome, 97% With Edwards syndrome and 87% with Patau's syndrome.

NIPT may decrease the overall number of necessary invasive procedures

NIPT is suitable for most singleton pregnancies

Factors to consider:

- NIPT is not available to twin pregnancies
- NIPT samples will only be run once a week (Mondays, Tuesday if BH)
- Results will take approximately 2 weeks
- If a result is unobtainable – Invasive screening can be offered
- NIPT will only provide a result for Downs syndrome, Edwards syndrome or Patau's syndrome.

The Screening Coordinator or clinic midwife will complete the NIPT request form with the woman. Complete all sections in full.

NIPT Sample Collection:

- The NIPT sample - only a **Streck tube** is to be used.
- **10mls** of blood is required
- After blood is drawn, **it is mandatory to mix the tube by gentle inversion 8-10 times**
- **Label the tube with the patients' name, date of birth, hospital number and date of sampling.**
- Genetics lab to be informed that the sample has been taken (Ext. 44072)

8.1 NIPT Request Form for Higher Chance Combined/QUAD Screening Result

NIPT REQUEST FORM FOR HIGHER CHANCE COMBINED/QUAD SCREENING RESULT

PATIENT DETAILS:		
SURNAME		ADDRESS:
FIRST NAME (S)		
DATE OF BIRTH		POSTCODE:
NHS NUMBER		
HOSPITAL NUMBER		

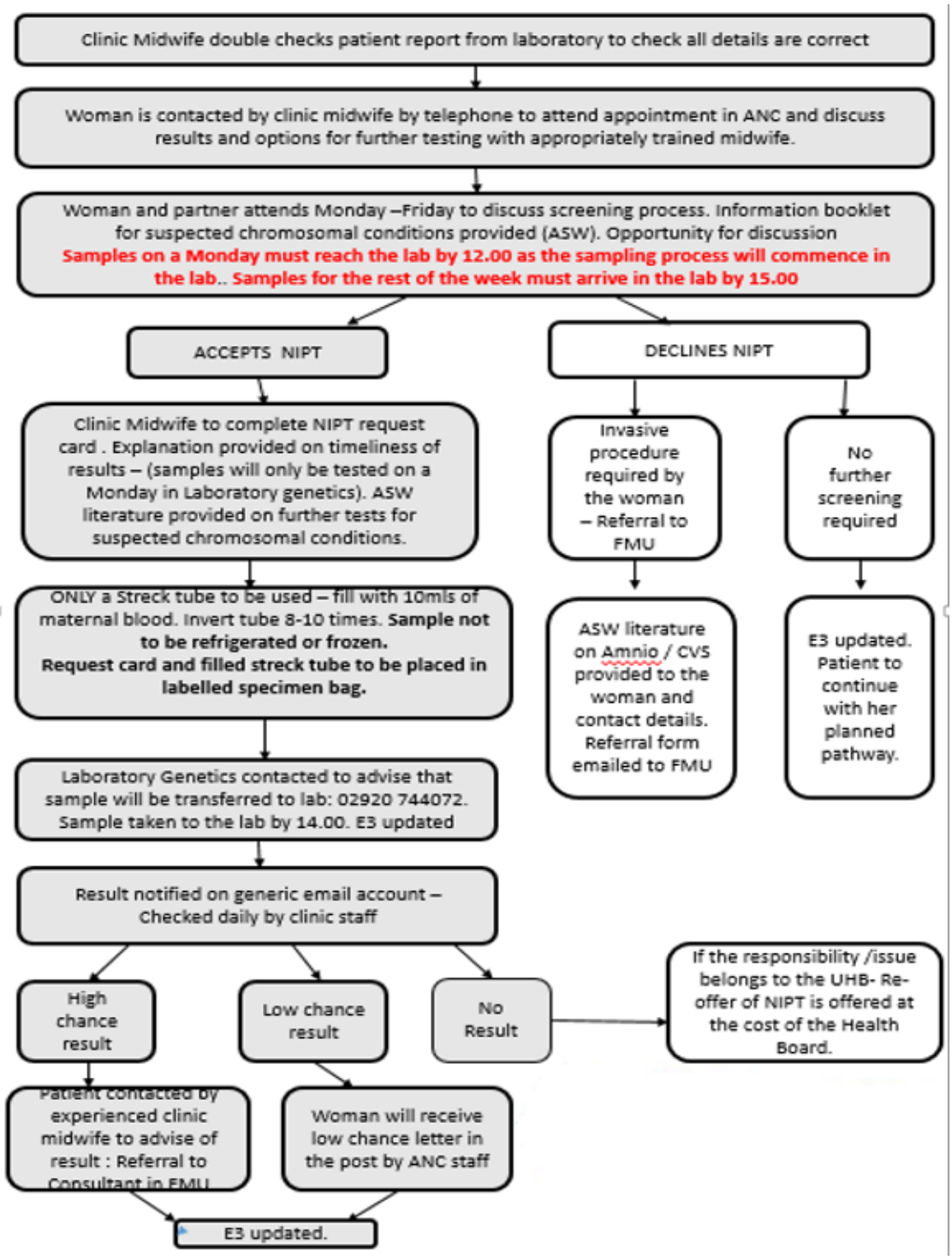
CLINICIAN DETAILS:		
Hospital:		Lead Professional:
Requesters signature:	Print surname:	Date: / /

PREGNANCY INFORMATION:	
Screening result from:- Combined test / Quadruple test **Delete as appropriate** Down's syndrome result 1:_____ Edwards'/Patau's result 1:_____	The following have been **excluded** (please tick box to confirm) Blood transfusion within 4 months ☐ Transplant surgery ☐ Immunotherapy/ stem cell therapy ☐ Maternal malignancy ☐ Multiple gestation pregnancy ☐
EDD:	**Failure to complete this section will lead to a delay in the testing of this sample**
Specimen taken by: (Please print) _____ Sign: _____ Date of collection: / / Time:	

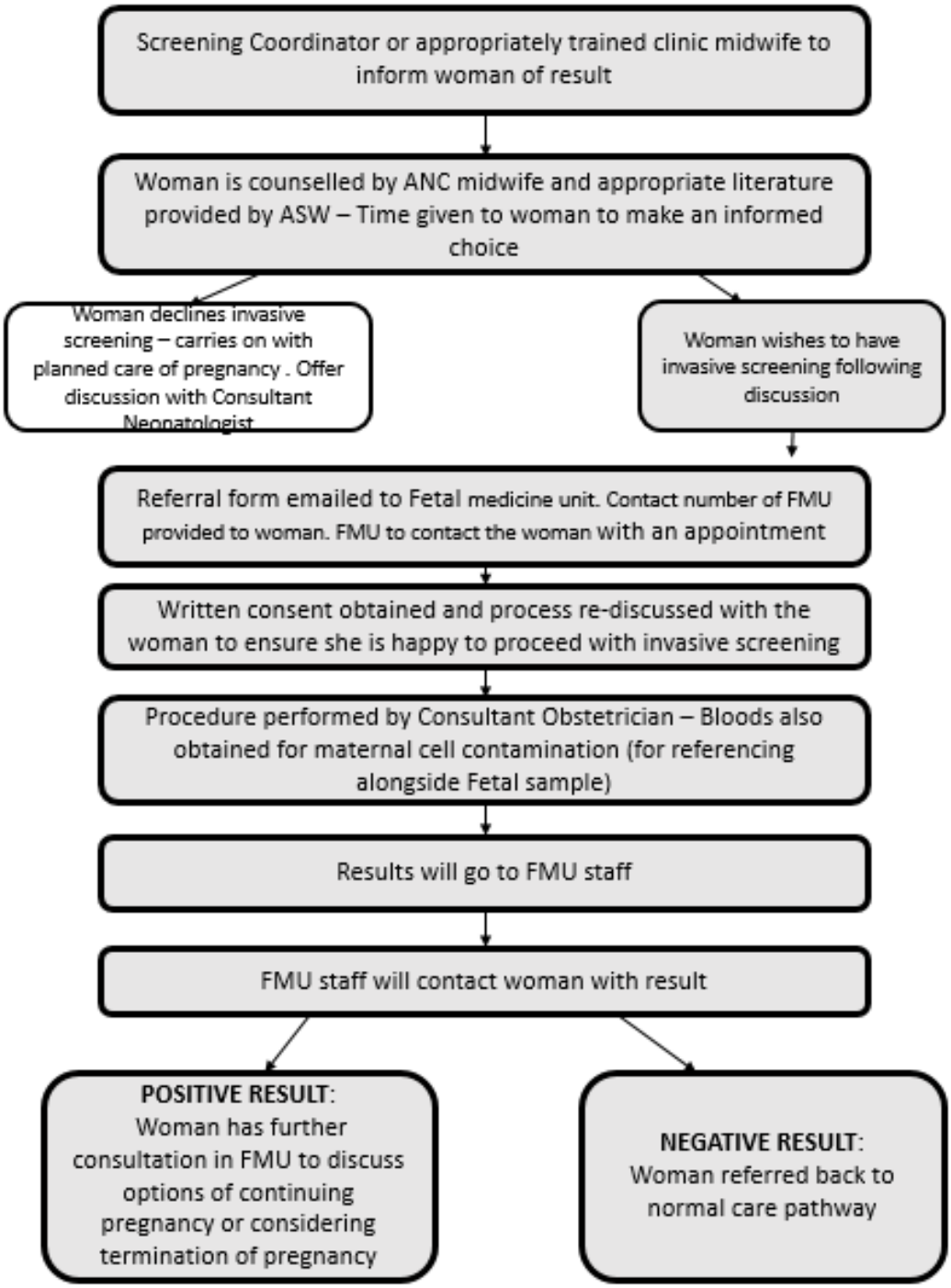
Sample requirements:	
10ml of maternal blood in Streck tube. Please send to laboratory as soon as possible following sample collection. Please inform the laboratory that a sample is on its way: by telephone: 02920 744072	
Laboratory contact details:	
Address:	All Wales Genetics Laboratory, Institute of Medical Genetics, University Hospital of Wales, Heath Park, Cardiff. CF14 4XW
Laboratory working hours: Monday - Friday 08.30-17.00	
For further enquiries please email lab.genetics@wales.nhs.uk or ring 02920 744072	

LABORATORY FORM NIPT REQUEST FORM

8.2 Process following High Chance Combined Test for Singleton Pregnancy

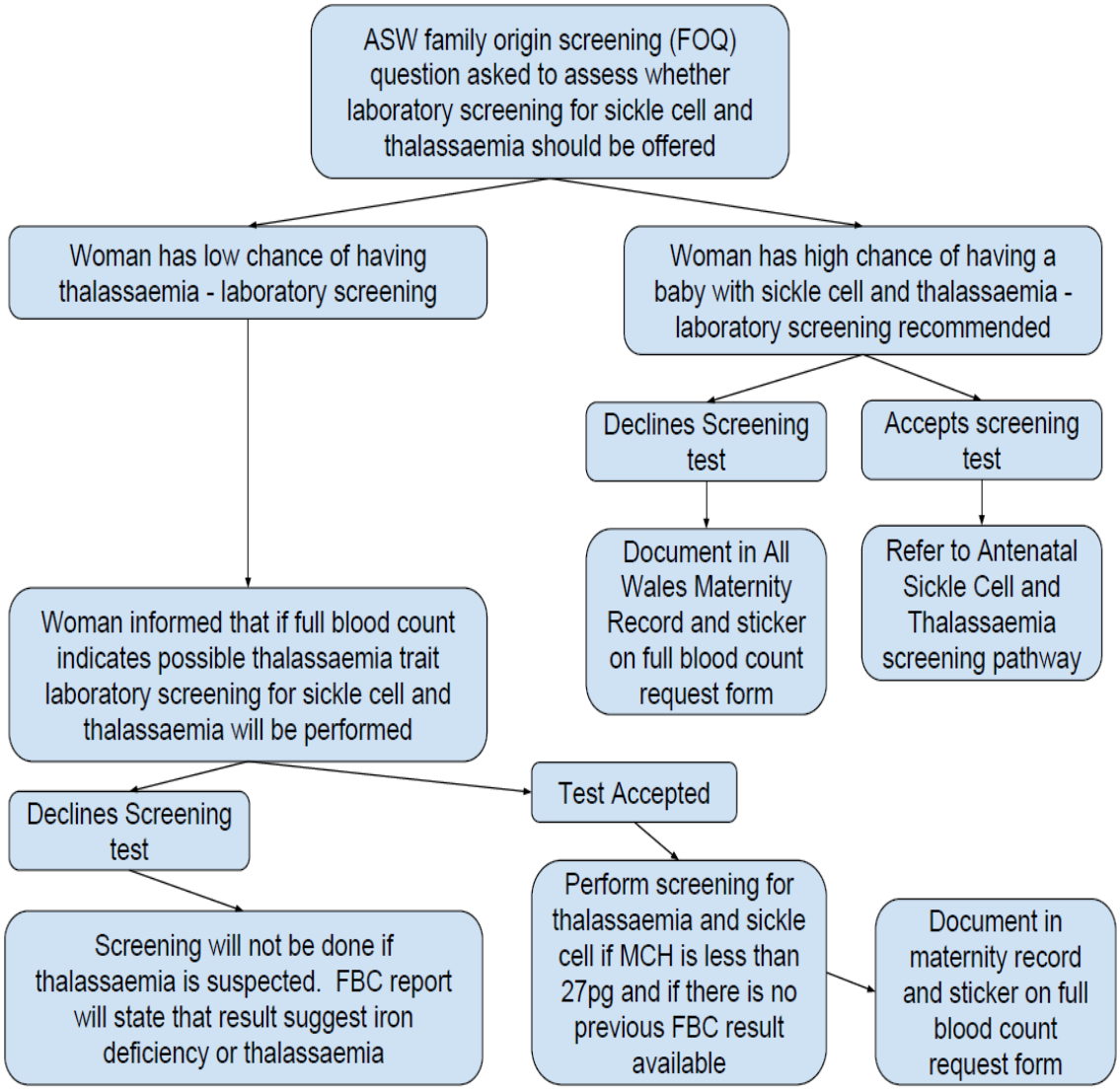


8.3 Pathway for Providing Amniocentesis Following High Chance NIPT or No Result



Back to Contents

9 Low MCH on Full Blood Count Screening



Back to Contents

10 Sickle Cell and Thalassaemia Pathway

10.1 Antenatal screening pathway for providing haemoglobin carrier results to women

Sickle cell and thalassaemia disorders are both types of recessively inherited haemoglobin disorders, only some of which are clinically significant. They affect people whose ancestry is mainly but not exclusively African, Caribbean, Middle Eastern, Mediterranean, South Asian and South East Asian. Those with severe forms of these disorders have a lifelong dependency on hospital care.

10.2 Rationale for Screening

To identify women who have a high chance of having a fetus affected by a sickle cell disorder or thalassaemia major (as defined by the ASW family origin screening questionnaire) to enable laboratory screening and, if required, antenatal diagnostic testing. The woman then has the opportunity for reproductive choices.

There may also be health benefits to the mother in the pregnancy if she is identified as having a sickle cell disorder.

- **The woman must be asked the ASW family origin screening question (ASW FOQ) for sickle cell and thalassaemia in every pregnancy and before 10+6 weeks of pregnancy (if the woman presents before that time).**
- **A record of the responses to the ASW FOQ for sickle cell and thalassaemia must be made in the All Wales Maternity Record by the person asking the question.**

- **The woman should be offered further laboratory testing (HPLC/CE) for sickle cell and thalassaemia if one or more of the following applies (ASW FOQ):**

1. **the woman or the biological father of the baby has a family history of sickle cell or thalassaemia**
2. **the woman's family origins or those of the biological father, no matter how many generations back, are from anywhere outside of the UK or Ireland**
3. **the woman's family origins or those of the biological father are unknown, e.g. adoption**

- If the woman is a surrogate mother or if the pregnancy has been achieved by donor egg, the woman should be offered screening to ensure optimum maternal care.

- If the woman has had a bone marrow transplant BMT it is likely that the results obtained will reflect the BMT donor and not accurately represent the genetic status of the baby. In these cases the biological father of the baby should be tested to ensure this is not a high risk pregnancy.

10.3 Test Requesting

(1) In the case of surrogacy, the surrogate mother should be tested (to ensure optimal maternal care). Her demographic details and the fact that this is a surrogate pregnancy should be recorded on the request card. The relevant fertility clinic must be contacted to obtain the haemoglobinopathy results of both biological parents and these must also be recorded on the request card.

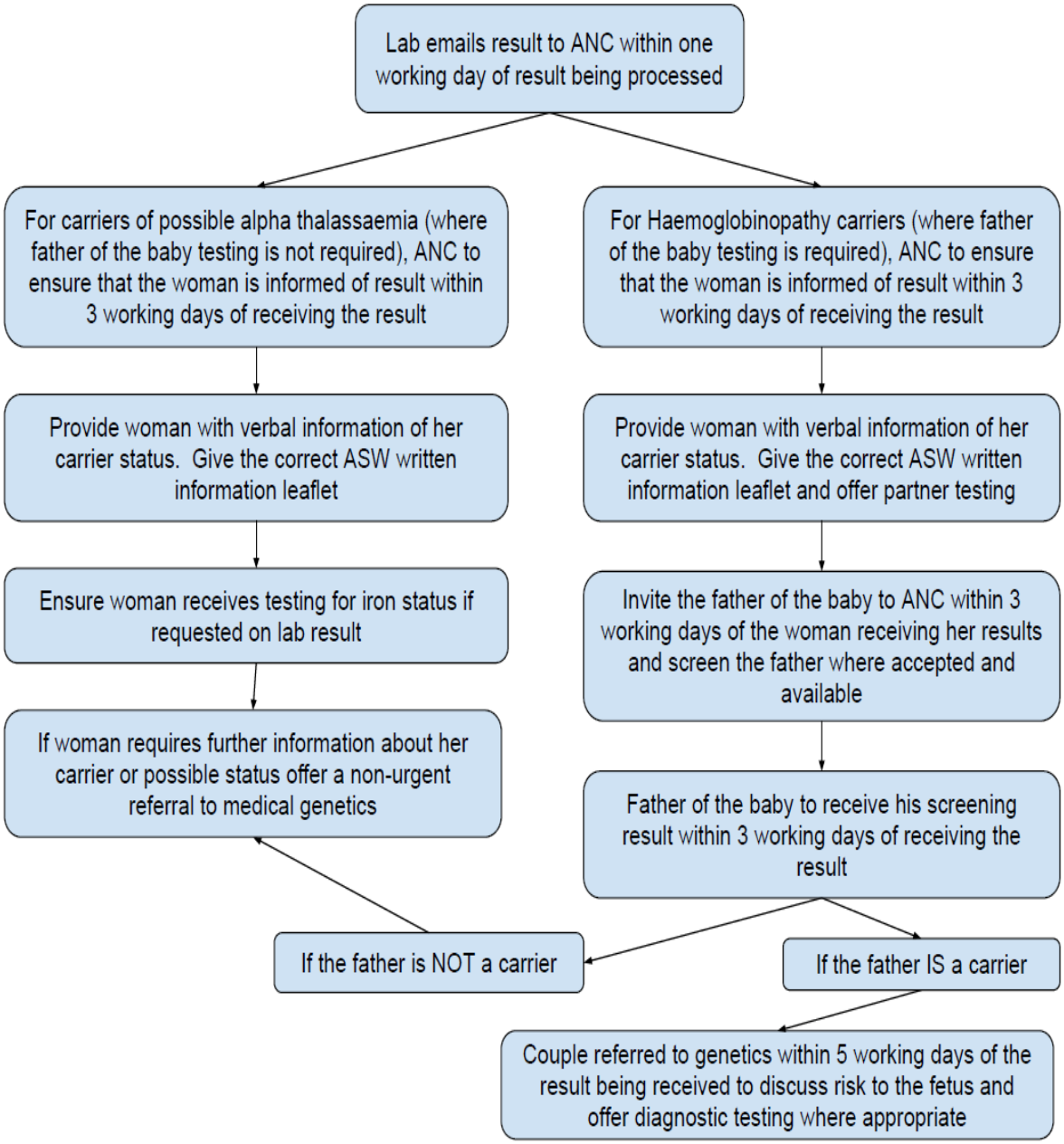
(2) Where the pregnancy has been achieved using a donor egg, the woman should be screened to ensure optimal maternal care. Her demographic details, and the fact that this a donor egg, should be recorded on the request card. The biological father of the baby should be tested and if screen positive, the fertility clinic should be contacted to obtain the biological mother's haemoglobinopathy results.

3) Where the pregnancy has been achieved using donor sperm, the mother should be tested and it is her demographic details that should be recorded on the request card. If she is screen positive the fertility clinic should be contacted to obtain the biological father's haemoglobinopathy results.

(4) If the mother of the baby has had a bone marrow transplant, the biological father of the baby should be tested. His demographic details should be recorded on the request card and the request card should include the maternal details and the fact that she has received a bone marrow transplant. If the paternal sample is screen positive expert advice should be sought from the All Wales Medical Genetics Service.

Where no problem is found, women should be informed of the results by the maternity service at the 16 week antenatal visit. The results must be recorded in the All Wales Maternity Record.

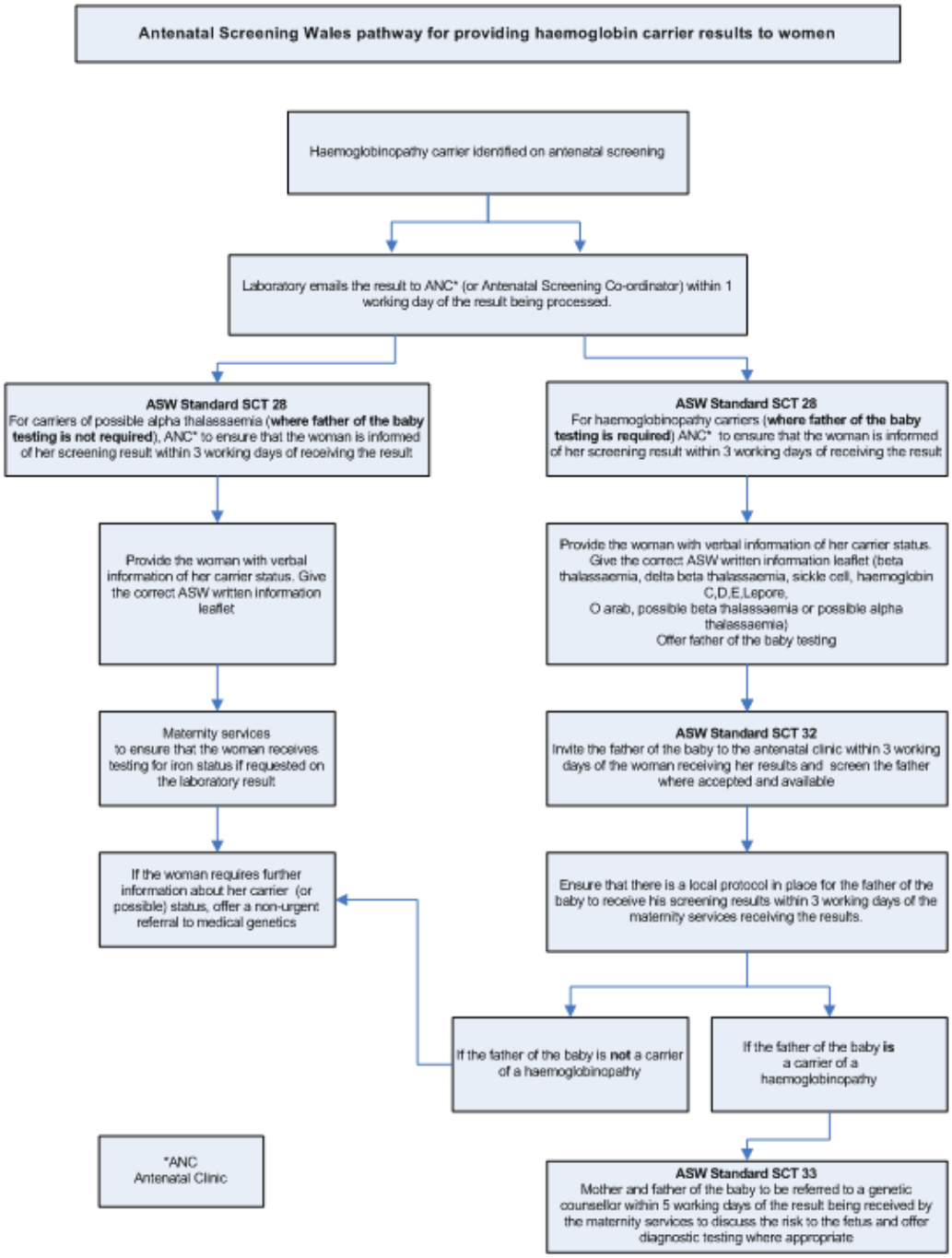
10.4 Antenatal Screening Pathway for Providing Haemoglobin Carrier Results to Women



10.4.1 Sickle Cell and Thalassaemia Possible Carriers – Available Information leaflets for women

http://www.antenatalscreening.wales.nhs.uk/public/sickle-cell-and-thalassaemia

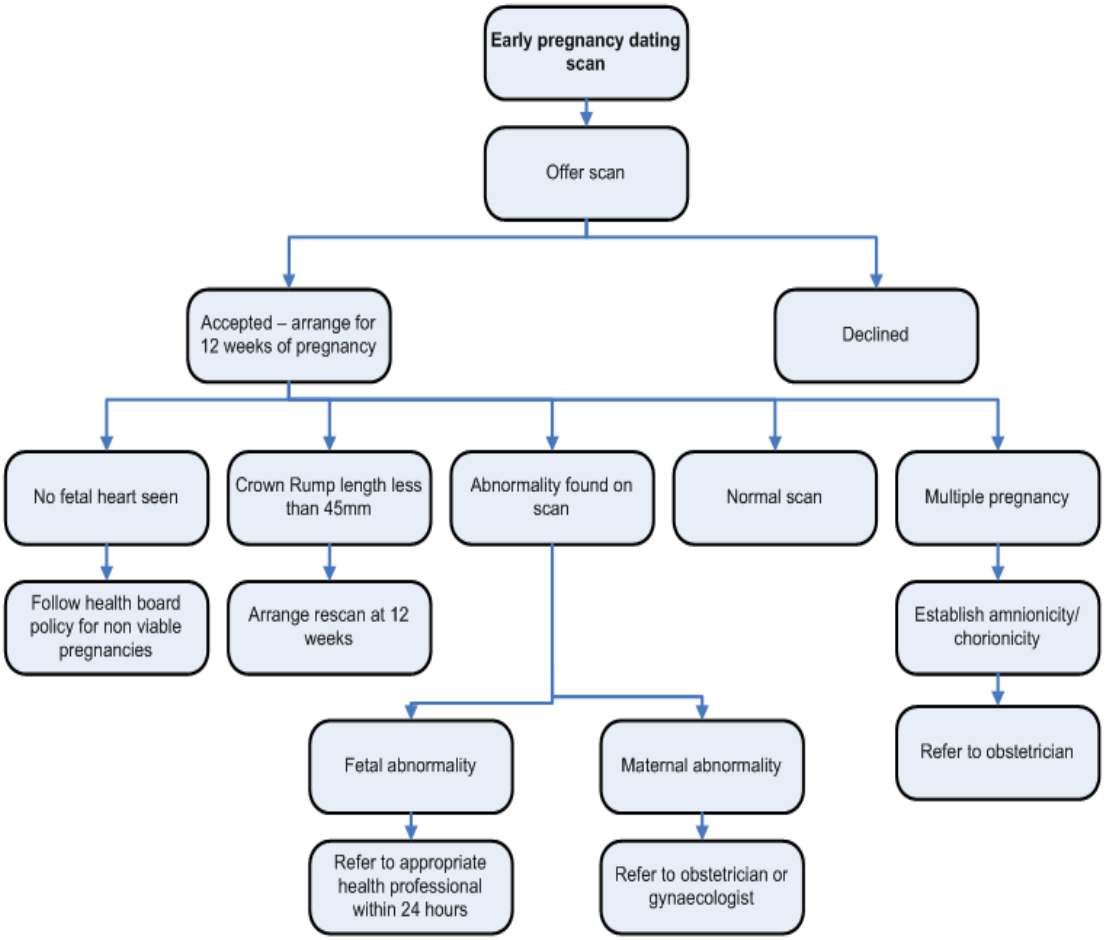
10.5 Antenatal Screening Wales Pathway for Providing Haemoglobin Carrier Results to Women



Back to Contents

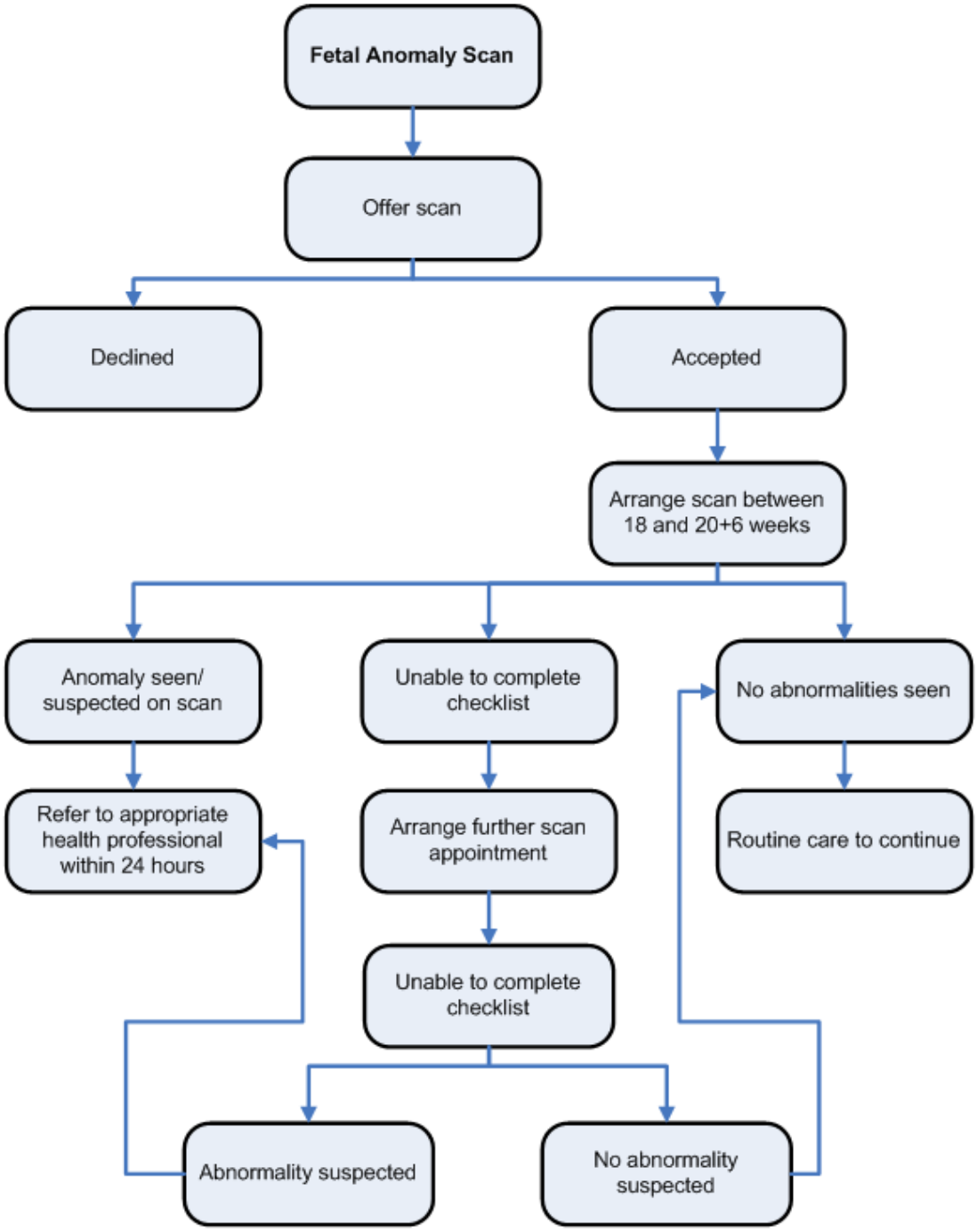
11 Dating Scan

11.1 Early Pregnancy Ultrasound Scan Pathway



Back to Contents

12 Anomaly Scan / Abnormal Scan Pathway



12.1 Antenatal Screening Wales Agreed All Wales Fetal Anomaly Screening Scan Standard Checklist (2016) incorporated into RadIS release April 2018

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/All%20Wales%20Fetal%20Anomaly%20Base%20Menu%20April%202018%20%282%29.pdf

Covid-19 Pandemic

We appreciate that during the Covid-19 pandemic, it is a worrying time and as a UHB we are trying to do everything we can to keep patients and staff safe.

There is National guidance for undertaking USS which sets out ways to make scans as safe as possible for women and those performing the scan during the pandemic.

Therefore, we cannot allow filming during the scans. We do appreciate that this will already be a difficult time for the woman who will be attending without her partner. As a Health-board this we feel will enable women and staff to remain safe and ensure the quality of the scan.

12.2 ASW -FAQ.

http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/968/FAQs%20about%20your%20pregnancy%20scan%20during%20the%20Covid19%20pandemic.pdf

https://www.rcog.org.uk/coronavirus-pregnancy

Back to Contents

13 Reviewing Test Results in Maternity

To ensure women receive the appropriate care in pregnancy there needs to be robust systems and processes in place for the management of test results. As women carry their own records in pregnancy it is important that there are systems in place to ensure her results are reviewed and appropriate action taken and that she is informed of this.

Continue with the present system in place for managing antenatal screening result prior to 20 weeks.

Community Midwives Antenatal clinics
All midwives to access the hospital clinical portal 'login to patient details' to access results. To facilitate this the following is required: -

- All community midwives to obtain a log in and user password for the system.
- At each antenatal visit the midwife will log into the results system.
- Results can be reviewed and confirmed if any action taken.
- The result should be documented within the All Wales notes.
- Hepatitis B susceptible- document on page 15 of the All Wales notes that Hep B vaccine/Immunoglobulin will be needed postnatal. Enter details onto E3

Hospital Antenatal visits including Day assessment and fetal medicine Unit
At every antenatal visit the doctor/midwife will log into the hospital clinical portal 'login to patient details' to access results / patient details. Results can be reviewed and confirmed that the woman has been informed and action taken as required on results. The result and action taken is documented in the handheld records.

ANTENATAL CLINIC

Booking Antenatal Screening-
CMW now manage booking results. Abnormal Haemoglobinopathy results and abnormal urine results are reviewed and actioned in clinic by the Booking Midwife

Abnormal Results are to be followed by the Booking Midwife / Clinic Midwife and discussed with the Doctor. The woman contacted to inform if a prescription or appointment is required.

Reviewing abnormal results in Antenatal Clinic for attention:

MSU

Women who require treatment will be contacted by the Midwife, a letter will be sent to the woman if unable to make contact.

E3 to be updated of any contact.

Community midwife to repeat MSU 7 days after antibiotics finished to ensure resolved. Repeat MSU monthly during pregnancy and treat if required.

MSU Repeats:
If coming to clinic soon, repeat on return. If not coming to clinic in the near future send repeat request letter

Low Hb or Low Ferritin Results

For Midwives action if: -

If Hb <**110g/dl** at booking or if Hb < **90-105g/dl** as a follow up → iron letter to woman and GP for treatment

Low Ferritin levels <**15mcg/l** → same as above

For Doctors review if: -

If Hb <**90g/dl** (send iron letter to woman and GP as normal). Consider other investigations.

Macrocytic anaemia (MCV value greater than **105fl**)

Microcytic anaemia (MCV value less than **85fl**).

Chicken Pox
Not offered routinely only offered if woman has been in contact with chicken pox and is unsure of her immunity.
If a woman reports exposure to chicken pox and has not had screening, contact virologist to test booking blood specimen for immunity.
Positive antibodies reassure woman
Negative antibodies arrange treatment

Toxoplasmosis and Parvovirus
Not offered routinely, only if potential exposure.
Susceptible - woman informed by letter of susceptibility, information sheet enclosed. If current or recent infection diagnosed, inform Consultant Obstetrician immediately.

Vitamin D
Not offered.

HVS
Abnormal result to be dealt with by midwife. Letter posted to GP and woman.

Group B strep (GBS) positive results
GBS positive during this pregnancy - MSU treat as per MSU protocol and include GBS information leaflet for woman.
HVS Woman informed of result by letter and GBS information leaflet enclosed. Document result on green intrapartum care plan.

Useful Links:

..\Screening Handbook for Midwives 2017.pdf

..\v2a-final infections in pregnancy 2016.pdf

Back to Contents

14 References

REFERENCES update most recent reference

Antenatal Screening Wales Policy, standards and Protocols 2015. Antenatal Screening Wales (ASW) Public Heath Wales NHS Trust http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/Standards%20and%20protocols%202010%20%2D%20English.pdf. Accessed January 2018. Due for review in 2018.

British HIV Association guidelines for the management of HIV infection in pregnant women 2012; 2014 interim review. *HIV Medicine* (2014), 15 (Suppl.4) 1–77 http://www.bhiva.org/documents/Guidelines/Pregnancy/2012/BHIVA-Pregnancy-guidelines-update-2014.pdf. Accessed January 2015

[1] Ob-gyn ultrasound online. Accessed from http://www.fetalsono.com/teachfiles/choram.lasso

[2] Multiple Births Foundation Accessed from: http://www.multiplebirths.org.uk/identical.asp

[3] Cuckle H, Wilson C. "Twins - Risk per fetus or per pregnancy." Down's Screening News 13:1:8, 2006.

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[5] Mheen, L. et al (2015) Pregnancy outcome after fetal reduction in women with a dichorionic twin pregnancy. Human Reproduction, Vol.30, No.8 pp. 1807–1812

[6] Wimalasundera, RC. (2010) Selective reduction and termination of multiple pregnancies. Seminars in Fetal & Neonatal Medicine 15 (2010) 327-335

[7] Mackie, F, Morris, RK & Kilby, M 2016, 'Fetal brain injury in survivors of twin pregnancies complicated by demise of one twin: A review' Twin Research and Human Genetics, vol 19, no. 03, pp. 262-267. DOI:10.1017/thg.2016.39

Back to Contents