West of Scotland Sexual Health Managed Clinical Network

NHS Ayrshire & Arran | NHS Dumfries & Galloway | NHS Forth Valley | NHS Greater Glasgow and Clyde | NHS Lanarkshire

West of Scotland Guideline ***Approved September 2021***

Preconception Health Guideline

What's New?

Inclusion of

- information relating to COVID-19 infection & vaccination
- link to RCOG patient leaflet 'Being overweight during pregnancy and after birth'
- link to RCOG patient leaflet 'Healthy eating and vitamin supplements in pregnancy'

Updates to advice re Zika infection
Minor modifications to Appendix one: Foods to avoid eating during pregnancy
Modifications to sections of appendix 7 (drugs for hepatitis, rheumatological conditions, anticoagulants and fluconazole)

What is preconception health?

Preconception health describes the health status of any woman or man before a pregnancy is conceived, regardless of pregnancy intention. There is a clear link between a baby's health and their mother's health before (and between) pregnancies. By taking actions to optimise health prior to a pregnancy being conceived, the risk of adverse outcomes such as birth defects, premature birth and very low birth weight can be significantly reduced and the health and wellbeing of the mother and baby maximised. Ideally all pregnancies should be planned.

Who should preconception health be promoted to?

Pre conception health messages should be promoted to women either planning a pregnancy or at risk of an unplanned pregnancy. Women at greater risk of an unplanned pregnancy include those:

- not on reliable contraception or using contraception inconsistently
- with a history of attendances for emergency contraception and / or pregnancy testing
- with a chaotic lifestyle such as substance users and looked after young people

The first trimester of pregnancy is when fetal development is most vulnerable to the impact of adverse maternal biological, psychological and social factors. During this early stage of pregnancy, women may not be aware that they are pregnant. It is not uncommon for women to unwittingly continue negative health behaviours through this important stage of early fetal development. Health promotion for pregnancy often begins from first contact with Maternity Services at around 8 to 12 weeks gestation.

What are the key positive behaviours that all women should be encouraged to adopt?

- Taking appropriate contraception to prevent unplanned pregnancy
- Leaving a minimum 18 month gap between pregnancies
- Talking with GP or specialist about any medication, family history or previous adverse pregnancy outcomes in advance of becoming pregnant
- Eating a balanced diet including advice on what foods to avoid (see appendix one)
- Taking a folic acid supplement (see appendix two)
- Managing weight
- Being physically active (see appendix three)
- Reducing alcohol consumption (unless the woman is already abstinent)
- Avoiding exposure to second hand smoke and in women who smoke, smoking cessation
- Stopping any illicit drug use

- Seeking support if a partner is violent. Referral to specialist support services should be offered
- Ensuring immunisations are up to date (measles, mumps, rubella, tetanus and diphtheria, HPV, and hepatitis in individuals from high risk groups). It is recommended that all pregnant women irrespective of gestation should have influenza vaccine. COVID-19 vaccination is recommended in pregnancy, but the decision whether to have the vaccine is a matter of personal choice. The 'COVID-19 vaccination in pregnancy decision aid from the RCOG' may be help patients who are pregnant or trying to get pregnant make an informed choice about whether to get the COVID-19 vaccine https://www.rcog.org.uk/globalassets/documents/guidelines/2021-02-24-combined-info-sheet-and-decision-aid.pdf
- STI testing if change of sexual partner or partner has other partners
- Taking measures to avoid toxoplasmosis (see appendix four)
- Reducing exposure to potential environmental hazards (appendix five)

What are the more common risks factors associated with a poorer pregnancy outcome (in alphabetical order)

1. Age (pregnancy in adolescence and in women aged 35+)
2. Alcohol
3. Diet (poor diet, obesity, being underweight)
4. Domestic abuse
5. Genetic or chromosomal abnormalities
6. Infections
    a. Sexually Transmitted Infections
    b. Toxoplasmosis
    c. Listeriosis
7. Long term health conditions
    a. Diabetes
    b. Hepatitis C
    c. HIV
    d. Mental health problems
    e. Rheumatoid Arthritis (RA)
    f. Seizure disorders
    g. Systemic Lupus Erythematosis (SLE)
    h. Other long term health conditions
8. Medication
9. Physical inactivity
10. Previous pregnancies (closely spaced pregnancy; previous miscarriage; previous preterm birth, low birth weight and stillbirth)
11. Recreational Drugs
12. Smoking
13. Travel
    a. Zika
    b. Malaria

1. **Age**
   Adolescent pregnancy: The additional demands that pregnancy places on the still developing body of an adolescent may present physical risks including placenta praevia, hypertension, premature birth, low birth weight and anaemia. Teenage pregnancy and early parenthood may also present psychological risks to wellbeing. Education, training and employment limitations may increase the risk of poverty for teenage parents and their children.
   Women aged 35+: There is increased risk of chromosomal disorders such as Down's syndrome, miscarriage, ectopic pregnancy, complications such as gestational diabetes, pre-eclampsia, placenta previa and premature birth.

2. **Alcohol:** No time during pregnancy is it safe to drink alcohol, and harm can occur early, before a woman even realises she is pregnant. Alcohol use can reduce fertility in both men and women. Fetal alcohol spectrum disorder, fetal alcohol syndrome and other birth defects can be prevented if women cease intake of alcohol before conception. Alcohol use can also contribute to developmental delays and behavioural problems in children. Drinking alcohol has been shown to increase a woman's risk of miscarriage. Heavy drinking (more than 6 units per day) or binge drinking (5 or more units on one occasion) during the first trimester is particularly harmful to the development and life chances of a fetus. Referral to specialist drugs and alcohol services should be offered (see appendix seven).

3. **Diet**
   Poor diet: A diet rich in whole grains, fruits and vegetables is important for maintaining healthy weight and a healthy body. In addition, a healthy diet can lower the risk of low birth weight in infants. Women considering a pregnancy should eat a healthy diet rich in folate and folic acid (green vegetables, beans, legumes) and take a folate acid supplement (see appendix two). This can help prevent congenital malformations including neural tube defects, reduce premature birth and reduce the risk of preeclampsia/hypertension .

   Obesity: Obesity reduces fertility and increases the risk of complications for both pregnant women and their babies. With increasing Body Mass Index (BMI), the risks also become higher and are significantly higher for women with a BMI over 40. For mothers, the risks associated with a high BMI (more than 30kg/m^2) include
   - thrombosis,
   - gestational diabetes
   - high blood pressure
   - pre-eclampsia

   High BMI is also associated
   - with increased complications during labour including a long labour, shoulder dystocia, and the need for an emergency caesarean
   - increased chance of complications during and after a caesarean delivery including anaesthetic complications
   - postpartum haemorrhage

   For babies, the risks of high BMI include
   - miscarriage
   - preterm birth
   - neural tube defects [the use of a higher dose of folate (5mg daily) in women with BMI $\geq$ 30kg/m^2 should be clarified with her GP]

- high birth weight
- stillbirth
- higher risk of obesity and diabetes in later life

For further information see the RCOG patient leaflet 'Being overweight during pregnancy and after birth'
https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-being-overweight-during-pregnancy-and-after-birth-002.pdf

Underweight: Women who are underweight before pregnancy (BMI < 18.5kg/m^2) are at significantly greater risk of having premature, low birth weight babies.

4. **Domestic abuse**: Physical, emotional, psychological or sexual abuse often begins or escalates during pregnancy. Domestic abuse during pregnancy puts mother and baby at risk from miscarriage, infection, premature birth, injury or death. Referral to specialist support services should be offered (see appendix seven).

5. **Genetic or chromosomal abnormalities:** Couples at increased risk should be encouraged to explore their wishes for pregnancy with their GP who will refer to specialist services where appropriate**.** If couples receive specialist advice before they conceive they can be counselled regarding the risk of having an affected child and diagnostic testing in early pregnancy can be explored.

   Couples at increased risk will include:
   - a previous pregnancy affected by a genetic disorder
   - a family or personal history of a genetic or suspected genetic disorder for example Cystic Fibrosis or Duchenne Muscular Dystrophy.
   - men and women from ethnic backgrounds that are associated with a higher risk of some inherited disorders. It may be possible to identify those who are carriers of, for example β-thalassaemia, sickle cell disease or Tay-Sachs disease (Ashkenazi Jews). All pregnant women in Scotland are offered screening for β-thalassaemia and sickle cell disease.

6. **Infections**

   Sexually transmitted infections (STIs): Many STIs can adversely affect the fetus and be more troublesome in pregnancy. Refer to the West of Scotland Managed Clinical Network PREGNANCY - STIs & GROUP B STREPTOCOCCAL COLONISATION GUIDELINE
   https://www.wossexualhealthmcn.org.uk/west-of-scotland-managed-clinical-network/resources/guidelines.htm

   Zika: see travel

   Toxoplasmosis: Caused by a parasite found in the faeces of infected cats and in infected meat, toxoplasmosis can cause serious problems in women who become infected while they're pregnant. Toxoplasmosis can cause miscarriage or stillbirth, or the infection can spread to the baby and cause serious complications (congenital toxoplasmosis).

Listeriosis: An infection that usually develops after eating food contaminated by *Listeria monocytogenes*. In pregnancy, women are more susceptible to severe infection than non-pregnant healthy adults.

See appendices one and four for advice on how to avoid toxoplasmosis and listeriosis.

COVID-19:Pregnancy does not increase a women's risk of getting COVID-19. Pregnant women are in the moderate risk (clinically vulnerable) group as a precaution. This is based on the fact pregnancy can increase the risk from viruses like flu. It's not clear if this happens with COVID-19. But because it's a new virus, it's safer to include pregnant women in the moderate risk group. Although it's very rare for pregnant women to become seriously ill if they get COVID-19, it may be more likely later in pregnancy with potentially premature delivery. While the chances of having a stillbirth are low, there is some emerging evidence that the risk may be higher if a patient has COVID-19 at the time of birth. Pregnant women should follow advice to stop the spread of COVID-19 throughout pregnancy, especially in the third trimester. Patients from an ethnic minority group are more likely to be admitted to hospital if they get COVID-19. There's no evidence COVID-19 causes miscarriage or fetal abnormality. COVID-19 vaccination is recommended in pregnancy, but the decision whether to have the vaccine is a matter of personal choice. The COVID-19 vaccination in pregnancy decision aid from the RCOG may be help patients who are pregnant or trying to get pregnant make an informed choice about whether to get the COVID-19 vaccine https://www.rcog.org.uk/globalassets/documents/guidelines/2021-02-24-combined-info-sheet-and-decision-aid.pdf

7. **Long term health conditions:** It is important to refer women with long term health conditions to their GP and / or specialists services since good preconception care may help women who have long term health conditions have healthier pregnancies and healthier babies. All women should be advised regarding effective contraception whilst waiting for GP and / or specialist input.

    a. **Diabetes: The National Institute for Clinical Excellence (NICE)** recommends that women with pre-exisiting diabetes should access specialist services prior to conception. Tight control of blood sugars reduces the chance of miscarriage, stillbirth, neonatal death, macrosomic babies and congenital malformation. The use of a higher dose of folate (5mg daily) should be clarified with her GP / diabetes specialist (see appendix two).

    b. **Hepatitis B/C:** Women with hepatitis B or C may pass the infection on to their baby and so should discuss preconception care with their specialist. Current Hepatitis C treatment options are unsuitable for use in pregnancy due to concerns over teratogenicity. Pregnancy also needs to be avoided for four months following maternal use of ribavarin and seven months after paternal use.

    c. **HIV:** HIV positive women and HIV negative women with an HIV positive male partner should discuss their plans for pregnancy well in advance with their HIV specialist in order to reduce risk of HIV transmission and to optimise healthy outcomes. A woman with HIV can be safely treated with antiretroviral therapy (ART) which can reduce the

HIV transmission rate to 0.27%. The international birth register of women on ART has not seen an increase in birth defects in women treated with ART. A HIV negative woman with a HIV positive male partner who does not have a consistent undetectable viral load may be considered for HIV pre exposure prophylaxis (PrEP) to reduce risk of HIV transmission.

d. **Mental health problems**: Women with previous or existing mental health problems are more likely to experience problems during and after pregnancy. Dealing with the underlying causes of poor mental health and treating mental health problems before pregnancy can help prevent negative pregnancy outcomes for both mother and baby.

e. **Rheumatoid Arthritis (RA):** Women with RA are normally under specialist care and a multi disciplinary approach to pregnancy planning is vital.

f. **Seizure disorders:** The aim is to keep the woman seizure free during the pregnancy, whilst trying to reduce the possible teratogenic risk to the fetus from anti-epileptic drugs (AED) (see appendix six). It is important to refer women with seizure disorders to their GP and / or specialists for pre conception advice. The use of a higher dose of folate (5mg daily) should be clarified with her GP / epilepsy specialist (see appendix two).

g. **Systemic Lupus Erythematosis (SLE):** Maternal and fetal outcomes are improved when the patient is on stable therapy and the disease has been quiescent for at least six months prior to the pregnancy. SLE can involve the heart and vascular system, lungs and kidneys. Women with SLE are normally under specialist care and a multi disciplinary approach to pregnancy planning is vital.

h. **Other long health conditions** including asthma, cardiovascular disease, eating disorders, hypertension, blood clots, phenylketonuria, renal disease, thrombophilia, and thyroid disease.

8. **Medication:** It is important to review the medication history of all women. Women may be using teratogenic drugs who do not readily identify themselves as having a long term health condition for example isotretinion in women with acne. Some drugs should be stopped at least six months (and occasionally longer) before conception.
   See the UK teratogenicity Information Service http://www.uktis.org/#

   Appendix Six lists medication not uncommonly used in women of reproductive age.

9. **Physical inactivity**: Benefits of regular physical activity include the prevention or management of obesity, diabetes, and cardiovascular disease. Physical exercise (appendix three) also promotes psychological wellbeing by reducing feelings of anxiety and depression.

10. **Previous pregnancies**
    Closely spaced pregnancies: Women who have very closely spaced pregnancies (within 6 months of a previous pregnancy) are more likely to have a preterm or low birth weight baby.

Previous miscarriage: The likelihood of recurrence is low however for women who have experienced three or more early losses, referral can be made to a specialist as it may be possible to identify a cause and offer suitable treatment.
Previous preterm birth, low birth weight and stillbirth: Women may benefit from referral back to an obstetric team to discuss their individual risks.

11. **Recreational Drugs**: Taking illegal drugs, even in small amounts, can affect the development of a fetus and how well the placenta functions. Drug use during pregnancy can result in slowed growth and brain development, preterm birth, low birth weight, miscarriage, cot death, Neonatal Abstinence Syndrome and behavioural problems. Referral to specialist drugs and alcohol services should be offered (see appendix seven).

12. **Smoking:** during pregnancy significantly contributes to low birth weight, still births, preterm babies, cot death, birth defects and increased risk of long-term developmental and health problems. Breathing second hand smoke from partners or family members can also lead to low birth weight. Referral to smoking cessation services should be offered (see appendix). There is a paucity of data on the safety of nicotine replacement therapy (NRT). It is therefore best if a pregnant woman can stop smoking using will power or behavioural support therapies rather than NRT. However in some circumstances NRT may be considered less risky than smoking particularly if the woman is a heavy smoker.

    E cigarettes which do not produce tar and carbon monoxide are likely to be less harmful than smoking. The vapour from E-cigarettes does contain some of the potentially harmful chemicals found in cigarette smoke, but at much lower levels.

13. **Travel:**

    a. **Zika**: The mosquito-borne Zika virus isn't harmful in most cases, but may be harmful in pregnancy has been linked to birth defects, specifically microcephaly. Zika virus doesn't naturally occur in the UK. Zika outbreaks have been reported in the Pacific region, South and Central America, the Caribbean, Africa and parts of south and southeast Asia.

    Public Health England (PHE) and the National Travel Health Network and Centre (NaTHNaC) have reviewed and updated their Zika travel and sexual transmission advice and have made changes to the risk ratings in some countries.

    Use the Country Information pages (CIPs) on the National Travel Health Network and Centre (NaTHNaC) website for up-to-date and detailed advice for those travelling to countries or areas affected by Zika virus https://travelhealthpro.org.uk/countries

    Women who are pregnant, and those trying to conceive, who have recently returned to the UK from countries with risk of Zika transmission should inform their GP, midwife or obstetrician that they may have been exposed to the Zika virus, even if they do not have any symptoms.

    https://www.rcog.org.uk/en/guidelines-research-services/guidelines/zika-virus-infection-and-pregnancy/

PHE algorithm provides a pathway to determine what sexual transmission advice is needed for male and female travellers.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/780720/Zika_sexual_transmission_advice_algorithm.pdf

b. Malaria: pregnant women are more likely to develop malaria than non pregnant adults and infection in pregnancy can be very dangerous and even fatal, to both mother and baby. Pregnant women and women planning a pregnancy, are therefore advised wherever possible, to avoid travelling to areas where there is a high risk of catching malaria. Refer to the UK Teratology Information Service (UKTIS) factfile for information on how to reduce the risk of malaria including information of the use of insect repellents and antimalarials https://www.toxbase.org/Bumps/Medicine--pregnancy/Malaria/

Appendices

Appendix one:	Foods to avoid eating during pregnancy
Appendix two:	Folic Acid Supplements
Appendix three:	Exercise
Appendix four:	How to avoid toxoplasmosis
Appendix five:	Environmental hazards
Appendix six:	Medication not uncommonly used in women of reproductive age
Appendix Seven:	Local Contacts

Appendix one: Foods to avoid eating during pregnancy

The following foods should be avoided because of the risks of food poisoning, and the possible presence of bacteria, chemicals or parasites in these foods could harm an unborn baby.

Cheese: Avoid mould-ripened soft cheeses (cheese with white rind) such as Brie and Camembert. This includes mould ripened goat's cheese such as Chevre. Blue veined cheeses should also be avoided for example Danish Blue, Gorgonzola and Roquefort. These cheeses are an ideal envirnonment for harmful bacteria, such as listeria and are only safe to eat in pregnancy if they have been cooked.

Raw eggs: Raw or lightly cooked hen eggs or foods containing them can be eaten provided the eggs are produced under the British Lion Code of Practice.

Unpasteurised milk: Raw (unpasteurised) milk, including unpasteurised goats' or sheep's milk, or any food that is made of them, such as soft goats' cheese should not be consumed.

Pâté: Avoid all types of pâté, including vegetable pâtés, as they can contain listeria.

Raw meat: Raw or undercooked meat should not be consumed.

All meat and poultry should be thoroughly cooked so there's no trace of pink or blood. Particularly care should be taken with sausages and minced meat. The latest advice from the Food Standards Agency (FSA) is that pregnant women should take care when eating cold cured meats such as salami, chorizo, pepperoni and Parma ham, because these meats are not cooked but cured and fermented, so they may contain toxoplasmosis-causing parasites.

Liver: Avoid liver or liver products, such as liver pâté or liver sausage, as they may contain a lot of vitamin A. Too much vitamin A can harm an unborn fetus.

Vitamin A: High-dose multivitamin supplements, fish liver oil supplements, any supplements containing vitamin A should NOT be taken.

Fish: Some types of fish should be avoided completely, such as shark, swordfish and marlin because they contain high levels of mercury. Tuna also contains pollutants so intake should be limited to two tuna steaks a week, each weighing about 140g when cooked or 170g when raw or four medium sized cans of tuna a week. Oily fish such as salmon, trout, mackerel or herring (tuna does not count as an oily fish) should be limited to two portions a week. Raw shellfish should be avoided as these can cause food poisoning.

The RCOG patient information leaflet 'Healthy eating and vitamin supplements in pregnancy' provides advice for women who want to know more about eating healthily in pregnancy. https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-healthy-eating-and-vitamin-supplements-in-pregnancy.pdf

Appendix two: Folic Acid Supplements

Women should take a daily 0.4 mg (400 microgram) folic acid supplement during the time they are trying to conceive and until the end of 12th week of pregnancy. They should also eat more foods containing folate (the natural form of folic acid). All women should take 10mcg vitamin D throughout pregnancy and when breast feeding. 'Healthy start' vitamins which contain **Folic acid, Vitamin C and Vitamin D** are distributed via various methods depending on place of residence (from community pharmacies/ dispensing practices / sexual health services or via midwives and health visitors).

The following groups of women are at an increased risk of having a baby with a neural tube disorder and these women should ask their GP for a higher dose of 5mg, which is only available on prescription.

- women with a neural tube defect
- women with partners who have a neural tube defect
- women with a previous pregnancy affected by a neural tube defect
- women (or partners) with a family history of a neural tube defect
- women with a pregnancy BMI > 30 kg/m^2
- women with diabetes
- women with coeliac disease
- women on anti-epileptic drugs (AED) medication
- women with haemolytic anaemia (including haemoglobinopathies), sickle cell anaemia or thalassaemia traits

The RCOG patient information leaflet 'Healthy eating and vitamin supplements in pregnancy' provides advice on using vitamin supplements before and during pregnancy https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-healthy-eating-and-vitamin-supplements-in-pregnancy.pdf

Appendix three: Exercise - adapted from NHS Choices

http://www.nhs.uk/conditions/pregnancy-and-baby/pages/pregnancy-exercise.aspx

Women should be encouraged to make activities such as walking, cycling, swimming, low impact aerobics and gardening part of everyday life and build activity into daily life. In addition sedentary activities such as sitting for long periods watching television or at a computer should be minimised. Women who are not active before pregnancy should not suddenly take up strenuous exercise but they should begin with no more than 15 minutes of continuous exercise, three times per week, increasing gradually to 30 minute sessions every day. Exercise doesn't have to be strenuous to be beneficial. Some exercise or postures should be avoided:

- lying flat on the back, particularly after 16 weeks
- contact sports where there's a risk of being hit, such as kickboxing, judo or squash
- scuba diving, the fetus has no protection against decompression sickness and gas embolism
- exercise at heights over 2,500m above sea level until they have acclimatised

Appendix four: How to avoid toxoplasmosis

- **Use gloves when gardening, particularly when handling soil** – wash hands thoroughly afterwards with soap and hot water
- **Avoid eating raw or undercooked meat or cured meats like salami or Parma ham**
- **Wash hands before and after handling food**
- **Wash all kitchenware thoroughly after preparing raw meat**
- **Wash all fruit and vegetables before eating them**, including pre-prepared salads
- **Avoid drinking unpasteurised goats' milk or eating products made from it**
- **Avoid cat faeces in cat litter or soil** – avoid changing litter, if not possible gloves should be worn when emptying a cat's litter tray and wash hands thoroughly afterwards. Trays should be emptied every day.
- **Give cats dried or canned cat food rather than raw meat** to ensure they don't eat any infected meat
- **Cover a child's sandpit** to stop cats using it as a litter box
- **Avoid coming into contact with pregnant sheep and newborn lambs** during the lambing season as there's a small risk an infected sheep or lamb could pass the infection on at this time.

Appendix Five: Environmental *hazards*

Women can be at risk of environmental chemicals. It is impossible to assess the risk, if any, of such exposures and obtaining more definitive guidance is likely to take many years; there is considerable uncertainty about the risks of chemical exposure.

The following steps may reduce overall chemical exposure:

- use fresh food rather than processed foods whenever possible
- reduce use of foods/beverages in cans/plastic containers, including their use for food storage
- avoid the use of garden/household/pet pesticides or fungicides (such as fly sprays or strips, rose sprays, flea powders)
- avoid paint fumes

Appendix Six: Medication not uncommonly used in women of reproductive age (this list is not exhaustive)

Reliable and accurate information is freely available to women and their partners though the UK Teratology Information Service (UKTIS) on line resource 'bumps' www.medicinesinpregnancy.org

Their information leaflets summarise the available scientific information in a way that is understandable to everyone helping women and their partners make informed decisions, in conjunction with their healthcare provider about the use of a medicine in pregnancy.

It should be stressed to patients that the risks from drugs identified as teratogenic can be small but it is important to seek preconception advice since some effects can be very serious and it is likely alternative safer treatments are available.

The 'bumps' website also allows all pregnant women to create their own 'my bumps' password protected record. The information entered is stored anonymously by the UKTIS and reviewed periodically to help better understand the effects of medicines, lifestyle or illness on fetal developmental.

The following is intended as a guide and is only correct at the time guideline updated.
UKTIS provide evidence-based information on fetal risk following pharmacological and other potentially toxic pregnancy exposures. http://www.uktis.org/html/about_us.html

- **Analgesia: Paracetamol** has been used for many years without any obvious harmful effects on the developing baby. For this reason paracetamol is usually recommended as the first choice of pain killer for pregnant women. **Non-steroidal anti-inflammatory drugs (NSAIDs)** use in pregnancy has been associated with increased risks of various congenital malformations, including cardiovascular defects and oral clefts, as well as an increased risk of spontaneous abortion. Women using NSAIDs under specialist care should be referred back to their specialist to explore the perceived benefits of continuing / discontinuing treatment, reducing dose or changing medication.
- **Antibiotics:** Penicillins, erythromycin and cephalosporins have no proven harmful effects for the pregnancy or the developing baby. Antibiotics to be avoided include streptomycin and the tetracycline family. Trimethoprim should be avoided in the 1st trimester**.**
- **Antifungals for thrush:** Most pregnant women with vaginal thrush will be advised to try clotrimazole first. Some studies suggest that miscarriage may be more common following fluconazole use in pregnancy (< 21 weeks), and it also been suggested that babies exposed to fluconazole may have a slightly higher chance of having rare heart defects (< 13 weeks). Fluconazole use later in pregnancy would not be able to cause these problems. #
#
- **Hayfever treatment:** Women should be advised to avoid or limit their exposure to pollen. If treatment is needed first line would be an antihistamine or corticosteroid nasal or eye drops since the amount of drug that enters the blood stream is very small. Patients requiring oral antihistamines should seek medical advice since there is more safely information available for some antihistamines compared to others. Sprays, drops or oral medication containing decongestants should not be used at any stage because they could reduce the blood flow in the placenta.

- **Selective serotonin reuptake inhibitors (SSRI):** are used in the management of anxiety and depression. Data is conflicting as to whether these are associated with spontaneous abortion, preterm delivery, low birth weight, fetal malformation, and persistent pulmonary hypertension of the newborn and subsequent impairment of neurodevelopement. Women need to explore with the GP or mental health care specialists the perceived benefits of discontinuing treatment, reducing dose, changing medication against the risk of maternal relapse during pregnancy or post partum to mother and child. Remaining well is particularly important in pregnancy and while caring for a baby and for some women treatment with an SSRI in pregnancy may be necessary.

- **Drugs used for Diabetes:** The available data does not show an increased risk of congenital malformations or other adverse pregnancy outcome with insulin and / or metformin use. Other medicines used for control of blood sugar and other aspects of diabetes such as blood pressure and lipids need discussion with specialists within medical-obstetric services. Women with pre-exisiting diabetes should be accessing specialist services prior to conception.

- **Drugs used in Hypertension:** Any women taking an Angiotensin-Converting Enzyme (ACE) Inhibitors who is planning a pregnancy should speak to her GP or specialist to discuss the possibility of switching to a different medication before she conceives. Some women with certain illness may need to take an ACE Inhibitors in the first trimester. Use in the second and third trimester is not generally advised but may occasionally be considered necessary for treatment of some very serious conditions. Second and third trimester use can cause significant problems such as renal tubular aplasia and intra uterine growth retardation. Current guidelines on diseases for which statins are frequently prescribed recommend that women wishing to become pregnant stop use of statins three months prior to attempting to conceive.

- **Antiepileptic Drugs (AED):** Most AEDs are teratogenic, although the risk is reduced with monotherapy. Some AEDs are potentially less likely to cause problems, but the risk to the fetus needs to be balanced with the risk of seizures in the mother which puts both the mother and the baby at possible harm. Women with seizure disorders should be accessing specialist services prior to conception.

- **Lithium:** It is not known whether it is safe or not to take lithium in pregnancy. Women need to explore with their mental health specialists the perceived benefits of discontinuing treatment, reducing dose, changing medication against the risk of maternal relapse during pregnancy or post partum to mother and child. For some women treatment with lithium in pregnancy maybe necessary.

- **Anticoagulants:** Women on anticoagulants including warfarin should be accessing specialist services prior to conception. Warfarin exposure in pregnancy should be avoided where ever possible. Fetal warfarin syndrome (FWS) or warfarin embryopathy is a well recognised complication following warfarin exposure in pregnancy. The critical period for the development of FWS has not been defined, although data suggests that the risk period covers gestational weeks 6-12. Exposure to warfarin later in the pregnancy can lead to internal bleeding in the fetus. Warfarin can also cause bleeding behind the placenta which may reduce fetal growth, placental abruption, and stillbirth. There is also an increased risk of preterm delivery. Babies exposed to warfarin in the utero are also at increased risk of behavioural or learning problems. Most women who take warfarin and who are planning a pregnancy, or who have discovered

they are pregnant, will be switched to a different anticoagulant. However, for some women (particularly those with mechanical heart values), continued treatment with warfarin may be considered the safer option. #

- **Drugs used in rheumatological conditions and autoimmune diseases:** Leflunomide is detectable in plasma up to 2 years after discontinuation of the drug. For this reason the fetus could have in utero exposure to leflunomide up to 2 years after the end of treatment unless a 'wash out' process has been used to achieve undetectable plasma levels. Other drugs need to be avoided for up to twelve months.

  Because of the way some of these drugs work they theoretically may also damage sperm.

  Women (and their partners) need to explore with their specialist the perceived benefits of continuing / discontinuing treatment, reducing dose, changing medication prior to conception.

  Women (and their male partners) on treatment for rheumatological / autoimmune conditions with an accidental pregnancy should seek urgent specialist advice for a careful evaluation of foetal risk and for advice on the appropriate maternal dose of folic acid.
  .
- **Drugs to treat hepatitis C:** Current Hepatitis C treatment options are unsuitable for use in pregnancy due to concerns over teratogenicity. In addition women should not conceive for four months after ribavirin treatment ends. Pregnancy also needs to be avoided for up to seven months following paternal use of ribavirin. Women (and their partners) need to explore their plans for conception with their specialist.

- **Herbal medications:** Do not assume safety of products labelled as herbal, natural or alternative