

Pre-conception planning

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Introduction

When planning a pregnancy, it is helpful for women and their partners to identify various factors that could increase the possibility of conception, then having a healthy pregnancy and healthy baby. The goal of preconception care is to provide health promotion, screening, and interventions for women of reproductive age to reduce risk factors that might affect future pregnancies.¹

There are 7 recommendations that could be beneficial to maternal, paternal and neonatal health. The likelihood of conception is improved, and risks for the developing foetus are reduced. These factors include biomedical, behavioural and social interventions before conception occurs.²

Recommendations

1. Family & biomedical history
2. Lifestyle & environmental health
3. General health screening
4. Chronic disease management
5. Sexually transmitted infections
6. Vaccines
7. Sub-fertility/infertility

Recommendation 1: Family History & Biomedical history of both partners

Prior to getting pregnant, a woman should have a comprehensive medical, gynaecological and obstetric history taken. Information about her partner's medical history ought to be available, as well as their significant family history, which could include chronic, genetic or hereditary conditions. The couple are not expected

to know all the details, but may be able to ask family members about some of the factors outlined in Table 1.³

Table 1. Biomedical history screening questionnaire³

Have you, your partner, or anyone in your family or your partner's family had:	You or your Family	Partner or his Family
Diabetes		
Hypertension		
Heart disease		
Autoimmune disorders (rheumatoid arthritis, lupus, etc.)		
Kidney disease		
Seizure disorder		
Psychiatric disorders including Schizophrenia, Bipolar, Depression		
Thyroid disease		
Preeclampsia or Difficult labour		
Genetic conditions such as: Muscular dystrophy		
Chromosomal abnormality, e.g. Down syndrome		
Neurological disorders, Neural tube defects, spina bifida, meningocele		
Blood disorders, Haemophilia, Sickle-cell disease		
Connective tissue disorder (e.g. rheumatoid arthritis, Raynauds, SLE)		
Tay-Sachs disease, Thalassaemia, Phenylketonuria (PKU), Canavan disease		
Cystic fibrosis		
Huntington's chorea		

Are there any fraternal twins or other multiples in your family?		
Are there any allergies in your family, including food allergies?		
Has anyone in your family had recurrent miscarriages or stillbirths?		
Do you know your and your partner's Blood group and Rhesus factor?		

If there are genetic conditions, it may be appropriate to refer them for genetic counselling.

Recommendation 2: Healthy Lifestyle and Environmental Health

The responsibility for making healthy choices lies with the individual, and requires actions and strategies to be put in place to achieve optimum health. These include adequate healthy nutrition, being a healthy weight, getting or being physically fit, prevention of illness, avoiding dangerous substances and environmental hazards. Couples should examine their emotional relationships and consider the financial aspects of having a baby.

Nutrition & Supplements: A well balanced diet is advised, high in fruit and vegetables, low in sugar. Women should avoid unpasteurized milk and uncooked eggs, which carry risks of infections.⁴ Folate, iron and calcium are the top three essential nutrients needed to maintain a healthy environment for conception.⁵ For women, supplements are recommended if the diet is lacking nutrients such as iron, zinc and calcium, or if a deficiency exists. Folic acid is required for both men and women in the preconception period, as it is necessary for sperm health as well as the prevention of neural tube defects (spina bifida) in the developing foetus.⁶

Healthy Weight: If either partner is overweight or obese, weight loss is recommended prior to getting pregnant. Female obesity is associated with adverse general health conditions such as high blood pressure, diabetes and polycystic ovary syndrome (PCOS), which can cause reduced fertility or failure to conceive.^{7,8} In men, obesity is associated with low testosterone levels as well as hypertension and diabetes.

Exercise: The level of fitness before becoming pregnant determines the level of activity that can safely be undertaken during pregnancy. A fitness schedule should ideally start three months prior to when conception is planned. Exercise routines could include aerobics, strength training and yoga. These activities improve fitness and can aid weight control.⁹

Avoid Substance Abuse: The adverse effects of alcohol, cigarette smoking, and use of recreational drugs are well documented, but have become a part of the daily life of many men and women. Despite knowledge of their detrimental

effects, people continue to use or misuse these harmful substances regularly.¹⁰

Stopping smoking and drinking alcohol, and cutting down caffeine intake should be goals well in advance of conception. Absorption of Vitamin B is negatively affected by alcohol and smoking. Cigarette smoking is associated with diminished folate status,¹¹ also linked to poor placental health and increases the risk of preterm delivery.¹² Using illicit drugs may be more difficult to stop for some people, so identification of these risks offers opportunities for women and men to get treatment for addiction, including pharmacological and psychological interventions prior to conception.^{2,10}

Environmental Hazards: Conception may be adversely affected by exposure to environmental radiation and toxic chemical solvents including pesticides.² Piercing & tattooing have a potential risk of Hepatitis B or C transmission. Preconception testing for Hepatitis B and C is suggested.¹³ Mosquitos, including Anopheles (causing Malaria) and Aedes (causing Zika virus disease) are very problematic for women living in areas affected by these mosquitos. Malaria prevention is on-going in endemic areas; however, Zika virus, although primarily transmitted through the bite of infected mosquitoes, can also be sexually transmitted from a man infected with the virus to his sexual partners. Health care providers should emphasise preconception planning to women with possible Zika virus exposure.¹⁴

Emotional and Relationship Wellness: For health care workers, assessing psycho-social problems can be challenging. Nurses providing primary health care services should recognise signs of violence against women, and discuss referral and psycho-social support to victims of violence. Ideally, youth and young adults should have age-appropriate comprehensive sexuality education that addresses gender equality, human rights, and sexual relations.² The universal truth is that any spousal abuse or violence will not miraculously disappear by getting pregnant.

Financial Fitness: The question for couples who are planning pregnancy should be "Can we afford to have a baby?" Everybody knows babies and children cost money, but couples often fail to think about this prior to getting pregnant.¹⁵ Questions to consider include:

- Are two incomes needed to get by? Look at reduced income and maternity leave.
- How will our current financial situation change with the cost of having a baby?
- Will we have funds for baby accoutrements and equipment as well as future funds for big-ticket items such as day care and schooling?

Recommendation 3: General health screening

Both men and women should undergo preconception wellness screenings of blood pressure measurement, random blood glucose, and lipid profile (random or fasting). Other screening tests may include STI screening including syphilis and HIV blood tests. Serologic tests for blood type and Rh factor of both partners is recommended. For women, a breast examination and PAP smear for early detection of abnormal cervical cells and presence of Human Papilloma Virus, according to the cervical screening protocol¹⁷ are recommended, as is testing of haemoglobin levels to check for anaemia, which may cause difficulty in conceiving.¹⁶ Women who have depressive and anxiety disorders are at a high risk for recurrence or exacerbation of their psychiatric symptoms during pregnancy and/or postpartum.¹⁷ They should be screened by an appropriate mental health care provider, to consider strategies that may decrease their risk of perinatal depression and anxiety, which may include antidepressant medication, before becoming pregnant.

Recommendation 4: Chronic disease management

Women who have adverse chronic health conditions are advised to discuss the intention to become pregnant with their health care provider. Prevalent chronic diseases in women include diabetes, asthma, hypertension, epilepsy, thyroid disorders, and mental illness including depressive disorders. Chronic diseases need to be well managed prior to conception, and some medicines may need to be changed to safer options. Certain antidepressants have been linked to problems such as failing to conceive, miscarriages as well as possible long-term neurobehavioral problems such as autism, and therefore should be used after careful discussion with a psychiatrist.¹⁷ Women should try to manage their anxiety and/or depression with psychotherapy and lifestyle changes if they are able to.¹⁸ Women with current tuberculosis (TB) should be encouraged to stay on effective contraception until two months after the TB treatment is completed.¹⁹

Recommendation 5: Manage Sexually Transmitted Infections (STI)

Preconception diagnosis and treatment of any STI is essential. Women may be asymptomatic or have an undiagnosed STI, which could result in difficulty in conceiving. Detailed history-taking and vaginal examination may be necessary if the woman or her partner have been at risk of an STI. The management of HIV is vital prior to conception. HIV positive couples or sero-discordant couples will need preconception advice, blood tests and Anti-Retroviral drugs (ARV). The goal is to prevent partners newly or re-infecting one another, and being in the best possible state of health.

If both partners are HIV positive

- Optimizing conception by having unprotected sex only in fertile periods, i.e. prior to and just after ovulation.
- Suppressing the viral load in positive partners by commencing or continuing on ARVs and checking that the viral load is low before having unprotected sexual intercourse.

For sero-discordant couples

- Pre-exposure prophylaxis (PrEP) is a prevention approach. The daily use of anti-retroviral drugs in HIV uninfected people blocks the acquisition of HIV infection.²⁰
- Assisted reproduction methods such as artificial insemination after sperm washing. This method is used for couples where the male partner is HIV positive and the female partner is HIV negative, in order to reduce the risk of transmitting HIV through unprotected sex.

Recommendation 6: Vaccine preventable diseases

All women planning pregnancy should have their immunization status reviewed for diphtheria-tetanus-pertussis; measles, mumps, and rubella; varicella and updated as indicated a minimum of 3 months prior to falling pregnant. Annual Influenza vaccine is recommended.^{1,2}

Recommendation 7: Infertility/Sub-fertility

The definitions of sub-fertility are:

- Women under 35 years who have not conceived after one year of unprotected intercourse.
- Women over 35 years who have not conceived after six months of unprotected intercourse.²¹

Women and their partners should be investigated for possible fertility problems. Nurses can create awareness and understanding of fertility and infertility, and help reduce stigmatization of infertility.¹

Referral will be necessary to appropriate facilities for investigation and possible treatment and counselling.

Making it happen

When the timing is right, women who use a contraceptive method should stop. Realistic time limits for return to fertility are important to know. Women using sub-dermal implants, oral contraceptives or intra-uterine device (IUD) will usually have a fairly rapid return to fertility.²² Women using injectable contraceptives such as Depo-Provera or Mestrate will have a longer return to fertility, ovulation can take up to 12 months to occur.^{23,24} Preconception care aims to promote the health of women of reproductive age before conception. It is recognized as a critical component of health care for women

of reproductive age, as well as men for the development of healthy sperm, and to provide support during the woman's pregnancy.

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