Although travelling while pregnant is generally safe, steps should be taken to minimise risks by providing a comprehensive risk assessment before travel.

**Advising pregnant women on minimising travel risks**

**In this article...**
- Where to find up-to-date information for pregnant travellers
- The risks posed to a woman travelling while pregnant
- Steps pregnant travellers should take to minimise risks

**Keywords:** Travel/ Pregnancy/Risk assessment

*This article has been double-blind peer reviewed*

Pregnant women may be vaccinated to help protect them against some diseases.

Author Rosemary Tucker is an independent travel health nurse adviser.


Pregnant women may face additional risks when travelling overseas, which must be considered with assessment and travel health advice before they decide to travel. A careful risk assessment should be completed to identify the key risks and strategies for staying safe while travelling.

Pregnant women should be given comprehensive advice on the risks they may face if they choose to travel overseas so they can make an informed decision on whether or not to do so. To provide this advice, practitioners advising travellers should have access to reliable and up-to-date resources (Box 1).

**Individual risk assessment**

Health professionals should complete a careful risk assessment with pregnant travellers before they leave the country. This should take into account the woman’s medical and obstetric history as well as:

» Destination;
» Itinerary;
» Season of travel;
» Duration of stay;
» Any planned activities.

It is also important to establish the reason for travel. Illness in family members abroad, for example, may result in pregnant women travelling at short notice with little time for preparation.

It is also important to consider the medical facilities available at the destination, as gynaecological, obstetric and neonatal care may be limited, and invasive treatments may pose a risk of blood-borne viruses. Language barriers and cultural differences can also make consultations difficult.

Women with a complex obstetric history, such as placental abnormalities or a history of premature labour, may be advised against any travel during pregnancy (Field et al, 2010). For others, certain geographical destinations may be unsuitable, such as areas where malaria exists or remote areas with limited access to medical care. If travel is essential, women should be advised to discuss their travel plans with their obstetrician.

The second trimester is considered the safest time to travel – at this point the risk of miscarriage has decreased and the risk of complications such as pre-eclampsia and pre-term labour are low (Field et al, 2010). An early pregnancy scan should ideally be performed before departure to give a reliable due date and to confirm the pregnancy is normal. Pregnant women should be advised to carry a copy of their prenatal records.

Women are not always adequately prepared in terms of insurance (Kingman and Economides, 2003), but comprehensive travel health insurance is essential. This should cover repatriation and care for pregnancy complications such as premature delivery and neonatal intensive care.

**Infectious disease risks**

Pregnant women have an altered immune response making them more susceptible to infection and a more severe outcome. Food-borne illnesses of particular concern include toxoplasmosis and listeriosis, which may cause spontaneous abortion or

**5 key points**

1. All travellers should undertake an individual risk assessment, but this is especially important for pregnant women.
2. An ultrasound should be performed before travel to determine the baby’s due date and rule out any complications.
3. It is essential to take out comprehensive travel health insurance.
4. Pregnant women are more susceptible to infectious diseases and these may be more severe in pregnancy.
5. Pregnant women should avoid malarious areas.

Pregnant women may be vaccinated to help protect them against some diseases.
The cornerstone to malaria prevention can be summarised using the “ABCD of malaria prevention” (Chiodini et al, 2013):

- Awareness of risk of malaria;
- Bite avoidance;
- Chemoprophylaxis;
- Prompt diagnosis and treatment.

**Awareness of risk**

Pregnant women should be advised against travelling to malarious areas, particularly where chloroquine-resistant Plasmodium falciparum (P falciparum) is present. If travel is unavoidable, women need to be aware that if they do contract malaria, the disease is likely to be more severe and they are at higher risk of fatality than non-pregnant women (Chiodini et al, 2013). Complications from the disease can also lead to miscarriage, stillbirth and premature labour (Royal College of Obstetricians and Gynaecologists, 2010).

**Bite avoidance**

Pregnant women are particularly attractive to mosquitoes, making it essential to avoid bites. The insect repellent N,N-diethyl-meta-toluamide, more commonly known as DEET, has a good safety record in pregnancy (Fradin and Day, 2002) and is recommended to be used in concentrations of up to 50% (Chiodini et al, 2013).

**Malaria chemoprophylaxis**

For areas where malaria tablets are recommended, the choice of antimalarial drug will depend on the species of parasite at the destination, whether there is drug resistance, and what trimester of pregnancy the woman is in (Box 2). It should be remembered that no antimalarial drugs are 100% effective. Contraindications, adverse events and drug interactions must be considered carefully for each individual.

**Diagnosis and treatment**

When malaria is contracted prompt diagnosis and treatment are crucial when it becomes symptomatic. Travellers should be made aware of the signs and symptoms of malaria (fever or flu-like illness) and be reminded that malaria can occur even up to a year after returning from a risk area (Chiodini et al, 2013).

**Immunisation in pregnancy**

**Inactivated vaccines**

There is no evidence of risk from vaccinating pregnant women with inactivated viral or bacterial vaccines or toxoids (Plotkin and Orenstein, 2013). Inactivated vaccines do not replicate and do not cause infection in either the mother or the foetus (DH, 2013). The decision be to vaccinated must be made by the woman after a thorough risk assessment, taking into account how severe the illness is likely to be during pregnancy. Health professionals should refer to the “Green Book” (DH, 2013) and individual Summary of Product Characteristics when advising about vaccination.

**Live vaccines**

Live vaccines are generally contraindicated in pregnancy due to theoretical concerns that they may infect the foetus. For this reason, pregnant women should be advised against travel to areas where yellow fever is endemic. If this is unavoidable, yellow fever vaccine can be

---

**BOX 1. TRAVEL HEALTH ADVICE RESOURCES**

- National Travel Health Network and Centre
  www.nathnac.org
  Advice line for health professionals: 0845 602 6712
- Public Health England, Malaria Reference Laboratory
  Provides a fax service for advice on malaria prophylaxis
  www.malaria-reference.co.uk
- Travax
  www.travax.nhs.uk
  Travel health advice for health professionals. Subscription needed outside Scotland and Wales
- UK Civil Aviation Authority
  www.caa.co.uk
  Produces guidelines on fitness to fly
- Royal College of Obstetricians and Gynaecologists
  www.rcog.org.uk
  Has published a useful document on air travel and pregnancy (tinyurl.com/RCOG-Air-Travel-Pregnancy)

**BOX 2. RECOMMENDATIONS FOR MALARIA CHEMOPROPHYLAXIS IN PREGNANCY**

- Chloroquine + proguanil – Taken safely during pregnancy for many years, but may not be effective in many areas due to presence of drug-resistant P falciparum. Folic acid supplements (5mg daily) advised if proguanil is used
- Mefloquine – Data on use of mefloquine for prophylaxis in pregnant women is generally reassuring. It can be offered to pregnant women during the second and third trimesters and can also be justified in the first trimester if travelling to high-risk areas where P falciparum is present
- Atovaquone/proguanil – There is a lack of evidence on its safety in pregnancy and its use for chemoprophylaxis in pregnancy is not advised. However, if there are no other suitable options, atovaquone/proguanil can be considered in the second and third trimesters
- Doxycycline – Contraindicated in pregnancy. However, doxycycline can be used under special circumstances if required before 15 weeks’ gestation and if other options are not suitable. The full course, including the four weeks after travel, must be completed before 15 weeks’ gestation.

Source: Chiodini et al (2013)
hours, they are advised to wear properly fitted graduated compression stockings (Kahn et al, 2012).

There is no information to suggest that pregnant women should avoid security scans (RCOG, 2013).

Environmental risks
Altitude
The safety of travelling to high altitude during pregnancy has not been thoroughly studied. Short exposures without exercise appear to be well tolerated by healthy pregnant women for altitudes up to 2,500m (Jeen et al, 2008). However, potential complications, such as low foetal heart rate or premature labour, can occur at higher altitudes so pregnant women should be advised not to travel higher than 3,500m (Field et al, 2010).

Conclusion
Pregnant women can safely travel overseas provided they are given appropriate advice on the risks associated with travel and take steps to minimise these risks as far as possible. They should know how to manage minor illnesses and when to seek medical help. NT

Air travel
Commercial air travel is considered safe for women with an uncomplicated pregnancy. Those with a complex obstetric history or underlying medical conditions should seek specialist advice (see case study, Box 4).

Airlines’ main concern in accepting pregnant women as passengers is the risk of in-flight labour, and many do not allow women to fly after 36 weeks’ gestation. If there are significant risk factors for preterm labour (such as multiple pregnancy), women should not fly after 32 weeks (RCOG, 2013). After 28 weeks of pregnancy many airlines and some cruise and ferry operators will ask for a medical letter confirming there are no anticipated complications.

Venous thromboembolism
The risk of travel-related venous thromboembolism (VTE) in flights lasting longer than four hours is estimated to be one in 6,000 in healthy individuals (World Health Organization, 2007). However, pregnancy increases this risk and an individual risk assessment for thrombosis is needed for all pregnant women who intend to fly. For flights lasting longer than four

References
Chiodini PL et al (2013) Guidelines for Malaria Prevention in Travellers from the United Kingdom. tinyurl.com/PHC-MalariaUK
Department of Health (2013) Immunisation Against Infectious Disease. tinyurl.com/DH-Infectious-Disease