

## Diabetes

**With good pre-travel health preparation, most people with diabetes travel without experiencing health problems**

*Image provided by NHS Photo Library*

### Key Messages

**With good pre-travel health preparation, most people with diabetes travel without experiencing health problems.**

**Travel plans should be made in conjunction with a travel health professional, and a diabetic specialist for those taking medication. The condition should be stable at the time of travel.**

**Potential drug interactions and reduced kidney function should be considered when selecting antimalarial medication.**

**Travel vaccine recommendations are the same as for those without diabetes; additional considerations may be needed if other medical conditions exist.**

**Advice regarding the carriage, storage and/or adjustment of insulin may be necessary.**

**Travellers with diabetes should have comprehensive travel insurance and consider carrying identification to inform others about their condition.**

### Overview

Diabetes is a very common medical condition. The World Health Organization (WHO) estimates that worldwide 422 million adults were living with diabetes in 2014, compared to 108 million in 1980 [1]. Diabetes is one of the most common pre-existing long-term conditions affecting travellers [2].

Diabetes is a serious condition in which the pancreas fails to produce the right amount of insulin, a hormone that regulates blood sugar, in response to raised blood sugar levels. There are two main types of diabetes: type 1, characterised by deficient insulin production and type 2, resulting from the body's ineffective use of insulin [3]. All travellers with type 1 diabetes, and some with type 2, will need to regularly monitor their blood glucose levels during travel. Hypoglycaemia (low blood

glucose levels) is a risk for those treated with insulin or certain tablets to control diabetes and requires prompt management to avoid serious illness.

While some travel-related health risks may be greater or potentially more serious in those with diabetes, with careful planning, preparation and self-care, most diabetic travellers can travel without problems [4].

## Pre-travel preparation

It is important to research the destination before travel as resources and expertise for managing complications of diabetes may be limited in many low and middle-income countries.

All travellers should book a pre-travel consultation with a health care professional ideally 4-6 weeks before travel to discuss the specific health issues for the destination. Further destination specific advice can be found on our [Country Information pages](#).

Additional advice supported by written instructions, for those travelling with diabetes may include:

- Blood glucose monitoring: A number of factors can affect blood glucose control, for example changes in activity levels, dehydration, travel stress, illness and jet lag. Blood glucose monitoring should be performed more frequently when travelling. It is important to note that the performance of testing equipment (glucometers, test strips etc.) may be affected by temperature, humidity and altitude [5]. Glucose levels may be measured in different units in other countries and a [conversion table](#) is available from Diabetes UK.
- Insulin storage: Insulin should be stored away from direct sunlight and protected from temperature variations by use of a thermal insulated bag/flask. Insulin remains stable for up to one month when stored at room temperature (approximately 20°C). It will deteriorate more rapidly in warmer climates. Insulin should be carried in hand luggage as it may freeze in the aircraft hold. Where possible diabetes supplies should be split between different bags in case one gets lost.
- Insulin delivery: Insulin is absorbed more quickly in warm temperatures and more slowly in cold temperatures. It is important that additional quantities of insulin and monitoring equipment are carried; obtaining insulin overseas is discouraged as names, brands, strengths and qualities of insulin vary considerably worldwide.
- Safe disposal of sharps.
- Self-management of minor illness, including how to adjust medication and when/how to

seek medical assistance.

- Carrying snacks: simple carbohydrate sources, such as glucose tablets and sweets, should be carried to relieve symptoms of hypoglycaemia; complex carbohydrate sources, such as cereal bars and biscuits, should also be carried to supplement/replace a meal.

Comprehensive travel insurance, covering repatriation and planned activities is recommended for all travellers; additionally those with diabetes should declare their full medical history. An [EHIC card](#) should also be obtained if travelling to countries within the European Economic Area and Switzerland.

Travellers should contact their airline well ahead of travel to check specific rules on travelling with medical devices and equipment; especially continuous glucose monitoring (CGM) and insulin pumps. The change in pressure on take-off and landing may affect insulin delivery from a pump, and consequently blood sugar levels. The WiFi functionality of CGM and insulin pumps may mean they are not permitted to be used during the flight. It is advisable to discuss this with the diabetes team before travel; insulin pens and manual blood sugar monitoring should be available as they may be required for the duration of the flight.

Those using CGM or an insulin pump may also want to check with the manufacturer of the equipment if the device can go through the screening equipment at airports. For further information see [Civil Aviation guide](#).

All travellers should pack a [first aid kit](#) that is appropriate for the destination, traveller and activities to be undertaken. Useful items include simple painkillers, antiseptic, basic wound dressings, tweezers, thermometer, sun screen, diarrhoea treatment medication, oral rehydration solution, and condoms. As diabetes is a hidden condition, travellers with diabetes should consider wearing identification to alert others to their condition should they become unwell, for examples see [MedicAlert Foundation](#).

## **Journey risks**

Travellers on insulin should remember to monitor their blood glucose more frequently and be prepared to adjust their medication as needed. Carry extra supplies of snacks, monitoring equipment and medication in case of delays.

Venous thromboembolism (deep vein thrombosis or pulmonary embolism) can occur as a result of long periods of immobility associated with any form of travel. Certain travellers are at increased risk including those who are obese, pregnant and those over 60 years of age (see our [VTE factsheet](#) for further risk groups). Diabetes itself may not be an independent risk factor for developing venous thromboembolism [6] but the impact of a blood clot in the deep veins of the legs or in the lungs should be considered. All travellers on journeys over four hours are advised to mobilise their legs on a regular basis. Travellers with diabetes should check with their GP or specialist team if

compression socks are suitable for them and if any other preventative measures are required.

## Food and water-borne risks

Travellers' diarrhoea (TD) is the most common health problem of travellers to low-income regions of the world [7]. TD can affect travellers to any destination. Although care with [food and water hygiene](#) is sensible, it does not provide reliable protection [7]. Travellers with diabetes should be prepared to [manage the symptoms of TD](#) and know when to seek medical advice. If a traveller with diabetes becomes unwell, blood glucose should be monitored more frequently as illness and dehydration can affect blood glucose control. While some diabetes medication should be continued, doses may need to be altered and some stopped altogether.

## Vector-borne risks

Travellers should take [insect bite avoidance](#) measures. Insect bites can usually be self-managed through: removing the sting or tick if still present in the skin; washing the area; applying a cold compress; elevating the area to reduce swelling; and avoiding scratching to reduce infection risk. Itching may be reduced by taking antihistamine tablets or the topical application of a mild steroid cream, although good quality evidence to support their use is lacking [8]. Travellers should seek early advice if there are signs of infection or the wound is not healing. This is particularly important for those with diabetes, as blood flow to the wound may be reduced in diabetes, increasing healing time [9].

Travellers with diabetes, who contract dengue, may be at higher risk of developing severe dengue (also known as dengue haemorrhagic fever) (DHF) [10]. This disease is transmitted by mosquitoes which predominantly feed between dawn and dusk.

## Malaria

Some studies among local populations in areas where malaria is endemic have found an increased risk of malaria in people with diabetes [11]. However, diabetic travellers from non-endemic countries such as the UK, who are taking antimalarial medication, are not thought to be at higher risk of malaria than non-diabetic travellers.

In malaria endemic areas, the 'ABCD' of malaria prevention should be discussed. Travellers should be: **A**ware of malaria risk in the area they are travelling; practice good **B**ite prevention, as this is the first defence against malaria; use appropriate **C**hemoprophylaxis (antimalarial medication) for the destination; and recognise the importance of responding quickly to potential signs/symptoms of malaria to ensure prompt **D**iagnosis [12]. When selecting antimalarial medication, renal impairment (reduced kidney function) and potential drug interactions with other medications must be taken into consideration.

Malaria can cause hypoglycaemia (low blood sugar), as can the drug quinine which is sometimes used to treat malaria.

## Vaccination

As for all travellers, those with diabetes should be up to date with routine immunisations according to the [UK schedule](#). Influenza and pneumococcal vaccinations are recommended for those with chronic medical conditions, including diabetes [13]. The recommendations for travel vaccines are no different for those with diabetes, although there may be additional considerations due to other illnesses or medication. For example, when a traveller has steroid-induced diabetes due to high doses of prednisolone given to treat an inflammatory condition, then they would also be immunocompromised and therefore not suitable for live vaccines.

## Other health risks

### Urinary and fungal Infections

Women with diabetes are at increased risk of urinary tract infections. The risk of vaginal candidiasis (thrush) is also increased, particularly if taking an antibiotic such as doxycycline for malaria prevention. Travellers should be advised of self-treatment options and know when to seek medical advice. Standby antibiotics and antifungal cream may be useful for some female travellers.

### Foot and skin care

Travellers with diabetes, especially those with peripheral nerve symptoms, should avoid injury to their feet. They should wear comfortable, well-fitting shoes and avoid walking barefoot. Feet should be checked regularly for injury, and kept clean, dry and moisturised. Cuts and abrasions should be carefully attended to, and travellers should be aware of signs of secondary infection such as spreading redness, localised swelling, pain and fluid discharge (pus).

### Travel to high altitude

The [International Mountaineering and Climbing Federation](#) (UIAA) have information for travellers with diabetes going to the mountains.

### Retinopathy and altitude

Travellers with diabetic retinopathy should be cautious about ascending to high altitude, as those with pre-existing diabetic retinal vascular disease are likely to be at significantly higher risk of high altitude retinal haemorrhages. It is recommended that all diabetics should be seen and advised by an ophthalmologist prior to ascending to high altitude [14].

### Monitoring equipment

The performance of testing equipment (glucometers, test strips etc.) can be affected by temperature, humidity and altitude [5,15]. Discussion with a diabetic specialist prior to travel is

recommended.

## Tuberculosis

Globally people with diabetes have a two to three times greater risk of developing tuberculosis (TB) than those without diabetes [16]. This may be important for long-term travellers in areas where TB is very common or in diabetic healthcare workers who may be at greater risk of exposure to TB through their work. Specialist advice should be sought for these travellers.

## General advice for those who get sick abroad

Blood glucose levels should be monitored frequently during illness. Illness in a traveller with diabetes can lead to hypoglycaemia (low blood sugar) or hyperglycaemia (high blood sugar) which can still occur even if not eating. Travellers with diabetes should be aware of the signs of both hyperglycaemia and hypoglycaemia and action to take in either situation

Travellers should continue to eat and drink if they can. Medication in most instances should still be taken even if the traveller is not eating (doses may need to be adjusted). Further advice regarding specific medication should be sought from a diabetes specialist prior to travel.

Those who need to seek medical advice abroad should contact their insurance company and keep receipts so they can claim back the costs from the insurance or EHC as appropriate.

## Resources

- [Diabetes UK - Travel and Diabetes](#)
- [Diabetes UK - Diabetes and travelling guide](#)
- [Diabetes UK - Diabetes and being ill](#)
- [MedicAlert](#)
- [Guidelines for malaria prevention in travellers from UK](#)

## REFERENCES

1. [World Health Organization. Global Report on Diabetes. 2016. \[Accessed 20 November 2018\]](#)
2. Wieten RW, Leenstra T, Goorhuis A et al. Health Risks of Travelers with Medical Conditions—A Retrospective Analysis. *J. Travel Med.* 2012; 19: 104-10
3. [World Health Organization. Diabetes factsheet. November 2017 \[Accessed 20 November 2018\]](#)
4. Levy-Shraga Y, Hamiel U, Yaron M et al. Health Risks of Young Adult Travelers with Type 1 Diabetes. *J. Travel Med.* 2014; 21: 391-6
5. Brubaker PL. Adventure Travel and Type 1 Diabetes. The complicating effects of high altitude. *Diabetes Care* 2005; 28, 2563-72

6. [Heit JA, Leibson CL, Ashrani AA et al. Is Diabetes Mellitus an Independent Risk Factor for Venous Thromboembolism? A Population-Based Case-Control Study. Arterioscler Thromb Vasc Biol. 2009 Sep; 29\(9\): 1399-1405. \[Accessed 20 November 2018\]](#)
7. Steffen R, Hill DR & Du Pont HL. Traveler's Diarrhea, a clinical review. JAMA 2015; 313(1):71-80.
8. [Clinical Knowledge Summaries. Insect bites and stings. October 2016 \[Accessed 20 November 2018\]](#)
9. Guo S. and DiePetro LA. Factors Affecting Wound Healing. J Dent Res. 2010; 89(3): 219-29
10. Figueiredo MAA, Rodrigues LC, Barreto ML et al. Allergies and Diabetes as Risk Factors for Dengue Hemorrhagic Fever: Results of a Case Control Study. Plos Neglected Tropical Diseases 2010; 4: e699
11. [Danquah I, Bedu-Addo G, Mockenhaupt FP. Type 2 Diabetes Mellitus and Increased Risk for Malaria Infection. Emerg Infect Dis 2010; 16:1601-4 \[Accessed 20 November 2018\]](#)
12. [Public Health England. Advisory Committee on Malaria Prevention for UK Travellers \(ACMP\). Guidelines for malaria prevention in travellers from the United Kingdom 2017. October 2017 \[Accessed 20 November 2018\]](#)
13. [Public Health England. Immunisation against infectious disease, Chapter 7. Immunisation of individuals with underlying medical conditions. Updated September 2016. \[Accessed 20 November 2018\]](#)
14. Mader TH, Tabin G. Going to high altitude with pre-existing ocular conditions. High Alt Med Biol 2003; 4:419-30
15. Richards P and Hillebrandt D. The Practical Aspects of Insulin at High Altitude, High Alt Med Biol 2013; 14(3): 197-204
16. [World Health Organization. Diabetes and TB factsheet. 2016 \[Accessed 20 November 2018\]](#)

Published Date: 20 Nov 2018

Updated Date: 20 Nov 2018