

# Diabetes management during trips abroad: Planning ahead to reduce the risks

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## Article points

1. Clinicians must be able to advise their patients on diabetes management when they are preparing for a foreign holiday.
2. It is important to be prepared with the correct documentation when travelling abroad with diabetes equipment.
3. People with diabetes should prepare for changes to routine while on holiday in order to manage diabetes effectively.

## Key words

- Diabetes
- Flights
- Foreign travel
- Preparation

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**There is always a lot to plan when travelling abroad and for people who have diabetes, there will be additional factors to consider in order to ensure that their diabetes management is not compromised. Travel risks for people with diabetes can be significantly reduced with some forward planning. This article will consider what advice should be given on subjects such as travelling with a pump, crossing time zones and dealing with different climates. It will also identify online health and travel resources that are available that can help take the stress out of travel. A fictional case report that follows a young couple's summer holiday in Egypt will be presented and then assessed to illustrate the potential pitfalls of foreign travel.**

It can be difficult to maintain optimum management of diabetes during a trip abroad. The daily routine on holiday can be erratic, which can have a massive impact on the day-to-day management of diabetes. It is important to anticipate the changes to avoid hypoglycaemic events or ill health.

Clinicians should be prepared to advise their patients about the potential pitfalls of foreign travel and help them to stay safe when travelling abroad. When planning a holiday, people with type 1 or type 2 diabetes should consider the following six elements, which will each be considered in turn:

- Travel advice.
- Identification and documentation.
- Travel insurance.
- Diabetes supplies.
- Monitoring.
- Sick day rules.

## Travel advice

It is important that people with diabetes make

an appointment with a practice nurse to discuss vaccinations and specific supplies that they will need well in advance of a holiday. They will need to obtain a letter from a GP confirming that they have diabetes, with details of the supplies that they need to carry and explicitly stating if they need a pump. Advice should be given on sick day rules, as well as the names of insulins in the country that is being visited.

When travelling across time zones, changes may need to be made to insulin doses depending on the direction and duration of the flight. When travelling west, the days are longer, so additional injections may be required. When travelling east, the day is shorter, so fewer injections or reduced dosages may be required.

Discussion is required in order to establish a specific and individualised plan. Ketone strips should be provided for people with type 1 diabetes and they must seek early specialist advice if they are using a pump (see the case report described later in the article).

## Identification and documentation

As mentioned, a GP or specialist letter is needed to confirm the diagnosis of diabetes. It must be on headed paper and must be carried in hand luggage. It should state that the person has diabetes and that they may use named insulin pens or syringes, or an insulin pump, and should be allowed to carry necessary supplies on flights.

Diabetes UK can also issue diabetes identification (*Box 1*) and all pharmaceutical companies produce an insulin passport for their own products. This is usually a card, which has a picture of the type of insulin being used and a space for information about doses and emergency contact details. These are also available from practices, diabetes centres and some pharmacies. They are recommended by the National Patient Safety Agency alert as part of their safer insulin campaign (National Patient Safety Agency, 2012).

## Travel insurance

It is important to remind the traveller to check that their travel insurance covers diabetes, including emergencies and leisure activities. A European Health Insurance Card for European travel may not be adequate to cover someone with diabetes and additional insurance may be required.

If using an insulin pump, it is important to make sure that travel insurance covers equipment, particularly handsets as they are not usually covered in case of accidental damage or loss.

## Diabetes supplies

It is necessary to take double the amount of insulin, pens and pump consumables that would usually be needed for the same time period at home. If using an insulin pump, both basal and bolus pens should be taken in case of pump failure. All insulin products should be stored in hand luggage, as insulin will freeze in the aeroplane hold and will be rendered useless. Insulin can be kept cool in a cool bag.

Delays when travelling are common, so carbohydrate snacks should be packed in hand luggage along with a first aid kit and a list of medicines that are required, particularly for those with type 2 diabetes. Should extra supplies be needed while on holiday, it is important to remember that it is not only the names of insulins that can vary abroad, but also the insulin strengths. Diabetes UK (2014) recommends that people contact the insulin manufacturer before the trip to see if the insulin is supplied in the country they are travelling to and that it is sold under the same name.

## Monitoring

Double the number of blood glucose monitoring strips should be taken for a trip abroad (and ketone strips for people with type 1 diabetes). The strips should be in date and stored in their original container. Extremes of temperature can affect meter accuracy and meter companies can advise on how to cope with this. There may be a need to test more frequently on holiday as the daily routine will change.

There will also be the effects of a different

## Page points

1. A letter from a GP or specialist is required to provide evidence of a diagnosis of diabetes when travelling abroad. It should state what insulin regimen is being used and what supplies are required.
2. It is important to obtain travel insurance that will adequately cover diabetes-related mishaps.
3. Double the amount of diabetes supplies should be taken on holiday. It may be necessary to monitor blood glucose levels more often and adjust insulin doses.

### Box 1. Travel resources for people with diabetes.

- Diabetes UK ([www.diabetes.org.uk](http://www.diabetes.org.uk)) for general travel advice, such as what to do before leaving, illness while abroad, insurance services, air travel and using insulin while away. It also provides diabetes notifications.
- Government advice ([www.gov.uk/foreign-travel-advice](http://www.gov.uk/foreign-travel-advice)) for the latest information on holiday destinations and visa information.
- NHS Choices ([www.nhs.uk/Livewell/travelhealth/Pages/travelling-with-diabetes.aspx](http://www.nhs.uk/Livewell/travelhealth/Pages/travelling-with-diabetes.aspx)) for advice on travelling with diabetes.
- National Patient Safety Agency: The adult patient's passport to safer use of insulin (<http://bit.ly/Oj35tM>).
- Companies that supply insulin have websites, leaflets and helplines that advise on using their products when travelling (see companies' websites).
- Pump and meter companies also have carelines and travel packs (see manufacturers' websites).

### Page points

1. If someone with diabetes is taken ill on holiday, it is important that they follow normal sick day rules and they should definitely not stop taking insulin.
2. When ill, the frequency of monitoring should be increased and insulin doses should be adjusted according to the results. It is also important to check for ketones if hyperglycaemia occurs.

climate to contend with, as both heat and cold can influence blood glucose levels. In hot climates, insulin is absorbed more quickly, and in a cold climate it is absorbed more slowly. This must be anticipated and monitored carefully.

### Sick day rules and experiencing illness while on holiday

If someone with diabetes is taken ill on holiday, it is important that they follow normal sick day rules and they should definitely not stop taking insulin. Some travel-related illnesses are avoidable and it is recommended to avoid ice or water in countries where the tap water is not sufficiently purified. This also includes food washed in water and prepared fruit or salads. It is advisable to drink bottled water and peel fruit rather than eating the skin.

When ill, the frequency of monitoring should be increased and insulin doses should be adjusted according to the results. It is also important to check for ketones if hyperglycaemia occurs.

### Case report: The pitfalls of travelling without adequate preparation

The following fictional case report illustrates what can happen when people with diabetes do not plan ahead to maintain their diabetes management when they are abroad. It follows a young married couple who take their summer holiday in Egypt.

Charlotte is a 26-year-old beauty therapist, who has type 1 diabetes and has been using an insulin pump for the past six months. Since being on the pump, her number of hypoglycaemic episodes has reduced and her HbA<sub>1c</sub> is now 68 mmol/mol (8.4%). Jason is a 29-year-old banker who also has type 1 diabetes. He is on a basal bolus regimen, and his HbA<sub>1c</sub> is 65 mmol/mol (8.1%).

They both lead very busy lives, so they plan their holiday in a hurry. They decide they want somewhere cheap, somewhere hot, and somewhere soon. They decide to go to Egypt in 10 days time.

### Planning

They start to plan their packing. Passport, money, travel insurance are all sorted. Charlotte's

list includes suntan lotion, bikinis, waterproof make-up, beauty products, jewellery, clothes for the beach, clothes for the day and clothes for the evening. Jason concentrates on packing his designer shorts, designer T-shirts, and designer shades. They remember to include their insulin, pump consumables and blood testing kits, but do not really consider how much they might need, particularly if things go wrong.

### The day of departure

They arrive at the airport, check in and go through to the airport security. When Charlotte walks through the body scanner she is asked to step aside and security is called. She wonders whether it is the wire in her bra but she realises it must be more serious when the bomb squad intervene and she is removed to a security suite for interrogation. Unfortunately, her insulin pump, which she has not declared, has set off the alarms and when she is searched, an electrical device with leads and a cartridge is found; this has led the airport security team to conclude that she could be carrying a bomb.

Jason becomes aware that there is a problem when the armed response team arrive. He makes it known that she is his wife and he has his hand luggage searched. His insulin pens and needles are found, without any identification or GP letters. He is then taken to the interrogation suite and reunited some hours later with Charlotte. Not the best start to the holiday.

They were unable to board their original flight so they both have to buy tickets for a later flight. They did put spare diabetes supplies in their suitcases, but because of the confusion about their flight their original suitcases are missing and are now quite possibly in Shanghai, not Sharm el Sheikh. The supplies in their hand luggage are limited. Jason has forgotten to pack his meter and spare pens. Charlotte has a meter, a pot of strips, spare pens and one pump change but the rest of the pump consumables are in her suitcase. They arrive in Egypt much later than expected and there are no pharmacies or shops open.

They have insufficient diabetes kit for them both to use for every day of their holiday. They may have to use the kit for longer

***“During the holiday the pump should also be disconnected when swimming and then reconnected within an hour and thereafter tested every hour to ensure that it is working.”***

than recommended, including the pump consumables and needles.

#### **At the resort**

The next day, they find a pharmacy and order their insulin pens, for which they have to pay. They then hit the beach. Charlotte takes off her insulin pump and leaves it in the apartment. She returns to the apartment and finds that her handbag containing her insulin pump and credit cards has been stolen. Fortunately, their passports are in the safe. It is now 36° outside. There is a risk that her blood glucose levels will become more unstable and erratic due to this high temperature, as the insulin will be absorbed more quickly causing hypoglycaemia. If she is dehydrated due to the heat, her blood glucose levels will rise.

Charlotte now has to order and pay for more insulin. Despite having sufficient insulin, they both develop diarrhoea and vomiting after consuming washed fruit and salad and they become quite dehydrated. Thankfully, they are able to adjust their insulin dosages to avoid diabetic ketoacidosis (DKA) and spend the rest of the holiday recovering.

#### **Home at last**

They are glad to arrive home, but some problems are only just beginning. The loss of the pump is not covered by their travel insurance, so Charlotte will have to negotiate obtaining another pump with her provider. There is also a delay in the reimbursement of their insulin costs. It was not the cheap holiday that they had wanted; however, it could have been worse if they had not followed sick day rules to avoid DKA, which would have meant an expensive hospital stay.

#### **Analysis: What could they have done differently?**

This case demonstrates the risks of insufficient planning when going on holiday and managing diabetes. The holiday could have been very different with a bit of forward planning.

#### **Advice for Jason**

Jason's fundamental error was not calculating the

number of insulin pens, needles or testing strips he would need. He needed to pack twice the amount of all these products. This would have required a bit of forward planning by ordering extra quantities of his prescription. He also needed to obtain an identification letter from his GP and carry this in his hand luggage with all of the insulin and monitoring products. He should also have carried some carbohydrate snacks and glucose tablets in his hand luggage in case of delays or emergencies.

#### **Specific planning for Charlotte**

Although she is using an insulin pump, she needed to take both basal and bolus insulin pens in case of pump failure and also take double the amount of insulin she would normally use in the same time period. She also needed to take twice as many pump supplies and she should have obtained a diabetes identification letter stating that she uses an insulin pump.

She should have discussed with her specialist team the management of her insulin pump when flying before she went away. They would have told her that the pump should not be used near X-rays as this can cause pump failure. The pump should have been disconnected when she went through security and passed around the body scanner. If the airport requires the pump to go through the scanner, the pump should be stopped, the battery removed and then put through the X-ray machine. Bluetooth should be disconnected as currently required by airlines and she should have bolused directly on the pump instead for the duration of the flight. During the holiday the pump should also be disconnected when swimming and then reconnected within an hour and thereafter tested every hour to ensure that it is working.

#### **Additional travel tips**

Having seen how our fictional couple could have prepared for their holiday, we should also consider some additional travel tips for people with diabetes.

#### **Time zones**

General principles regarding travelling across time zones should be observed; however, more

specific advice should be discussed in advance when it comes to travelling with diabetes. Additional rapid or short-acting insulin may need to be prescribed when flying west to reduce hyperglycaemia or to help manage illness during the holiday. It is advised to follow local times on arrival for insulin timing with meals. It is worth noting that jet lag can make it difficult to know if blood glucose is high or low, so additional testing is required.

### Feet

People with diabetes should be advised to take great care of their feet and should avoid walking barefoot, particularly on hot sand, or when sunbathing because of the greater risk of damage due to neuropathy. It may not be possible to feel the burning until it is too late and the feet have been damaged. Foot care should be meticulous and feet washed regularly. Blisters should be covered and any minor wounds dressed. Medical advice should be sought immediately if there are any changes to any existing wound, if there is any discharge, or if it becomes more inflamed or painful.

### Dietary changes and drinking alcohol

Everything is different to our usual routine when we go on holiday. We eat different foods and often eat more than we do at home. Alcohol intake may also be increased.

Alcohol can either raise blood glucose levels or lower them and this is more likely to happen if more alcohol than usual is consumed while on holiday. Drinking on an empty stomach should be avoided and sufficient carbohydrates should be consumed, particularly before going to sleep. Extra blood glucose monitoring is indicated, as insulin adjustments may be necessary.

### Temperature

Extreme temperatures affect insulin, so it must be kept cool but not frozen. Climate also affects the rate at which the body absorbs insulin. It is necessary to prepare for extremes in weather. General advice regarding clothing should be given; if it is hot, light clothing should be worn along with sunscreen and sunglasses and people should be advised to drink more water than

usual. For colder weather they should wear warm layers and waterproofs, use sunscreen and sunglasses, drink water and watch for frostbite and hypothermia. Frostbite is more risky if there is already neuropathy as the changes in temperature in the feet or hands will not be detected. Hypoglycaemia can also be caused by the body using energy to keep warm.

### Altitude and activity

Higher altitudes may cause acute mountain sickness with symptoms of headaches, fatigue and shortness of breath. The risk can be reduced by slow acclimatisation. Air shots should be carried out before injections to remove any air pockets caused by insulin contraction and expansion at altitude.

Activity will increase body temperature, even when the climate is cold and this will affect the rate of insulin absorption. As such, it is very important to advise people who will be going on active holidays to be even more vigilant when monitoring their blood glucose levels.

### Conclusion

There is always a great deal of preparation when going abroad and people with diabetes must also prepare to stay healthy and be well equipped to manage their condition. It is important to plan ahead and anticipate the effects of the changes that happen on holiday. While there seems a great deal to consider, advanced planning is achievable and optimal diabetes management can be maintained.

If Jason and Charlotte, the couple in our imagined trip to Egypt, had sought advice and calculated their supplies, their holiday would have been much more enjoyable and much less stressful. It is an important role of diabetes nurses to advise people with diabetes who are about to take a foreign holiday about the potential hazards of travelling abroad while trying to maintain optimum diabetes management. ■

### Page points

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Diabetes UK (2014) *Travel and Diabetes*. Diabetes UK, London. Available at: <http://bit.ly/1mQVy2u> (accessed 15.05.14)

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