

# Diabetic Travelers

## Traveler Summary

### Key Points

- Avoid countries with substandard medical care if diabetes is poorly controlled or complications exist.
- Medical history and a letter of necessity for carrying syringes, insulin pumps, and testing equipment maybe carried or stored in an email inbox or an app for immediate availability during travel.
- Although insulin will remain stable for about 1 month at room temperature, safer storage of insulin is in a refrigerator at 2-8°C (36-46°F). Insulin deteriorates rapidly at temperatures below 1°C (33°F) or above about 25°C (77°F). Transport insulin refrigerated (not frozen) in an insulated bag with gel packs; U-40 insulin, which is used in some countries outside of the US (e.g., Europe) requires U-40 syringes to get the correct dose.
- Glucometers and test strips may be affected by temperature, humidity, and altitude/elevation.
- If wearing/using a specific insulin pump and/or continuous glucose monitor (CGM), verify with the manufacturer whether the device(s) can go through airport security screening equipment (e.g., full-body scanners and x-ray machines). Notify airport security of the device(s) and request that they not be removed.
- Insulin pumps and wearable CGMs may transmit Bluetooth radio waves and may need to be turned off during take-off and landing. Contact the airline for their rules on traveling with a particular device. Carry vials of insulin in case of pump malfunction.
- Test blood sugar more frequently during flight and upon arrival. Consider adjusting long-acting insulin when crossing time zones, especially if traveling eastward with a time zone difference of more than 3 hours. If using a short-acting insulin, do not inject until the in-flight meal is served because turbulence may interrupt meal service.
- Be attentive to steps to avoid food- and waterborne illness because vomiting and diarrhea can have an adverse effect on blood sugar control. In hot climates, increase hydration to prevent dehydration and heat illness.
- Oral, once-daily diabetes drugs are associated with dehydration, frequent urination, and increased risk of vaginal/genital yeast infections. Travelers should stay well hydrated and consider bringing an antifungal (e.g., fluconazole) for self-treatment.
- Persons with diabetes have increased risk for severe disease and complications from COVID-19 and COVID-19 vaccination is strongly recommended. See COVID-19.

### Introduction

Diabetic travelers should see their health care provider well in advance of travel to ensure their diabetes is well controlled. Avoid travel to developing countries if the disease is not well controlled or if unstable complications exist (e.g., coronary artery disease, serious kidney disease, foot ulcers, or advancing eye disease). Changes to blood testing and insulin requirements may be needed during travel, especially for those travelers who plan to be more active than usual. Changes in meal patterns and time zones can also affect blood-sugar levels, and meals may be delayed or unavailable. Hand-carry insulin and other medications (do not pack in checked luggage) and keep insulin cool. Additional preparations are needed for travelers using insulin pumps; travelers should obtain prescriptions for all medications and a letter documenting the need to carry medications, needles, and syringes (see below).

In addition to vaccines indicated for the specific itinerary, several routine vaccines that are recommended particularly for diabetics (including pneumococcal polysaccharide, hepatitis B, and influenza vaccines) should be up-to-date and may need to be started 2 months or more prior to travel.

### Insulin, Medications, and Other Supplies

#### Insulin

Bring sufficient insulin and needles/syringes (or insulin pens) for the entire trip, perhaps up to twice the amount that may be needed. In North America, insulin syringes are designed to be used with U-100 insulin; U-40 insulin, which is available in other countries, requires U-40 syringes to get the correct dose. Some countries do not have 70/30 or 50/50 insulin or insulin pens. Insulin is absorbed more quickly in warm temperatures and more slowly in cold temperatures. The performance of testing equipment (glucose meters, test strips, etc.) can be affected by temperature, humidity, and altitude.

- Insulin is stable under normal conditions at airport terminals and security check points and when going through x-ray scanning machines. Cargo holds may be subject to extreme temperatures that can alter the potency of insulin in checked luggage.
- Insulin will deteriorate more rapidly if stored at temperatures below 1°C (33°F) or above about 25°C (77°F). Keep insulin cool (about 1-25°C [33-77°F]), but not frozen, by packing it in an insulated bag with refrigerated gel packs.
- Do not pack insulin on ice.
- Never store insulin on the dashboard or in the trunk of a car or in direct sunlight.
- Opened vials of insulin can be stored for 30 days at room temperature or up to 90 days when refrigerated, depending on the manufacturer.
- Carry insulin in a precooled insulated container or wallet made especially for carrying insulin when traveling.

### Insulin Pumps and Continuous Glucose Monitors (CGMs)

More advanced insulin pumps and CGMs (some in combined systems) may transmit Bluetooth radio waves and thus may not be allowed to operate on the aircraft by some airlines. Contact the airline for their rules on traveling with a particular device. Verify with the insulin pump and/or CGM manufacturer(s) whether their device can go through security screening equipment (e.g., full-body scanners and x-ray machines) at airports. If wearing an insulin pump and/or CGM, be sure to notify airport security and request that it not be removed. Insulin pumps and CGM receivers may need to be switched off or to airplane mode during take-off and landing. Carry pens or syringes/vials of both long-acting and short-acting insulin in case of pump malfunction, to avoid the frequent need for short-acting insulin if the pump fails. If water activities are planned, consider obtaining a special waterproof box for the pump so it will not be damaged.

### Noninsulin Hypoglycemic Agents

Liraglutide (Victoza) is generally treated like insulin and needs to be kept cool. Neither liraglutide nor the once-weekly drugs, like dulaglutide (Trulicity) and exenatide extended release (Bydureon), need to be rigidly dosed for short trips; some doses may be missed without significant effect. Oral, once-daily drugs, including canagliflozin (Invokana), empagliflozin (Jardiance), and dapagliflozin (Farxiga), are associated with dehydration, frequent urination, and increased risk of vaginal/genital yeast infections. Travelers should stay well hydrated and consider bringing an antifungal (e.g., fluconazole) for self-treatment.

### Other Medications and Supplies

- Keep all medications in their original containers.
- Obtain a physician's letter documenting medical history and the need to carry diabetes medications and other drugs, as well as needles, syringes, and other necessary equipment.
- Carry prescriptions for all medications in case drugs are misplaced or lost. Request that prescriptions be written using generic names because brand names vary in different parts of the world.
- Carry twice the amount of medication that may be needed (in hand luggage; preferably in 2 different bags in case 1 is lost), as well as extra testing strips, extra batteries for the glucose meter, and a first aid kit. A traveling companion could carry half the supplies.
- Always carry a supply of glucose tablets, gel, or nonperishable snacks in the event of a low blood-sugar reaction.
- Carry a glucagon kit if frequent low blood sugar is a problem.
- Request specific dietary requirements on the airline website; airlines generally require at least 48 hours' notice. Because airline "diabetic meals" are often low in carbohydrates, a regular meal may be a better option.
- Plan for safe disposal of needles and syringes (e.g., a travel needle clipper with storage).

### Identification, Insurance, Medical Care Abroad

Wear a medical alert wristband indicating the diagnosis of diabetes.

Always tell a travel companion about the diabetes and instruct them on how to deal with an emergency (especially low blood sugar) and how to give glucagon. If traveling alone, inform the flight attendant (or another appropriate person).

Carry travel insurance that covers overseas medical care and evacuation. Read the policy carefully for coverage and exclusions (e.g., a preexisting condition such as diabetes).

Develop a list of medical facilities and providers, including reliable pharmacies, with location and contact information. The following strategies may be used:

- Consult a travel health care provider for information.

- Many embassy or consulate websites provide nonprioritized lists of medical facilities and services. They cannot recommend specific providers but typically remove providers from the list if problems have occurred.
- Long-term travelers may wish to speak with others who have lived in the destination; the best recommendations for medical care are often word-of-mouth.
- For nonurgent care, the International Society of Travel Medicine (ISTM) Clinic Directory ([www.istm.org](http://www.istm.org)) is a listing of health care professionals worldwide who are members of ISTM and have expertise in infectious diseases and travel medicine. Note: The ISTM makes no representation as to the credentials of the providers listed.
- Travelers who are working with an overseas assistance company can ask about local doctors who may be recommended.
- Some credit card companies will provide referrals to medical facilities overseas.
- Most major cities have quick-dial emergency assistance numbers (such as 911 in the US). Ensure access to these numbers at all travel sites.
- Persons traveling with a tour group can ask about policies and procedures for accessing care during the trip.

## Air Travel

Some medications and devices require special attention at different phases of air travel. The concern is centered around the CGM, insulin pump, and insulin, as previously noted. Pack all supplies in a carry-on bag. Pack extra vials of insulin and be prepared for manual glucose testing and insulin injections in case of pump/CGM failure.

Before airport security screening begins, notify security personnel about any carry on devices or supplies and if wearing an insulin pump and/or CGM, request that it not be removed. Avoid the full-body scanners, do not put receiver or extra sensors through an x-ray machine, and request a full-body pat-down with a visual inspection of your sensor and transmitter.

Aircraft cabin pressure is often lower than that in the insulin vial; when withdrawing insulin, insert the syringe/needle into the vial without the plunger to equalize the pressure. Air should not be injected into the vial.

Some glucose meters might underestimate blood sugar at the lower air pressure and oxygen levels found in aircraft, so check with the manufacturer's customer service before travel.

No simple set of rules exists to deal with the problem of glucose control through many time zones, as happens when flying. The key is to avoid hypoglycemia. To keep track of shots and meals throughout changing time zones, set a watch to the home time zone.

- Traveling east shortens the day and therefore may lower insulin requirements.
- Traveling west lengthens the day, requiring additional insulin and snacks.
- Regardless of the direction traveled, test blood sugar more often.
- Check blood sugar levels as soon as possible after landing because jet lag can make it difficult to tell whether blood-sugar levels are high or low.
- The long-acting (3 days) insulin Tresiba is still given daily; timing of administration does not seem to need adjustment.

On an aircraft:

- Do not take premeal insulin until the meal is on the tray, in case turbulence interrupts the meal service.
- Be prepared for flight delays and lost luggage.
- Keep medications and snacks on hand; do not place them in an overhead bin.
- Drink enough water to remain well hydrated while flying because aircraft often have low humidity.
- Exercise legs every 2 hours during long flights and walk around the cabin of the aircraft to prevent a blood clot from developing.

## Staying Healthy Abroad

Test blood sugar more often than usual when traveling and adjust insulin, fluid, and food intake as necessary for changes in activity level or increased heat, which can also affect blood-sugar levels and increase the absorption of some fast-acting insulin.

Observe strict food and beverage precautions to avoid travelers' diarrhea and its adverse effect on diabetic control. Carry loperamide and an antibiotic (e.g., azithromycin) for self-treatment of travelers' diarrhea, and consider carrying oral rehydration salts.

Some oral hypoglycemic agents may increase sun sensitivity, and additional sun protection may be necessary.

Travel involves more walking than usual, so foot care is especially important. Carry a spare pair of comfortable shoes (and extra socks), and do not break in a new pair of shoes while traveling. Avoid open-toed shoes, sandals, or flip flops, and wear shoes specifically made for beach walking. Carry a first aid kit to treat minor foot injuries. Quickly seek medical care if any sign of infection or inflammation occurs.

Acclimatization to hot climates may be impaired with diabetes. Frequent rest stops, adequate hydration with extra salt, and a reasonable pace of activity are important to prevent dehydration and heat illness.

Urinary tract infections can be reduced by staying well hydrated, and yeast infections of the skin can be prevented by frequent bathing and keeping the skin dry.

## Resources

American Diabetes Association: <https://diabetes.org/search?keywords=travel>

CDC Diabetes Resources and Publications: <https://www.cdc.gov/diabetes/library/features/traveling-with-diabetes.html>

Diabetes Canada: <http://www.diabetes.ca/diabetes-and-you/healthy-living-resources/general-tips/travel-tips-for-people-with-diabetes>

Diabetes UK: <https://www.diabetes.org.uk/guide-to-diabetes/life-with-diabetes/travel>

Additional resources:

<https://www.tsa.gov/travel/special-procedures>

<https://www.medicalert.org/>

<https://www.frioinsulincoolingcase.com/>

<https://www.diabetesadvocacy.com/traveling-with-an-insulin-pump-and-cgm/>

<https://www.nutrisense.io/blog/can-i-fly-with-a-cgm>

<https://www.dexcom.com/dexcom-airport-and-travel-guide-flying-dexcom-cgm>

<https://www.medtronicdiabetes.com/loop-blog/get-tsa-5-diabetes-devices/>

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