POSITION STATEMENT

USING DIABETES TECHNOLOGY AT THE AIRPORT

KEY POINTS:

- Many individual brands of insulin pumps and continuous glucose monitoring systems which are used to manage diabetes can be damaged if they pass through certain types of security screening equipment in airports, such as X-ray machines and whole-body scanners.
- Extra care is therefore required when people with diabetes who use these devices pass through security screening at the airport.
- People with diabetes who use these devices should carry with them documentation signed by their healthcare professional setting out that they need them for medical reasons and that they may be damaged by certain security equipment.
- Airport security staff should provide users of these devices with safe security screening options which will not cause damage to their devices, and never insist that the devices go through security equipment which may damage them.

Introduction

Using new forms of diabetes technology (such as insulin pumps, continuous glucose monitors or flash glucose monitors) during airport security can currently present difficulties. Airport security staff are tasked to ensure above all the safety of the aircraft and its passengers, but this can come into conflict with the safe working of insulin pumps, and continuous glucose monitoring.

INSULIN PUMPS

Continuous subcutaneous insulin infusion, or “insulin pump”, therapy is an alternative to insulin injections for the treatment of Type 1 diabetes (and occasionally other types of diabetes). Insulin pumps are small, portable battery-operated devices that provide the body with regular doses of most insulin pumps are connected to the cannula by a thin, flexible tube, but some pumps sit directly on the skin (known as “patch pumps”).

An insulin pump has to stay connected to an individual, as any disruption to the insulin supply can cause glucose levels to rise rapidly. This can cause an individual to become very thirsty, extremely lethargic, needing to pass urine frequently, headaches, nausea and vomiting. Pumps should therefore not be disconnected unless absolutely necessary, and certainly should not be disconnected for any longer than one hour.

CONTINUOUS GLUCOSE MONITORING

Continuous Glucose Monitoring (CGM) is a small device that continuously measures an individual’s glucose levels. It allows them to check their glucose level every few minutes without pricking their finger,
and to observe trends in their glucose levels over time. This means that they can take action to avoid dangerously high or low glucose levels.

CGM utilises a small sensor which is placed in the subcutaneous tissues, usually in the abdomen, buttocks or arm. This sensor is attached to a transmitter on the skin, which then sends data automatically to a receiver that also displays the user’s glucose level.

These sensors usually remain in place for around seven days. They should not be removed at all, as this would prevent an individual being immediately aware of their glucose level, potentially leading to extreme fluctuations in those levels.

**FLASH GLUCOSE MONITORING**

Flash glucose monitoring works in a similar way, but it requires the sensor to be scanned in order to view the glucose level. The sensor stays in place for around 14 days, and should not be removed unnecessarily for the same reasons as those stated above in relation to CGM.

Diabetes UK makes recommendations in the following areas:
- Appropriate documentation
- Security staff respect

**Current situation**

Airports currently use X-ray screening equipment to screen both hand luggage taken into aircraft with passenger and checked-in luggage which is bound for the aircraft’s hold. Many airports are increasingly using whole-body scanners to screen passengers, which also use X-rays. Most pump manufacturers advise that insulin pumps should not be exposed to X-rays. In general, insulin pumps should therefore not pass through the scanning equipment for hand luggage or checked-in luggage or the whole body scanners. This would equally apply to any other security equipment elsewhere which uses similar screening technology. However, there are exceptions, so please see below for the advice relating to individual types of insulin pumps.

The advice for users of continuous glucose monitors and flash glucose monitors depends on the system used. Please see below for advice from individual manufacturers.

All pumps, CGMs and flash glucose monitors can pass through the walk-through metal detectors without affecting their performance, although the metal clip on some pumps may cause the detector’s alarm to sound.

If your pump or CGM will be affected by a scanner you will need to opt out of being scanned. When you opt out however, in order to pass through security at the airport, you will need to be screened by an enhanced hand search instead. These are thorough hand-searches which can be quite intrusive – you may, for example, be asked to loosen or take off some clothing. Enhanced hand searches have to take place in a private room or in an area away from the main security search: security staff are not permitted to carry this out in front of the other members of the public.

**SPECIFIC ADVICE FOR USERS OF INDIVIDUAL INSULIN PUMPS**

**Accu-Chek**

Accu-Chek pumps should not go through the X-ray screening systems that are used for hand luggage or checked-in luggage as it may cause the pump to fail. Insulin delivery may stop and an “Error E7: ELECTRONIC ERROR” may occur. They should also not go through whole body scanners. Whenever possible, users of these pumps are advised to disconnect the pump for a brief time whilst they go through the scanner and hand their pump to security staff who can pass it around the body scanner.

However, if airport staff insist that that the pump must go through the X-ray machine, then put the pump into the STOP position and remove the battery. Under this condition, the pump can go through the X-ray machine.

**Animas**

The Animas pump should not go through the X-ray screening systems used for hold or checked-in luggage, or through whole body scanners. The user will need to disconnect themselves from the pump at its insertion site if they opt to go through the scan instead of a manual search.

**Medtronic**

The Medtronic pump should not go through the X-ray screening systems used for hold or checked-in luggage, as this will detrimentally affect its motor. It also should not go through whole body scanners.
Dana
The Dana pump should not go through the X-ray screening systems used for hold or checked-in luggage. It also should not go through whole body scanners.

Omnipod
The Omnipod handset can go through the X-ray screening systems used for hold or checked-in luggage, as it will not affect its performance. The Omnipod can be worn during whole body scanning with no effect on its performance. Occasionally metal in the pump battery will set off an alarm when going through the walk-through metal detector, but this does not always occur. Users are advised to inform the security staff that you are wearing an Omnipod in case this does happen.

Cellnovo
The Cellnovo handset can go through the X-ray screening systems used for hold or checked-in luggage, as it will not affect its performance. The pod can be worn during whole body scanning with no effect on its performance.

SPECIFIC ADVICE FOR USERS OF INDIVIDUAL CGMs
Freestyle navigator
The Freestyle Navigator sensor can be worn during whole body scanning with no effect on its performance. The handset can go through the X-ray screening systems used for hold or checked-in luggage.

Medtronic Paradigm Veo and 640G
The Medtronic sensor can be worn during whole body scanning with no effect on its performance. However the pump needs to be removed by the user.

Dexcom G4 Platinum and G5 Mobile
The Dexcom G5 receiver or spare sensors should not go through X-ray machines. Before being screened, the user should ask the security staff to perform a visual inspection of the receiver and the spare sensors. The user should then place all of their Dexcom G5 Mobile components in a separate bag before handing it all over to the security staff.

The effect of whole body scanners on the Dexcom G5 has not been studied, and therefore Dexcom recommend that its users are screened using a hand wand or an enhanced hand search and a visual inspection rather than going through the whole body scanner.

SPECIFIC ADVICE FOR ABBOT FREESTYLE LIBRE USERS
The Freestyle Libre sensor can be worn during whole body scanning with no effect on its performance. The Freestyle Libre reader can go through the airport X-ray screening system.

FURTHER GENERAL ADVICE FOR USERS OF DIABETES TECHNOLOGIES
- Users should read the user guides of their pump or CGM, or contact the customer helpline of the company which manufactures the device to see if the device is potentially affected by any X-ray screening equipment or whole body scanners used at airports.
- Users should contact the airport that they are travelling from to find out what type of security screening they use (particularly in relation to whole body scanners).
- Users should carry documentation from their doctor or diabetes specialist nurse, explaining that they have diabetes and that they use an insulin pump, CGM or flash glucose monitor. This letter should also explain the other equipment and supplies they need to carry, including insulin.
- Users should also carry documentation from their insulin pump or CGM company to explain that the pump should not go through X-ray scanners (if this is applicable to their specific device).
- If a user is asked to go through a whole body scanner and they use a device that may be negatively affected by this, they should explain to security staff that they have diabetes, that they are using an insulin pump or a CGM and that it should not be removed. They should instead request a hand search and a manual inspection of their device.

2016 CAMPAIGN
Campaigning work is being carried out to promote better awareness of the issues facing people using diabetes technology at airports and to ensure that they are able to travel without facing any additional obstacles in practice compared with other people. This has been campaigned on by Rachel Humphrey, whose son has Type 1 diabetes. As a result of this campaign, the Chief Executive of the Civil Aviation Authority (CAA), Andrew Haines, has ensured that a letter was sent out to all UK airports reminding them of the legal right of
passengers to opt out of being screened by security scanners and to request an alternative (such as a hand search in private) and reminding them of the alternatives to the scanning of medical devices. Mr Haines has also committed to making the information on the CAA website clearer in relation to advice to passengers using medical devices that they carry a letter from their medical practitioner confirming their need for such a device.

A further result of this campaign was for the Permanent Secretary at the Department for Transport, Philip Rutnam, to respond in writing to Rachel. He committed in his letter to asking officials at the Department for Transport to discuss the issues raised in the campaign with Airports Council International to promote greater clarity and consistency globally in relation to such issues.

This section sets out Diabetes UK’s recommendations in relation to using insulin pumps and CGM at the airport.

**APPROPRIATE DOCUMENTATION**

All people with diabetes who use insulin pumps, CGMs or flash glucose monitors should carry appropriate documentation when travelling by air.

In order to avoid difficulties in communication with security staff at the airport, everyone with diabetes who uses an insulin pump, CGM or flash glucose monitor should carry documentation from their doctor or nurse stating that they are wearing this type of technology. This could, for example take the form of a letter which is signed by the relevant healthcare professional. Please note that some healthcare professionals may charge for this type of letter.

The letter or documentation should state the following:

- That the device is worn by the user because they have diabetes and because their healthcare professional has determined that it is in their best clinical interests to wear it.
- That an insulin pump should not be removed unnecessarily, and if it is regarded as necessary then it should be for no longer than is deemed necessary owing to security concerns. In any event, it cannot be removed for longer than an hour.
- That a CGM or Freestyle Libre should not be removed at all.
- If the individual’s device is compatible or incompatible with X-ray screening and whole-body scanners.
- The other diabetes supplies that the user is required to carry, such as insulin pens.
- This information can be backed up by a letter or information from the manufacturer of the device.
- Diabetes UK also recommends that people who use an insulin pump or CGM carry a copy of the information that has been sent to all UK airports, in case security staff are not familiar with it: http://ufofreight.com/uploads/letterfromaoa_1471157823.pdf

**SECURITY STAFF RESPECT**

Airport security staff should not call into question the advice from an individual’s healthcare professional or manufacturer. Nor should they insist that a device is put through security screening equipment if this would damage the device.

Security staff must take documentation from a healthcare professional with seriousness and where they have doubts as to its contents or veracity, should escalate their doubts to their manager.

Security staff must never insist that a device must go through X-ray screening if this would, on the device user’s advice or on the evidence provided to them, damage the device.

Similarly, security staff must not insist that an individual goes though whole body scanning whilst wearing the device if it is detrimental to the device they are wearing. An enhanced hand search or a hand wand inspection should be offered instead.

Security staff must also not require an individual to remove an insulin pump cannula or a CGM sensor. Should a pump need to be disconnected, this must be for no longer than is deemed necessary owing to security concerns. This should be for a few minutes only, and certainly for no longer than one hour.

For more information on diabetes technology, please see INPUT’s webpage at http://www.inputdiabetes.org.uk/
References

2 Animas, https://www.animascorp.co.uk/insulin-pumps/faq
3 Telephone call the Medtronic helpline 20/6/16
4 Telephone call the Advanced Therapeutics helpline 20/6/16
5 Telephone call the Ypsomed helpline 20/6/16
6 Telephone call the Cellnovo helpline 20/6/16
7 Telephone call the Abbott helpline 20/6/16
8 Telephone call the Medtronic helpline 20/6/16
9 Dexcom, http://www.dexcom.com/guides
10 Email to Rachel Humphrey from Peter O’Broin http://ufofreight.com/uploads/letterfromaoa_1471157823.pdf
11 Letter written by Andrew Haines, Chief Executive of the Civil Aviation Authority, to Rachel Humphrey,
12 Letter written by Peter Rutman, permanent Secretary at the Department of Transport to Rachel Humphrey