Driving and diabetes: Changes to legislation and implications for primary care

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The 3rd European Directive on Driving Licences (Tajani, 2009) came into force in September 2010. A decision on whether to relax some of the UK's legislation to bring it closer in line with Europe was made and the new rules came into force in November 2011. This article summarises how these changes affect people with diabetes treated with insulin, oral antidiabetes drugs or both, and explores the implications of these changes for healthcare professionals in primary care.

The UK has the lowest number of fatal road traffic accidents per capita in Europe (European Road Safety Observatory, 2011) and this is probably in part related to the attention that has been given to road safety by the Driver and Vehicle Licensing Agency (DVLA) and other authorities and organisations over many years in regulating our roads, including the decisions surrounding who is and who is not allowed to drive. In many other European countries, the regulations are much less strict or even absent and the recently introduced 3rd European Directive on Driving Licences (Tajani, 2009) was an attempt to try to bring all European countries up to the same standard. This directive came into force in September 2010 and the UK was legally obliged to ensure that it met the minimum standards. Any previous standards in the UK that were stricter than those in the new directive had to be examined closely and a decision taken as to whether the UK would uphold stricter standards or relax current regulations to come in line with Europe.

Two main areas involving drivers with diabetes have been affected by these new changes. First the changes imposed by Europe to the Group 1 (cars and motorcycles) licence rules for those on insulin are in some respects stricter than those previously applied in the UK, and these minimum standards had to be adopted by September 2010. Secondly, the regulations governing the licensing of drivers on insulin wishing to drive Group 2 (large goods vehicles [LGVs] and passenger-carrying vehicles [PCVs]) are less strict and the UK has now relaxed its legislation to come in line with Europe. These new rules came into force in November 2011 (DVLA, 2012).

What are the potential problems facing people with diabetes who wish to drive?

The main risks for driving in people with diabetes are visual problems, neurological complications and acute hypoglycaemia. This article will mainly address the problems associated with acute hypoglycaemia, which may affect people taking insulin or some oral antidiabetes drugs (OADs; such as sulphonylureas and meglitinides [glinides]).

Article points

1. If a person with a Group 1 licence has more than one episode of severe hypoglycaemia in the past 12 months, he or she must report this to the Driver and Vehicle Licensing Agency (DVLA) and stop driving.
2. Individuals taking insulin are now able to apply for any Group 2 licence including passenger-carrying vehicles and large goods vehicles but will only be granted a licence after a rigorous two-stage application process.
3. All healthcare professionals involved in delivering routine diabetes care may now be asked to provide a diabetes-specific report to the DVLA as part of the application process for a Group 2 licence.

Key words

- Driving
- DVLA
- Hypoglycaemia

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How often does hypoglycaemia occur?

A recent UK study demonstrated that 7% of people taking sulphonylureas experienced an episode of severe hypoglycaemia (an episode requiring the help of another person for recovery) and 39% experienced mild symptomatic hypoglycaemia during 9–12 months of follow-up (UK Hypoglycaemia Study Group, 2007). It can be seen from *Table 1* that the rates were similar between individuals treated with sulphonylureas and those who had type 2 diabetes and had been taking insulin for less than 2 years. However, the rates of severe hypoglycaemia were substantially higher in those with type 1 diabetes of short duration (less than 5 years) than those with type 2 diabetes, and the highest rates of all were observed were in people with type 1 diabetes of more than 15 years' duration.

How common are hypoglycaemia-related driving incidents?

There is evidence that hypoglycaemia while driving is not a rare phenomenon. One US study demonstrated that over the course of 1 year, more than 50% of drivers with type 1 diabetes reported a hypoglycaemia-related driving mishap (Cox et al, 2009). In addition, in the UK, there are on average 25–30 notifications per month by the police to the DVLA of hypoglycaemia-related driving incidents. This underlines the importance of ensuring that an appropriate regulatory system is in place to minimise risks to people with diabetes, other road users and pedestrians.

How does hypoglycaemia affect driving ability?

Cognitive function deteriorates when blood glucose levels fall to around 3 mmol/L irrespective of whether or not the person has symptoms of hypoglycaemia (Deary, 2007). Complex tasks are affected, particularly memory and attention, concentration, rapid decision-making and hand-eye coordination – all of which are required during driving. A study of hypoglycaemia during driving used driving simulators and demonstrated increased numbers of "crashes", speeding and inappropriate braking, driving off the road, crossing the midline and ignoring stop signs (Cox et al, 2000). In addition, driving does have a significant metabolic demand and in itself may lower blood glucose levels. Based on this evidence the advice to drivers taking insulin is shown in *Box 1*.

How have the Group 1 regulations changed?

As before, people treated by diet or OADs do not need to inform the DVLA of their diabetes but should always ensure that their insurance company is informed.

Table 1. Results from the UK Hypoglycaemia Study (UK Hypoglycaemia Study Group, 2007).

Diabetes type	Percentage of individuals who experienced at least one SH during 9–12 months of follow-up (%)	SH rate per person per year
Type 2 on sulphonylurea	7	0.1
Type 2 on insulin for less than 2 years	7	0.2
Type 1 of less than 5 years' duration	22	1.1
Type 1 of more than 15 years' duration	46	3.2

SH=episode of severe hypoglycaemia.

However, if any individual (on a sulphonylurea, meglitinide [glinide] or insulin) develops unawareness of hypoglycaemia or has recurrent severe hypoglycaemia, they do need to report this to the DVLA.

Prior to September 2010, if people with diabetes had recurrent episodes of severe hypoglycaemia, they would be required to stop driving until stability of glucose control had been regained for a minimum of 3 months. Also, if they had unawareness of hypoglycaemia they would only be able to drive if they had not experienced severe hypoglycaemia and monitored blood glucose regularly. Nocturnal episodes of hypoglycaemia were not considered in the same way that hypoglycaemia during waking hours was considered.

In September 2010, with the introduction of the 3rd European Directive on Driving Licences, if a person has two or more episodes of severe hypoglycaemia, he or she will be required to cease driving until 12 months after the last but one episode, as long as stable control is demonstrated. For example, if an individual has a severe episode of hypoglycaemia in June and another one in August, he or she will cease driving in August and will not be able to drive again until June the following year assuming stable control is re-established. These rules apply irrespective of whether the episode occurred during sleeping or waking hours. This means that some people will have their licences revoked where previously this would not have been the case. However, the numbers affected in the first 18 months of the new regulations is not the "thousands" reported in the popular press.

It is important to note that the definition of severe hypoglycaemia is an episode that requires external help. It is important for a clinician to establish whether external help, which may have been given by a bystander, was actually required, that is, that the individual was unable to treat the hypoglycaemic episode by him- or herself. For example, if a friend pours a glass of orange juice for the person, this does not necessarily mean that help was required.

The European directive also stated that unawareness of hypoglycaemia (i.e. hypoglycaemia without warning symptoms) should exclude driving. However, "unawareness" was not defined in the directive and the Diabetes Advisory Panel to the DVLA advised that the definition of unawareness of hypoglycaemia for Group 1 drivers should be "a total absence of warning symptoms" (DVLA, 2012). This would then allow people with some impairment of hypoglycaemia to drive, as long as they fulfilled all other criteria.

Most licences of insulin-treated people with diabetes will continue to be reviewed every 3 years although if concerns are raised, this may be reduced to annually.

How have the Group 2 regulations changed?

Prior to November 2011, only a few insulin-treated people were entitled to Group 2 licences. Those who were taking insulin prior to 1991, when the regulations changed, were entitled to continue to hold a C licence (over 7.5 tonnes) or D (PCV) licence provided that they were reviewed at least annually by a consultant diabetologist and met certain other standards. In addition, after the introduction of new regulations in 1998 some people were able to drive C1 vehicles (3.5 to 7.5 tonnes) subject to annual review by a specialist.

After the introduction of the most recent European directive it was deemed appropriate that applicants taking insulin should be allowed to drive any Group 2 vehicle (i.e. LGV and PCV). However these licences will only be granted

after a rigorous two-stage review process, which will be performed annually. Applicants will need to have full awareness of hypoglycaemia, no severe episodes of hypoglycaemia in the preceding 12 months and 3 months of meter readings performed at least twice daily and at times relevant to driving, as well as a clear understanding of the risks of hypoglycaemia associated with driving. All applicants will need to provide meter readings from all meters used and if there are any missing readings they will be required to collect the data again before being granted a licence. For those who have previously held C1 licences this represents a more rigorous and demanding process in comparison.

People applying for or wishing to retain a Group 2 licence and who are taking OADs that carry a risk of inducing hypoglycaemia will also be required to monitor their blood glucose at least twice daily and at times relevant to driving, although they are not required to demonstrate their results at review with a memory meter. This advice has always been considered "good practice" and should not result in a significant change to practice.

Box 1. A guide to insulin-treated diabetes and driving (Driver and Vehicle Licensing Agency, 2012).

- You should always carry your glucose meter and strips with you.
- You must check your blood glucose level before the first journey and every 2 hours while driving.
- If your blood glucose is ≤5 mmol/L or less, take a snack before driving
- If your blood glucose is <4 mmol/L or you feel hypoglycaemic, do not drive
- You must not start driving until 45 minutes after your blood glucose has returned to normal. It takes up to 45 minutes for the brain to recover fully.
- If hypoglycaemia develops while driving, stop the vehicle in a safe place, remove the keys from the ignition and move from the driver's seat.
- Always keep a supply of fast-acting carbohydrate such as glucose tablets or sweets within easy reach in the vehicle.
- You should carry personal identification to show you have diabetes in case of injury in a road traffic accident.
- Particular care should be taken during changes to insulin regimens, changes of lifestyle or exercise, extended travel and pregnancy.
- You must have regular meals, snacks and rest periods on long journeys. Always avoid alcohol.

How will this affect primary care providers of diabetes care?

It has always been the responsibility of the provider of diabetes care (in primary or secondary care) to ensure that people with diabetes have a clear understanding of the risks associated with driving and diabetes with particular reference to hypoglycaemia (whether caused by OADs or insulin). People treated with sulphonylureas should be educated about the possibility of hypoglycaemia and how it should be treated. Advising Group 1 licence holders treated with OADs to self-monitor should be considered, particularly if they drive for long periods as part of their occupation. Self-monitoring of blood glucose levels is now essential for Group 2 licence holders. The recent changes to the regulations reinforce the need for regular education of people with diabetes about how their condition can affect driving.

It is important that the providers of care review the occurrence of hypoglycaemic episodes and awareness of hypoglycaemia at each clinic visit and, where appropriate, advise Group 1 drivers to inform the DVLA and cease driving if there has been more than one episode of severe hypoglycaemia within the past 12 months or if the individual has impaired awareness of hypoglycaemia. If a person refuses to inform the DVLA, healthcare professionals should ensure that the advice given to that individual is clearly documented and should follow the General Medical Council guidance and consider informing the DVLA after advising the individual that this is to be done. For those who develop impaired awareness of hypoglycaemia or experience one or more episodes of severe hypoglycaemia, referral to a specialist centre should be considered.

There are concerns that people may conceal episodes of severe hypoglycaemia from their diabetes care providers. This emphasises the importance of education highlighting the risks of hypoglycaemia and driving and reassuring people with diabetes that for the vast majority of drivers on insulin, as long as they take appropriate precautions to minimise their risk of severe hypoglycaemia, their driving licences should not be affected.

For those applying for Group 2 licences, the process has changed and may now involve primary

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care healthcare professionals. After the doctor has completed the D4 form for applying for a licence, in which they will have identified that the patient has diabetes, a more detailed form will be sent to the patient asking about his or her treatment.

Depending on the responses submitted on this form and if the individual is taking insulin, the main provider of that person's diabetes care (in primary or secondary care) will be asked to undertake a detailed examination or interview with them. This will attract a fee paid by the DVLA to the clinician and the patient should not therefore be charged for this process. At this interview, a detailed history concerning hypoglycaemia and review of other complications of diabetes will be required. In addition, the clinician will be asked to verify that the individual has a clear understanding of the risks associated with hypoglycaemia and driving and knows how to manage these risks appropriately. Three months of meter readings must be inspected and in many cases, this will require review of multiple meters.

The clinician will be asked to verify that there are readings taken at least twice daily and at times relevant to driving. If there are any missing readings the applicant will be required to undertake the monitoring process again. It is acceptable for the driver to have recorded readings of less than 3 mmol/L as this may indicate appropriate testing in the presence of suspected hypoglycaemia. If the applicant provides satisfactory information on the basis of the report provided by the clinician to the DVLA, and it is considered by the DVLA that the applicant should proceed to the next stage, a further assessment by an independent diabetes specialist (consultant diabetologist) who is not involved in the individual's diabetes care will be undertaken. The reason for this is to ensure that if the applicant is refused a licence this should not jeopardise the doctor–patient relationship for future care. This independent assessor will verify the information provided by the individual's usual diabetes doctor and also assess in more detail hypoglycaemia awareness and confirm that any low blood glucose meter readings were accompanied by appropriate symptoms.

In addition, any other medical conditions identified should be reported but those that would influence the application will be subject to review by other specialists where appropriate (such as cardiovascular or visual).

At this stage the number of people who will apply for Group 2 licences is not entirely clear. Previously, there were only about 20 C1 licences held by people with diabetes per million population and while more people may apply, many will not pass through the routine process for Group 2 licences, which involve cardiovascular and visual assessments before proceeding to diabetes.

Concluding remarks

To summarise the changes in driving regulations for those with insulin-treated diabetes:

- It is important for all providers of diabetes care to understand the implications of hypoglycaemia and driving and to provide individuals with appropriate support and education.
- If a person with a Group 1 licence has more than one episode of severe hypoglycaemia in the past 12 months, he or she must report this to the DVLA and stop driving.
- Individuals taking insulin are now able to apply for any Group 2 licence including passenger vehicles and large goods vehicles but will only be granted a licence after a rigorous two-stage application process.
- All doctors involved in delivering routine diabetes care may now be asked to provide a diabetes-specific report to the DVLA as part of the application process for a Group 2 licence. ■

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