INTRODUCTION

- The number of people currently living with diabetes in the UK has reached 2.9 million.1
- People with poorly controlled diabetes, especially those that suffer hypoglycaemic episodes, have an increased risk of driving accidents.2
- The law states that if patients are on certain diabetes medications and/or insulin, they must inform the DVLA of this. These requirements are detailed below.3

Patients diabetes treatment

<table>
<thead>
<tr>
<th>Group 1 (cars, motorcycles)</th>
<th>Group 2 (heavy goods vehicles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet controlled</td>
<td>No</td>
</tr>
<tr>
<td>Tablets that pose a risk of hypoglycaemia (sulphonylureas, glinides)</td>
<td>No</td>
</tr>
<tr>
<td>Tablets that do not carry a risk of hypoglycaemia</td>
<td>No</td>
</tr>
<tr>
<td>Insulin</td>
<td>Yes</td>
</tr>
<tr>
<td>Non-insulin injections</td>
<td>No</td>
</tr>
</tbody>
</table>

- Drivers of both Group 1 and 2 vehicles have additional responsibilities surrounding hypoglycaemia awareness, blood glucose monitoring, hypoglycaemia episodes requiring assistance, and, visual standards, which are detailed by the DVLA.1

METHODS

- In order to enable comparison with the previous audit, the same 37-point anonymous questionnaire was distributed to 47 drivers (on insulin and/or tablets with a risk of hypoglycaemia) at the diabetes clinic. This questionnaire focused on awareness of DVLA regulations, notably their response to hypoglycaemic episodes at the wheel.

Sample of Principle Questions Asked to Patients in Clinic

- Have you received information regarding driving regulations and if so where from?
- Do you test your blood sugar before driving?
- What level should your blood glucose be before you drive?
- Do you have a blood glucose meter and carbohydrate source with you in the car?
- How often should you check your blood glucose level on a long journey?
- Where would you stop if you needed to test your blood glucose?
- What actions would you take if you felt hypoglycaemic?
- Do you know the legal consequences of driving under the influence of insulin without due care?

RESULTS

Demographics

- Males: 32 (68.1%)
- Females: 15 (31.9%)
- Age range: 31-79 years (median: 56 years)
- Ethnicity: White: 32 (68.1%)
- Employment status: Employed: 23 (48.9%)
- Type 1 diabetes: 12 (25.5%)
- Type 2 diabetes: 35 (74.5%)
- Range of years of having been driving: 3-35 (median: 29.5)

Aims

- A 2011 audit demonstrated low understanding of the DVLA regulations amongst patients attending a secondary care diabetes clinic at a large teaching hospital (University Hospital Birmingham).4
- Their findings led to the implementation of posters and leaflets in the clinic waiting area and reception as well as a reminder to clinicians and nurses to continue imparting education.
- The aim of this re-audit was to ascertain the awareness of driving regulations amongst patients at this clinic following these interventions.

DVLA Guidelines for Safe Driving

- Glucose monitoring equipment and a source of carbohydrates must be kept in the car at all times.
- Before driving (and, every 2 hours on a long drive), the blood glucose level must be checked and should exceed 5mmol/l before setting off.
- If the person experiences a hypoglycaemic episode whilst driving they should:
  - Stop the car in a safe place
  - Remove the keys from the ignition
  - Move to the passenger’s seat
  - Treat the hypoglycaemia and ensure BM>5mmol/l
  - Wait 45 minutes before setting off again

Aim of this audit

- We aimed to assess the knowledge of driving regulations amongst patients at this clinic following these interventions.

JAMA Internal Medicine Journal Articles

- JAMA Internal Medicine Journal Articles

Discussion

- Our results show that although the majority of drivers have received information regarding driving with diabetes; only few understand and follow the specifics.
- It is encouraging that there has been some improvement since the previous audit although more can be done.
- It is a basic DVLA requirement for a person with diabetes to check their blood glucose before driving. It is worrying that over a quarter of those asked did not check it before setting off, and half did not carry a meter in the car.
- Hypoglycaemia is dangerous whilst driving. For this reason it is an absolute license stipulation that those with diabetes retain their hypoglycaemia awareness. In our study over 40% admitted that they were not always aware when they were becoming hypoglycaemic, this is a major concern for road safety.
- The response to the question concerning the legal consequences of driving in a hypoglycaemic state showed that approximately a third of those asked did not realise the seriousness of the driving regulations.
- Overall the results show that there is still a huge lack of understanding concerning driving regulations amongst drivers with diabetes. This lack of understanding affects their safety at the wheel as well as the safety of other road users and has potential legal consequences.
- We make some recommendations (see bottom box)

Limitations of our audit

- Small patient population – 47 patients included
  - This was because most patients approached did not drive
  - Language barriers may have made it more difficult for some patients to access information
- When comparing our results to the previous audit, it should be noted that a different set of patients were used.
- There may be some social acceptability bias where responders put what they think is the right answer in order to look favourable. The questionnaires were anonymised to minimise this bias.