

## **Are Eye Clinics Safe For The Road?: An Observational Report**

Corresponding author:

Esther Papamichael, IBSc (Hons), MBBS (Hons)

Glaucoma Department

Moorfields Eye Hospital NHS Foundation Trust

162 City Road

London

EC1V 2PD

[estherpapamichael@doctors.org.uk](mailto:estherpapamichael@doctors.org.uk)

Tel: 02072533411

Co-authors:

Rashmi Mathew BSc(Hons), MBBS, FRCOphth

Moorfields Eye Hospital NHS Foundation Trust

Glaucoma Department

162 City Road

London

EC1V 2PD

[Rashmi.mathew@moorfields.nhs.uk](mailto:Rashmi.mathew@moorfields.nhs.uk)

Tel: 02072533411

Deborah Kamal MBBS, MD, FRCOphth

Moorfields Eye Hospital NHS Foundation Trust

Glaucoma Department

162 City Road

London

EC1V 2PD

[Deborah.kamal@moorfields.nhs.uk](mailto:Deborah.kamal@moorfields.nhs.uk)

Tel: 02072533411

Ian E Murdoch MSc, MD, FRCOphth, FWACS

Institute of Ophthalmology

EIEH

11-43 Bath Street

London

EC1V 9EL

[i.murdoch@ucl.ac.uk](mailto:i.murdoch@ucl.ac.uk)

Tel: 020 7608 6896

**Acknowledgments:** Moorfields clerical staff, P Lee

**Work presented as an oral presentation at the local Moorfields Alumni Meeting**

**Competing interests:** The authors declare that they have no conflict of interest

**Funding:** None

**Keywords:** DVLA, driving, legal obligation

**Introduction:**

The coroner recently contacted the Royal College of Ophthalmologists, UK regarding two fatal road traffic accidents involving drivers whose vision was below the legal standard for driving. In both cases the patients were attending an eye clinic but there was no clear documentation in the medical records that the patients had been advised to inform the UK, Driving and Vehicle Licencing Agency (DVLA) or stop driving.

In light of this, we decided to review our processes to ensure that driving status is assessed during glaucoma clinics so patients who drive but do not meet driving standards are appropriately advised to inform the DVLA.

A previous report of documentation of driving status and DVLA advice did not look at visual acuity standards and had small numbers.<sup>1</sup> We report an observational study identifying the proportion of patients whose driving status was documented on the first and subsequent glaucoma clinic visits. We also established the proportion of patients with documented DVLA related advice when they did not meet driving standards based on their visual acuity and/or visual fields (VF). This study was granted institutional audit approval and did not require research and ethics committee approval.

**Materials and Methods:**

We reviewed all medical records of patients attending nine glaucoma clinics under different consultants between October 2013 and April 2014. Thirty-one were excluded due to unavailability of the first volume of records. We examined 319 medical records for driving status documentation at every glaucoma visit, as well as visual acuity with habitual correction. The visual acuity threshold was defined according to DVLA standards as less than 6/12 Snellen in both eyes<sup>2</sup>. Two glaucoma experts identified all patients with bilateral VF

defects and independently assessed these for eligibility for driving. Clearly predefined VF standards based on DVLA criteria<sup>a</sup> were used in the decision-making. In cases where there were 4 or more overlapping points of extinction, patients were deemed unsafe to drive.<sup>2</sup> The two experts had to reach a consensus in their decision if they disagreed in their initial assessment.

### **Results:**

The average age of patients attending the clinics was 63 years (range: 19-95) and 47% were female (n=150). Driving status was recorded in 61% (n=195) of patients on the first glaucoma clinic visit (more frequently following the introduction of a new proforma with a tick box for driving). Of the remaining 124 patients, 44% (n=55) had their driving status documented at a subsequent visit, on average 8 years later. In total, driving status was recorded for 78% (n=250) of patients. Figure 1 illustrates the documented driving status of patients. In subsequent analysis the sum of drivers (n=69) and those whose driving status was unknown (n=134) was used to assume the worst-case scenario (n=203). Of these patients 37% (n=75) were assessed as having a visual acuity or bilateral visual field defect that was below the legal limit for driving, 39 of whom were known drivers. Table 1 shows the number of patients who fell below the legal driving standards who had documentation of being advised to inform the DVLA. Overall we have potentially failed in our duty to advise 76% of patients (n=57/75), of which 26 were known drivers.

### **Discussion:**

---

<sup>a</sup> The DVLA defines the minimum field of vision for safe driving as, “A field of at least 120 degrees on the horizontal, measured using a target equivalent to the white Goldmann III4e settings; the extension should be at least 50 degrees left and right. In addition, there should be no significant defect in the binocular field which encroaches within 20 degrees of fixation above or below the horizontal meridian”.

Our study showed that driving status is inconsistently recorded on the first visit to glaucoma clinics in our hospital. DVLA advice is poorly documented for drivers, whose vision falls below defined DVLA standards. A significant proportion of these patients would fall within the criteria to be unsafe to drive based on their visual field. The DVLA defines the threshold of VA for Group 1 licence holders as binocular VA of 6/12 or better and VF requirements based on Estermann (binocular) VFs.

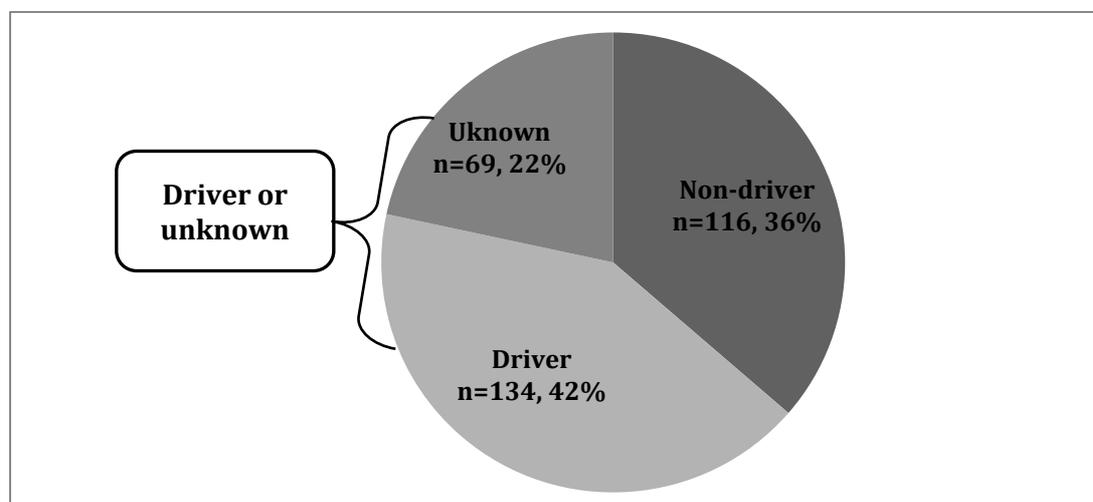
We would recommend that all patients' driving status is assessed on the first visit to any eye clinic and re-assessed when VA, VF or diagnosis alter. This should be clearly documented, together with DVLA and driving advice. All ophthalmology departments have a duty of care to their patients who, in the UK, have their own duty to advise the DVLA. The DVLA has responsibility to assess whether risk from driving may arise. This study highlights the importance of assessing a hospital's performance in this regard.

To improve our performance we are incorporating a decision support element in the hospital's electronic patient record system and have devised a patient information leaflet and hospital protocol regarding vision and driving.

### **References:**

1. Puvanachandra N, Kang CY, Kirwan JF, et al. How good are we at advising appropriate patients with glaucoma to inform the DVLA? A closed audit loop. *Ophthalm. Physiol. Opt.* 2008;28:313–316
2. Medical Group DVLA, Swansea 2013. Driving and Vehicle Licensing Agency. At a glance guide to the current medical standards of fitness to drive [DVLA website]. Updated 27 November 2014. Available at:  
<https://www.gov.uk/government/publications/at-a-glance>

**Figure 1: Documented driving status of patients included in the audit**



**Table 1: Documented DVLA duty performance**

Vision below legal limit		Drivers or unknown n(%)	Known drivers n(%)	Failed DVLA duty n (%)
<b>Bilateral VF defects:</b>	DVLA advice recorded:	13 (17%)	13 (33%)	
	No recorded DVLA advice:	53 (71%)	19 (49%)	<b>53 (71%)</b>
	Four overlapping extinction points:	28	3	
	<b>Total:</b>	<b>66 (88%)</b>	<b>32 (82%)</b>	
<b>Vision below 6/12 Snellen in both eyes:</b>	Spectacle advice or listed for surgery:	5 (7%)	4 (10%)	
	No recorded spectacle or DVLA advice:	4 (5%)	3 (8%)	<b>4 (5%)</b>
	<b>Total:</b>	<b>9 (12%)</b>	<b>7 (18%)</b>	
<b>Total:</b>		<b>n=75</b>	<b>n=39</b>	<b>57 (76%)</b>