

## AUDIT

## Are medical reports on fitness to drive trustworthy?

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**Purpose:** Previous studies have shown that physicians often have poor knowledge of the medical restriction on fitness to drive, or submit poor quality medical reports. To determine the reliability of physicians' reports on fitness to drive, the medical data provided on the standard medical fitness form was compared with the additional data collected on repeated assessment.

**Methods:** A random sample of 100 applicants for a driver's licence aged more than 49 years who submitted the standard medical form were asked to provide, from their regular family doctor, confirmation of their health status and/or additional medical data in order to make a re-evaluation.

**Results:** The rate of rejection for a licence for medical reasons was 3% on the basis of the standard evaluation and 17% on the basis of the re-evaluation ( $p < 0.001$ ).

**Conclusion:** This study shows that the random evaluation of physician assessments of applicants for a driver's licence increases the detection rate of medical problems that can affect fitness to drive. The alarming difference in the rate of rejection between the two assessments may reflect a lackadaisical attitude of medical professionals toward the licence assessment procedure and/or physician unawareness of the medical restrictions on fitness to drive. Results of this study suggest that this subject must be included in medical education programmes.

The dramatic worldwide increase in the number of road accidents has stimulated the study of the reliability of physician assessment of medical fitness to drive. In Israel, as in the majority of developed countries,<sup>1,2</sup> applicants for a driver's licence (new or renewal) are requested by law to submit a standard physician-signed report on medical status and any disabilities likely to interfere with safe driving to the Driver Licensing Bureau (DLB) of the Ministry of Transport. The final decision of granting or rejecting the licence is made by a physician authorised by the DLB who may, at his/her discretion, request additional information from the applicant or refer the applicant to the Institute of Road Safety for further evaluation.<sup>3</sup>

Almost 100% of the general population in Israel is insured by one of the four recognised health management organisations which provide comprehensive, integrated medical care. Each member of an health management organisation is assigned a family physician. Though applicants for a driver's licence are expected to have the medical report completed by their own physician, this is too often not the case, and physicians unfamiliar with the patient provide the requested information. This problem is particularly relevant in the elderly population, in whom cognitive, motor, and sensory functions may be decreased and in whom a physical illnesses, or intake of medication that may affect safe driving, is more likely than in younger people.<sup>4-7</sup>

Previous studies have also shown that physicians often have poor knowledge of the medical restrictions on fitness to drive or submit poor quality medical reports.<sup>1,8,9</sup> Moreover, despite the structured format of the standard form, many physicians remain unclear as to which tests they are supposed to perform to determine eligibility for a licence.<sup>8,9</sup>

These findings raise concerns regarding the reliability of medical reports on fitness to drive, particularly those signed by physicians other than the applicant's family doctor. The aim of the present study was to compare the medical data provided in the standard medical fitness form with that provided on reassessment, and to examine whether the additional data, if any, has an impact on applicant acceptance/rejection for a driver's licence.

## SUBJECTS AND METHODS

## Participants

A random sample of 100 applicants for a driver's licence were requested to provide, from the applicant's regular family doctor, confirmation of their health status by performing a new medical examination and/or giving additional medical data, to undergo re-evaluation for medical information in addition to that provided in the standard form. Inclusion criteria were (a) age over 49 years and (b) submission of a standard form signed by a physician other than the applicant's family doctor. The latter was determined by the physician's response to the final item on the form: (1) *I am the applicant's family physician in the health management organisation;* (2) *I identified the applicant only by his/her ID;* (3) *I personally know the applicant, and the medical data correspond with what I know about him/her.* Information on the physician's specialty (general practitioner, specialist in family medicine, internist, cardiologist, surgeon, etc) was also obtained from the form.

## Sample size

To the best of our knowledge, there is no information in the medical literature on the proportion of medical reports that are missing significant data that would cause an applicant for a driver's licence to be rejected. Therefore, in determining sample size, we opted for 50%, the "safest" rate when  $p$  is unknown, with a confidence level of 95% ( $\alpha = 0.05$ ) and an absolute precision of 10% points on either side of the proportion for the statistical calculation. Using the formula,  $n = Z^2_{1-\alpha/2} P(1-P)/d^2$ , we found that a minimum sample size of 95 was necessary for this study.<sup>10</sup> This figure was rounded to 100.

## Data analysis

According to local, unpublished data, professional drivers (truckers and bus and taxi drivers) have a greater tendency than non-professional drivers (private cars) to undergo examination by a private doctor. Therefore, we classified the sample into two groups by type of licence requested. Statistical analysis was performed with the Epi-Info statistical package. The distribution of discrete variables (gender, medical report, type of driving licence, physician's specialty, reporting doctor—

**Table 1** Demographic characteristics of applicants and findings for second assessment by type of licence requested (% in parentheses)

Variable	Total	Type of licence		Significance
		Private	Professional	
Age (years)				
50–59	16	–	16	
60–69	31	19	12	
70–79	48	37	11	p<0.001
80–84	5	4	1	
Total	100	60	40	
Gender				
Male	87	47	40	
Female	13	13	–	p<0.01*
Response to request for additional medical data (%)	66	42 (64)	24 (36)	NS
Examining physician at second assessment (%)				
Same as first assessment	39	27 (69)	12 (31)	
Another physician	27	15 (56)	12 (44)	NS
Report of additional medical data (%)	28	19 (68)	9 (32)	NS
Additional medical data indicating rejection (%)	11	5 (45)	6 (55)	NS

\* $\chi^2$  (Yates's corrected) = 8.14; p = 0.0043.

same as on original form/other, report of additional medical data—yes/no, provision of medical data that could lead to a change in the original decision—yes/no) was analysed by  $\chi^2$  test, and continuous variables were compared by two tailed Student's *t* test. A level of 5% was considered significant.

**RESULTS**

Of the 100 applicants asked to provide additional medical data, 66 (66%) responded, including 42 applicants for a private driver's licence and 24 applicants for a professional driver's licence. The descriptive analysis of the main results by type of licence requested is shown in table 1. Except for age and gender distribution, none of the characteristics examined were significantly different between the groups.

On the basis of the original application, three of the 100 applicants studied (3%) were rejected for a driver's licence on medical grounds, whereas on the basis of the second evaluation, 11 of the 66 applicants were rejected (17%). This difference was highly statistically significant (p<0.001).

The reasons for rejection in the first evaluation were depression and syncope in a professional driver, severe peripheral vascular disease in a non-professional driver, and Parkinson's disease in a non-professional driver. (In the latter case, rejection was recommended by the examining physician.) None of the remaining medical reports contained data that would warrant rejection of the applicant.

On the second evaluation, in the group seeking private licences, 27 of the re-evaluations were signed by the same physician as the original form, and 15 by a different physician. In 19 cases (45%), medical information not included in the first form was obtained by the re-evaluation. In six of them, the additional information affected the initial decision regarding fitness to drive. Two applicants, one an alcoholic and one with vertebrobasilar insufficiency, were found unfit to drive, and three applicants, one with severe peripheral vascular disease, one addicted to lorazepam, and one after a cerebrovascular accident with right hemiparesis, were referred to the Medical Institute of Road Safety for examination. The sixth applicant was the one rejected initially because of Parkinson's disease; he was found to be fit to drive on re-evaluation (due to convincing clarification given by his family physician).

Of the 24 professional drivers who complied with our request, half went to the same physician who had signed the original form and half went to a different one. New information was obtained in nine cases (38%) and affected the decision regarding fitness to drive in six of them (25%). One

**Table 2** Provision of additional medical data according to speciality of the physician

Physician speciality	Report of additional medical data		
	Yes	No	Total responses
Family doctor	19	27	46
Specialist*	2	8	10
Private institution†	7	3	10
Total	28	38	66

\*Internal medicine, cardiology, infectious diseases, haematology, nuclear medicine.  
 †Including occupational medicine.  
 $\chi^2$  = 5.2, p = not significant.

truck driver with treated, but uncontrolled, insulin-dependent diabetes mellitus was denied a professional driving licence; two bus drivers with active ischaemic heart disease were denied a professional licence but accepted for a private one; and three drivers, one with recurrent symptomatic supraventricular tachycardia, one with major depression, and one with progressive Alzheimer's disease, were referred to the Medical Institute of Road Safety.

Forty six of the second medical evaluations were signed by a primary care physician; five by internists (four of them heads of departments); five by specialists in other fields (cardiology, infectious diseases, haematology, and nuclear medicine); eight by physicians in private institutions; and two by specialists in occupational medicine employed by public transport companies. In all cases, the applicants indicated that the reporting physician is his/or regular doctor. Analysis of the provision of additional medical data by speciality of the physician (table 2) yielded no significant differences among the primary care physicians, physicians from private institutes (including the specialists in occupational medicine doctors), and other specialists. This was also true when the family physicians were compared with all the specialties.

**DISCUSSION**

This study points to the important role physicians play in the assessment of fitness to drive and the need for their high awareness and knowledge in this area.<sup>2 11–15</sup> The highly significant difference (p<0.001) found here in the rate of rejection for medical reasons between the first and second evaluations is alarming, and may reflect a lackadaisical attitude of physicians to the examination for fitness to drive unless attention is

drawn to a specific case by the authorities. We support the claim of Johnston that physician failure to report medical problems that could affect safe driving can be considered negligence that could have serious legal consequences.<sup>16</sup> We suspect that our results might have been even more significant had the non-responders to our request for a re-evaluation complied. We cannot rule out the possibility that some of them may not have cooperated in order to conceal medical data that could threaten their eligibility for a licence.<sup>17</sup>

We should also emphasise that we selected only applicants who were examined by a physician other than their family physician. Thus, the omission of medical details may also have derived from lack of knowledge on the part of both the physician and the patient regarding the medical restrictions on fitness to drive and the examinations that need to be performed. Irvine suggested three main questions that physicians should pose when evaluating fitness to drive:

(1) Is there significant evidence of cortical impairment (dementia, post-stroke, alcohol or drug addiction, etc) to make the person a likely "source of danger" at the wheel?

(2) Is the person prone to sudden and disabling episodes of collapse, altered awareness, loss of consciousness, or vestibular disturbances from whatever medical cause (hypoglycaemia, epilepsy, symptomatic arrhythmia, Meniere's disease, etc)?

(3) Does the applicant have adequate vision (both visual acuity and visual field)?

Marottoli pointed out that in the process of determining who should or should not be driving, the physician is not alone, but is part of a larger system, and he/she must interact with the driver, the driver's family, and the licensing agency.<sup>18</sup>

This study suggests that performing random evaluation of the medical forms for fitness to drive by requesting additional medical information can increase the detection of problems that could influence the decision regarding driver eligibility. This process may also increase the knowledge and awareness of both physicians and the public to the importance of the examination and the specific examinations that need to be performed. With this purpose in mind we recommend that the subject of medical reports and examinations on fitness to drive is included in the medical educational program of both before and after graduation.

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