



Published by:

RSSB
Block 2
Angel Square
1 Torrens Street
London
EC1V 1NY

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GO/GN3655

Guidance on Medical Fitness for Railway Safety Critical Workers

Issue Two: June 2014

Rail Industry Guidance Note



Documents

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Guidance on Medical Fitness for Railway Safety Critical Workers

Issue record

Issue	Date	Comments
One	December 2011	Original document. This document provides guidance for railway undertakings and infrastructure managers on medical fitness for railway safety critical workers and is intended to assist them in understanding their responsibilities in relation to medical fitness and how they may approach the setting of their own medical fitness criteria, where appropriate.
Two	June 2014	Amendments to references throughout the document.

Revisions have not been marked by a vertical black line in this issue because the document has been revised throughout to update references.

Superseded documents

The following Railway Group documents are superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded
GO/GN3655 Guidance on Medical Fitness for Railway Safety Critical Workers, issue one	all	07 June 2014

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Guidance on Medical Fitness for Railway Safety Critical Workers

Contents

Section	Description	Page
Part 1	Introduction	4
1.1	Purpose of this document	4
1.2	Background	4
1.3	Copyright	5
1.4	Approval and authorisation of this document	5
Part 2	Guidance for infrastructure managers and railway undertakings on medical fitness standards	6
2.1	Content of medical fitness standards	6
2.2	Mandatory and discretionary standards	6
2.3	Choice of medical assessor	7
2.4	Frequency of medical assessments	7
2.5	Specific medical requirements	7
Appendices		
Appendix A	Laser eye surgery	11
Appendix B	Colour vision	15
Appendix C	Hearing	17
Appendix D	Safe use of medicines	25
Appendix E	Cautionary labels 2 and 19 for medicines – British National Formulary	30
Appendix F	Railway workers and diabetes – general guidance	31
Appendix G	Obstructive Sleep Apnoea and Excessive Daytime Sleepiness	36
Definitions		46
References		47
Figures		
Figure G.1	Example of a sleep apnoea evaluation and management strategy for safety critical workers	43

Guidance on Medical Fitness for Railway Safety Critical Workers

Part 1 Introduction

1.1 Purpose of this document

- 1.1.1 This document provides guidance on medical fitness for railway safety critical workers. This guidance is intended to assist infrastructure managers and railway undertakings in understanding their responsibilities in relation to medical fitness and how they may approach the setting of their own medical fitness criteria, where appropriate. It does not constitute a recommended method of meeting any set of mandatory requirements.
- 1.1.2 This document also includes appendices which provide further useful information related to important medical conditions and are relevant to the medical health guidance within this document.

1.2 Background

- 1.2.1 Historically, medical fitness standards within the rail industry have related to specific occupations, or groups of occupations that are similar.
- 1.2.2 In 2005 the RSSB Strategy for Standards Management introduced a number of guiding principles including:
 - a) Only those parameters or processes that directly govern the ability of two (or more) duty holders to interface / co-operate with each other to the extent that harmonisation is required to deliver safety in the most economical way should be given the status of mandatory measures. This means that Railway Group Standards (RGS) have focussed on controlling risks between railway duty holders; interface risks. Measures required to control risks that are confined to a single duty holder should be a matter for the duty holder to determine.
 - b) The 'European' approach provides the framework for the future and the steps set out in the strategy will migrate towards it. This has led to the convergence of fitness standards with European requirements such as Technical Specifications for Interoperability and the Train Driving Licences and Certificates Regulations 2010.
 - c) The mandatory measures contained within Railway Group Standards (RGSs) will not usually repeat legislation.
- 1.2.3 Current RGSs only mandate medical fitness standards that relate to the control of interface risks and not necessarily the whole of an individual's job. Individual duty holders need to decide, in consultation with their occupational health advisers, what additional medical fitness requirements may be necessary in the context of specific occupations. These requirements may be mandatory or have discretionary elements that may be open to discretion on the part of the medical assessor and responsible manager.
- 1.2.4 The Equality Act makes it unlawful for an employer to treat a disabled person unfavourably because of their disability, unless they can show that the treatment is a proportionate means of achieving a legitimate aim.

Guidance on Medical Fitness for Railway Safety Critical Workers

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1.4 Approval and authorisation of this document

- 1.4.1 The content of this document was approved by Standards Committee on 04 March 2014.
- 1.4.2 This document was authorised by RSSB on 02 May 2014.

Guidance on Medical Fitness for Railway Safety Critical Workers

Part 2 Guidance for infrastructure managers and railway undertakings on medical fitness standards

2.1 Content of medical fitness standards

- GN1 Infrastructure managers and railway undertakings should develop medical fitness criteria that comprise, as a minimum, the following three elements:
- a) Vision requirements – which may include distance, near and intermediate visual acuity as well as colour vision, depending on the requirements of the job.
 - b) Hearing requirements – pre-determined standards against which to assess a person's hearing
 - c) General health requirements – which include general medical standards determined by a task analysis carried out by the infrastructure manager or railway undertaking together with medical advisors. These are aimed at detecting conditions that may impair important functions necessary for safe performance of duties including sight, hearing, awareness, mobility, balance and coordination.
- GN2 Infrastructure managers and railway undertakings should include the following within medical fitness standards:
- a) The group to whom the standard applies.
 - b) The necessary qualifications and experience of persons carrying out the assessments.
 - c) The periodicity of the assessments and the validity of any certificate.
 - d) The medical fitness criteria.
- GN3 Infrastructure managers and railway undertakings may consider, depending on the occupation and the specific tasks involved, that additional medical fitness criteria are required.
- GN4 Infrastructure managers and railway undertakings should consider consulting occupational health advisers to help decide what additional medical fitness standards may be necessary in the context of specific occupations.
- GN5 Infrastructure managers and railway undertakings may include the requirement for alcohol and drugs screening as part of medical fitness examinations.
- GN6 Infrastructure managers and railway undertakings may include simple urine tests to detect diabetes as part of a general medical examination.

2.2 Mandatory and discretionary standards

- GN7 Infrastructure managers and railway undertakings, when developing medical fitness standards, should take into account all of the relevant fitness standards for a particular occupation and be aware of the basis for each of those standards.
- GN8 Infrastructure managers and railway undertakings should clearly indicate which of their standards are mandatory and which may be open to discretion on the part of the medical assessor and responsible manager. Discretionary standards may be important to assist with making adjustments as part of a safe system of work, for example to accommodate a disabled person.

Guidance on Medical Fitness for Railway Safety Critical Workers

- GN9 Infrastructure managers and railway undertakings may consider using a hierarchical structure when creating their medical standards.
- GN10 Infrastructure managers and railway undertakings should, when devising medical fitness standards, align them with elements mandated by any of the following:
- a) Act of Parliament or Statutory Instrument , for example Train Driving Licences and Certificates Regulations 2010.
 - b) Railway Group Standards.
 - c) Other regulatory or accrediting bodies.

2.3 Choice of medical assessor

- GN11 Infrastructure managers and railway undertakings should arrange for medical examinations to be carried out by, or under the supervision of, a registered medical practitioner with:
- a) Expertise of occupational medicine.
 - b) Knowledge of the hazards of the work concerned and of the railway environment.
 - c) An understanding of how measures intended to eliminate or reduce risks from those hazards could be affected by lack of medical fitness.
 - d) Other accreditation, certification or registration if required by regulatory authorities in the circumstances.
- GN12 Infrastructure managers and railway undertakings should, if it is not reasonably practicable for a physician meeting the requirements specified above to conduct or exercise direct supervision over medical assessments, have arrangements in place for the medical assessor and employer to have access to such a physician for advice on the interpretation of medical fitness standards, and to monitor consistency of their application.
- GN13 The Train Driving Licences and Certificates Regulations (2010) requires medical assessments to be carried out by, or under the supervision of, recognised doctors who appear on a register of doctors maintained by the Office of Rail Regulation (ORR).

2.4 Frequency of medical assessments

- GN14 Infrastructure managers and railway undertakings should consult occupational health advisers to help determine the frequency of medical assessments, where the frequency of medical assessments for safety critical staff is not mandated in Railway Group Standards.

2.5 Specific medical requirements

2.5.1 Visual acuity

- GN15 Infrastructure managers and railway undertakings should, as part of the task analysis, identify the visual acuity requirements for each occupation. This will enable suitable visual acuity standards to be defined.
- GN16 Infrastructure managers and railway undertakings should consider whether some occupations, even those where mandatory visual acuity standards currently exist, require additional or more stringent visual acuity standards in order to control other identified risks.

Guidance on Medical Fitness for Railway Safety Critical Workers

- GN17 Infrastructure managers and railway undertakings should consider additional tasks as part of the task analysis, for example:
- a) Reading displays, instruments and documents.
 - b) Identifying distant or moving objects.
 - c) A need for a continual change of focus between near and distant objects.
- GN18 Infrastructure managers and railway undertakings may include, as part of their visual acuity standards, requirements with respect to the use of particular corrective appliances such as spectacles, contact lenses, progressive, tinted or photochromic lenses. Appendix A contains further information on laser eye surgery.

Guidance on Medical Fitness for Railway Safety Critical Workers

2.5.2 Colour vision

GN19 Infrastructure managers and railway undertakings should define colour vision requirements within their medical fitness standards for occupations required to perform colour dependent safety critical tasks. Appendix B provides guidance on colour vision.

2.5.3 Hearing

GN20 Infrastructure managers and railway undertakings should, as part of the task analysis, identify the hearing standards for each occupation. This will enable suitable hearing standards to be defined.

GN21 Infrastructure managers and railway undertakings should consider whether some occupations, even those where mandatory hearing standards currently exist, require additional or more stringent hearing standards in order to control other identified risks. This might be, for example, a train driver or shunter working on or near the line. It should be noted that the widely adopted hearing standard for persons who are required to maintain their own safety when working on or near the line is that hearing loss should not exceed 30 dB averaged over frequencies 0.5, 1.0 and 2.0 kHz in either ear. Appendix C provides further guidance on factors relating to hearing.

2.5.4 General health

GN22 Infrastructure managers and railway undertakings should, as part of the task analysis, identify the general fitness requirements for each occupation. This will help define general fitness standards.

GN23 Infrastructure managers and railway undertakings should pay particular attention when determining general health standards for those safety critical occupations that require the individuals to remain vigilant, access difficult environments or operate particular types of equipment.

GN24 Infrastructure managers and railway undertakings should consider whether some occupations, even those where mandatory health standards currently exist, require additional or more stringent health standards in order to control other identified risks.

GN25 Infrastructure managers and railway undertakings should, as part of their medical standards, consider how they will manage medical conditions that are likely to cause sudden, unpredictable or even gradual, unnoticed, impairment of a person's ability to carry out safety critical tasks.

GN26 Infrastructure managers and railway undertakings should, as part of their medical fitness standards, have a process in place to prevent persons carrying out safety critical work where there is reason to believe they are suffering from any medical conditions or are taking any medication, drugs or substances, which are likely to impair performance; for example:

- a) Sudden loss of consciousness.
- b) A reduction in attention or concentration.
- c) Sudden incapacity.
- d) A loss of balance or co-ordination.
- e) Significant limitation of mobility.

Guidance on Medical Fitness for Railway Safety Critical Workers

- GN27 Infrastructure managers and railway undertakings should seek medical advice about any treatment or adjustments that would reduce the likelihood of conditions such as a) -e) above to a safe level, so that the individual could return to normal or modified duties.
- GN28 Infrastructure managers and railway undertakings should document any adjustments as part of a risk assessment process and safe system of work, and communicate it to the relevant people.
- GN29 Guidance on diabetes, obstructive sleep apnoea and excessive daytime sleepiness can be found at appendices F and G.

2.5.5 Disability

- GN30 Infrastructure managers and railway undertakings should, when applying medical fitness standards, take care to make reasonable adjustments to accommodate a disabled employee if it is possible to do so.
- GN31 Infrastructure managers and railway undertakings should consider carrying out individual medical assessments for disabled employees in order to identify all factors relevant to their case.

Guidance on Medical Fitness for Railway Safety Critical Workers

Appendix A Laser eye surgery

A.1 Introduction

- A.1.1 This appendix has been compiled to help employers make risk-based decisions when cases of laser eye surgery are reported.
- A.1.2 Laser eye surgery is unlikely to be a necessity simply for the purpose of meeting the visual acuity standards. Employers should not encourage or promote the use of eye surgery in these circumstances because the risks of surgery can be avoided by choosing to wear spectacles or contact lenses instead.
- A.1.3 An employer cannot prevent an individual from having eye surgery, or any other treatment, if they choose to. However, it may be necessary to discuss the potential impact on their employment.

A.2 Laser treatment techniques

- A.2.1 PRK, LASIK and LASEK are acronyms for three common laser eye surgery techniques - they are not proprietary or trade names but generic descriptions:
 - a) PRK - Photo-refractive keratotomy.
 - b) LASIK - Laser in-situ keratomileusis.
 - c) LASEK - Laser in-situ epithelial keratomileusis.
- A.2.2 LASIK treatment is normally associated with rapid recovery and improvement of vision. Certain patients may be unsuitable for LASIK or choose not to have it because of some of the complications that may occur. LASEK is essentially a modified form of PRK.
- A.2.3 Treatment methods are constantly improving and the risk of complications is diminishing with better technology and skilled surgeons. New procedures are always being developed and the Royal College of Ophthalmologists has published some excellent guidance for patients contemplating laser eye surgery and other forms of treatment (see reference 1).

A.3 Surgical and post-operative procedures

- A.3.1 Typically the patient will spend less than a day in hospital for treatment and will use antibiotic and anti-inflammatory eye drops for about a week. Artificial tears are used for a slightly longer period, sometimes up to six months.
- A.3.2 After surgery the patient will be unfit for ordinary work for three to seven days while useful vision recovers. However, vision often takes one week to three months to become stable, depending on the type of treatment. In some complicated cases this process can take three to nine months. People who depend on normal vision for their job (for example, train drivers) will not be able to perform their duties until their vision becomes stable.
- A.3.3 If one eye is treated at a time, further periods of absence are possible. Typical post-operative follow up might be at one and seven days followed by checks at one and three months to establish that visual acuity is stabilising and no other problems are developing.
- A.3.4 Patients with low or moderate degrees of short-sightedness do well after laser surgery with about 90% managing the 6/6 (normal) line and almost all managing 6/12 on the opticians chart without the use of glasses. Results are not quite so good for long-sighted or very short-sighted people.

Guidance on Medical Fitness for Railway Safety Critical Workers

A.4 Complications

- A.4.1 The incidence of complications following laser corrective eye surgery is difficult to determine for a variety of reasons, including:
- a) Variability of the skill and experience of surgeons.
 - b) Variable techniques and equipment used.
 - c) Rapidly advancing knowledge and technology.
 - d) Variable definitions of success and failure.
 - e) Differences in the eyes that are treated.
 - f) Commercial pressures to quote low levels of complications.
- A.4.2 Reports of complications range from 1-40% of cases, depending on the source. Many relate to issues of failure to correct the vision exactly to normal, a difference between the two eyes or problems reading. All of these can usually be corrected with re-treatment or glasses. Other problems relate to infection, comfort or sensitivity and tend to settle quite readily. Complications relating to the corneal 'flap' in LASIK can often be corrected and serious sight threatening complications are very rare.
- A.4.3 Complications of an occupational significance include:
- a) Reduced visual acuity.
- As a rough estimate up to 4% of all treatments will result in a reduction of two lines of best corrected visual acuity on the optician's chart (the best that can be achieved even with glasses or contact lenses).
- b) Decreased night or low light vision.
- Patients may experience difficulty discerning detail in low light or low contrast conditions. Some report problems with halos, glare or starbursts around objects or light sources. These problems are often temporary and recover over a six-week period but in some cases the problem persists. Newer surgical techniques help to minimise this problem.

A.5 Assessment of job applicants

- A.5.1 The British Society for Refractive Surgery (BSRS) has published information concerning the assessment of job applicants with a history of refractive surgery. An examination to consider the suitability of a refractive surgery patient for a particular profession should include:
- a) A slit lamp examination to confirm that the eye has returned to normal and that there is no significant loss of corneal transparency.
 - b) Refraction, topographic examination and pachymetry to screen for keratectasia. The candidate should provide details of their pre-operative refractive error and if possible details such as their post-operative corneal thickness and the nature of any complications that may have occurred during or following the procedure.

Guidance on Medical Fitness for Railway Safety Critical Workers

c) Candidates should have their visual performance assessed using a technique sensitive to the presence of scattered light and aberrations. The Snellen letter chart is inadequate alone but a low contrast logMAR chart or contrast sensitivity test provides some information.

d) Candidates should not be considered until all medication has ceased.

A.5.2 These are specialist examinations that are likely to be outside the capabilities of most occupational health service providers. Current Royal College guidelines indicate that most of this information should be given to the patient and recorded in their notes. The employee could be asked to obtain a report from their ophthalmic surgeon. Alternatively an independent examination and report could be arranged. In any case an occupational physician with knowledge of the rail environment can advise on the scope of the information required and its interpretation, taking into account the specific duties of the applicant.

A.6 Long term implications

A.6.1 There is already a chance that the eyesight of workers who have not undergone laser eye surgery will deteriorate between normal periodic medicals and existing procedures take account of that. Furthermore, all employees have a duty to report to their manager if they believe they are unfit for work because of failing vision. Additional measures following laser eye surgery should be aimed at controlling any additional risk that arises as a result of the surgery.

A.6.2 Laser eye surgery techniques were introduced quite recently and they are rapidly improving. It is almost impossible to estimate the likelihood of long term visual complications or deterioration of vision that would not be amenable to correction with glasses or other means. The indications are that the incidence of these problems will be very low but they may arise within a period that is shorter than the normal frequency for periodic medical examinations. Employers and their occupational health providers should have appropriate procedures for detecting these cases amongst safety critical workers following laser eye surgery.

A.7 European requirements

A.7.1 The Operation and Traffic Management Technical Specification for Interoperability (OPE TSI) and the Train Driving Licences and Certificates Regulations 2010 (TDLCR) permit laser eye surgery for train drivers and other train crew subject to annual examinations or at intervals set by the occupational doctor.

A.8 Summary

A.8.1 Laser eye surgery is a matter of individual choice and can be associated with some complications so it should not be encouraged or required simply for the purpose of meeting visual standards.

A.8.2 Patients undergoing surgery will require a period of time off work and their visual acuity may take a number of months to stabilise. In a very small number of individuals the effects of surgery could make them unfit for safety critical work in the long term or even permanently.

A.8.3 Employers may experience additional costs in the short term due to temporary unfitness and in the long term due to increased numbers of medical assessments or medical reports.

Guidance on Medical Fitness for Railway Safety Critical Workers

- A.8.4 The effects on visual acuity may be variable in the months following laser surgery. It is important to have appropriate procedures to ensure that the risk of that variability affecting safety critical work is controlled. These procedures are likely to involve assessment by an occupational physician, who will probably liaise with the ophthalmic surgeon responsible for post-operative follow up.
- A.8.5 Employers should consider the operational implications where a return to work is delayed or impossible and employees should be advised of the possible consequences for their employment.

References (Appendix A)

- 1 The Royal College of Ophthalmologists
 - a) A patient's guide to excimer laser refractive surgery, September 2008.
 - b) Standards for laser refractive surgery, May 2009.
<http://www.rcophth.ac.uk/page.asp?section=368§ionTitle=Excimer+Laser+Refractive+Surgery>.
- 2 British Society for Refractive Surgery
<http://www.bsrs.co.uk>
Report on the current status of refractive surgery (July 2002). Produced by the council on behalf of the British Society for Refractive Surgery.

Guidance on Medical Fitness for Railway Safety Critical Workers

Appendix B Colour vision

B.1 Background

- B.1.1 About 8% of males and 0.4% of females have an inherited defect of colour vision that typically causes confusion between certain red and green colours.
- B.1.2 Inherited colour vision defects will persist throughout an individual's life and it is very important that they are detected before embarking on a career where there is a requirement for normal colour vision.
- B.1.3 Late detection of colour vision defects and consequential declaration of unfitness can be very costly for the employee and their employer, as well as potentially dangerous.
- B.1.4 Acquired defects can develop later in life and affect both men and women. Acquired defects are much more variable in their occurrence, severity and duration than inherited defects. They may affect the perception of yellow and blue as well as red and green and are often associated with other visual impairments and medical conditions. These cases will require individual specialist assessment under the guidance of a registered medical practitioner, with knowledge of the hazards of the work concerned and of the railway environment.
- B.1.5 Where normal colour vision is important for safety reasons, colour vision testing is crucial in deciding on fitness for work. Colour vision and colour vision testing is a complex subject and an excellent introduction can be found in two Health and Safety Executive (HSE) publications aimed at employers and occupational health professionals (see references 1, 2).
- B.1.6 It is not possible to correct abnormal colour vision by wearing coloured spectacles or contact lenses, although colour discrimination may be improved in some specific circumstances.
- B.1.7 As with many occupational settings, there are situations in the railway environment when normal colour perception is a requirement for operational safety reasons. Obvious examples relate to the recognition of signal colours when train driving, coloured warning flags and signs on the lineside or controls in a signalling control centre or identifying different colour-coded wires in safety related equipment. However, there is no single list that includes all railway occupations that require normal colour vision.
- B.1.8 In any event, it is the responsibility of the employer to identify the risks arising out of any work activity and to eliminate or control them. This will include an analysis of tasks that require normal colour vision. In some circumstances the elimination of colour vision dependent tasks or the provision of non-colour dependent information will be the preferred control measure.
- B.1.9 Notwithstanding any risk assessment for specific occupational tasks, the commonest requirement for railway work is the ability to recognise a red, green and yellow signal under all conditions.

B.2 Testing of colour vision

- B.2.1 Over many years, large numbers of rail workers have been required to pass a colour vision test at the pre-employment stage and at subsequent periodic medical examinations. Fitness standards for many groups, such as train drivers, guards, signallers, crossing keepers and shunters have included normal colour vision as determined using a specific colour vision test, the Ishihara Test. In some cases, employers and occupational health providers have chosen, for particular reasons, to use alternative testing methods, for example the City University Test.