

3. Medical Standards Programs of Foreign Railroad Agencies/Organizations

Within the past 10 years government agencies in Canada, Australia and the U.K. have instituted medical standards for their railroad workers. In both Canada and Australia, serious accidents caused by the medical condition of an employee were the impetus for the development of the program. The program of the U.K. Rail Safety Standards Board has been in effect since 1994 but prior to that British Rail had its own program, which was the basis for the current standards. Mexico has a program of medical standards for all transportation workers. The Mexican program predates those of the other three countries.

In the absence of government rules for medical screening of railroad workers, the foreign railroads did take the initiative to develop their own standards. Over 50 years ago the European railroad industry on its own began the development medical standards. In 1948 representatives of five European railroads founded the Union Internationale des Services Médicaux des Chemins de fer (UIMC), an association of European railroad medical officers. While not a regulatory agency, this organization developed voluntary medical guidelines for “high safety risk” and “safety risk” employees.

This chapter describes the four foreign government programs as well as the UIMC medical guidelines. Table 7 compares these programs with the current FRA program.

3.1 Transport Canada

The Canadian program for medical examinations of individuals holding safety critical railroad positions has been in effect since November 2001. Because Canadian law allows Transport Canada to approve a rule that is drafted by the railroad industry, an industry-led committee was responsible for the development of the Canadian medical standards program.

Development of Rules/Guidelines

Vision and hearing standards for railway employees have existed in Canada since 1978. The Foisy Commission that investigated the Hinton train collision in 1986 recommended “that the Canadian Transport Commission review its regulations concerning medical fitness with a view to including standards with respect to matters of physical health in addition to vision and hearing acuity and that regulations establishing such standards be promulgated as soon as possible.” As a result of this recommendation, the Railway Transport Committee set out in 1987 to examine the issue of expanded medical examinations. Draft regulations were developed with the requirement for a comprehensive physical examination that included “special investigations if clinically indicated having regard for the examinee’s age and work duties.” The draft regulation also required railway companies to file standards for medical fitness in each of several aspects of medical fitness (e.g., nervous system, cardiovascular system). These regulations were still under development when the Railway Safety Act of 1989 became law. This legislation repealed the regulatory authority under which the medical standards were being developed.

Table 7. Comparison of U.S. and foreign railroad medical standards programs

	U.S.	Australia	Canada
Oversight agency	DOT/FRA	Each state responsible for oversight	Transport Canada
Developers of system	FRA, through RSAC process	State of Victoria through safety branch of Dept. of Infrastructure National Standards by National Transport Commission (NTC)	Industry led committee (Railway Transport Committee)- ultimately approved by Transport Canada
Risk based standards?	No	Yes	Yes
Covered Positions	Locomotive engineers Remote control operators	<ul style="list-style-type: none"> Levels 1,2 (High safety critical and safety critical employees): For any aspect of the tasks identified, ill health could lead directly to a serious incident affecting the public or the rail network Level 3 (Around the track personnel - uncontrolled environment) Ill health would not lead to serious incident affecting public or rail network 	<ul style="list-style-type: none"> Any railway position directly engaged in operation of trains in main track or yard service Any railway position engaged in rail traffic control.
Frequency of exams	Every 3 yr, vision and hearing only	<ul style="list-style-type: none"> Safety critical employee Levels 1,2,3 - upon hire and job change to higher category Levels 1,2 - up to age 49 every 5 yr, 50-59 every 2 yr, and >60 annually Level 3 - every 5 yr beginning at 50 	<ul style="list-style-type: none"> Before safety critical work, and upon promotion or transfer to a safety critical position Every 5 yr until 40 and every 3 yr thereafter until retirement, or until no longer in a safety critical position
Examiners	Physician or PA selected by RR	<ul style="list-style-type: none"> Safety Critical Employees Levels 1,2: Physician Level 3: nurse with occupational health qualifications 	Physician (employed or contracted)
Examiner credentialed by railroad?	No	Yes	Yes
Information given to examiners	Found in standards	Volume 2 of the Standard, <i>Assessment Procedures and Medical Criteria</i> , employee's job description.	Copy of the rules, medical guidelines, employee's job description
Dispute resolution	Locomotive Engineer Review Board	Each railroad responsible for self	Railroad's Chief Medical Officer (CMO) makes final determination
Waivers/exemption	Railroad's Medical Officer in consultation with Supervisor of Locomotive Engineers/Remote Control Operators may waive requirement	Examining physician can determine "Fit-for-duty, subject to review"	CMO can specify limitations

	U.K.	Mexico
Oversight agency	Health and Safety Commission (HSC)	Secretaria de Comunicaciones y Transportes (SCT)
Developers of system	Rail Safety Standards Board (a not for profit company owned by major industry stakeholders) taken largely from British Rail	Servicio de Medicina Preventiva en el Transporte
Risk based standards?	Yes	
Covered Positions	<ul style="list-style-type: none"> • Drivers, signalers (dispatchers), guards, shunters (conductors), and some others. • Track workers must meet basic vision, hearing, and mobility requirements 	<ul style="list-style-type: none"> • Train crew • Dispatchers
Frequency of exams	<ul style="list-style-type: none"> • Before safety critical work. • Under 40 yr every 10 yr 40-49 every 6 yr, 50-59 – 4 yr, >60 – 2 yr 	<ul style="list-style-type: none"> • Every 2 yr • Daily upon reporting for work
Examiners	By or under the supervision of a registered medical practitioner	Physician
Examiner credentialed by railroad?	No	No. Credentialed by SCT.
Information given to examiners	Proprietary	
Dispute resolution	Human Rights legislation requires appeals process, but no process exists yet	SCT physician makes final determination
Waivers/exemption	“Discretion” clause allows employer to set up safe system of work for those failing to meet requirements. Advice comes from occupational physician	

Note: Box is blank if information was not available.

	U.S.	Australia	Canada
Program Evaluation	None	Proposed national review in 2-5 years. Indicators of effectiveness not yet fully developed	Lack of medical issues in accident reports, employee productivity (decreased absenteeism)
Medical record confidentiality	HIPAA	Info cannot be disclosed to employer without employee approval (similar to HIPAA)	Government cannot see medical records
Legal issues	None	Requirements of the commonwealth and state anti-discrimination and privacy statutes	Human Rights Code which prevents dismissal of an employee for drug or alcohol use
Labor concerns	None	Salary maintenance for disqualified workers Blood test (part of cardiac risk assessment)	Salary maintenance for disqualified workers Privacy concern
Resources	No additional staff required.	Annual cost for 40,000 rail safety workers to be \$2,112,770 or \$53 per employee	No additional staff required. Handled by existing railroad inspectors
Medical standards' relation to job requirements	Based on operator requirements per existing DOT standards	Focused on the inherent requirements of the job.	Assessment considers occupational demands of the job and person's ability to meet those demands.
Salary continuance if disqualified	Through Railroad Retirement Board, employee may be eligible for sickness, unemployment or disability benefits	Covered by Commonwealth or State public welfare programs	Covered through existing disability insurance program

	U.K.	Mexico
Program Evaluation	No formal process	
Medical record confidentiality	Information cannot be obtained from family doctors or hospitals or passed on to employers without employees consent. (similar to HIPPA)	
Legal issues	Hearing standards for guards were disputed but failed. Health and Safety law overrode disability legislation.	
Labor concerns	Not an issue. Unions are consulted on prospect of changes, but do not exercise a veto. Challenges to a standard are rare and usually resolved between union and employer	
Resources	No additional staff required, however RSSB says resource levels are inadequate	
Medical standards' relation to job requirements	Link between risks and fitness standards but RSSB says the relevance of link to current operations needs review.	
Salary continuance if disqualified	Varies by Railroad	

Note: Box is blank if information was not available.

The Railway Safety Act of 1989 included three provisions relating to employee medical standards. First, railway employees in positions deemed critical to safe railway operations must undergo *annual* medical examinations, including hearing and vision assessment. This Act further specifies that a physician treating a person in a Safety Critical Position must report to the railway's Chief Medical Officer (CMO) any medical condition that they believe could constitute a threat to safe railway operations. Finally, the Railway Safety Act requires that individuals in a Safety Critical Position must inform their physician or optometrist of their position.

Although this legislation was enacted in 1989, the above provisions were not fully put into practice due to their reliance on a regulation that defined Safety Critical Positions (SCPs). No such regulation existed in 1989. Also, railway industry experts found the provision for annual examinations to be excessive. (Revisions to the Railway Safety Act, which came into effect on June 1, 1999, eliminated the annual requirement.)

An initiative aimed at drafting a new medical rule for Safety Critical Positions commenced in 1996 at the request of Transport Canada. In contrast to the U.S., Transport Canada can request that the railroad industry draft a rule which Transport Canada can review and approve. The Railway Association of Canada's (RAC) Safety and Operations Management General Committee authorized a formal Medical Steering Committee to oversee development of 1) Rules Identifying Safety Critical Positions and 2) Rules Governing Medical Standards for SCPs.

The Steering Committee included representatives of the various RAC member railways and railroad labor. Committee members represented Regulatory Affairs, Medical, Employee Relations, Labor Relations and Law departments. A representative from Transport Canada also participated on the committee. A Medical Working Group consisting of the Chief Medical Officers from Canadian National Railway, Canadian Pacific Railway and VIA Rail Canada was also formed to work with medical specialists in the development of specific medical requirements and the guidelines to support the medical rules. A physician from Transport Canada, and labor representatives were also members of this group. The Medical Working Group sought advice from medical specialists in each specialty area covered by the guidelines and the member railroads shared the related expenses. The medical guidelines that the group developed are in accordance with nationally accepted standards of care.

The Steering Committee's mandate was to develop rules that would provide a means to identify SCPs based on potential risk to public safety. In addition, this Committee was responsible for identifying medical requirements that address those diseases or disorders that have the potential to impact railway safety. In accordance with the Railway Safety Act, the Steering Committee consulted with railway labor organizations throughout the development process.

The RAC developed both the *Safety Critical Position Rules* and the *Railway Medical Rules*. The *Safety Critical Position Rules* became effective on September 30, 2000. The *Medical Rules* went into effect on November 29, 2001. The new rules supersede the old regulations that covered vision and hearing examinations.

Positions Covered

The *Safety Critical Position Rule* defines a Safety Critical Position as:

- a) "any railway position directly engaged in operation of trains in main track or yard service; and
- b) any railway position engaged in rail traffic control."

Since individual railroads may use different titles for their positions, the rule does not identify specific occupational classifications but instead requires each railroad to identify those positions it defines as “safety critical.” Each railroad must file its list of SCPs with Transport Canada and this list must be updated periodically. A typical list of occupations might include:

- Locomotive engineer
- Conductor
- Assistant conductor (brakeman)
- Yard foreman
- Rail traffic controller (train dispatcher)
- Chief rail traffic controller
- Assistant chief rail traffic controller
- Operators of specialized equipment operating as trains
- Assistant superintendent (trainmaster)

Relationship to Job Requirements

The *Medical Rules for Positions Critical to Safe Railway Operations* state that “In addition to the medical conditions referred to in Section 5.2, the individual assessment of a person’s Medical Fitness for Duty shall also take into consideration...the occupational demands of the person’s job and the person’s ability to meet those demands...” The physician is thus given discretion to consider each job incumbent individually.

Frequency of Examinations

The *Railway Medical Rule* requires a medical evaluation:

- a) “prior to commencement of employment in a Safety Critical Position;
- b) upon promotion or transfer to a Safety Critical Position; and
- c) every 5 years until the age of 40 and every 3 years thereafter until retirement, or until that person is no longer employed in a Safety Critical Position.”

The Chief Medical Officer may require additional assessments if the individual has a medical condition that warrants more frequent monitoring or if the individual is returning to work in a Safety Critical Position after a leave due to illness or injury.

Examiners

Each railroad has discretion to decide whether medical examinations will be conducted by a railroad physician or a private physician. When the rules went into effect, every physician in Canada received a copy of the rules and the medical guidelines. They were also provided with contact numbers for all the major Canadian Railroads. This mailing clearly spelled out the responsibility of every physician when examining a railroad employee.

If the examination is performed by a non-railroad physician, it is the physician’s responsibility to send a report describing the results of the physical examination to the Chief Medical Officer of the employee’s railroad. Physicians in Canada were already familiar with the medical reporting

requirements for commercial drivers so they readily adapted to the new system for railroad workers.

Dispute Resolution

The Railroad's Chief Medical Officer makes the final determination as to whether or not an individual satisfies the medical requirements for a safety critical position. Depending upon the circumstances, the CMO may recommend remedial measures to correct a problem and bring the employee in compliance with the standards.

Program Oversight

Transport Canada performs an oversight role with regard to medical programs of individual railroads. Periodic audits, conducted under the Safety Management System Regulations, include review of overall statistics for the railroad. For example, the railroad must report the number of physicals given, the number of employees disqualified and the remedial actions taken, if any.

Program Evaluation

The two factors that Transport Canada considers in evaluating the success of the medical standards program are a lack of medical issues in accident reports and an increase in railroad employee productivity (decreased absenteeism). Many of the Canadian railroads have undertaken a health education program for their employees so this may be contributing to increased productivity as well.

Transport Canada anticipates that either a union or railroad official would notify them of any problems with either the rules or the medical guidelines. To date this has not occurred.

Legal Issues

Two legal issues arose in the process of developing the medical rules. The first was a privacy concern. No personal medical information could be released to the government. The second issue related to Canada's Human Rights Code which prevents dismissal of an employee for drug or alcohol use. Both requirements were reflected in the final rules.

Labor Concerns

Early in the process of developing the rules and guidelines labor raised one concern. Because the new standards might disqualify some individuals from the jobs that they currently hold, labor wanted assurance that their members would not suffer a loss of income. This issue was resolved by covering this situation through the existing disability insurance program. To date, Transport Canada is not aware of any problems with this provision.

Resources

Transport Canada has not added any additional staff to oversee the implementation of medical standards programs at Canadian railroads. This oversight will become part of the routine work requirements of the agency's railroad inspectors.

The railroads bear the expense of the occupational fitness examination.

Recommendations to the FRA

Representatives from Transport Canada who were involved in the Canadian effort believe that the following will contribute to the successful development of medical standards:

- Get buy-in from all stakeholders—labor, management, regulatory authority and medical community.
- Allow the medical community to draft the guidelines. Include medical representatives from each stakeholder group.

The Chief Medical Officer from a Canadian railroad offered the following advice:

- It is important to adequately compensate the physician for the fitness examination so that a thorough exam is performed.
- There must be a process in place for continuing short term disability if a treating physician releases an employee as fit to work but the chief medical officer does not agree with the determination.
- Education is an important component of a successful program. Canadian medical schools now cover the Railway Safety Act as part of their occupational medicine curriculum.
- There are several players in ensuring that rail employees in safety critical operations are fit to work. All participants in the process must have a well defined role. The employee must notify his/her physicians that they are in a railroad safety critical position. The treating providers have the ongoing relationship with the employee and need to understand the role the medical condition may have on safety.

References

Railway Medical Rules for Positions Critical to Safe Railway Operations, June 2000.

Railway Rules Governing Safety Critical Positions, June 2000.

Canadian Railway Medical Rules Handbook (for positions critical to safe railway operations), Railway Association of Canada, March 2003.

3.2 National Transport Commission – Australia

Three significant accidents since 2001 in which the cause of the accidents were due to medical condition of the operator, has prompted the Australian Transport Council of Ministers to support the development of a national medical standard for rail safety workers.¹² The National Transport Commission, a policy organization, developed the national standard which went into effect on July 1, 2004.

Railroad Regulatory Environment

Over the past decade, Australia's state-based rail network and state-based ownership and management of rail operations has changed significantly as the country evolved to private ownership. There are now some 193 separate rail organizations. Each railroad has adopted its own medical screening program with limited oversight and guidance. As a result there is variation from railroad to railroad. The individual sets of standards do not always reflect current medical developments, may be inadequate to screen for medical conditions relevant for a given position and in some cases may be in conflict with state or commonwealth privacy and anti-discrimination laws.

¹² The ATC consists of the commonwealth, state and territory Ministers of Transport.

Unlike the U.S., there is no commonwealth agency with oversight or regulatory responsibility for railroads. This function exists at the state level and the extent of regulation differs by state. All Australian states now have safety legislation that incorporates an accreditation system. The accreditation system contains the following core requirements:

- Rail organizations wishing to conduct a rail business must seek accreditation from the Regulator.
- The rail organization must have an appropriate Rail Safety Management System developed, resourced and implemented and submitted to the Regulator.

All state regulatory agencies require that the Safety Management System meet the requirements of *Australian Standard AS 4292: Railway Safety Management*. According to this standard, a SMS should include procedures for ensuring health and fitness of rail safety workers.

Development of Rules/Guidelines

Investigation of two rail accidents in Victoria, one in 2001 and one in 2002, found the condition of the driver to be the likely cause of the accident. In one case the driver was impaired by migraine symptoms, and possibly treatment, and stressful personal circumstances. In the other accident, the driver was taking prescription medication, which combined with the early start of his work day and a history of chronically disturbed sleep, may have resulted in a microsleep while driving the train. The Australian Transportation Safety Board investigation of these accidents recommended improvements to the management and quality of medical fitness standards. Following these two accidents, the state of Victoria undertook a process to develop a new set of medical standards.

The State of Victoria, through the Public Transport Safety Branch of its Department of Infrastructure, undertook the task of developing a *Code of Practice for Health Assessment for Rail Safety Workers* and companion *Guidelines for Authorised Health Professionals Conducting Health Assessments*. Under the Victoria Transport Act of 1983, a statutory code of practice provides practical guidance to accredited rail organizations. Its legal force differs slightly from regulations. While compliance with the Code constitutes compliance with the provision of an Act or Regulation to which the code gives practical guidance, a rail organization can implement an equivalent or better method of compliance, but must justify this to the Regulator. Draft versions of these documents were circulated for review and comment in May 2003.

Another accident that occurred in New South Wales in January 2003 prompted the Transport Ministers from both New South Wales and Victoria to encourage the ATC to support the development of a national medical standard for rail safety workers. Since the development of the Victorian standard was already underway, the process for developing a national standard used the draft Victorian guidelines and code of practice as a starting point. The National Road Transport Commission (NRTC), a policy organization, was given responsibility for developing the standards and the Project Manager from the Victoria standards project was appointed to lead this effort. The National Transport Commission (NTC), established in January 2004, includes the former NRTC and has responsibility for oversight of railroad operations.

The primary objective of the proposed National Standard is “to reduce the risk of a serious rail safety incident occurring due to the ill health and fitness for duty of a rail safety worker.” Secondary objectives are:

- a) To improve the technical currency of the medical standards making them a better predictive and preventive management tool for potentially incapacitating medical conditions of rail safety workers.
- b) Ensure the medical standards match the risk of the task to improve safety outcomes and result in cost-effective expenditure for rail organizations.
- c) Improve health assessment management systems and clarify accountability.
- d) Ensure appropriate use of rail safety worker medical information.
- e) Provide consistency in health assessments and improve portability of rail safety workers within risk categories.

The Project Team for the development of the standard consists of:

- Manager, Safety Policy and Planning, Department of Infrastructure, Victoria (overall project manager)
- An NRTC Project Manager
- An Occupational Health Physician
- A Management Systems Consultant

In addition to the Overall Project Manager, the occupational health physician and management systems consultant were involved with development of the Victorian standard.

A *National Reference Group* provided overall guidance and was a source of industry information in the development of the standard. This Group was composed of representatives from three state rail regulatory authorities, three railroad industry health professionals, representatives from the various types of rail organizations and representatives from the Rail, Bus and Tram Union.

In addition, three specialist groups were assembled to deal with specific issues. These three groups were:

- National Risk Analysis Working Group
- National Medical Working Group, consisting primarily of physicians
- National Tourist and Heritage Workshop Representatives

The last group dealt with issues unique to the many tourist and heritage railroads in Australia.

The project team made changes to the draft Victorian standard to further develop the risk guideline and to review the medical conditions and management systems in drafting the proposed national standard. As a result, the package of documents has been recast to comprise:

- *Volume 1: Management Systems* which outlines the responsibilities of the various parties and the provisions for a health risk management approach and administrative systems.
- *Volume 2: Assessment Procedures and Medical Criteria* which contains the medical standards, criteria and tests necessary to perform assessments.
- *Guideline for Health Risk Management*, a supporting document to assist with carrying out the risk analysis of rail safety work as a basis for allocating workers to the appropriate level of health assessment.

The national draft was distributed for national industry comment on December 12, 2003. The comment period closed February 13, 2004. The project team completed the development process by mid-March so that the proposed standard could be considered by the NTC, the Rail Consultative Forum and Transport Agency Chief Executives before submission to the ATC in April. The ATC approved the national standard on April 30. It went into effect on July 1.

During the comment period, representatives from the Project Team conducted briefing sessions in every state with State Rail Regulators and the industry. The purpose of the briefings was to familiarize each state's rail industry as well as labor with the new standard. In addition, during development of the Victorian standard, numerous briefings were conducted for the industry medical practitioners in Victoria as a way to familiarize the medical community with the railroad environment and encourage them to make themselves available to the railroad industry for health assessments. These briefings included a tour of railroad facilities and were conducted in Melbourne and regional centers.

During the consultation process, several issues arose leading to modifications to the draft standard. A variation was made to the privacy arrangements. The Standard was modified to allow the exchange of information between Authorized Health Professionals and Chief Medical Officers in rail organizations on the clear understanding that State and Federal Privacy requirements and health Records Privacy requirements are met. Phasing-in arrangements were also a concern. Some rail organizations argued that the timeframes allowed would place the companies under extreme pressure to complete the first set of assessments within the time allotted. At issue was the likelihood of a serious cash flow burden on their operations and access to the requisite medical resources. To address this issue, the standard now provides for a procedure whereby rail organizations may propose alternative transitional arrangements to the rail safety regulator. The proposal should be based on a risk analysis and should set out how the organization intends to prioritize health assessments to minimize risks and to achieve earliest implementation. With regard to the specific medical assessment procedures and medical criteria, concern was expressed that the procedure for cardiac assessment did not adequately address cardiac risk factors. On the advice of the Medical Working Group, the Industry Reference Group agreed to a modified approach.

As the Victorian development and consultation processes had progressed further than the national processes generally, the Victorian Regulator adopted the National Standard as a statutory code of practice on December 17, 2003 to take effect on that date for all rail organizations accredited to operate in Victoria. The exceptions are the not-for-profit tourist and heritage rail organizations for which the code of practice is effective from March 1, 2004. The changes that resulted from the national industry comment were incorporated into the Victorian code so that it conforms to the national standard.

Positions Covered/Relationship to Job Requirements

The draft Australian medical standard is risk-based. It requires every railroad to perform a health risk management assessment to determine the extent to which the health of a worker may contribute to a serious incident (safety critical work) and especially, the consequences of sudden incapacitation of the worker (high level safety critical work). This requirement to undertake this job analysis that identifies the risk of each task the job entails and the health requirements for each task, are contained in the *Volume 1: Management Systems*. The *Guidelines for Health Risk Management* provide a methodology and examples for carrying out the risk analysis. The risk

analysis process seeks to identify the full range of tasks likely to be performed by the worker and considers the engineering and procedural environment.

The risk analysis process addresses the question, “For any aspect of the tasks identified, could ill health lead directly to a serious incident affecting the public or the rail network?” If the answer is “yes” then the job is safety critical, otherwise it is a non-safety critical job. The safety critical jobs are divided into “High Level Safety Critical Worker” and “Safety Critical Worker.” The differentiating factor is whether or not the sudden incapacitation of the worker could lead to a serious incident affecting the public or the rail network.

Non-safety critical workers are referred to as Around the Track Personnel (ATTP). These are divided into two categories depending upon whether or not the tasks are performed within a “controlled environment.” A controlled environment is one in which controls are in place to ensure that any person working in or transiting the area is not placed at risk from moving trains.

In developing the process for conducting the risk assessment, care was taken to assure that the process, and hence any medical requirements, focused on the *inherent requirements* of the job. By doing this, the resulting requirements would be in conformance with the Australian anti-discrimination legislation. (Note: This is similar to EEOC guidelines in the U.S. that require any testing or job requirements to relate to *bona fide* occupational qualifications.)

The extent of health assessment required depends upon the category of worker. Table 8 presents the required assessments.

It is important to note that the proposed standard does not identify medical requirements for specific jobs but rather a *process* for determining which jobs must have the requirements. The *Guideline for Health Risk Management* explains the risk assessment process and provides examples of risk assessments for various rail safety tasks.

Frequency of Examinations

The proposed standard identifies three situations that require a health assessment:

1. *Pre-placement or change of grade* – Rail safety workers in Categories 1, 2, and 3 require health assessments upon hire or when changing to a higher category job.
2. *Periodic health assessments* – Safety Critical Workers (Categories 1 and 2) must have an assessment every 5 years until age 50, every 2 years between ages 50 and 60, and annually beginning at age 60. Category 3 workers must have a health assessment every 5 years beginning at age 50.
3. *Triggered health assessment* – Special situations that necessitate a health assessment include follow-up assessment for employees found “Fit for Duty Subject to Review” or “Temporarily Unfit for Duty subject to Review,” workers who have been absent from work due to injury or illness, and prolonged or recurrent sick leave patterns.

The frequency of the periodic health assessments was determined based on current medical knowledge. The rationale is documented in a reference paper, “Development of Medical Standards for Rail Safety Workers.”

Table 8. Type of health assessment by risk category

Risk Category	Health Assessment Required
Category 1 High Level Safety Critical Worker	Safety Critical Worker Health Assessment including: <ul style="list-style-type: none"> • Employee questionnaire and history • Comprehensive physical and psychological assessment • Vision and hearing • Screen-Based Equipment examination if required Plus <ul style="list-style-type: none"> • Cardiac Risk Score
Category 2 Safety Critical Worker	Safety Critical Worker Health Assessment including: <ul style="list-style-type: none"> • Employee questionnaire and history • Comprehensive physical and psychological assessment • Vision and hearing • Screen-Based Equipment examination if required
Category 3 Around the Track Personnel (Uncontrolled Environment)	Track Safety Health Assessment including: <ul style="list-style-type: none"> • Vision • Hearing • Mobility
Category 4 Other than those in Categories 1-3 including Around the Track Personnel in Controlled Environment	No prescribed health assessment

Examiners

Safety Critical Worker health assessments must be performed by a physician (Categories 1 and 2). Track safety health assessments (Category 3) may be performed by a nurse with occupational health qualifications. The *Management Systems* volume of the standard states that, “The health professional must have a qualification in medicine and should have an interest or experience in occupational medicine.” In addition, “The health professional should demonstrate understanding of the rail industry environment including work performed and risks involved” and “should demonstrate familiarity with the Standard and a working knowledge of Volume 2 of the Standard, *Assessment of Procedures and Medical Criteria*.”

Rail organizations are free to either use physicians that are railroad employees or contract for the service.

Dispute Resolution

The Australian standard does not address dispute resolution. Each railroad must establish its own procedures.

Program Oversight

The regulatory agencies in each state will be responsible for assuring that each rail organization has a health assessment procedure in place that meets the requirements of the standard. This includes a management system for notifying employees of the need for them to have a current assessment and tracking the results of the assessment. Australian privacy laws also require that the confidentiality of medical information be maintained. Medical information cannot be disclosed to the employer without the permission of the employee. (Note: This is similar to the new HIPAA requirements taking effect in the U.S.)

Program Evaluation

The project team proposed that a national process under the auspice of the NTC be established to review and revise the standard every 5 years. They further recommended that this review process take account of the review of the national medical guidelines for commercial vehicle drivers. Indicators of effectiveness have not been fully developed at this stage.

Legal Issues

In developing the new medical standard, the committee had to work within the requirements of the commonwealth and state anti-discrimination and privacy statutes. By using a risk-based performance approach the new standard does not violate these statutes. In addition, the new system also had to meet the requirements of privacy legislation that protects the integrity of personal information. Health records must be managed and stored in accordance with the Privacy Principles mandated by law. Workers must be informed of

- the purpose for collecting and storing the health information;
- what information will be stored and where;
- the fact that they can access the information; and
- to whom the information may be disclosed.

Strict adherence to the privacy provisions in the Standard is essential to ensure union acceptance of the standard and worker cooperation with a more intrusive health assessment process.

Labor Concerns

Labor saw the new standard as a benefit to their people and did not object to the new process and standard. They were willing to accept the personal questions involved in the health assessments for Safety Critical Workers (categories 1 and 2) because of privacy guarantees. There was some concern raised about the need for the blood test, which is part of the cardiac risk assessment. Labor was also concerned about salary maintenance for those who did not meet the new health assessment criteria.

Resources

The state regulators will audit implementation of the new health assessment process as a part of their regular safety audit so no additional resources should be necessary. New South Wales,

which will enforce a penalty system for non-compliance, estimates additional expenses of \$50,000.¹³

In terms of cost to the railroad industry, the *Preliminary Impact Statement* estimates that the incremental annual cost to industry for 40,000 rail safety workers will be \$2.12 million. This is an average of \$53 per employee. The Regulatory Impact Statement also estimated expected net annual savings of \$3.78 million from implementation of the standard.

Recommendations to the FRA

The National Project Manager recommends that the FRA consider the Australian standard for application in the U.S. It is a robust standard, in terms of the risk approach, privacy principles and the up-to-date medical criteria.

The system involves a fairly intrusive assessment of psychological as well as physical health and depends on triggered assessments as well as periodic. For this reason, some cultural change in the industry is necessary to encourage trust relationships between management and labor. Additional costs are involved also for management as the Category 1 assessments require pathology and long appointments. The Australian consultation processes have helped to bring unions and management along and the FRA would need to adopt a similar consultation stage to achieve success.

References

National Standard for Health Assessment of Rail Safety Workers, Volume 1: Management Systems (Post-Consultation Draft), March 2004, National Transport Commission.

National Standard for Health Assessment of Rail Safety Workers, Volume 2: Health Assessment Procedures and Medical Criteria (Post-Consultation Draft), March 2004, National Transport Commission.

National Standard for Health Assessment of Rail Safety Workers, Guideline for Health Risk Management (Post-Consultation Draft), March 2004, National Transport Commission.

National Health Assessment Standard Model Forms, April 2004, National Transport Commission.

Development of Medical Standards for Rail Safety Workers, Safety Branch, Public Transport Division, Department of Infrastructure, May 2003 (Reference Paper)

Proposed National Health Assessment Standard for Rail Safety Workers, Preliminary Impact Statement, December 2003, National Transport Commission.

3.3 Rail Safety and Standards Board – U.K.

Railway regulations for safety critical work have been in force since 1994, shortly after railway privatization. Those regulations are documented in the Railway Group Standards created by Railway Safety (now Rail Safety and Standards Board –RSSB). Britain's Health and Safety Commission (HSC) is responsible for oversight.

¹³ Costs are in Australian dollars. \$1 AU = \$.74 U.S.

Railroad Regulatory Environment

Medical standards in the U.K. have both a legal and regulatory basis. The Health and Safety at Work Act of 1974 places obligations on all employers to ensure their staff are sufficiently fit to do the work required of them. This legislation also obliges the employee to take reasonable care for the health and safety of him/herself and others who may be affected by the employee's acts or omissions at work.

The regulations give the U.K.'s Health and Safety Executive (HSE) powers to approve schemes of assessment (of medical fitness and competence), as well as the authority to approve doctors who can medically assess safety critical workers, but these powers have never been exercised and the rail industry has continued largely as if self-regulating.

The European Union (EU) is looking to harmonize medical fitness standards across Europe. The legislation is being written now and is hotly debated, but yet to be ratified. The process would seek to standardize the way in which people can be declared fit, and the requirements of the bodies which can make such a pronouncement. The reasoning behind this is that a train operating company should be able to know that an employee with the right medical certificate is fit for duty, to a recognized standard, regardless of country of certification.

Development of Rules/Guidelines

Before the privatization of railroads, all exams were carried out by Medical Officers employed by the British Railways Board, most of whom had extensive experience with railway medicine. There was therefore no need for prescriptive medical standards, other than for measurable parameters such as visual acuity, color vision, and hearing. In the early 1990's, with privatization on the horizon, the British Rail Safety Directorate started to produce Railway Group Standards (RGS), with input from a medical advisor, as well as consultation with industry, (mainly on issues of cost: the British Rail requirements contained elements relating to pension funding considerations however (i.e. considering long term risks of someone becoming a burden to the pension fund through ill-health retirement, for example), which resulted in some artificially high entry standards for some jobs), covering all aspects of operations and engineering. But at this stage, it was still assumed that medical assessments would continue to be done by occupational physicians with substantial railroad knowledge, and the standards therefore remained non-prescriptive as far as general health was concerned. The standards were introduced by British Rail in 1992/1993 and have remained in place, modified over time, since then, but currently there is still only a general requirement for people who do safety critical work to be medically fit. However, since railway companies are now free to choose their own providers, and little or no control is exercised over the degree of railway knowledge and experience required, unsupported, non-prescriptive standards are no longer appropriate.

Positions Covered

Those covered by national (RGS) standards are drivers, signallers (dispatchers), guards, shunters (conductors), and some others. People who work on the track must also meet some basic medical fitness requirements for vision, hearing, and mobility.

Relationship to Job Requirements

The standards are based on the occupational expertise of the Rail Safety and Standards Board medical advisor, who has over 20 years in railway occupational medicine. There is a link between the risks that safety critical employees carry and the fitness standards but according to

the RSSB, the relevance of the link to current operations needs review in some cases (outdated in relation to technological and medical improvements).

Frequency of Examinations

Railway Group Standards require that a medical assessment be carried out before the first occasion on which a person is permitted to perform a safety critical job. Thereafter the maximum validity of a medical certificate (unless revoked earlier) for a person under 40 years is 10 years. From ages 40-49 it is 6 years, 50-59 – 4 years, and 60 years and over – 2 years.

Examiners

Medical assessments must be carried out by or under the supervision of a registered medical practitioner with:

- experience in occupational medicine.
- knowledge of the hazards of train working and of the environment in which it is performed.
- an understanding of how measures intended to eliminate or reduce risks from those hazards could be affected by lack of medical fitness. For example, a doctor must know how hazard protection measures would be affected by a person's health (e.g., trains are protected by signals, signals are different colors, the doctor must know that color blindness would effect the protection of trains, etc).

If it is not reasonably practicable for a medical practitioner meeting these requirements to conduct or exercise direct supervision over medical assessments, arrangements must be in place to ensure that the medical assessor and employer have access to such a medical practitioner for advice on the interpretation of medical fitness standards and to monitor consistency of their application.

There is no formal process for training medical examiners, but new proposals under accreditation of suppliers (discussions with HSE, etc.) and EU proposals will change this. The U.K. government will not regulate but wishes to see evidence that the industry is managing the issue.

Dispute Resolution

Human Rights legislation requires that a person should have the right of appeal against a decision that he or she is not fit for work because of medical fitness. In the U.K., there is no process for doing this at the moment except to appeal to the employer to overrule the medical examiner's decision. The gap in the current process directly contravenes the Human Rights legislation.

Program Oversight

Britain's Health and Safety Commission and the Health and Safety Executive are responsible for the regulation of almost all the risks to health and safety arising from work activity in the U.K. Local authorities are responsible to HSC for enforcement in offices, shops and other parts of the services sector. HSE's job is to help the Health and Safety Commission ensure that risks to people's health and safety from work activities are properly controlled. Staff from a range of different backgrounds - including administrators, lawyers, inspectors, scientists, engineers, technologists and medical professionals - contributes to this aim.

Program Evaluation

There is no formal process for measuring effectiveness of medical standards within the Rail Safety Standards Board or the Railway Group Standards process, as there is currently no evidence from accident data that medical standards are not effective. RSSB suggests that some standards actually may be considered excessive in relation to the risks they control, particularly where engineering safeguards (i.e. train control systems) or improvements in the management of chronic conditions (such as diabetes) have been introduced.

Legal Issues

The hearing standards for guards were challenged (disability discrimination) in the Employment Tribunal (court of first instance) in 2000, but the challenge failed because the work was safety critical and the Health and Safety law overrode the disability legislation. The challenge was made by someone who had failed the hearing standard when applying for a job as a train guard. In addition to failing on the technical legislative issue, the train operator and Railway Safety were also able to demonstrate that the hearing standard was necessary for the safe operation of trains and safety of passengers.

Labor Concerns

Labor unions are not a major concern to RSSB. Unions are consulted on the prospect of changes, but do not exercise a veto. There is dialogue with trade unions when one of their member's wishes to challenge a standard or its application, but this is rare and is usually resolved between the union and the employer.

Before privatization, an employee under British Rail who was reduced to lighter duties due to medical condition retained their basic rate of pay. Since privatization however, some railway companies have renegotiated terms and conditions of service and the arrangement is no longer universal.

If an employee is retired on health grounds (or dismissed due to incapacity) most railway companies make some ongoing payments for a limited period and, depending on circumstances, the person might also be able to claim incapacity benefits (an 'ill-health pension') from the railway pension fund.

Resources

Current resources are minimal. At present, there are three to five people with the Rail Safety Standards Board who try to manage the issue as part of their other jobs; one being a contracted occupational physician. These individuals also consult with a voluntary organization, the Association of Railway Industry Occupational Physicians (ARIOPS).

Resource levels are inadequate however, and more are in need. RSSB feels there is a need for medical training and review processes, dispute resolution, and program evaluation metrics, as well as access to additional medical specialists, and a method of record keeping.

Recommendations to the FRA

The Rail Safety and Standards Board offers the following suggestions:

- Try to achieve consensus on the framework and process for setting standards (not the standards themselves which are, in the end, medical judgments about risk). Ensure there

is an appeals process which is not bureaucratic to run and is not open to abuse by trivial or vexatious claims.

- From RSSB’s point of view, the medical fitness standards should be based on the risks to the safe operation of the railway from performance of the occupation or task by someone who is not medically fit (note: hard though it may seem, the safety of the individual doing the task is secondary and largely the employer's responsibility - e.g. heart pacemakers and electric locomotives).

References

Train Working: Competence and Fitness, Railway Group Standard, GO/RT3255, Issue 2, October, 2000. Published by Safety & Standards Directorate, Railtrack PLC.

Competence Management for Safety Critical Work, Railway Group Standard, GO/RT3260, Issue 2, August, 1998. Published by Safety & Standards Directorate, Railtrack PLC.

3.4 Secretaria de Comunicaciones y Transportes – Mexico

The Secretaria de Comunicaciones y Transportes (SCT) oversees the safety, including medical fitness of employees, of all modes of transportation in Mexico. Regulations for the program, “Regulation of Preventative Medicine Services in Transportation,” are published in the *Diario Oficial de la Federación*, which is similar to the C.F.R. in the U.S. The current regulations that went into effect in April 2004 superseded the prior ones that were issued in 1988. (Note: the information in this section is based on a translation of the Mexican regulations and limited contact with one Mexican railroad. The medical director of SCT did not respond to inquiries from the research team.) Each mode of transportation has its own “Medical Profile” or set of medical standards that are the basis for medical examinations.

Positions Covered

The SCT medical requirements apply to all trainmen (conductors, engineers, brakemen) and dispatchers.

Frequency of Examinations

According to the SCT regulations, an employee must undergo a “psychophysical” exam in the following instances:

1. To solicit or renew the Federal License, which occurs every 2 years
2. To detect any psychophysical alteration
3. Following an accident or incident
4. When the employer requests re-evaluation to establish medical fitness to work

The psychophysical exam is composed of the following:

1. Clinical history
2. General medical exam
3. Brief exam of eye
4. Brief hearing exam

5. Brief lung/breathing exam
6. Brief cardiological exam
7. Neurological exploration
8. Psychological study
9. Laboratory studies
10. Toxicological studies

If necessary, the examining physician may use “complementary exams” to substantiate a determination of psychophysical health. SCT maintains permanent and mobile clinics for performing these exams.

The medical certification is valid for 90 days. If the employee does not renew his/her license within that period, then another medical exam must be done.

If the medical examiner finds the employee “of Unsuitable Psychophysical character,” the employee may request re-evaluation within 30 days from the date s/he is notified of the determination. This waiting period may be extended if the employee is on a medical leave of absence.

If the second examination finds the employee “of Unsuitable Psychophysical character,” then the railroad must notify SCT. SCT maintains the “Catalogue of Unsuitability” which is a database of all personnel who are not medically fit for their transportation job. Each railroad is responsible for updating this information on a monthly basis. Railroads must also notify SCT when an employee is involved in an accident.

In addition to the bi-annual examination, every trainman and dispatcher is required to report for a brief “Medical Exam in Operation” before going on duty each workday. This daily exam is performed by SCT physicians on railroad property. If the SCT physician is not available, the employee may still work but the supervisor notes the unavailability of the physician in the record. This exam consists of the following:

1. General Inspection
2. Intentional questioning
3. Evaluation of blood pressure
4. Evaluation of balance
5. Evaluation of visual and hearing reflexes
6. Evaluation of cardiac area
7. Detection of ingested alcoholic beverages

If the medical examiner finds the employee unfit to work, s/he cannot perform his/her normal job duties.

Examiners

A combination of SCT and private physicians, under the direction of SCT, conduct the exams.

Dispute Resolution

Other than the opportunity for re-examination, there is no dispute resolution process.

Reference

Reglamento del Servicio del Medicina Preventiva en el Transporte. *Diario Oficial*. April 21, 2004.

3.5 Union Internationale des Services Médicaux des Chemins de fer (UIMC - International Union of Railway/Railroad Medical Services)

The UIMC was founded in 1948 with the founding members being Swiss Federal Railways, Nederlandse Spoorwegen, Société Nationales des Chemins de Fer Belges, British Rail, and Société Nationales de Chemins de Fer. Other rail services joined later. It became an independent subgroup of UIC (International Union of Railways) in 1995 with its headquarters in Paris.

According to Article 2 of the UIMC statutes, “[T]he task of the International Union of Railway Medical Services is to promote medical advances among railways. This involves not only the organisation of regular scientific conferences, for instance, but also conducting medical research in the railway area, the distribution of specialist publications and the fostering of professional contacts between the medical officers employed by the railway companies with a view to the exchange of information and the provision of advanced training.”¹⁴ There are currently 47 delegates and corresponding members from 28 countries stretching in Europe from Finland to Portugal and from Ireland to Romania, and including delegates from Asia and Africa. Table 9 contains a list of the member countries and railroad organizations.

A working group of the UIMC was established in order to define minimum interoperability criteria for European railway staff concerning medical fitness at in service examinations. These are minimal standards and are used by all members, although member railroads may adopt more stringent criteria. The group considered mainly two interoperating occupations, i.e. train drivers and other train crew.

UIMC separates the operators into two categories:

Group A: high safety risk, i.e. a single person’s responsibility for traffic safety not fully compensated by technical means.

Group B: safety risk, i.e. responsibility for operational safety controlled by group work, supervision by another skilled person or by technical equipment that can maintain a sufficient safety level.

Examinations are performed in accordance with the following schedule:

- Group A: minimum every 5 years until 40, every 3 years from 40 - 62, once a year after 62
- Group B: minimum every 5 years
- Otherwise according to national demand

¹⁴ The human factor in the safety of railway operating, UIMC draft.

Table 9. UIMC country and organization of members

Country	Network/Organization
Austria	Wellcon/ÖBB
Belgium	Société Nationales des Chemins de Fer Belges
Cameroon	Regie Nationale des Chemins de fer du Cameroun
Czech Republic	České Dráhy
Denmark	Jernbanetilsynet
Finland	Valtionrautatiet
France	Société Nationales de Chemins de Fer
Germany	BEV, Deutsche Bahn AG, Deutsche Bahn GS
Hungary	Hungarian State Railway
India	Indian Railways
Ireland	Republic of Ireland State Railway
Italy	Ferrovie dello Stato
Japan	East Japan Railway Company
Luxembourg	Chemins de fer Luxembourgeois
Netherlands	Nederlandse Spoorwegen
Nigeria	Nigerian Railway Corporation
Norway	Jernbaneverket, Norwegian State Railways
Poland	Polskie Koleje Państwowe
Portugal	Caminhos de Ferro Portugueses
Romania	Caile Ferate Romane
Russia	Ministry of Railways
Serbia	Jugoslovenske Železnice
Slovakia	Železnice Slovenskej Republiky
Slovenia	Slovenske Zeleznice
Spain	Ferrocarrils de la Generalitat de Catalunya, Red Nacional de los Ferrocarriles Españoles
Sweden	Bureau Veritas
Switzerland	Swiss Federal Railways
United Kingdom	ET, London Underground Ltd, BUPA, British Rail, Railway Safety

Examinations are also required upon return to duty if there is: any suspicion of neuropsychiatric or sensorial disturbance; any prescription of long-term medication, likely to affect the fitness of the person; any severe acute or chronic disease dependent on diagnosis; or after accidents or incidents at the request of administration.

The following are considered to be absolute exclusions:

- chronic alcoholism
- drug addiction
- any substance dependency
- unstable cardiac disease
- major neurological and psychiatric disorders
- severe respiratory insufficiency
- chronic bowel disease with complications
- liver cirrhosis
- insulin dependent diabetes mellitus
- chronic renal failure requiring dialysis
- homeopathies (a.k.a. blood disorders) with functional deficits and complications
- malignant tumors with functional deficits and complications
- epilepsy

The following are considered to be relative exclusions:

- insufficiently treated cardiac arrhythmia and/or cardiac insufficiency
- insufficiently treated chronic obstructive lung disease
- bronchial asthma
- peripheral arteriosclerosis
- compensated chronic renal insufficiency
- skeletal and articular disorders depending on the resulting deficits and handicaps
- AIDS
- obstructive sleep apnea

The Community of European Railways Working Party of the UIMC prepared the Medical Interoperability Criteria which were ratified by the Directors General of the Community of European Railways and adopted by all member organizations.

UIMC currently has working groups focusing on several areas with plans to update the medical criteria. These include:

- post-traumatic stress syndrome

- vigilance disorders
- criteria of fitness for service, including ophthalmologic standards
- guidelines relating to the consumption of alcohol, drugs and medicines
- recommendations on the structuring of shift and night shift work
- special expert working parties in the areas of cardiology, diabetes mellitus and neurological/psychiatric disorders

References

Recommendations for medical fitness of personal with safety functions, Union Internationale des Services Médicaux des Chemins de fer (UIMC) Interoperability Working Group.

3.6 Comparison of U.S. with other Countries

All of the countries examined have more extensive medical standards programs for their railroad workers than the U.S. The Mexican program is the most centralized with government certified physicians performing the examinations and determining fitness, and a government maintained list of medically unfit workers. The Mexican program requires a periodic comprehensive examination as well as a daily fitness-to-work examination. In contrast, the Australian, Canadian and U.K. programs allow the railroads to select the examiners and the railroad's chief medical officer or examiner makes the final determination of medical fitness to work. Railroad and labor representatives were involved in the development of the medical standards and guidelines in both Australia and Canada. Both systems are risk-based allowing the railroads to identify those positions that are safety-sensitive. Privacy of medical records is a requirement in Australia, Canada and the U.K. Both Australia and Canada have public welfare or disability systems that cover workers who are medically disqualified.

Table 10 compares the medical conditions addressed by each of the foreign programs with the U.S. requirements.

Table 10. Medical conditions addressed by international railroad medical standards

Condition	U.S.	Canada	U.K.	Australia	UIMC	Mexico
Vision	✓	✓	✓	✓	✓	✓
Hearing	✓	✓	✓	✓	✓	✓
Musculoskeletal		✓		✓		
Diabetes		✓		✓	✓	
Other Endocrine		✓		✓		
Cardiac		✓		✓	✓	✓
Gastrointestinal				✓	✓	
Respiratory		✓		✓	✓	✓
Sleep Disorders		✓		✓	✓	
Hypertension		✓		✓	✓	
Seizures		✓	✓	✓	✓	
Other Neurologic		✓	✓	✓	✓	✓
Psychiatric		✓	✓	✓	✓	✓
Renal		✓		✓	✓	
Medication Use	✓	✓	✓	✓	✓	
Hematological					✓	
Allergies						
Infectious Disease						
Pregnancy				✓	✓	
Source of standard						
U.S.	<i>Code of Federal Regulations</i>					
Canada	<i>Railway Association of Canada, Railway Medical Rules</i>					
U.K.	<i>Railway Group Standards</i>					
Australia	<i>National Transport Commission, National Standard for Health Assessment of Rail Safety Workers, Vol. 2: Health Assessment Procedures and Medical Criteria</i>					
UIMC	<i>UIMC Minimum interoperability medical fitness standards</i>					
Mexico	<i>Reglamento del Servicio de Medicina Preventiva en el Transporte</i>					