

Revocation and Determination

of

Statement of Principles concerning

SENSORINEURAL HEARING LOSS

ICD CODES: 389.1

Veterans' Entitlements Act 1986

1. The Repatriation Medical Authority under subsection **196B(3)** of the *Veterans' Entitlements Act 1986* (the Act):
 - (a) revokes Instrument No.26 of 1994, Instrument No.64 of 1994 and Instrument No.391 of 1995
 - (b) determines the following Statement of Principles.

Kind of injury, disease or death

2. (a) This Statement of Principles is about **sensorineural hearing loss** and **death from sensorineural hearing loss**.
 - (b) For the purposes of this Statement of Principles, “**sensorineural hearing loss**” means a permanent hearing threshold shift of 25 decibels (dB) or more, at 500, 1000, 2000 or 4000 hertz (Hz) due to a defect in the cochlea or the auditory nerve whereby nervous impulses from the cochlea to the brain are attenuated, attracting ICD code 389.1.

Basis for determining the factors

3. On the sound medical-scientific evidence available, the Repatriation Medical Authority is of the view that it is more probable than not that

sensorineural hearing loss can be related to relevant service rendered by veterans or members of the Forces.

Factors that must be related to service

4. Subject to clause 6, the factors set out in at least one of the paragraphs in clause 5 must be related to any relevant service rendered by the person.

Factors

5. The factors that must exist before it can be said that, on the balance of probabilities, **sensorineural hearing loss** or **death from sensorineural hearing loss** is connected with the circumstances of a person's relevant service are:

(a) being exposed to at least one bout of acoustic trauma without adequate ear protection before the clinical onset of sensorineural hearing loss; or

(b) (i) being continuously exposed to 85 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis; and

(ii) where the continuous exposure is less than 95 dBA SPL, for five years; or

(iii) where the continuous exposure is 95-105 dBA SPL, for three years; or

(iv) where the continuous exposure is 106 dBA SPL or greater, for one year,

before the clinical onset of sensorineural hearing loss; or

(c) (i) being continually exposed to 90 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis; and

(ii) where the continual exposure is less than 95 dBA SPL, for five years, or

(iii) where the continual exposure is 95-105 dBA SPL, for three years; or

(iv) where the continual exposure is 106 dBA SPL or greater, for one year,

before the clinical onset of sensorineural hearing loss; or

- (d) being treated with a drug identified in the Schedule within the year immediately before the clinical onset of sensorineural hearing loss; or
- (e) undergoing a course of salicylate or quinine derivatives, for a condition for which the drug cannot be ceased or substituted, at the time of the clinical onset of sensorineural hearing loss; or
- (f) suffering from suppurative labyrinthitis of the affected ear within the 30 days immediately before the clinical onset of sensorineural hearing loss; or
- (g) suffering from chronic suppurative otitis media on the affected side before the clinical onset of sensorineural hearing loss; or
- (h) suffering from Meniere's disease at the time of the clinical onset of sensorineural hearing loss; or
- (j) suffering from a systemic immune mediated disorder at the time of the clinical onset of sensorineural hearing loss; or
- (k) suffering from leprosy before the clinical onset of sensorineural hearing loss; or
- (m) suffering from an acute vascular lesion involving the arteries supplying the cochlea on the affected side at the time of the clinical onset of sensorineural hearing loss; or
- (n) suffering from a hyperviscosity syndrome within the 30 days immediately before the clinical onset of sensorineural hearing loss; or
- (o) suffering from an acute infection with at least one of the viruses from the specified list of viruses within the 30 days immediately before the clinical onset of sensorineural hearing loss; or
- (p) suffering from bacterial meningitis before the clinical onset of sensorineural hearing loss; or
- (q) suffering from neurosyphilis before the clinical onset of sensorineural hearing loss; or

- (r) suffering from tuberculosis involving the temporal bone on the affected side of the head before the clinical onset of sensorineural hearing loss; or
- (s) suffering from Paget's disease of bone affecting the skull at the time of the clinical onset of sensorineural hearing loss; or
- (t) suffering head trauma causing ruptured ear drum, concussion, a perilymph fistula or fracture of the temporal bone within the five years immediately before the clinical onset of sensorineural hearing loss; or
- (u) suffering at least one episode of otitic barotrauma within the 30 days immediately before the clinical onset of sensorineural hearing loss; or
- (v) suffering from a benign or malignant neoplasm affecting the auditory apparatus on the affected side before the clinical onset of sensorineural hearing loss; or
- (w) undergoing a course of therapeutic radiation to the head or neck region within the 18 months immediately before the clinical onset of sensorineural hearing loss; or
- (x) undergoing surgery to the middle ear, inner ear or posterior cranial fossa region in relation to the clinical onset of sensorineural hearing loss; or
- (y) being exposed to at least one bout of acoustic trauma without adequate ear protection before the clinical worsening of sensorineural hearing loss; or
- (z)
 - (i) being continuously exposed to 85 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis; and
 - (ii) where the continuous exposure is less than 95 dBA SPL, for five years; or
 - (iii) where the continuous exposure is 95-105 dBA SPL, for three years; or
 - (iv) where the continuous exposure is 106 dBA SPL or greater, for one year,

before the clinical worsening of sensorineural hearing loss; or

- (za) (i) being continually exposed to 90 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis; and
- (ii) where the continual exposure is less than 95 dBA SPL, for five years, or
- (iii) where the continual exposure is 95-105 dBA SPL, for three years; or
- (iv) where the continual exposure is 106 dBA SPL or greater, for one year,

before the clinical worsening of sensorineural hearing loss; or

- (zb) being treated with a drug identified in the Schedule within the year immediately before the clinical worsening of sensorineural hearing loss; or
- (zc) undergoing a course of salicylate or quinine derivatives, for a condition for which the drug cannot be ceased or substituted, at the time of the clinical worsening of sensorineural hearing loss; or
- (zd) suffering from suppurative labyrinthitis of the affected ear within the 30 days immediately before the clinical worsening of sensorineural hearing loss; or
- (ze) suffering from chronic suppurative otitis media on the affected side before the clinical worsening of sensorineural hearing loss; or
- (zf) suffering from Meniere's disease at the time of the clinical worsening of sensorineural hearing loss; or
- (zg) suffering from a systemic immune mediated disorder at the time of the clinical worsening of sensorineural hearing loss; or
- (zh) suffering from leprosy before the clinical worsening of sensorineural hearing loss; or
- (zj) suffering from an acute vascular lesion involving the arteries supplying the cochlea on the affected side at the time of the clinical worsening of sensorineural hearing loss; or

- (zk) suffering from a hyperviscosity syndrome within the 30 days immediately before the clinical worsening of sensorineural hearing loss; or
- (zm) suffering from an acute infection with at least one of the viruses from the specified list of viruses within the 30 days immediately before the clinical worsening of sensorineural hearing loss; or
- (zn) suffering from bacterial meningitis before the clinical worsening of sensorineural hearing loss; or
- (zo) suffering from neurosyphilis before the clinical worsening of sensorineural hearing loss; or
- (zp) suffering from tuberculosis involving the temporal bone on the affected side of the head before the clinical worsening of sensorineural hearing loss; or
- (zq) suffering from Paget's disease of bone affecting the skull at the time of the clinical worsening of sensorineural hearing loss; or
- (zr) suffering head trauma causing ruptured ear drum, concussion, a perilymph fistula or fracture of the temporal bone within the five years immediately before the clinical worsening of sensorineural hearing loss; or
- (zs) suffering at least one episode of otitic barotrauma within the 30 days immediately before the clinical worsening of sensorineural hearing loss; or
- (zt) suffering from a benign or malignant neoplasm affecting the auditory apparatus on the affected side before the clinical worsening of sensorineural hearing loss; or
- (zu) undergoing a course of therapeutic radiation to the head or neck region within the 18 months immediately before the clinical worsening of sensorineural hearing loss; or
- (zv) undergoing surgery to the middle ear, inner ear or posterior cranial fossa region in relation to the clinical worsening of sensorineural hearing loss; or
- (zw) inability to obtain appropriate clinical management for sensorineural hearing loss.

Factors that apply only to material contribution or aggravation

6. Paragraphs 5(y) to 5(zw) apply only to material contribution to, or aggravation of, sensorineural hearing loss where the person's sensorineural hearing loss was suffered or contracted before or during (but not arising out of) the person's relevant service; paragraph 8(1)(e), 9(1)(e) or 70(5)(d) of the Act refers.

Other definitions

7. For the purposes of this Statement of Principles:

“acoustic trauma” means a condition of sudden aural damage resulting from short term intense exposure or a single exposure to loud noise such as that made at close quarters by:

- fireworks; or
- small arms fire; or
- gunfire; or
- artillery fire, or
- exploding grenades, mines or bombs;

“adequate ear protection” means devices which plug the outer ear canal or which completely cover the outside of the ear so as to protect the wearer from acoustic trauma;

“bacterial meningitis” means inflammation of the lining of the brain and spinal cord caused by bacteria, common types of which are *Haemophilus influenzae m.*, *meningococcal m.*, *pneumococcal m.*, and *tuberculous m.*, attracting ICD code 003.21, 013.0, 036.0, 091.81, 094.2, 098.82 or 320;

“being continuously exposed to 85 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis” means the exposure to the noise hazard is uninterrupted and unbroken at at least that level for that period of time; while 'the equivalent noise hazard' for continuous noise exposure is calculated with each 3 dBA increase of noise exposure approximately doubling the noise hazard with an associated halving of the required exposure time.

For continuous exposures, examples of an equivalent noise hazard are:

- 8 hours at 85 dBA; or
- 4 hours at 88 dBA; or
- 1 hour at 94 dBA; or
- 15 min at 100 dBA;

Examples of dBA levels in military exposures are:

95 dBA	Hercules Aircraft engine
110 dBA	Helicopter at takeoff and landing
115 dBA	Engine room of ship;

“being continually exposed to 90 dBA Sound Pressure Level (SPL) without adequate ear protection for eight hours per day, or the equivalent noise hazard, on a regular (eg working week) basis” means the exposure to the noise hazard is habitual and the exposure is regular and/or frequent and that the exposure is cumulative to the specified time each day, while 'the equivalent noise hazard' for continual noise exposure is calculated (using the Occupational Safety & Health Administration; (1983) guidelines which utilise a correction for the effect of intermittence in hazard reduction) with each 5 dBA increase of noise exposure approximately doubling the noise hazard with an associated halving of the required exposure time.

For continual exposures, examples of an equivalent noise hazard are:

- 8 hours at 90 dBA; or
- 4 hours at 95 dBA; or
- 1 hour at 105 dBA; or
- 15 min at 115 dBA.

Examples of dBA levels in military exposures are:

95 dBA	Hercules Aircraft engine
110 dBA	Helicopter at takeoff and landing
115 dBA	Engine room of ship;

“being treated with a drug in the Schedule” means therapeutic administration of the drug;

'Schedule' means:

- (a) a parenteral aminoglycoside antibiotic:
 - gentamicin, or
 - streptomycin, or
 - kanamycin, or
 - amikacin, or
 - netilmicin, or
 - tobramycin;

(b) intravenous administration of:

ethacrynic acid, or
furosemide, or
bumetanide, or
vancomycin, or
erythromycin;

(c) chemotherapeutic agents:

nitrogen mustard, or
bleomycin, or
cisplatin, or
 α -difluoromethylornithine, or
vincristine, or
vinblastine, or
misonidazole, or
6-amino nicotinamide, or
carboplatin;

“benign or malignant neoplasm affecting the auditory apparatus”

means a primary or secondary neoplasm of the auditory nerve, inner ear, temporal bone, cerebellopontine angle or posterior cranial fossa, attracting ICD code 170.01, 191.6, 192.0, 192.1, 198.3, 198.4, 198.5, 213.01, 225.0, 225.1 or 225.2;

“chronic suppurative otitis media” means a group of recurrent or continuous infective disorders of the middle ear characterised by perforation of the tympanic membrane, long standing painless aural discharge and varying deafness, attracting ICD code 017.4, 382.1, 382.2, 382.3 or 382.4;

“hyperviscosity syndrome” means suffering from a blood disorder causing a significant increase in the viscous properties of the blood, such as Waldenstrom's macroglobulinaemia, attracting ICD code 273.3;

“ICD code” means a number assigned to a particular kind of injury or disease in the Australian Version of The International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CM), effective date of 1 July 1995, copyrighted by the National Coding Centre, Faculty of Health Sciences, University of Sydney, NSW, and having ISBN 0 642 22235 5;

“leprosy” means a slowly progressive chronic infectious disease caused by *Mycobacterium leprae*, attracting ICD code 030;

“Meniere’s disease” means the name applied to recurrent vertigo associated with tinnitus and progressive deafness, attracting ICD code 386.0;

“neurosyphilis” means central nervous system manifestations of syphilis, which is a sub-acute chronic infectious disease caused by the spirochaete *Treponema pallidum*, characterised by episodes of active disease interrupted by periods of latency, attracting ICD code 094;

“otitic barotrauma” means damage to the middle ear from inequalities in the barometric pressure on each side of the tympanic membrane, attracting ICD code 993.0.

“Paget’s disease of bone” (otherwise known as osteitis deformans) means a disease of bone marked by repeated episodes of bone resorption and new bone formation resulting in weakened deformed bones of increased mass, attracting ICD code 731.0;

“parenteral” means administration via intravenous or intramuscular injection;

“perilymph fistula” means the leakage of perilymph fluid into the middle ear space from the inner ear due to the rupture of the membrane between the middle and inner ear at the oval or round window as a consequence of surgery, acoustic trauma, or barotrauma, attracting ICD code 386.41 or 386.42;

“posterior cranial fossa” means that part of the skull that lodges the hindbrain: cerebellum, pons, and medulla oblongata;

“Sound Pressure Level (SPL)” means a level of sound, or an amount of sound, in a given environment quantified using the formula :
$$\text{SPL} = 20 \log_{10} (P/p_{\text{ref}}) \text{dB}$$
, where p = sound pressure (RMS); p_{ref} = reference sound pressure;

“specified list of viruses” means:

- mumps virus; or
- measles virus; or
- rubella virus; or
- pertussis virus, or
- varicella-zoster virus;

“suppurative labyrinthitis” means inflammation of the labyrinth (a system of interconnecting canals in the inner ear), characterised by the formation of pus, attracting ICD code 386.33;

“systemic immune mediated disorder” means a group of disorders thought to be mediated by the deposition of immune complexes in various body tissues. Disorders associated with sensorineural hearing loss are:

- (a) systemic lupus erythematosus attracting ICD code 710.0, or
- (b) periarteritis nodosa attracting ICD code 446.0, or
- (c) Wegener’s granulomatosis attracting ICD code 446.4, or
- (d) Cogan’s syndrome attracting ICD code 370.52, or
- (e) Behcet’s syndrome attracting ICD code 136.1;

“tuberculosis involving the temporal bone” means infection of that bone with Mycobacterium tuberculosis, attracting ICD code 015.7;

“therapeutic radiation” means medical treatment by irradiation to the person with gamma rays, x-rays, alpha particles or beta particles;

“vascular lesion involving the arteries” means any local process causing a sudden decline in the supply of blood to the cochlea and includes ischaemia, emboli and haemorrhage affecting these arteries.

Application

- 8. This Instrument applies to all matters to which section 120B of the Act applies.

Dated this *Fourteenth* day of *March* 1996

The Common Seal of the)
Repatriation Medical Authority)
was affixed to this instrument)
in the presence of:)

KEN DONALD
CHAIRMAN