



Australian Government
Repatriation Medical Authority

Statement of Principles
concerning
SENSORINEURAL HEARING LOSS
(Balance of Probabilities)
(No. 99 of 2019)

The Repatriation Medical Authority determines the following Statement of Principles under subsection 196B(3) of the *Veterans' Entitlements Act 1986*.

Dated 18 October 2019

The Common Seal of the
Repatriation Medical Authority
was affixed to this instrument
at the direction of:

A handwritten signature in black ink, appearing to read 'N. Saunders'.

Professor Nicholas Saunders AO
Chairperson

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1 Name

This is the Statement of Principles concerning *sensorineural hearing loss (Balance of Probabilities)* (No. 99 of 2019).

2 Commencement

This instrument commences on 18 November 2019.

3 Authority

This instrument is made under subsection 196B(3) of the *Veterans' Entitlements Act 1986*.

4 Repeal

The Statement of Principles concerning sensorineural hearing loss No. 6 of 2011 (Federal Register of Legislation No. F2010L03254) made under subsection 196B(3) of the VEA is repealed.

5 Application

This instrument applies to a claim to which section 120B of the VEA or section 339 of the *Military Rehabilitation and Compensation Act 2004* applies.

6 Definitions

The terms defined in the Schedule 1 - Dictionary have the meaning given when used in this instrument.

7 Kind of injury, disease or death to which this Statement of Principles relates

- (1) This Statement of Principles is about sensorineural hearing loss and death from sensorineural hearing loss.

Meaning of sensorineural hearing loss

- (2) For the purposes of this Statement of Principles, sensorineural hearing loss:
- (a) means acquired hearing loss due to a defect in the cochlea or auditory nerve, with a permanent shift to a hearing threshold level of 25 decibels (dB) or more, at 500, 1 000, 1 500, 2 000, 3 000, 4 000 or 6 000 hertz (Hz); and
 - (b) excludes:
 - (i) congenital deafness; and
 - (ii) hearing loss due to Meniere's disease.

Death from sensorineural hearing loss

- (3) For the purposes of this Statement of Principles, sensorineural hearing loss, in relation to a person, includes death from a terminal event or condition that was contributed to by the person's sensorineural hearing loss.

Note: *terminal event* is defined in the Schedule 1 – Dictionary.

8 Basis for determining the factors

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 and death from sensorineural hearing loss can be related to relevant service rendered by veterans or members of the Forces under the VEA, or members under the MRCA.

Note: *MRCA*, *relevant service* and *VEA* are defined in the Schedule 1 – Dictionary.

9 Factors that must exist

At least one of the following factors 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:

- (1) being exposed to a peak sound pressure level at the tympanic membrane of at least 140 dB(C) before the clinical onset of sensorineural hearing loss;

Note: *dB(C)* is defined in the Schedule 1 - Dictionary.

- (2) being exposed to a sound pressure level at the tympanic membrane of at least 85 dB(A) as an 8-hour time-weighted average (TWA) with a 3-dB exchange rate for a cumulative period of at least one year, before the clinical onset of sensorineural hearing loss;

Note: *dB(A)* and *time-weighted average (TWA) with a 3-dB exchange rate* are defined in the Schedule 1 - Dictionary.

- (3) being exposed to an explosive blast within the 30 days before the clinical onset of sensorineural hearing loss;
- (4) being struck by lightning within the 30 days before the clinical onset of sensorineural hearing loss;
- (5) having:
 - (a) an episode of otitic barotrauma involving the affected ear; or
 - (b) decompression sickness;within the 30 days before the clinical onset of sensorineural hearing loss;

- (6) undergoing a course of treatment with a drug or a drug from a class of drugs from the specified list of drugs, within the one year before the clinical onset of sensorineural hearing loss;
- Note: *specified list of drugs* is defined in the Schedule 1 - Dictionary.
- (7) having received an ototopical medication as specified, directly into the inner ear, in the presence of tympanic membrane perforation or a patent tympanostomy tube (grommet), within the 30 days before the clinical onset of sensorineural hearing loss;
- Note: *ototopical medication as specified* is defined in the Schedule 1 - Dictionary.
- (8) taking paracetamol or a nonsteroidal anti-inflammatory drug on an average of at least two days per week, for a continuous period of at least the one year before the clinical onset of sensorineural hearing loss;
- (9) taking a cumulative total of at least 40 grams of aspirin, or having acute salicylate toxicity, within the 30 days before the clinical onset of sensorineural hearing loss;
- (10) having a suppurative bacterial infection from the specified list of bacterial infections of the middle or inner ear, involving the affected side, within the 30 days before the clinical onset of sensorineural hearing loss;
- Note: *specified list of bacterial infections* is defined in the Schedule 1 - Dictionary.
- (11) having an infection with a virus from the specified list of viruses, within the 30 days before the clinical onset of sensorineural hearing loss;
- Note: *specified list of viruses* is defined in the Schedule 1 - Dictionary.
- (12) having viral labyrinthitis of the affected ear within the 30 days before the clinical onset of sensorineural hearing loss;
- (13) having meningitis or encephalitis within the six months before the clinical onset of sensorineural hearing loss;
- (14) having neurosyphilis before the clinical onset of sensorineural hearing loss;
- (15) having tuberculosis of the meninges, middle ear or inner ear of the affected side, before the clinical onset of sensorineural hearing loss;
- (16) having leprosy before the clinical onset of sensorineural hearing loss;
- (17) having Paget's disease of bone, affecting the petrous temporal bone or middle ear ossicles of the affected side, at the time of the clinical onset of sensorineural hearing loss;

- (18) having a disease from the specified list of autoimmune diseases at the time of the clinical onset of sensorineural hearing loss;

Note: *specified list of autoimmune diseases* is defined in the Schedule 1 - Dictionary.

- (19) having multiple sclerosis at the time of the clinical onset of sensorineural hearing loss;

- (20) having diabetes mellitus at the time of the clinical onset of sensorineural hearing loss;

- (21) having a disease from the specified list of haematological diseases at the time of the clinical onset of sensorineural hearing loss;

Note: *specified list of haematological diseases* is defined in the Schedule 1 - Dictionary.

- (22) having a cerebrovascular accident within the three months before the clinical onset of sensorineural hearing loss;

- (23) having a lesion interrupting the supply of blood to the cochlea of the affected ear at the time of the clinical onset of sensorineural hearing loss;

Note: Examples of lesions interrupting the supply of blood to the cochlea include, but are not limited to, thrombosis, haemorrhage or vasospasm of the vertebro-basilar circulation, and intralabyrinthine haemorrhage or infarction.

- (24) having blunt trauma, penetrating trauma or surgery to the cochlea or auditory nerve of the affected side, within the five years before the clinical onset of sensorineural hearing loss;

Note: Examples of trauma include, but are not limited to, temporal bone fracture and basilar skull fracture.

- (25) having a benign or malignant neoplasm involving the affected auditory nerve or cochlea at the time of the clinical onset of sensorineural hearing loss;

- (26) undergoing a course of therapeutic radiation for cancer, where the affected cochlea or auditory nerve was in the field of radiation, before the clinical onset of sensorineural hearing loss;

- (27) inhaling, ingesting or having cutaneous contact with an agent from the specified list of chemical agents, for a cumulative period of at least 2 500 hours within a continuous period of five years, before the clinical onset of sensorineural hearing loss, and where that exposure has ceased, the clinical onset of sensorineural hearing loss has occurred within two years of cessation;

Note: *specified list of chemical agents* is defined in the Schedule 1 - Dictionary.

- (28) smoking at least 20 pack-years of cigarettes, or the equivalent thereof in other tobacco products, before the clinical onset of sensorineural hearing loss, and where smoking has ceased, the clinical onset of sensorineural hearing loss has occurred within five years of cessation;

Note: *pack-years of cigarettes, or the equivalent thereof in other tobacco products* is defined in the Schedule 1 - Dictionary.

- (29) being exposed to a peak sound pressure level at the tympanic membrane of at least 140 dB(C) before the clinical worsening of sensorineural hearing loss;

Note: *dB(C)* is defined in the Schedule 1 - Dictionary.

- (30) being exposed to a sound pressure level at the tympanic membrane of at least 85 dB(A) as an 8-hour time-weighted average (TWA) with a 3-dB exchange rate for a cumulative period of at least one year, before the clinical worsening of sensorineural hearing loss;

Note: *dB(A)* and *time-weighted average (TWA) with a 3-dB exchange rate* are defined in the Schedule 1 - Dictionary.

- (31) being exposed to an explosive blast within the 30 days before the clinical worsening of sensorineural hearing loss;

- (32) being struck by lightning within the 30 days before the clinical worsening of sensorineural hearing loss;

- (33) having:

(a) an episode of otitic barotrauma involving the affected ear; or

(b) decompression sickness;

within the 30 days before the clinical worsening of sensorineural hearing loss;

- (34) undergoing a course of treatment with a drug or a drug from a class of drugs from the specified list of drugs, within the one year before the clinical worsening of sensorineural hearing loss;

Note: *specified list of drugs* is defined in the Schedule 1 - Dictionary.

- (35) having received an ototopical medication as specified, directly into the inner ear, in the presence of tympanic membrane perforation or a patent tympanostomy tube (grommet), within the 30 days before the clinical worsening of sensorineural hearing loss;

Note: *ototopical medication as specified* is defined in the Schedule 1 - Dictionary.

- (36) taking paracetamol or a nonsteroidal anti-inflammatory drug on an average of at least two days per week, for a continuous period of at least the one year before the clinical worsening of sensorineural hearing loss;

(37) taking a cumulative total of at least 40 grams of aspirin, or having acute salicylate toxicity, within the 30 days before the clinical worsening of sensorineural hearing loss;

(38) having a suppurative bacterial infection from the specified list of bacterial infections of the middle or inner ear, involving the affected side, within the 30 days before the clinical worsening of sensorineural hearing loss;

Note: *specified list of bacterial infections* is defined in the Schedule 1 - Dictionary.

(39) having an infection with a virus from the specified list of viruses, within the 30 days before the clinical worsening of sensorineural hearing loss;

Note: *specified list of viruses* is defined in the Schedule 1 - Dictionary.

(40) having viral labyrinthitis of the affected ear within the 30 days before the clinical worsening of sensorineural hearing loss;

(41) having meningitis or encephalitis within the six months before the clinical worsening of sensorineural hearing loss;

(42) having neurosyphilis before the clinical worsening of sensorineural hearing loss;

(43) having tuberculosis of the meninges, middle ear or inner ear of the affected side, before the clinical worsening of sensorineural hearing loss;

(44) having leprosy before the clinical worsening of sensorineural hearing loss;

(45) having Paget's disease of bone, affecting the petrous temporal bone or middle ear ossicles of the affected side, at the time of the clinical worsening of sensorineural hearing loss;

(46) having a disease from the specified list of autoimmune diseases at the time of the clinical worsening of sensorineural hearing loss;

Note: *specified list of autoimmune diseases* is defined in the Schedule 1 - Dictionary.

(47) having multiple sclerosis at the time of the clinical worsening of sensorineural hearing loss;

(48) having diabetes mellitus at the time of the clinical worsening of sensorineural hearing loss;

(49) having a disease from the specified list of haematological diseases at the time of the clinical worsening of sensorineural hearing loss;

Note: *specified list of haematological diseases* is defined in the Schedule 1 - Dictionary.

(50) having a cerebrovascular accident within the three months before the clinical worsening of sensorineural hearing loss;

- (51) having a lesion interrupting the supply of blood to the cochlea of the affected ear at the time of the clinical worsening of sensorineural hearing loss;

Note: Examples of lesions interrupting the supply of blood to the cochlea include, but are not limited to, thrombosis, haemorrhage or vasospasm of the vertebro-basilar circulation, and intralabyrinthine haemorrhage or infarction.

- (52) having blunt trauma, penetrating trauma or surgery to the cochlea or auditory nerve of the affected side within the five years before the clinical worsening of sensorineural hearing loss;

Note: Examples of trauma include, but are not limited to, temporal bone fracture and basilar skull fracture.

- (53) having a benign or malignant neoplasm involving the affected auditory nerve or cochlea at the time of the clinical worsening of sensorineural hearing loss;

- (54) undergoing a course of therapeutic radiation for cancer, where the affected cochlea or auditory nerve was in the field of radiation, before the clinical worsening of sensorineural hearing loss;

- (55) inhaling, ingesting or having cutaneous contact with an agent from the specified list of chemical agents, for a cumulative period of at least 2 500 hours within a continuous period of five years, before the clinical worsening of sensorineural hearing loss, and where that exposure has ceased, the clinical worsening of sensorineural hearing loss has occurred within two years of cessation;

Note: *specified list of chemical agents* is defined in the Schedule 1 - Dictionary.

- (56) smoking at least 20 pack-years of cigarettes, or the equivalent thereof in other tobacco products, before the clinical worsening of sensorineural hearing loss, and where smoking has ceased, the clinical worsening of sensorineural hearing loss has occurred within five years of cessation;

Note: *pack-years of cigarettes, or the equivalent thereof in other tobacco products* is defined in the Schedule 1 - Dictionary.

- (57) inability to obtain appropriate clinical management for sensorineural hearing loss.

10 Relationship to service

- (1) The existence in a person of any factor referred to in section 9, must be related to the relevant service rendered by the person.
- (2) The factor set out in subsection 9(29) to 9(57) 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 did not arise out of) the person's relevant service.

11 Factors referring to an injury or disease covered by another Statement of Principles

In this Statement of Principles:

- (1) if a factor referred to in section 9 applies in relation to a person; and
- (2) that factor refers to an injury or disease in respect of which a Statement of Principles has been determined under subsection 196B(3) of the VEA;

then the factors in that Statement of Principles apply in accordance with the terms of that Statement of Principles as in force from time to time.

Schedule 1 - Dictionary

Note: See Section 6

1 Definitions

In this instrument:

chronic suppurative otitis media means a recurrent or continuous infective disorder of the middle ear characterised by perforation of the tympanic membrane and aural discharge.

dB(A) means the sound pressure level in decibels measured by a sound level meter using a type A electronic filter.

dB(C) means the sound pressure level in decibels measured by a sound level meter using a type C electronic filter. The type C filter is used to measure peak or impact sound pressure levels.

hyperviscosity syndrome means a disorder causing an increased viscosity of the blood.

Note: Examples of disorders causing an increased viscosity of the blood include, but are not limited to, polycythaemia and Waldenstrom macroglobulinaemia.

MRCA means the *Military Rehabilitation and Compensation Act 2004*.

ototopical medication as specified means ear drops containing one or more of the following agents:

- (a) aminoglycosides;
- (b) chloramphenicol; or
- (c) chlorhexidine.

pack-years of cigarettes, or the equivalent thereof in other tobacco products means a calculation of consumption where one pack-year of cigarettes equals 20 tailor-made cigarettes per day for a period of one calendar year, or 7 300 cigarettes. One tailor-made cigarette approximates one gram of tobacco or one gram of cigar or pipe tobacco by weight. One pack-year of tailor-made cigarettes equates to 7.3 kilograms of smoking tobacco by weight. Tobacco products mean cigarettes, pipe tobacco or cigars, smoked alone or in any combination.

relevant service means:

- (a) eligible war service (other than operational service) under the VEA;
- (b) defence service (other than hazardous service and British nuclear test defence service) under the VEA; or
- (c) peacetime service under the MRCA.

Note: ***MRCA*** and ***VEA*** are also defined in the Schedule 1 - Dictionary.

sensorineural hearing loss—see subsection 7(2).

specified list of autoimmune diseases means:

- (a) antiphospholipid antibody syndrome;
- (b) Behcet disease;
- (c) Cogan syndrome;
- (d) giant cell arteritis;
- (e) granulomatosis with polyangiitis (Wegener granulomatosis);
- (f) immune thrombocytopaenia;
- (g) microscopic polyangiitis;
- (h) mixed cryoglobulinaemia;
- (i) mucocutaneous lymph node syndrome (Kawasaki disease);
- (j) polyarteritis nodosa;
- (k) relapsing polychondritis;
- (l) rheumatoid arthritis;
- (m) sarcoidosis;
- (n) Sjogren syndrome;
- (o) Susac syndrome;
- (p) systemic lupus erythematosus;
- (q) systemic sclerosis (scleroderma); or
- (r) Vogt-Koyanagi-Harada disease.

specified list of bacterial infections means:

- (a) chronic suppurative otitis media; or
- (b) suppurative labyrinthitis.

Note: *chronic suppurative otitis media* and *suppurative labyrinthitis* are also defined in the Schedule 1 - Dictionary.

specified list of chemical agents means:

- (a) allyl benzene;
- (b) carbon disulphide;
- (c) ethyl benzene;
- (d) lead or fumes containing lead;
- (e) manganese or fumes containing manganese;
- (f) *n*-hexane;
- (g) *n*-propylbenzene;
- (h) *p*-xylene;
- (i) styrene;
- (j) toluene; or
- (k) trichloroethylene.

specified list of drugs means:

- (a) α -difluoromethylornithine (eflornithine);
- (b) aminoglycosides;
- (c) carboplatin;
- (d) cisplatin;
- (e) 5-fluorouracil (5-FU);
- (f) gabapentin;
- (g) loop diuretics;
- (h) macrolide antibiotics;
- (i) nitrogen mustard compounds;

- (j) opioids;
- (k) oxaliplatin;
- (l) propylthiouracil;
- (m) quinine and quinine derivatives, including mefloquine;
- (n) tetracyclines;
- (o) valproic acid;
- (p) vancomycin;
- (q) vigabatrin; or
- (r) vinca alkaloids.

specified list of haematological diseases means:

- (a) aplastic anaemia;
- (b) hyperviscosity syndrome;
- (c) Langerhan cell histiocytosis;
- (d) leukaemia;
- (e) myelodysplastic syndrome; or
- (f) sickle-cell disorder.

Note: *hyperviscosity syndrome* is also defined in the Schedule 1 - Dictionary.

specified list of viruses means:

- (a) cytomegalovirus;
- (b) herpes simplex virus types 1 or 2;
- (c) human immunodeficiency virus;
- (d) Lassa virus;
- (e) measles virus;
- (f) mumps virus; or
- (g) varicella-zoster virus infection of the geniculate ganglion on the affected side.

Note: Varicella-zoster virus infection of the geniculate ganglion is also known as herpes zoster oticus or Ramsay-Hunt syndrome.

suppurative labyrinthitis means inflammation of the inner ear characterised by the presence of pus.

terminal event means the proximate or ultimate cause of death and includes the following:

- (a) pneumonia;
- (b) respiratory failure;
- (c) cardiac arrest;
- (d) circulatory failure; or
- (e) cessation of brain function.

time-weighted average (TWA) with a 3-dB exchange rate means the time-weighted average noise exposure level calculated according to the following formulae and shown in the table:

$$TWA = 10.0 \times \text{Log}(D/100) + 85$$

where D = daily dose; and

$$D = [C1/T1 + C2/T2 + \dots + Cn/Tn] \times 100$$

where Cn = total time of exposure at a specified noise level; and

T_n = exposure duration for which noise at this level becomes hazardous.

Table of noise exposure levels and durations based on 3-dB(A) exchange rate

Exposure Level, <i>L</i> (dB(A))	Duration, <i>T</i>			Exposure Level, <i>L</i> (dB(A))	Duration, <i>T</i>		
	Hours	Minutes	Seconds		Hours	Minutes	Seconds
80	25	24	—	106	—	3	45
81	20	10	—	107	—	2	59
82	16	—	—	108	—	2	22
83	12	42	—	109	—	1	53
84	10	5	—	110	—	1	29
85	8	—	—	111	—	1	11
86	6	21	—	112	—	—	56
87	5	2	—	113	—	—	45
88	4	—	—	114	—	—	35
89	3	10	—	115	—	—	28
90	2	31	—	116	—	—	22
91	2	—	—	117	—	—	18
92	1	35	—	118	—	—	14
93	1	16	—	119	—	—	11
94	1	—	—	120	—	—	9
95	—	47	37	121	—	—	7
96	—	37	48	122	—	—	6
97	—	30	—	123	—	—	4
98	—	23	49	124	—	—	3
99	—	18	59	125	—	—	3
100	—	15	—	126	—	—	2
101	—	11	54	127	—	—	1
102	—	9	27	128	—	—	1
103	—	7	30	129	—	—	1
104	—	5	57	130-140	—	—	<1
105	—	4	43	—	—	—	—

Source: National Institute of Occupational Safety and Health 1998 Guidelines Publication No. 98-126

VEA means the *Veterans' Entitlements Act 1986*.