



Australian Government
Repatriation Medical Authority

Statement of Principles concerning

TINNITUS

No. 33 of 2012

for the purposes of the

Veterans' Entitlements Act 1986
and
Military Rehabilitation and Compensation Act 2004

Title

1. This Instrument may be cited as Statement of Principles concerning tinnitus No. 33 of 2012.

Determination

2. The Repatriation Medical Authority under subsection **196B(2)** and **(8)** of the *Veterans' Entitlements Act 1986* (the VEA):
 - (a) revokes Instrument No. 25 of 2001 concerning tinnitus; and
 - (b) determines in its place this Statement of Principles.

Kind of injury, disease or death

3.
 - (a) This Statement of Principles is about **tinnitus** and **death from tinnitus**.
 - (b) For the purposes of this Statement of Principles, "**tinnitus**" means a persistent perception of sound in one or both ears, such as buzzing, ringing, whistling or clicking, occurring without an external stimulus.
 - (c) Tinnitus attracts ICD-10-AM code H93.1.
 - (d) In the application of this Statement of Principles, the definition of "**tinnitus**" is that given at paragraph 3(b) above.

Basis for determining the factors

4. The Repatriation Medical Authority is of the view that there is sound medical-scientific evidence that indicates that **tinnitus** and **death from tinnitus** can be related to relevant service rendered by veterans, members of Peacekeeping Forces, or members of the Forces under the VEA, or members under the *Military Rehabilitation and Compensation Act 2004* (the MRCA).

Factors that must be related to service

5. Subject to clause 7, at least one of the factors set out in clause 6 must be related to the relevant service rendered by the person.

Factors

6. The factor that must as a minimum exist before it can be said that a reasonable hypothesis has been raised connecting **tinnitus** or **death from tinnitus** with the circumstances of a person's relevant service is:
 - (a) being exposed to a peak sound pressure level at the tympanic membrane of at least 140 dB(C), before the clinical onset of tinnitus; or
 - (b) 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 six months, before the clinical onset of tinnitus; or
 - (c) having trauma, including surgery, to auditory structures or central auditory neural pathways, within the five years before the clinical onset of tinnitus; or
 - (d) having sensorineural hearing loss or conductive hearing loss at the time of the clinical onset of tinnitus; or
 - (e) taking a drug or a drug from a class of drugs from the specified list within the one month before the clinical onset of tinnitus; or
 - (f) receiving a specified ototopical medication directly into the inner ear, in the presence of tympanic membrane perforation, before the clinical onset of tinnitus; or
 - (g) having a vascular, muscular or other anatomical source of sound that can be transmitted to the affected ear at the time of the clinical onset of tinnitus; or
 - (h) having a specified disease or injury involving the auditory structures or central auditory neural pathways of the affected ear at the time of the clinical onset of tinnitus; or
 - (i) having cerebral arterial gas embolism or decompression sickness involving the auditory apparatus or central auditory neural pathways of the affected ear within the one month before the clinical onset of tinnitus; or
 - (j) having an episode of otitic barotrauma involving the affected ear within the one month before the clinical onset of tinnitus; or

- (k) having acoustic shock at the time of the clinical onset of tinnitus; or
- (l) having a specified infection within the one month before the clinical onset of tinnitus; or
- (m) having received a cumulative equivalent dose of at least 10 sieverts of ionising radiation to the auditory apparatus before the clinical onset of tinnitus; or
- (n) undergoing a course of therapeutic radiation for cancer, where the auditory apparatus was in the field of radiation, before the clinical onset of tinnitus; or
- (o) having a serum cobalt concentration of at least 5 micrograms per litre for at least the one month before the clinical onset of tinnitus; or
- (p) having vitamin B1 (thiamine) or vitamin B12 (cobalamin) deficiency at the time of the clinical onset of tinnitus; or
- (q) having carbon monoxide poisoning within the 48 hours before the clinical onset of tinnitus; or
- (r) having hypothyroidism for at least the three months before the clinical onset of tinnitus; or
- (s) being exposed to a peak sound pressure level at the tympanic membrane of at least 140 dB(C), before the clinical worsening of tinnitus; or
- (t) 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 six months, before the clinical worsening of tinnitus; or
- (u) having trauma, including surgery, to auditory structures or central auditory neural pathways, within the five years before the clinical worsening of tinnitus; or
- (v) having sensorineural hearing loss or conductive hearing loss at the time of the clinical worsening of tinnitus; or
- (w) taking a drug or a drug from a class of drugs from the specified list within the one month before the clinical worsening of tinnitus; or
- (x) receiving a specified ototopical medication directly into the inner ear, in the presence of tympanic membrane perforation, before the clinical worsening of tinnitus; or
- (y) having a vascular, muscular or other anatomical source of sound that can be transmitted to the affected ear at the time of the clinical worsening of tinnitus; or
- (z) having a specified disease or injury involving the auditory structures or central auditory neural pathways of the affected ear at the time of the clinical worsening of tinnitus; or
- (aa) having cerebral arterial gas embolism or decompression sickness involving the auditory apparatus or central auditory neural pathways of

the affected ear within the one month before the clinical worsening of tinnitus; or

- (bb) having an episode of otitic barotrauma involving the affected ear within the one month before the clinical worsening of tinnitus; or
- (cc) having acoustic shock at the time of the clinical worsening of tinnitus; or
- (dd) having a specified infection within the one month before the clinical worsening of tinnitus; or
- (ee) having received a cumulative equivalent dose of at least 10 sieverts of ionising radiation to the auditory apparatus before the clinical worsening of tinnitus; or
- (ff) undergoing a course of therapeutic radiation for cancer, where the auditory apparatus was in the field of radiation, before the clinical worsening of tinnitus; or
- (gg) having a serum cobalt concentration of at least 5 micrograms per litre for at least the one month before the clinical worsening of tinnitus; or
- (hh) having vitamin B1 (thiamine) or vitamin B12 (cobalamin) deficiency at the time of the clinical worsening of tinnitus; or
- (ii) having carbon monoxide poisoning within the 48 hours before the clinical worsening of tinnitus; or
- (jj) having hypothyroidism for at least the three months before the clinical worsening of tinnitus; or
- (kk) inability to obtain appropriate clinical management for tinnitus.

Factors that apply only to material contribution or aggravation

7. Paragraphs **6(s) to 6(kk)** apply only to material contribution to, or aggravation of, tinnitus where the person's tinnitus was suffered or contracted before or during (but not arising out of) the person's relevant service.

Inclusion of Statements of Principles

8. In this Statement of Principles if a relevant factor applies and that factor includes an injury or disease in respect of which there is a Statement of Principles then the factors in that last mentioned Statement of Principles apply in accordance with the terms of that Statement of Principles as in force from time to time.

Other definitions

9. For the purposes of this Statement of Principles:

"a drug or a drug from a class of drugs from the specified list" means:

- (a) aminoglycosides;
- (b) carbimazole;
- (c) cisplatin and other antineoplastic platinum compounds;
- (d) propylthiouracil;

- (e) quinidine; or
- (f) quinine and quinine derivatives;

"a specified autoimmune disorder" means one of the following:

- (a) Behçet's syndrome;
- (b) Cogan's syndrome;
- (c) dermatomyositis;
- (d) immune thrombocytopaenic purpura;
- (e) inclusion-body myositis;
- (f) microscopic polyangiitis;
- (g) polyarteritis nodosa;
- (h) polymyositis;
- (i) relapsing polychondritis;
- (j) rheumatoid arthritis;
- (k) Sjogren's syndrome;
- (l) Susac's syndrome;
- (m) systemic lupus erythematosus;
- (n) systemic sclerosis (scleroderma); or
- (o) Wegener's granulomatosis;

"a specified disease or injury" means:

- (a) a benign or malignant neoplasm;
- (b) a cerebrovascular accident;
- (c) a specified autoimmune disorder;
- (d) delayed endolymphatic hydrops;
- (e) ischaemia;
- (f) Meniere's disease;
- (g) multiple sclerosis;
- (h) otosclerosis; or
- (i) Paget's disease of the skull;

"a specified infection" means:

- (a) chronic otitis media of the affected side;
- (b) cytomegalovirus infection of the vestibulocochlear nerve of the affected side;
- (c) diphtheria;
- (d) encephalitis;
- (e) herpes zoster of the geniculate ganglion of the affected side;
- (f) human immunodeficiency virus infection;
- (g) leprosy;
- (h) Lyme disease;
- (i) measles;
- (j) meningitis;
- (k) mumps;
- (l) neurosyphilis;
- (m) suppurative labyrinthitis of the affected side;
- (n) suppurative otitis media of the affected side;
- (o) tuberculosis involving the temporal bone of the affected side; or
- (p) typhoid fever;

"a specified ototopical medication" means ear drops containing an agent from the following list:

- (a) acetic acid;
- (b) chloramphenicol;
- (c) chlorhexidine;
- (d) chloromycetin;
- (e) cresylate;
- (f) ethanol;
- (g) gentian violet;
- (h) povidone iodine; or
- (i) salicylates;

"a vascular, muscular or other anatomical source of sound" means:

- (a) an acquired arteriovenous fistula;
- (b) benign intracranial hypertension;
- (c) brachiocephalic artery stenosis;
- (d) carotid artery stenosis or dissection;
- (e) dural venous sinus stenosis;
- (f) jugular bulb abnormalities;
- (g) neoplastic and non-neoplastic space-occupying lesions involving or arising near the middle or inner ear;
- (h) other vascular abnormalities or other conditions causing turbulent blood flow in structures close to the middle or inner ear;
- (i) palatal myoclonus;
- (j) patulous eustachian tube;
- (k) spasm of the stapedius or tensor tympani muscles; or
- (l) valvular heart disease;

"acoustic shock" means the development of a set of specific symptoms immediately after being exposed to a brief, sudden, unexpected, high frequency, high intensity sound. Symptoms in addition to tinnitus include otalgia, facial or jaw pain, aural fullness, hyperacusis, vertigo and dislike or fear of loud noises;

"auditory structures" means the tympanic membrane, ear ossicles, cochlea, cochlear nerve or vestibulocochlear nerve;

"cumulative equivalent dose" means the total dose of ionising radiation received by the particular organ or tissue. The formula used to calculate the cumulative equivalent dose allows doses from multiple types of ionising radiation to be combined, by accounting for their differing biological effect. The unit of equivalent dose is the sievert. For the purposes of this Statement of Principles, the calculation of cumulative equivalent dose excludes doses received from normal background radiation, but includes therapeutic radiation, diagnostic radiation, cosmic radiation at high altitude, radiation from occupation-related sources and radiation from nuclear explosions or accidents;

"dB(A)" means A-weighted sound pressure level in decibels, where A-weighting is a standardised frequency response used in sound measuring instruments;

"dB(C)" means C-weighted sound pressure level in decibels, where C-weighting is a standardised frequency response used in sound measuring instruments;

"death from tinnitus" in relation to a person includes death from a terminal event or condition that was contributed to by the person's tinnitus;

"ICD-10-AM code" means a number assigned to a particular kind of injury or disease in The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM), Seventh Edition, effective date of 1 July 2010, copyrighted by the National Centre for Classification in Health, Sydney, NSW, and having ISBN 978 1 74210 154 5;

"ischaemia" means reduced blood supply due to thrombosis, embolism, hypotension, vasospasm, hyperviscosity, coagulation disorders, vasculitis or another pathological process;

"relevant service" means:

- (a) operational service under the VEA;
- (b) peacekeeping service under the VEA;
- (c) hazardous service under the VEA;
- (d) British nuclear test defence service under the VEA;
- (e) warlike service under the MRCA; or
- (f) non-warlike service under the MRCA;

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

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

"time-weighted average (TWA) with 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

$$D = [C_1/T_1 + C_2/T_2 + \dots + C_n/T_n] \times 100$$

where C_n = total time of exposure at a specified noise level,

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

Application

- 10.** This Instrument applies to all matters to which section 120A of the VEA or section 338 of the MRCA applies.

Date of effect

11. This Instrument takes effect from 2 May 2012.

Dated this *twentieth* day of *April* 2012

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

KEN DONALD
CHAIRPERSON