



Australian Government
Repatriation Medical Authority

Statement of Principles
concerning
VASCULAR NEUROCOGNITIVE DISORDER
(Reasonable Hypothesis)
(No. 9 of 2023)

The Repatriation Medical Authority determines the following Statement of Principles under subsection 196B(2) of the *Veterans' Entitlements Act 1986*.

Dated 27 February 2023

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

Professor Terence Campbell AM
Chairperson

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1 Name

This is the Statement of Principles concerning *vascular neurocognitive disorder (Reasonable Hypothesis)* (No. 9 of 2023).

2 Commencement

This instrument commences on 27 March 2023.

3 Authority

This instrument is made under subsection 196B(2) of the *Veterans' Entitlements Act 1986*.

4 Repeal

The Statement of Principles concerning vascular dementia No. 78 of 2014 (Federal Register of Legislation No. F2014L01140) made under subsection 196B(2) of the VEA is repealed.

5 Application

This instrument applies to a claim to which section 120A of the VEA or section 338 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 vascular neurocognitive disorder and death from vascular neurocognitive disorder.

Meaning of vascular neurocognitive disorder

- (2) For the purposes of this Statement of Principles, vascular neurocognitive disorder means a chronic vascular disorder of the brain, meeting the following clinical diagnostic criteria (derived from DSM-5-TR):

- A. Evidence of major neurocognitive disorder or mild neurocognitive disorder.
- B. The clinical features are consistent with a vascular aetiology, as suggested by either of the following:
- (i) onset of the cognitive deficits is temporally related to one or more documented cerebrovascular events; or

- (ii) evidence for decline is prominent in complex attention (including processing speed) and frontal-executive function.
- C. There is evidence of the presence of cerebrovascular disease from history, physical examination, and/or neuroimaging considered sufficient to account for the neurocognitive deficits.
- D. Vascular neurocognitive disorder includes:
- (i) acquired diffuse white matter disease (Binswanger disease);
 - (ii) multi-infarct dementia;
 - (iii) post-stroke dementia;
 - (iv) strategic infarct dementia;
 - (v) subcortical ischaemic vascular dementia;
 - (vi) dementia, major neurocognitive disorder or mild neurocognitive disorder due to vascular disease, including atherosclerosis;
 - (vii) vascular mild cognitive impairment without dementia.
- E. The cognitive deficits in Criteria A, B, C and D are not primarily due to any of the following:
- (i) delirium;
 - (ii) another mental disorder (for example, major depressive disorder, schizophrenia); or
 - (iii) inherited diffuse white matter disease, mitochondrial disorders, a neurodegenerative disease (for example, Alzheimer disease, Parkinson's disease, Huntington's chorea), brain tumour, subdural haematoma, the effects of a substance, or systemic disorder (for example, hypothyroidism, vitamin B12 or folic acid deficiency, niacin deficiency, hypercalcaemia, neurosyphilis, human immunodeficiency virus infection).

Note 1: *DSM-5-TR*, *major neurocognitive disorder* and *mild neurocognitive disorder* are defined in the Schedule 1 – Dictionary.

Note 2: Vascular neurocognitive disorder is also known as vascular dementia.

- (3) While vascular neurocognitive disorder attracts ICD-10-AM code F01, in applying this Statement of Principles the meaning of vascular neurocognitive disorder is that given in subsection (2).
- (4) For subsection (3), a reference to an ICD-10-AM code is a reference to the code assigned to a particular kind of injury or disease in *The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM)*, Tenth Edition, effective date of 1 July 2017, copyrighted by the Independent Hospital Pricing Authority, ISBN 978-1-76007-296-4.

Death from vascular neurocognitive disorder

- (5) For the purposes of this Statement of Principles, vascular neurocognitive disorder, in relation to a person, includes death from a

terminal event or condition that was contributed to by the person's vascular neurocognitive disorder.

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

8 Basis for determining the factors

The Repatriation Medical Authority is of the view that there is sound medical-scientific evidence that indicates that vascular neurocognitive disorder and death from vascular neurocognitive disorder 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 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 as a minimum exist before it can be said that a reasonable hypothesis has been raised connecting vascular neurocognitive disorder or death from vascular neurocognitive disorder with the circumstances of a person's relevant service:

- (1) having a cerebrovascular accident or subarachnoid haemorrhage before the clinical onset of vascular neurocognitive disorder;
- (2) having a specified disease of the cerebral vessels, in the presence of neuroimaging (magnetic resonance imaging or computed tomography) findings of cerebral white matter lesions, haemorrhage or infarction, before the clinical onset of vascular neurocognitive disorder;

Note 1: *specified disease of the cerebral vessels* is defined in the Schedule 1 – Dictionary.

Note 2: *neuroimaging (magnetic resonance imaging or computed tomography) findings* is defined in the Schedule 1 – Dictionary.

- (3) having hypertension before the clinical onset of vascular neurocognitive disorder;
- (4) having dyslipidaemia before the age of 65 years, and before the clinical onset of vascular neurocognitive disorder;
Note: *dyslipidaemia* is defined in the Schedule 1 – Dictionary.
- (5) having sick sinus syndrome, atrial fibrillation or atrial flutter, at the time of the clinical onset of vascular neurocognitive disorder;
- (6) having hyperhomocysteinaemia before the clinical onset of vascular neurocognitive disorder;
Note: *hyperhomocysteinaemia* is defined in the Schedule 1 - Dictionary.
- (7) having carotid artery disease, ischaemic heart disease or heart failure before the clinical onset of vascular neurocognitive disorder;
- (8) having cardiac surgery within the 12 months before the clinical onset of vascular neurocognitive disorder;

- (9) having diabetes mellitus for at least the 5 years before the clinical onset of vascular neurocognitive disorder;
- (10) having smoked tobacco products:
 - (a) in an amount of at least 10 pack-years before the clinical onset of vascular neurocognitive disorder; and
 - (b) commencing at least 5 years before the clinical onset of vascular neurocognitive disorder; and

if smoking has ceased before the clinical onset of vascular neurocognitive disorder, then that onset occurred within 20 years of cessation;

Note: *one pack-year* is defined in the Schedule 1 - Dictionary.

- (11) an inability to undertake any physical activity greater than 3 METs for at least 5 years within the 20 years before the clinical onset of vascular neurocognitive disorder;

Note: *MET* is defined in the Schedule 1 - Dictionary.

- (12) being obese for at least 5 years within the 20 years before the clinical onset of vascular neurocognitive disorder;

Note: *being obese* is defined in the Schedule 1 – Dictionary

- (13) having depressive disorder at least 5 years before the clinical onset of vascular neurocognitive disorder;

- (14) having posttraumatic stress disorder at least 5 years before the clinical onset of vascular neurocognitive disorder;

- (15) having chronic kidney disease before the clinical onset of vascular neurocognitive disorder;

Note: *chronic kidney disease* is defined in the Schedule 1 - Dictionary.

- (16) inhaling ambient, chronically polluted air as specified for at least 1,000 hours within the 5 years before the clinical onset of vascular neurocognitive disorder;

Note: *ambient, chronically polluted air as specified* is defined in the Schedule 1 – Dictionary.

- (17) having at least one migraine per year for at least 5 years before the clinical onset of vascular neurocognitive disorder;

- (18) having moderate to severe traumatic brain injury at least 5 years before the clinical onset of vascular neurocognitive disorder;

- (19) having orthostatic hypotension at least once a year for at least 5 years in the 20 years before the clinical onset of vascular neurocognitive disorder.

Note: *orthostatic hypotension* is defined in the Schedule 1 – Dictionary

- (20) having a cerebrovascular accident or subarachnoid haemorrhage before the clinical worsening of vascular neurocognitive disorder;
- (21) having a specified disease of the cerebral vessels, in the presence of neuroimaging (magnetic resonance imaging or computed tomography) findings of cerebral white matter lesions, haemorrhage or infarction, before the clinical worsening of vascular neurocognitive disorder;

Note: *specified disease of the cerebral vessels* is defined in the Schedule 1 – Dictionary.

Note 2: *neuroimaging (magnetic resonance imaging or computed tomography) findings* is defined in the Schedule 1 – Dictionary.

- (22) having hypertension before the clinical worsening of vascular neurocognitive disorder;
- (23) having dyslipidaemia before the age of 65 years, and before the clinical worsening of vascular neurocognitive disorder;

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

- (24) having sick sinus syndrome, atrial fibrillation or atrial flutter, at the time of the clinical worsening of vascular neurocognitive disorder;
- (25) having hyperhomocysteinaemia before the clinical worsening of vascular neurocognitive disorder;

Note: *hyperhomocysteinaemia* is defined in the Schedule 1 - Dictionary.

- (26) having carotid artery disease, ischaemic heart disease or heart failure before the clinical worsening of vascular neurocognitive disorder;
- (27) having cardiac surgery within the 12 months before the clinical worsening of vascular neurocognitive disorder;
- (28) having diabetes mellitus for at least the 5 years before the clinical worsening of vascular neurocognitive disorder;

- (29) having smoked tobacco products:

- (a) in an amount of at least 10 pack-years before the clinical worsening of vascular neurocognitive disorder; and
- (b) commencing at least 5 years before the clinical worsening of vascular neurocognitive disorder; and

if smoking has ceased before the clinical worsening of vascular neurocognitive disorder, then that worsening occurred within 20 years of cessation;

Note: *one pack-year* is defined in the Schedule 1 - Dictionary.

- (30) an inability to undertake any physical activity greater than 3 METs for at least 5 years within the 20 years before the clinical worsening of vascular neurocognitive disorder;

Note: *MET* is defined in the Schedule 1 - Dictionary.

- (31) being obese for at least 5 years within the 20 years before the clinical worsening of vascular neurocognitive disorder;

Note: *being obese* is defined in the Schedule 1 – Dictionary

- (32) having depressive disorder at least 5 years before the clinical worsening of vascular neurocognitive disorder;

- (33) having posttraumatic stress disorder at least 5 years before the clinical worsening of vascular neurocognitive disorder;

- (34) having chronic kidney disease before the clinical worsening of vascular neurocognitive disorder;

Note: *chronic kidney disease* is defined in the Schedule 1 - Dictionary.

- (35) inhaling ambient, chronically polluted air as specified for at least 1,000 hours within the 5 years before the clinical worsening of vascular neurocognitive disorder;

Note: *ambient, chronically polluted air as specified* is defined in the Schedule 1 – Dictionary.

- (36) having at least one migraine per year for at least 5 years before the clinical worsening of vascular neurocognitive disorder;

- (37) having moderate to severe traumatic brain injury at least 5 years before the clinical worsening of vascular neurocognitive disorder;

- (38) having orthostatic hypotension at least once a year for at least 5 years in the 20 years before the clinical worsening of vascular neurocognitive disorder.

Note: *orthostatic hypotension* is defined in the Schedule 1 – Dictionary.

- (39) inability to obtain appropriate clinical management for vascular neurocognitive disorder.

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 factors set out in subsections 9(20) to 9(39) apply only to material contribution to, or aggravation of, vascular neurocognitive disorder where the person's vascular neurocognitive disorder 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(2) 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:

albuminuria means an albumin to creatinine ratio of at least 3 milligrams/millimole.

ambient, chronically polluted air as specified means air with average annual concentrations of particulate matter with an aerodynamic diameter of < 2.5 µm (PM2.5) exceeding 25 µg/m³.

being obese means having a Body Mass Index (BMI) of 30 or greater.

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

BMI means W/H^2 where:

- (a) W is the person's weight in kilograms; and
- (b) H is the person's height in metres.

cerebral arteriosclerosis means thickening of the walls of small arteries or arterioles of the brain, due to cell proliferation or hyaline deposition.

chronic kidney disease means:

- (a) having a glomerular filtration rate of less than 60 ml/min/1.73 m² for at least 3 months;
- (b) having albuminuria for at least 3 months;
- (c) having kidney damage, as evidenced by renal biopsy, imaging studies, urinary sediment abnormalities or other markers of abnormal renal function; or
- (d) having had a kidney transplant.

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

dyslipidaemia means persistently abnormal blood lipid levels, diagnosed by a medical practitioner and evidenced by:

- (a) a serum high density lipoprotein cholesterol level less than 1.0 mmol/L;
- (b) a serum low density lipoprotein cholesterol level greater than 4.0 mmol/L;
- (c) a serum triglyceride level greater than or equal to 2.0 mmol/L;
- (d) a total serum cholesterol level greater than 5.5 mmol/L; or
- (e) the regular administration of drug therapy to normalise blood lipid levels.

DSM-5-TR means the American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision. Washington, DC, American Psychiatric Association, 2022.

hyperhomocysteinaemia means a condition characterised by an excess of homocysteine in the blood.

major neurocognitive disorder means:

- (a) evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:
 - (i) concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and
 - (ii) a substantial impairment in cognitive performance, documented by standardised neuropsychological testing or another qualified clinical assessment; and
- (b) the cognitive deficits interfere with independence in everyday activities (that is, at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).

MET means a unit of measurement of the level of physical exertion. 1 MET = 3.5 ml of oxygen/kg of body weight per minute, 1.0 kcal/kg of body weight per hour or resting metabolic rate.

mild neurocognitive disorder means evidence of modest cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:

- (a) concern of the individual, a knowledgeable informant, or the clinician that there has been a mild decline in cognitive function; and
- (b) a modest impairment in cognitive performance, documented by standardised neuropsychological testing or another qualified clinical assessment.

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

neuroimaging (magnetic resonance imaging or computed tomography) findings means an image of an interior of a body obtained by medical techniques, that is usually obtained at a date after the clinical onset of the disease.

one pack-year means the amount of tobacco consumed in smoking 20 cigarettes per day for a period of 1 year, or an equivalent amount of tobacco products.

Note 1: An equivalent amount of tobacco products is 7,300 grams of smoking tobacco by weight, either in cigarettes, pipe tobacco or cigars, or a combination of same. For pipe tobacco, cigars or combinations of multiple tobacco types, 1 gram of tobacco is considered to be equal to one cigarette.

Note 2: Pack-years are calculated by dividing the number of cigarettes smoked per day by 20 and multiplying this number by the number of years the person has smoked. For example, smoking 10 cigarettes per day for 10 years is equal to 5 pack-years, and smoking 40 cigarettes per day for 10 years is equal to 20 pack-years.

orthostatic hypotension means a 20mm Hg drop in systolic blood pressure and/or 10mm Hg drop in diastolic blood pressure within 3 minutes from postural change.

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.

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

specified disease of the cerebral vessels means:

- (a) antiphospholipid syndrome;
- (b) cerebral amyloid angiopathy;
- (c) cerebral arteriolosclerosis;
- (d) cerebral venous thrombosis;
- (e) hippocampal sclerosis of vascular origin (seen in temporal lobe epilepsy, hypoxic/ischaemic brain injury);
- (f) inflammatory or immunologically mediated vasculitis;
- (g) intravascular lymphomatosis (a type of non-Hodgkin lymphoma);
- (h) laminar cortical necrosis; or
- (i) Moyamoya disease;

Note: *cerebral arteriolosclerosis* is also defined in the Schedule - 1 Dictionary.

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.

vascular neurocognitive disorder—see subsection 7(2).

VEA means the *Veterans' Entitlements Act 1986*.