



Australian Government
Repatriation Medical Authority

Statement of Principles
concerning
SICK SINUS SYNDROME
(Reasonable Hypothesis)
(No. 66 of 2022)

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

Dated 24 June 2022

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 *sick sinus syndrome (Reasonable Hypothesis)* (No. 66 of 2022).

2 Commencement

This instrument commences on 25 July 2022.

3 Authority

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

4 Repeal

The Statement of Principles concerning sick sinus syndrome No. 15 of 2014 (Federal Register of Legislation No. F2014L00020) made under subsection 196B(2) of the VEA is repealed.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 sick sinus syndrome and death from sick sinus syndrome.

Meaning of sick sinus syndrome

- (2) For the purposes of this Statement of Principles, sick sinus syndrome:
- (a) means a group of cardiac arrhythmias caused by dysfunction of the sinus node, in which persistent or intermittent abnormalities of cardiac impulse formation and propagation cause an atrial rate inappropriate for physiological requirements, resulting in clinical symptoms; and
 - (b) excludes congenital sick sinus syndrome.

Note 1: Sick sinus syndrome can manifest as persistent or intermittent sinus bradycardia, sinus pause or sinus arrest, bradycardia-tachycardia syndrome, and other arrhythmias.

Note 2: Symptoms of sick sinus syndrome typically include fatigue, lightheadedness, palpitations, presyncope, syncope, dyspnoea on exertion, and chest discomfort.

Documented sinus node dysfunction correlates with symptoms. Symptoms are frequently intermittent with gradual progression in frequency and severity.

- (3) While sick sinus syndrome attracts ICD-10-AM code I49.5, in applying this Statement of Principles the meaning of sick sinus syndrome 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 sick sinus syndrome

- (5) For the purposes of this Statement of Principles, sick sinus syndrome, in relation to a person, includes death from a terminal event or condition that was contributed to by the person's sick sinus syndrome.

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 sick sinus syndrome and death from sick sinus syndrome 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 sick sinus syndrome or death from sick sinus syndrome with the circumstances of a person's relevant service:

- (1) having atrial fibrillation or atrial flutter at the time of the clinical onset of sick sinus syndrome;
- (2) having hypertension at the time of the clinical onset of sick sinus syndrome;
- (3) having ischaemic heart disease at the time of the clinical onset of sick sinus syndrome;
- (4) having heart failure at the time of the clinical onset of sick sinus syndrome;
- (5) having rheumatic fever at the time of the clinical onset of sick sinus syndrome;

- (6) having pericarditis at the time of the clinical onset of sick sinus syndrome;
- (7) having cardiomyopathy at the time of the clinical onset of sick sinus syndrome;
- (8) having non-infectious myocarditis at the time of the clinical onset of sick sinus syndrome;

Note 1: Non-infectious myocarditis can be acute or chronic.

Note 2: Non-infectious myocarditis can be of autoimmune, infiltrative or immunological origin. Examples of causes of non-infectious myocarditis include immune checkpoint inhibitor therapy and giant cell myocarditis.

- (9) having viral myocarditis at the time of the clinical onset of sick sinus syndrome;

Note 1: Viral myocarditis can be acute or chronic.

Note 2: Examples of viral causes of myocarditis include severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), human immunodeficiency virus, group B coxsackieviruses and dengue virus.

- (10) having a non-viral infection of the myocardium at the time of the clinical onset of sick sinus syndrome;

Note 1: A non-viral infection of the myocardium can be caused by bacteria, protozoa, fungi or parasites.

Note 2: Examples of non-viral infections of the myocardium include:

- (a) *Borrelia burgdorferi* (Lyme disease);
- (b) *Cysticercus* species (cysticercosis);
- (c) *Echinococcus* species (hydatid disease);
- (d) *Toxoplasma gondii* (toxoplasmosis); and
- (e) *Trypanosoma cruzi* (Chagas disease).

- (11) having infiltration of the myocardium due to an infiltrative disease from the specified list of infiltrative diseases at the time of the clinical onset of sick sinus syndrome;

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

- (12) having a benign or malignant neoplasm involving the sinoatrial node before the clinical onset of sick sinus syndrome;

Note: A neoplasm involving the sinoatrial node can be primary or metastatic. An example of a primary neoplasm involving the sinoatrial node is cardiac lymphoma.

- (13) having a non-neoplastic lesion which compresses the sinoatrial node at the time of the clinical onset of sick sinus syndrome;

Note: Examples of non-neoplastic lesions which compress the sinoatrial node include cardiac tamponade and coronary artery aneurysm.

- (14) having a thyroid condition from the specified list of thyroid conditions at the time of the clinical onset of sick sinus syndrome;

Note: *specified list of thyroid conditions* is defined in the Schedule 1 – Dictionary.

- (15) having an autoimmune disease from the specified list of autoimmune diseases at the time of the clinical onset of sick sinus syndrome;
 Note: *specified list of autoimmune diseases* is defined in the Schedule 1 - Dictionary.
- (16) having obstructive sleep apnoea at the time of the clinical onset of sick sinus syndrome;
 Note: *obstructive sleep apnoea* is defined in the Schedule 1 - Dictionary.
- (17) having a mineral or electrolyte abnormality from the specified list of mineral or electrolyte abnormalities at the time of the clinical onset of sick sinus syndrome;
 Note: *specified list of mineral or electrolyte abnormalities* is defined in the Schedule 1 – Dictionary.
- (18) having a thoracic surgical procedure or an invasive cardiac procedure within the 1 year before the clinical onset of sick sinus syndrome;
 Note 1: Examples of thoracic surgical procedures include vascular, mediastinal, pulmonary and chest wall surgery.
 Note 2: Examples of invasive cardiac procedures include:
- (a) catheter ablation of arrhythmias;
 - (b) open heart surgery; and
 - (c) transcatheter aortic valve implantation.
- (19) having a heart transplant before the clinical onset of sick sinus syndrome;
- (20) having a surgical procedure involving general or regional anaesthesia within the 30 days before the clinical onset of sick sinus syndrome;
- (21) having cardiac stereotactic ablative radiotherapy or cryotherapy within the 6 months before the clinical onset of sick sinus syndrome;
- (22) experiencing penetrating trauma to the heart within the 3 months before the clinical onset of sick sinus syndrome;
- (23) taking a drug from the specified list of drugs within the 30 days before the clinical onset of sick sinus syndrome;
 Note: *specified list of drugs* is defined in the Schedule 1 - Dictionary.
- (24) undertaking strenuous physical activity greater than 6 METs:
- (a) for an average of at least 20 hours per week; and
 - (b) for a continuous period of at least 5 years before the clinical onset of sick sinus syndrome; and
- if that strenuous physical activity has ceased before the clinical onset of sick sinus syndrome, then that onset occurred within 5 years of cessation;
 Note: *MET* is defined in the Schedule 1 – Dictionary.

- (25) being envenomated by a snake belonging to the family *Viperidae* within the 48 hours before the clinical onset of sick sinus syndrome;
- (26) having atrial fibrillation or atrial flutter at the time of the clinical worsening of sick sinus syndrome;
- (27) having hypertension at the time of the clinical worsening of sick sinus syndrome;
- (28) having ischaemic heart disease at the time of the clinical worsening of sick sinus syndrome;
- (29) having heart failure at the time of the clinical worsening of sick sinus syndrome;
- (30) having rheumatic fever at the time of the clinical worsening of sick sinus syndrome;
- (31) having pericarditis at the time of the clinical worsening of sick sinus syndrome;
- (32) having cardiomyopathy at the time of the clinical worsening of sick sinus syndrome;
- (33) having non-infectious myocarditis at the time of the clinical worsening of sick sinus syndrome;

Note 1: Non-infectious myocarditis can be acute or chronic.

Note 2: Non-infectious myocarditis can be of autoimmune, infiltrative or immunological origin. Examples of causes of non-infectious myocarditis include immune checkpoint inhibitor therapy and giant cell myocarditis.

- (34) having viral myocarditis at the time of the clinical worsening of sick sinus syndrome;

Note 1: Viral myocarditis can be acute or chronic.

Note 2: Examples of viral causes of myocarditis include severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), human immunodeficiency virus, group B coxsackieviruses and dengue virus.

- (35) having a non-viral infection of the myocardium at the time of the clinical worsening of sick sinus syndrome;

Note 1: A non-viral infection of the myocardium can be caused by bacteria, protozoa, fungi or parasites.

Note 2: Examples of non-viral infections of the myocardium include:

- (a) *Borrelia burgdorferi* (Lyme disease);
- (b) *Cysticercus* species (cysticercosis);
- (c) *Echinococcus* species (hydatid disease);
- (d) *Toxoplasma gondii* (toxoplasmosis); and
- (e) *Trypanosoma cruzi* (Chagas disease).

- (36) having infiltration of the myocardium due to an infiltrative disease from the specified list of infiltrative diseases at the time of the clinical worsening of sick sinus syndrome;

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

- (37) having a benign or malignant neoplasm involving the sinoatrial node before the clinical worsening of sick sinus syndrome;

Note: A neoplasm involving the sinoatrial node can be primary or metastatic. An example of a primary neoplasm involving the sinoatrial node is cardiac lymphoma.

- (38) having a non-neoplastic lesion which compresses the sinoatrial node at the time of the clinical worsening of sick sinus syndrome;

Note: Examples of non-neoplastic lesions which compress the sinoatrial node include cardiac tamponade and coronary artery aneurysm.

- (39) having a thyroid condition from the specified list of thyroid conditions at the time of the clinical worsening of sick sinus syndrome;

Note: *specified list of thyroid conditions* is defined in the Schedule 1 – Dictionary.

- (40) having an autoimmune disease from the specified list of autoimmune diseases at the time of the clinical worsening of sick sinus syndrome;

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

- (41) having obstructive sleep apnoea at the time of the clinical worsening of sick sinus syndrome;

Note: *obstructive sleep apnoea* is defined in the Schedule 1 - Dictionary.

- (42) having a mineral or electrolyte abnormality from the specified list of mineral or electrolyte abnormalities at the time of the clinical worsening of sick sinus syndrome;

Note: *specified list of mineral or electrolyte abnormalities* is defined in the Schedule 1 – Dictionary.

- (43) having a thoracic surgical procedure or an invasive cardiac procedure within the 1 year before the clinical worsening of sick sinus syndrome;

Note 1: Examples of thoracic surgical procedures include vascular, mediastinal, pulmonary and chest wall surgery.

Note 2: Examples of invasive cardiac procedures include:

- (a) catheter ablation of arrhythmias;
- (b) open heart surgery; and
- (c) transcatheter aortic valve implantation.

- (44) having a heart transplant before the clinical worsening of sick sinus syndrome;

- (45) having a surgical procedure involving general or regional anaesthesia within the 30 days before the clinical worsening of sick sinus syndrome;

- (46) having cardiac stereotactic ablative radiotherapy or cryotherapy within the 6 months before the clinical worsening of sick sinus syndrome;

- (47) experiencing penetrating trauma to the heart within the 3 months before the clinical worsening of sick sinus syndrome;

- (48) taking a drug from the specified list of drugs within the 30 days before the clinical worsening of sick sinus syndrome;

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

- (49) being envenomated by a snake belonging to the family *Viperidae* within the 48 hours before the clinical worsening of sick sinus syndrome;
- (50) inability to obtain appropriate clinical management for sick sinus syndrome.

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(26) to 9(50) apply only to material contribution to, or aggravation of, sick sinus syndrome where the person's sick sinus syndrome 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:

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, or 1.0 kcal/kg of body weight per hour, or resting metabolic rate.

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

obstructive sleep apnoea means a type of sleep apnoea characterised on sleep study by repetitive cessation or decrease of airflow during sleep, despite respiratory effort.

Note: Obstructive sleep apnoea includes upper airway resistance syndrome, which involves prolonged, partial obstruction of the upper airway during sleep.

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.

sick sinus syndrome—see subsection 7(2).

specified list of autoimmune diseases means:

- (a) rheumatoid arthritis;
- (b) systemic lupus erythematosus; or
- (c) systemic sclerosis (scleroderma).

specified list of drugs means:

- (a) a general or regional anaesthetic;
- (b) acetylcholinesterase inhibitors including donepezil, galantamine, neostigmine and rivastigmine;
- (c) antidepressants including amitriptyline;
- (d) antihypertensives including clonidine and methyl dopa;
- (e) antipsychotic phenothiazines;
- (f) beta blockers;
- (g) cardiac glycosides including digoxin;
- (h) class 1A, class 1C or class III anti-arrhythmic agents;
- (i) daclatasvir;
- (j) ergonovine;
- (k) lacosamide;
- (l) lidocaine;
- (m) lithium;

- (n) non-dihydropyridine calcium channel blockers including diltiazem and verapamil;
- (o) propoxyphene (dextropropoxyphene);
- (p) sofosbuvir;
- (q) ticagrelor;
- (r) tigecyclin; or
- (s) tyrosine kinase inhibitors.

specified list of infiltrative diseases means:

- (a) amyloidosis;
- (b) hereditary haemochromatosis; or
- (c) sarcoidosis.

specified list of mineral or electrolyte abnormalities means:

- (a) hyperkalaemia;
- (b) hypocalcaemia; or
- (c) hypokalaemia.

specified list of thyroid conditions means:

- (a) hyperthyroidism, including goitre and Graves disease that has resulted in hyperthyroidism;
- (b) hypothyroidism, including Hashimoto thyroiditis that has resulted in hypothyroidism; or
- (c) thyrotoxicosis.

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.

VEA means the *Veterans' Entitlements Act 1986*.