



Australian Government
Repatriation Medical Authority

Statement of Principles
concerning
METHAEMOGLOBINAEMIA
(Balance of Probabilities)
(No. 18 of 2019)

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

Dated 1 March 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 'Nicholas Saunders'.

Professor Nicholas Saunders AO
Chairperson

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1 Name

This is the Statement of Principles concerning *methaemoglobinaemia (Balance of Probabilities)* (No. 18 of 2019).

2 Commencement

This instrument commences on 25 March 2019.

3 Authority

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

4 Repeal

The Statement of Principles concerning methaemoglobinaemia No. 48 of 2010 (Federal Register of Legislation No. F2010L01661) made under subsection 196B(3) of the VEA is repealed.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 methaemoglobinaemia and death from methaemoglobinaemia.

Meaning of methaemoglobinaemia

- (2) For the purposes of this Statement of Principles, methaemoglobinaemia:
 - (a) means a greater than normal amount of methaemoglobin in the blood as a result of the oxidation of haem iron to the ferric state, making it less able to bind with oxygen; and
 - (b) causes clinical manifestations such as cyanosis, headache or fatigue; and
 - (c) includes the heterozygous form of NADH-methaemoglobin reductase deficiency restricted to red blood cells but excludes other forms of congenital methaemoglobinaemia.

- (3) While methaemoglobinaemia attracts ICD-10-AM code D74, in applying this Statement of Principles the meaning of methaemoglobinaemia 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 methaemoglobinaemia

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

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 methaemoglobinaemia and death from methaemoglobinaemia 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, methaemoglobinaemia or death from methaemoglobinaemia is connected with the circumstances of a person's relevant service:

- (1) taking or being treated with a drug that causes oxidation of haemoglobin, within the two days before the clinical onset of methaemoglobinaemia;

Note: Drugs that cause methaemoglobinaemia include, but are not limited to, dapson; 8-aminoquinolines such as primaquine or tafenoquine; chloroquine; nitrates such as nitroglycerine; nitrites such as amyl nitrite; local anaesthetics such as benzocaine; and sulphonamide antibiotics.

- (2) inhaling, ingesting or having cutaneous contact with a chemical agent that causes oxidation of haemoglobin, within the two days before the clinical onset of methaemoglobinaemia;

Note: Chemicals that cause methaemoglobinaemia include, but are not limited to, aniline and its derivatives (for example, found in dyes); naphthalene (for example, found in mothballs); nitrobenzenes (for example, found in solvents and paints); nitrogen oxide (for example, found in smoke from fires); paraquat (for example, found in herbicides); and chlorates, nitrates and nitrotoluenes (for example, found in explosives).

- (3) ingesting food or fluid contaminated by excess levels of nitrates or nitrites, within the two days before the clinical onset of methaemoglobinaemia;
- (4) being exposed to dialysis fluid contaminated with chloramine or hydrogen peroxide, within the two days before the clinical onset of methaemoglobinaemia;
- (5) taking or being treated with a drug that causes oxidation of haemoglobin, within the two days before the clinical worsening of methaemoglobinaemia;

Note: Drugs that cause methaemoglobinaemia include, but are not limited to, dapsona; 8-aminoquinolines such as primaquine or tafenoquine; chloroquine; nitrates such as nitroglycerine; nitrites such as amyl nitrite; local anaesthetics such as benzocaine; and sulphonamide antibiotics.

- (6) inhaling, ingesting or having cutaneous contact with a chemical agent that causes oxidation of haemoglobin, within the two days before the clinical worsening of methaemoglobinaemia;

Note: Chemicals that cause methaemoglobinaemia include, but are not limited to, aniline and its derivatives (for example, found in dyes); naphthalene (for example, found in mothballs); nitrobenzenes (for example, found in solvents and paints); nitrogen oxide (for example, found in smoke from fires); paraquat (for example, found in herbicides); and chlorates, nitrates and nitrotoluenes (for example, found in explosives).

- (7) ingesting food or fluid contaminated by excess levels of nitrates or nitrites, within the two days before the clinical worsening of methaemoglobinaemia;
- (8) being exposed to dialysis fluid contaminated with chloramine or hydrogen peroxide, within the two days before the clinical worsening of methaemoglobinaemia;
- (9) inability to obtain appropriate clinical management for methaemoglobinaemia.

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(5) to 9(9) apply only to material contribution to, or aggravation of, methaemoglobinaemia where the person's methaemoglobinaemia 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:

methaemoglobinaemia—see subsection 7(2).

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

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.

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*.