



Australian Government
Repatriation Medical Authority

Statement of Principles
concerning
THORACIC OUTLET SYNDROME
(Balance of Probabilities)
(No. 48 of 2022)

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

Dated 29 April 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 *thoracic outlet syndrome (Balance of Probabilities)* (No. 48 of 2022).

2 Commencement

This instrument commences on 30 May 2022.

3 Authority

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

4 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.

5 Definitions

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

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

- (1) This Statement of Principles is about thoracic outlet syndrome and death from thoracic outlet syndrome.

Meaning of thoracic outlet syndrome

- (2) For the purposes of this Statement of Principles, thoracic outlet syndrome:
- (a) means a collection of symptoms and signs arising from compression of the subclavian artery, subclavian vein or the nerves of the brachial plexus which occurs as these structures exit the thoracic cavity above the first rib and pass through the anatomical spaces of the thoracic outlet; and
 - (b) includes:
 - (i) arterial thoracic outlet syndrome;
 - (ii) neurogenic thoracic outlet syndrome; and
 - (iii) venous thoracic outlet syndrome.

Note 1: Symptoms and signs of arterial thoracic outlet syndrome typically include pain, pallor, paraesthesia, coldness and diminished pulses of the affected arm or hand. Symptoms may be recurrent (claudication), or occur suddenly due to acute arterial thromboembolism. Complications include development of mural thrombus in the subclavian artery or a subclavian artery aneurysm.

Note 2: Symptoms and signs of neurogenic thoracic outlet syndrome typically include pain, dysesthesia, numbness and weakness involving the shoulder, arm or hand of the affected side. Symptoms may be aggravated by activities that require elevation or sustained use of the arms or hands.

Note 3: Symptoms and signs of venous thoracic outlet syndrome typically include pain, cyanosis and swelling of the affected arm. Complications include recurrent venous thromboembolism and pulmonary thromboembolism.

Note 4: The anatomical spaces within the thoracic outlet that can typically cause neurovascular compromise include the scalene triangle, the costoclavicular space and the pectoralis minor space.

Note 5: *arterial thoracic outlet syndrome*, *neurogenic thoracic outlet syndrome* and *venous thoracic outlet syndrome* are defined in the Schedule 1 - Dictionary.

Death from thoracic outlet syndrome

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

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

7 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 thoracic outlet syndrome and death from thoracic outlet syndrome 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.

8 Factors that must exist

At least one of the following factors must exist before it can be said that, on the balance of probabilities, thoracic outlet syndrome or death from thoracic outlet syndrome is connected with the circumstances of a person's relevant service:

- (1) performing repetitive and forceful activities involving the affected arm and shoulder:
- (a) for an average of at least 40 hours per month; and
 - (b) for a cumulative period of at least 6 months before the clinical onset of thoracic outlet syndrome; and

if those activities have ceased before the clinical onset of thoracic outlet syndrome, then that onset occurred within 2 months of cessation;

Note: Examples of repetitive and forceful activities include lifting or carrying heavy loads, overhead throwing, swimming, rowing and playing musical instruments.

- (2) having trauma involving the upper chest, shoulder or neck of the affected side within the 1 year before the clinical onset of thoracic outlet syndrome;

Note 1: Examples of types of trauma that can cause neurovascular compression in the thoracic outlet include fractures of the clavicle or the first rib and blows to the upper chest and shoulder. Delayed onset of thoracic outlet syndrome may occur as a result of the response to injury, including the formation of callus around fractures and the development of scar tissue.

Note 2: *trauma involving the upper chest, shoulder or neck of the affected side* is defined in the Schedule 1 – Dictionary.

- (3) having surgery involving the upper chest, shoulder or neck of the affected side within the 1 year before the clinical onset of thoracic outlet syndrome;

Note: Examples of types of surgery that can cause neurovascular compression in the thoracic outlet include manipulation of fractures of the clavicle or the first rib, surgery involving the clavicle or the first rib, and surgery involving the chest wall.

- (4) having an acquired space-occupying lesion involving the affected thoracic outlet at the time of the clinical onset of thoracic outlet syndrome;

Note: Examples of acquired space-occupying lesions that can involve the thoracic outlet include neoplasms, hypertrophied shoulder girdle muscles, fibrous scar tissue resulting from chronic inflammation, haematomas, cysts and bony callus.

- (5) for venous thoracic outlet syndrome or arterial thoracic outlet syndrome only, being at an altitude of at least 3,000 metres for a continuous period of at least 24 hours within the 30 days before the clinical onset of venous thoracic outlet syndrome or arterial thoracic outlet syndrome;

Note: *venous thoracic outlet syndrome* and *arterial thoracic outlet syndrome* are defined in the Schedule 1 – Dictionary.

- (6) for venous thoracic outlet syndrome only, having creation of an arteriovenous fistula in the arm of the affected side within the 2 years before the clinical onset of venous thoracic outlet syndrome;

Note: *venous thoracic outlet syndrome* is defined in the Schedule 1 – Dictionary.

- (7) performing repetitive and forceful activities involving the affected arm and shoulder:

- (a) for an average of at least 40 hours per month; and
(b) for a cumulative period of at least 6 months before the clinical worsening of thoracic outlet syndrome; and

if those activities have ceased before the clinical worsening of thoracic outlet syndrome, then that worsening occurred within 2 months of cessation;

Note: Examples of repetitive and forceful activities include lifting or carrying heavy loads, overhead throwing, swimming, rowing and playing musical instruments.

- (8) having trauma involving the upper chest, shoulder or neck of the affected side within the 1 year before the clinical worsening of thoracic outlet syndrome;

Note 1: Examples of types of trauma that can cause neurovascular compression in the thoracic outlet include fractures of the clavicle or the first rib and blows to the upper chest and shoulder. Delayed onset of thoracic outlet syndrome may occur as a result of the response to injury, including the formation of callus around fractures and the development of scar tissue.

Note 2: *trauma involving the upper chest, shoulder or neck of the affected side* is defined in the Schedule 1 – Dictionary.

- (9) having surgery involving the upper chest, shoulder or neck of the affected side within the 1 year before the clinical worsening of thoracic outlet syndrome;

Note: Examples of types of surgery that can cause neurovascular compression in the thoracic outlet include manipulation of fractures of the clavicle or the first rib, surgery involving the clavicle or the first rib, and surgery involving the chest wall.

- (10) having an acquired space-occupying lesion involving the affected thoracic outlet at the time of the clinical worsening of thoracic outlet syndrome;

Note: Examples of acquired space-occupying lesions that can involve the thoracic outlet include neoplasms, hypertrophied shoulder girdle muscles, fibrous scar tissue resulting from chronic inflammation, haematomas, cysts and bony callus.

- (11) for venous thoracic outlet syndrome or arterial thoracic outlet syndrome only, being at an altitude of at least 3,000 metres for a continuous period of at least 24 hours within the 30 days before the clinical worsening of venous thoracic outlet syndrome or arterial thoracic outlet syndrome;

Note: *venous thoracic outlet syndrome* and *arterial thoracic outlet syndrome* are defined in the Schedule 1 – Dictionary.

- (12) for venous thoracic outlet syndrome only, having creation of an arteriovenous fistula in the arm of the affected side within the 2 years before the clinical worsening of venous thoracic outlet syndrome;

Note: *venous thoracic outlet syndrome* is defined in the Schedule 1 – Dictionary.

- (13) inability to obtain appropriate clinical management for thoracic outlet syndrome.

9 Relationship to service

- (1) The existence in a person of any factor referred to in section 8, must be related to the relevant service rendered by the person.
- (2) The factors set out in subsections 8(7) to 8(13) apply only to material contribution to, or aggravation of, thoracic outlet syndrome where the person's thoracic outlet syndrome was suffered or contracted before or during (but did not arise out of) the person's relevant service.

10 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 8 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 5

1 Definitions

In this instrument:

arterial thoracic outlet syndrome means partial or complete impairment of blood flow to the upper limb due to compression of the subclavian artery as it passes through the thoracic outlet, including complications arising from this compression.

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

neurogenic thoracic outlet syndrome means compression of the nerves of the brachial plexus as they pass through the thoracic outlet, causing symptoms or signs of damage to the affected nerves.

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.

thoracic outlet syndrome—see subsection 6(2).

trauma involving the upper chest, shoulder or neck of the affected side means a discrete event involving the application of significant physical force to or through the affected upper chest, shoulder or neck region, that causes:

- (a) damage to the upper chest, shoulder or neck; and
- (b) the development, within 24 hours of the event occurring, of symptoms and signs of pain and tenderness, and either altered mobility or range of movement of the upper chest, shoulder or neck. In the case of sustained unconsciousness or the masking of pain by analgesic medication, these symptoms and signs must appear on return to consciousness or the withdrawal of the analgesic medication; and
- (c) the persistence of these symptoms and signs for a period of at least 7 days following their onset, save for where medical intervention for the trauma to the upper chest, shoulder or neck has occurred and that medical intervention involves one of the following:

- (i) immobilisation of the upper chest, shoulder or neck by splinting or similar external agent;
- (ii) injection of a corticosteroid or local anaesthetic into the upper chest, shoulder or neck; or
- (iii) surgery to the upper chest, shoulder or neck.

VEA means the *Veterans' Entitlements Act 1986*.

venous thoracic outlet syndrome means partial or complete impairment of blood flow from the upper limb due to compression of the subclavian vein as it passes through the thoracic outlet, including complications arising from this compression.