

NSW Marine Pilotage Code

Revised: 28 November 2022.

Copyright: Transport for New South Wales. All Rights Reserved.

Contents

General	1
1. Preamble	1
1.1 Title	1
1.2 Scope	1
1.3 Objectives	1
1.4 Application	1
1.5 Development of this Code	2
1.6 Review and Amendment of this Code	2
1.7 Commencement of this Code	2
2. Definitions	2
3. Licences and Certificates	5
4. Port Authority Responsibilities	5
4.1 Risk Management	5
4.2 Fatigue Management	6
4.3 Drug and Alcohol	6
5. Appeals	6
6. Marine Pilot Professional Conduct Standards	6
7. Variations	6
8. Reporting	7
Schedule 1 – Marine Pilot’s Licence	8
1. Preliminary	8
2. Eligibility	8
2.1 Requirements and Conditions of the Regulation	8
2.2 Specialised Knowledge, Skills and Competencies	9
3. Initial Training and Assessment	9
3.1 General	9
3.2 Initial Training in Specialised Knowledge	10
3.3 Assessment	12
4. Maintenance of Standards	12
4.1 Continuation Training	12
4.2 Maintenance of Local Knowledge	13
4.3 Check Pilots and Supervising Pilots	14
5. Restrictions	14
6. Records	14

7.	Maintaining a Certificate of Competency	15
Schedule 2 – Marine Pilot Health Assessments		16
1.	Preliminary	16
2.	Requirements and Conditions of the Regulation	16
3.	Types and Frequency of Assessment	16
4.	Standard for Health Assessment of Marine Pilots	17
Schedule 3 – Marine Pilot Professional Conduct Standards		18
1.	General	18
2.	Administrative	18
3.	Operational	18
4.	Pilot Vessel	19
Schedule 4 – Marine Pilotage Exemption Certificate		20
1.	Preliminary	20
2.	Eligibility	20
2.1	Requirements and Conditions of the Regulation	20
2.2	Specialised Knowledge	21
3.	Initial Training and Assessment	21
3.1	Initial Training	21
3.2	Assessment	22
4.	Maintenance of Standards	22
4.1	Triggered Training and Assessment	22
4.2	Performance Checks	23
4.3	Maintenance of Local Knowledge	23
4.4	Risk Event Reporting	23
5.	Restrictions	23
6.	Records	24
Schedule 5 – Certificate of Local Knowledge		25
1.	Preliminary	25
2.	Eligibility	25
2.1	Requirements and Conditions of the Regulation	25
2.2	Local Knowledge	26
3.	Training and Assessment	26
3.1	General	26
3.2	Renewal	26
4.	Restrictions	27
5.	Records	27

Annexure 1: Standard for Health Assessment of Marine Pilots (NSW)	28
--	-----------

General

1. Preamble

1.1 Title

- 1.1.1 This is the NSW Marine Pilotage Code (**this Code**).

1.2 Scope

- 1.2.1 This Code sets out the requirements for the grant, renewal and maintenance of Marine Pilot's Licences and pilotage, Marine Pilotage Exemption Certificates and Certificates of Local Knowledge imposed by the Marine Safety Act 1998 (**the Act**) and the Marine Safety Regulation 2016 (**the Regulation**).
- 1.2.2 This Code is subordinate to, and is to be read in conjunction with, the Act and Regulation as amended from time to time. In the event of any inconsistency between this Code and the Act and the Regulation, the Act and the Regulation take precedence.

1.3 Objectives

- 1.3.1 The immediate objectives of this Code are to set out the general requirements and health standards set by the Minister as the responsible licensing official under the Act for:

- (a) the grant or renewal of a Marine Pilot's Licence,
- (b) the grant or renewal of a Marine Pilot Exemption Certificate,
- (c) the grant or renewal of a Certificate of Local Knowledge.

This Code informs the decisions of the Port Authority as a delegate of the Minister and guides other participants in the marine pilotage licensing scheme including Transport for NSW, Check Pilots, Marine Pilots, medical practitioners, holders of Marine Pilotage Exemption Certificates, holders of Certificates of Local Knowledge and applicants for those types of marine safety licences.

- 1.3.2 The ultimate objective of this Code is to enhance marine safety within Pilotage Ports through:

- (a) providing a robust, fit for purpose and consistent published framework of appropriately high standard for pilotage licensing,
- (b) promoting technological advances and systems to better facilitate the safe delivery of the pilotage function,
- (c) drawing upon best practice philosophies in the development of this Code.

1.4 Application

- 1.4.1 This Code applies to the Port Authority, Marine Pilots, Pilot Exempt Masters and holders of Certificates of Local Knowledge in the NSW Pilotage Areas of Yamba, Newcastle, Sydney Harbour, Botany Bay, Port Kembla and Eden, and any other area

that may be declared as a Pilotage Area under Section 71 of the Act and the Regulation.

- 1.4.2 Schedule 2 Marine Pilot Health Assessments does not apply to holders of Marine Pilotage Exemption Certificates and Certificates of Local Knowledge.

1.5 Development of this Code

- 1.5.1 This Code has been updated (2022) by a Transport for NSW Marine Pilotage Code Review Working Group chaired by Transport for NSW and consisting of Harbour Masters from the Pilotage Ports, executives from the Port Authority, Marine Pilot representatives from the Pilotage Ports, and representatives from the Australian Maritime Officers Union and the Australasian Marine Pilots Institute. Full details of participants at the working group can be obtained from Transport for NSW.
- 1.5.2 Preparation of this Code was assisted by reference to the International Maritime Organisation's Resolution A.960(23) "Recommendations on Training and Certification and On Operational Procedures for Maritime Pilots Other Than Deep-sea Pilots" adopted on 5 December 2003, Guidelines for Marine Pilotage Standards in Australia Edition 2 November 2008 published by the former National Marine Safety Committee and relevant legislation.

1.6 Review and Amendment of this Code

- 1.6.1 Unless there is a need to do so earlier, a review of this Code will be carried out every five years by a panel from all the parties named in Clause 1.5, and others as agreed by those parties. The need to carry out a review can be recommended to Transport for NSW by any of the parties named in Clause 1.5 of this Code.
- 1.6.2 If a review has deemed it necessary, this Code will be amended.

1.7 Commencement of this Code

- 1.7.1 This version of this Code commenced on 28 November 2022.

2. Definitions

- 2.1 In this Code the words and terms have the same meaning as in the Act or Regulation unless indicated otherwise:

Act means the *Marine Safety Act 1998*;

AMSA means the Australian Maritime Safety Authority;

Applicant means the person who is applying to the Minister for a Marine Pilot's Licence; or the person who is seeking to obtain a Marine Pilotage Exemption Certificate or a Certificate of Local Knowledge;

Authorised Health Professional or **AHP** means a person appointed and authorised by the Port Authority to assess the health of Marine Pilots;

Authorised Health Professional-Medical or **AHP-Medical** means an AHP appointed and authorised by the Port Authority to conduct Health Assessments;

Authorised Health Professional-Physiotherapist or **AHP-Physiotherapist** means an AHP appointed and authorised by the Port Authority to conduct Physical Assessments;

Certificate Holder means the holder of a Marine Pilotage Exemption Certificate or Certificate of Local Knowledge;

Certificate of Competency means a certificate of competency as a Master issued under the *International Convention on Standards for Training, Certification and Watchkeeping of Seafarers (STCW)*, as amended from time to time;

Certificate of Recognition means a certificate issued by AMSA recognising a Certificate of Competency issued by a Flag State as being equivalent to an Australian certificate of competency;

Certificate of Local Knowledge means the Certificate of Local Knowledge issued under the Act to a master of an identified class or classes of vessel which provides exemption from the requirement to take a Marine Pilot in the Pilotage Area to which the certificate applies;

Check Pilot means a Marine Pilot who, by successfully completing a suitable training program, is appointed in accordance with Clause 4.3.1 of Schedule 1 as a check pilot in the relevant Pilotage Port by the Port Authority;

Coastal Pilot Licence means a coastal pilotage qualification issued under Marine Order 54 (Coastal pilotage) 2014 made pursuant to the [Navigation Act 2012](#) of the Commonwealth;

Delegate or sub-delegate of the Minister means a delegate or sub-delegate of the Minister in respect of the relevant function exercising the function in accordance with any conditions attached to the delegation or sub-delegation; the due exercise of a function by a delegate or sub-delegate shall be taken to have been exercised by the Minister;

Harbour Master means a person appointed as a harbor master under Part 7 of the Act in respect of a Pilotage Port and includes, where applicable:

- a) a Harbour Master exercising a function as a delegate or sub-delegate of the Minister; and
- b) a person appointed by a Harbor Master under Section 86 of the Act to exercise a function of the Harbour Master; and
- c) (a person employed by the Port Authority and nominated by the Harbour Master to exercise a function of the Harbour Master that is conferred by this Code only;

Health Assessment means an assessment of a Marine Pilot's health conditions or health risks that may impact on the safe performance of the pilotage task;

IMO Resolution A.960 means the resolution adopted on 5 December 2003 providing recommendations on training and certification and on operational procedures for Marine Pilots other than deep sea pilots;

Marine Pilot means a person employed by a Pilot Service Provider who has the conduct of a vessel but who does not belong to the vessel;

Marine Pilotage Exemption Certificate means the marine pilotage exemption certificate issued under the Act to the master of an identified vessel which provides exemption from the requirement to take a Marine Pilot in the Pilotage Area to which the certificate applies;

Marine Pilot's Licence means a valid Marine Pilot's Licence granted by the Minister;

Minister means the Minister administering the Act and includes a delegate or sub-delegate of the Minister;

Owner in relation to a vessel includes its manager or operator;

Periodic Assessment means a Health Assessment and/or a Physical Assessment that is carried out in accordance with the requirements of Schedule 2 of this Code;

Physical Assessment means an assessment of a Marine Pilot's physical capacity to safely conduct ship transfers via the pilot ladder;

Pilotage Area means the waterways within the port limits of any Pilotage Port or pilotage designated area;

Pilotage Port means any of the following ports:

- a) Sydney Harbour,
- b) Botany Bay,
- c) Newcastle,
- d) Port Kembla,
- e) Yamba,
- f) Eden.

The Regulation may provide that any other port is a Marine Pilot's Licence for the purposes of Part 6 of the Act or that a port is no longer such a port;

Pilotage Passage means the passage by a vessel under the conduct of a Marine Pilot into, out of, or within a Pilotage Port or Pilotage Area;

Pilot Exempt Master means the person employed as the master of a vessel who holds a valid Marine Pilotage Exemption Certificate;

Pilot in Training means a person who is employed by a Pilotage Service Provider undergoing training to be a Marine Pilot;

Pilot training committee means one or more committees established by the Port Authority for the Pilotage Ports, to oversee and review the training requirements of pilots, from initial training through to ongoing training requirements;

Port Authority means Newcastle Port Corporation trading as Port Authority of New South Wales:

- a) acting as the Pilotage Service Provider, or any NSW Government entity which replaces the Port Authority of New South Wales. Where the Pilotage Service Provider as defined in Section 71 of the Act is an entity other than the Port Authority, then the Pilotage Service Provider must comply with all relevant clauses of this Code as contracted or agreed with the Port Authority, or;
- b) where applicable, the Port Authority exercising functions as a delegate or sub-delegate of the Minister;

Regulation means the *Marine Safety Regulation 2016*;

Safety Management System (SMS) means a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures. An SMS is scalable; therefore, it is tailored to the size and complexity of the organization;

Schedule means a Schedule of the NSW Marine Pilotage Code;

Ships Simulator means a full mission bridge ship simulator;

Standard for Health Assessment of Marine Pilots (NSW) means the document entitled Standard for Health Assessment of Marine Pilots (NSW), as amended from time to time, incorporated into Schedule 2 of this Code;

Supervising Pilot means a Marine Pilot who meets the requirements in accordance with Clause 4.3.2 of Schedule 1 of this Code;

Triggered Assessment means a Health Assessment and/or a Physical Assessment that may be initiated by an AHP or the Port Authority or a Marine Pilot at any time between periodic assessments and is carried out in accordance with the requirements of Schedule 2 of this Code;

Unrestricted Marine Pilot means a licensed Marine Pilot who is qualified to pilot all vessels in the Pilotage Port to which the licence applies;

Website means the website with the URL of: www.transport.nsw.gov.au or any other website that is authorised to publish this Code.

3. Licences and Certificates

- 3.1 Under the Act and Regulation, a Marine Pilot's Licence, a Marine Pilotage Exemption Certificate and a Certificate of Local Knowledge are marine safety licences and are covered by the general requirements for marine safety licences as set out in the Act and Regulation. These requirements include application, renewal, reinstatement, refusal to issue, suspension, cancellation, loss and appeal processes.
- 3.2 The applicant for a Marine Pilot's Licence must meet the requirements in the Act, the Regulation, Schedule 1 (Marine Pilot Licence) and Schedule 2 (Marine Pilot Health Assessments) of this Code.
- 3.3 The applicant for a Marine Pilotage Exemption Certificate must meet the requirements in the Act, the Regulation, and Schedule 4 (Marine Pilot Exemption Certificate) of this Code.
- 3.4 The applicant for a Certificate of Local Knowledge must meet the requirements in the Act, the Regulation, and Schedule 5 (Certificate of Local Knowledge) of this Code.

4. Port Authority Responsibilities

4.1 Risk Management

- 4.1.1 The Port Authority must ensure that a documented Safety Management System is in place.
- 4.1.2 Such management system must address all significant risks to life, vessels, port infrastructure and the environment within the Pilotage Port or Pilotage Area during pilotage.
- 4.1.3 Investigations, utilising a just culture policy, of both incidents and other relevant events are to be used to regularly reassess the risks and the effectiveness of controls to treat risks.

4.2 Fatigue Management

- 4.2.1 The Port Authority is to promulgate and manage a fatigue management system for Marine Pilots.
- 4.2.2 The fatigue management system must identify significant risks that have arisen or may arise and specify the controls to be employed to manage the risks and to ensure that Marine Pilots do not pilot vessels if they are unfit for duty. The system is to include bio-mathematical modelling and self-reporting to avoid breaches of established fatigue limits.
- 4.2.3 Transport for NSW may issue guidelines with respect to policy objectives and safety initiatives to be adopted by the Port Authority in the development of its fatigue management system.

4.3

Drug and Alcohol

- 4.3.1 The Port Authority is to promulgate and manage a drug and alcohol program for Marine Pilots.
- 4.3.2 Without limiting Clause 4.3.1 of this Code, the program is to include provisions for or with respect to:
 - (a) protocols for fair procedures; and
 - (b) education and assistance of Marine Pilots.
- 4.3.3 Nothing in this Code or the Regulation derogates from the operation of Part 3 and Schedule 1 of the Act.

5. Appeals

- 5.1 The Port Authority must inform pilots, Pilot Exempt Masters and holders of Certificates of Local Knowledge:
 - (a) of the consequences of failure to comply with the relevant standards; and
 - (b) that an appeals process is available through the NSW Civil & Administrative Tribunal (NCAT) should a licence or certificate be suspended or cancelled.

6. Marine Pilot Professional Conduct Standards

- 6.1 The Conduct Standards for Marine Pilots is at Schedule 3 of this Code.

7. Variations

- 7.1 This Code may be varied by Transport for NSW.
- 7.2 If Transport for NSW proposes to vary this Code of its own motion or at the direction of the Minister, it must undertake such consultation as it considers appropriate prior to making the variation.
- 7.3 The Port Authority may apply to Transport for NSW for a variation of this Code to meet the special requirements of the Port Authority, the Pilotage Port or the circumstances of an individual employed by the Port Authority.

- 7.4 An application by the Port Authority under Clause 7.3 of this Code must include true statements:
- (a) that the proposed variation meets its requirements for a specified Pilotage Port or Pilotage Ports, and
 - (b) that there has been appropriate consultation with the Marine Pilots in the Pilotage Port or Pilotage Ports.
- 7.5 Appropriate consultation under Clause 7.4(b) of this Code does not require or authorise the Port Authority to disclose personal information or health information about an individual.
- 7.6 A corporation or individual with an interest in the provisions of this Code relating to Marine Pilot Exemption Certificates or Certificates of Local Knowledge may apply to Transport for NSW for a variation of this Code as it relates to those licences.
- 7.7 Before making a decision on any application under Clause 7.6 of this Code, Transport for NSW must consult with the Port Authority.
- 7.8 Transport for NSW may request further information from an applicant for variation of this Code.

8. Reporting

- 8.1 The Port Authority shall report to Transport for NSW annually by 15 July any non-conformance with any clauses of this Code during the preceding year ending 30 June and also the type and frequency of periodic and additional pilotage training as described in Clauses 4.1.1 and 4.1.2 of Schedule 1 of this Code.

Schedule 1 – Marine Pilot's Licence

1. Preliminary

- 1.1 This Schedule outlines how compliance with the requirements and conditions of the Regulation are achieved in regard to Marine Pilot's licences. It refers to eligibility, training, assessment, maintenance of standards and record keeping. The requirements for complying with the Regulation for medical assessment of Marine Pilots are referred to in Schedule 2 of this Code.
- 1.2 This Schedule applies to a pilot in training and a Marine Pilot operating in any Pilotage Port or Pilotage Area. A pilot in training is to complete the requirements consistent with this Schedule before becoming eligible to apply for a Marine Pilot's Licence. A licenced Marine Pilot is to complete the requirements consistent with this Schedule in order to retain a Marine Pilot's Licence.
- 1.3 The application and issue of a Marine Pilot's Licence in this Schedule refers to the issue of an initial licence in the Pilotage Port for which the licence is valid. In all circumstances prior to the issue of such a licence there will be a period of familiarisation training and assessment needed before the future holder of the licence will be able to commence marine pilot duties within the Pilotage Port to which that licence applies. The elements that constitute the familiarisation training and assessment and the length of this period will depend on the individual and are to be determined and documented by the Port Authority in consultation with its Check Pilots, pilot training committee and Harbour Master.
- 1.4 A licensed Marine Pilot must undertake all additional periodic, triggered and re-familiarisation training specified in this Schedule.

2. Eligibility

2.1 Requirements and Conditions of the Regulation

- 2.1.1 The Regulation requires that a Marine Pilot's Licence is not to be issued unless the applicant for the licence:
 - (a) meets the health requirements set out in this Code; and
 - (b) holds a relevant qualification; and
 - (c) provides evidence that the applicant is competent to carry out unsupervised duties as a Marine Pilot in the relevant Pilotage Port in accordance with this Code.
- 2.1.2 For the purposes of this Clause a relevant qualification is:
 - (a) a Certificate of Competency issued under Marine Order 70 (Seafarer Certification) and Marine Order 71 (Masters and Deck Officers), made pursuant to the Navigation Act 2012 of the Commonwealth, as master for the gross tonnage of vessel to be piloted; or

- (b) a Certificate of Recognition issued under Marine Order 70, (Seagoing Certification) made pursuant to the *Navigation Act 2012* of the Commonwealth, in relation to an international qualification equivalent to a certificate referred to in paragraph (a); or
- (c) the equivalent of a Marine Pilot's Licence issued in another Australian jurisdiction (other than a coastal pilot licence) and at least one year's experience piloting all vessels in the port to which that licence relates (but only if the vessels are of similar tonnage to those to which the application relates); or
- (d) a demonstrated level of competency that is, in the opinion of the Minister, equivalent to a qualification referred to in paragraph (a), (b) or (c).

2.1.3 It is a condition of each Marine Pilot's Licence that the holder of the licence:

- (a) satisfactorily complete any training as required under this Code; and
- (b) undergo any health assessment as required under this Code.

2.1.4 It is a condition of each Marine Pilot's Licence that the holder of the licence must not act as a Marine Pilot if the holder becomes aware of any circumstance, condition or injury that might cast doubt on the holder's fitness to act as a Marine Pilot as authorised by the licence.

2.1.5 It is a condition of each Marine Pilot's Licence that the holder of the licence maintains the records required to be maintained by this Code.

2.2 Specialised Knowledge, Skills and Competencies

2.2.1 A Marine Pilot must possess ship-handling and manoeuvring skills and competencies. The minimum standard of these skills and competencies are to be determined by the Port Authority and are to be appropriate for the Pilotage Port to which that licence relates and type and size of vessel being piloted. These skills and competencies may be acquired through a combination of factors including but not limited to:

- (a) experience;
- (b) on-the-job training by licenced Marine Pilots;
- (c) manned model training; and
- (d) simulator training.

2.2.2 The required elements for training and assessment, and length of training, are to be determined by the Port Authority in accordance with this Code, the pilot training program for that Pilotage Port and by the management of risk through the Port Authority's Safety Management System.

3. Initial Training and Assessment

3.1 General

3.1.1 Training of Marine Pilots is the responsibility of the Port Authority.

- 3.1.2 The Port Authority should satisfy itself that all Marine Pilots under its jurisdiction continue to:
- (a) possess recent navigational knowledge of the local area to which the certificate of licence applies;
 - (b) meet the required medical fitness standards; and
 - (c) possess knowledge of the current international, national and local laws, regulations and other requirements and provisions relevant to the Pilotage Area and the Marine Pilots' duties.

3.2 Initial Training in Specialised Knowledge

- 3.2.1 An applicant for an initial Marine Pilot's Licence must have completed the following elements of training:

- (a) Induction

Complete induction training which includes pilotage in general, shipping operations, the various risks within the Pilotage Port and the port's emergency response capability.
- (b) Marine Pilot Observer/Supervised
 - (i) Subject to Clause 3.2.1(b)(ii) of this Schedule, for the purposes of becoming sufficiently familiar with the Pilotage Port and in preparation for the issue of a marine pilot's licence, an applicant must participate in and successfully complete the relevant Pilotage Port's pilot training program; approved by the Harbour Master and the pilot training committee, which details minimum qualifying passages required for licensing. The approved training program shall require not less than 70 on-water observations/supervised pilotage passages on the bridge of a ship with a licenced Marine Pilot in varied conditions as detailed in the relevant Pilotage Port's pilot training program; and shall be supplemented with electronic simulation training for the purposes of emergency scenarios and specific ship handling techniques as part of this approved program.
 - (ii) For the Pilotage Ports of Eden and Yamba the requirements for the port's pilot training program and minimum pilotage passages will be as specified by the relevant Harbour Master.
- (c) Tug Observer

Attend as an observer on the bridge of a tug for a minimum of 10 pilotage passages, (for the ports of Eden and Yamba these requirements will be as specified by the relevant Harbour Masters):

 - (i) comprising different types and tug positions; and
 - (ii) at least one half of which are to be undertaken during the hours of darkness.
- (d) Bridge Resource Management Training

Complete bridge resource management training incorporating human factors training which:

- (i) focuses on skills such as teamwork, communication and resource management in order to heighten awareness of effective management and utilisation of all resources, human and technical, available to the Marine Pilot; and
- (ii) provides the tools with which to manage the variety of ships, competencies, cultures and languages normally encountered in pilotage.

(e) Pilotage in Restricted Visibility Training

Complete pilotage in restricted visibility training on an electronic ship simulator, so that the Marine Pilot is able to competently pilot a vessel in the Pilotage Port in restricted visibility.

(f) Ship Handling Training

Complete ship handling proficiency. Ship handling proficiency includes, but is not limited to, the ability to demonstrate:

- (i) skill and competency in handling ships in all weathers and all states of visibility in the Pilotage Port for which the licence is valid;
- (ii) theoretical ship handling knowledge including hydrostatics and hydrodynamics;
- (iii) communications skills; and
- (iv) competent use of tugs, lines persons and lines launches.

Ship handling training should take account of a pilot in training's previous experience and should include adequate exposure to on-the- job training with Marine Pilots.

Ship handling training can be enhanced by the use of manned models and ship simulators.

(g) Local Knowledge Training

Complete training to demonstrate a satisfactory level of local knowledge. Local knowledge is knowledge of the local environment and includes, but is not limited to, knowledge of:

- (i) the Pilotage Port and Pilotage Area's physical geography and its effect on the manoeuvring of vessels;
- (ii) local weather conditions and their effect on the manoeuvring of vessels;
- (iii) navigation aids, including vessel traffic services;
- (iv) port customs, protocols and security measures;
- (v) port infrastructure – including depths and high risk areas;
- (vi) capabilities and limitations of tugs, including legal aspects of towage;
- (vii) towing methods and hazards during towage operation; and

(viii) capabilities and limitations of other port services, including those of personnel.

(h) **Portable Pilot Units and Electronic Systems Training**

Complete training to ensure a satisfactory level of familiarity with Portable Pilot Units (PPUs) and electronic systems used in that port.

3.2.2 The Port Authority may apply to Transport for NSW to replace any element of Clause 3.2 of this Schedule with alternative training. The application must demonstrate to Transport for NSW that the alternative training results in an applicant achieving an equivalent level of skill and experience to that which would have been attained if the required training had been undertaken.

3.2.3 The Port Authority may apply to Transport for NSW and request that an applicant not be required to complete an element or elements of the training required by Clause 3.2 of this Schedule on the basis the applicant already possesses an equivalent level of skill and experience to that which would have been attained if the required training had been undertaken. The application must demonstrate to Transport for NSW that the applicant has the necessary relevant competencies.

3.3 Assessment

3.3.1 A pilot in training is to be assessed by the Port Authority following completion of initial training and prior to applying for a Marine Pilot's Licence. The assessment is to comprise a written, oral and practical examination in a manner determined by the Harbour Master on the elements of training specified in Clause 3.2.1 of this Schedule.

4. Maintenance of Standards

4.1 Continuation Training

4.1.1 Periodic Training

4.1.1.1 Up to date training is an important requirement to maintain and improve the proficiency of Marine Pilots. Therefore, in addition to experiential learning gained from undertaking scheduled acts of pilotage, following the award of a Marine Pilot's Licence a Marine Pilot is to undertake specific periodic training. This training is to include:

- Shiphandling
- Emergency scenarios and contingency procedures
- Risk management
- Human Factors
- Training which allows a Marine Pilot to be updated on the latest pilotage techniques and industry developments.
- Training for non-routine situations and increased workload
- Portable Pilot Unit (PPU), Instrument Pilotage
- Tug Familiarisation

4.1.1.2 These skills may be acquired and maintained through a combination of theoretical and practical training and may include the use of simulators and manned models.

- 4.1.1.3 The type and frequency of the training described in Clause 4.1.1.1 of this Schedule shall be determined by the Harbour Master, in consultation with the relevant Marine Pilot's Licence training committee, Check Pilots and in accordance with the Safety Management System, and shall be reported to Transport for NSW by the Port Authority in accordance with Clause 8 of this Code. The minimum interval for periodic training for contingency/emergency procedures, latest pilotage techniques and risk management should not exceed 3 years.

4.1.2 Additional Training

- 4.1.2.1 The type and frequency of additional training shall be determined by the Port Authority and reported to Transport for NSW in accordance with Clause 8 of this Code. Pilots shall be assessed by the Port Authority upon completion of their training.

4.1.3 Triggered Training and Assessment

- 4.1.3.1 A licenced Marine Pilot must undertake additional training when:
- (a) required by the Port Authority based on the performance or particular circumstance of the Marine Pilot; or
 - (b) the Marine Pilot self refers to the Port Authority; and
 - (c) the Port Authority deems it necessary.
- 4.1.3.2 The performance of all licenced Marine Pilots is to be checked, in the Pilotage Area for which the Marine Pilot is licenced, by a Check Pilot:
- (a) every 12 months; or
 - (b) when the Marine Pilot self refers to the Port Authority for assessment and it is deemed necessary by the Port Authority; or
 - (c) when deemed necessary by the Port Authority.
- 4.1.3.3 If a Marine Pilot, due to long term absence, has not during the preceding 4 months carried out pilotage within the Pilotage Port to which his or her licence applies, he or she must return to duties via an agreed plan approved by the Harbour Master and relevant pilotage port's training committee.
- 4.1.3.4 Following an incident or event, the pilot involved may be required to retrain and complete competency checks via an agreed plan approved by the Harbour Master and pilot training committee.
- 4.1.3.5 This Clause does not limit the Port Authority from requiring additional pilotage training or assessments to be carried out as deemed necessary.

4.2 Maintenance of Local Knowledge

- 4.2.1 The Port Authority is to have a procedure for keeping Marine Pilots informed of changes in the local environment that may have an impact on pilotage performance.
- 4.2.2 Licenced Marine Pilots should make every effort to keep themselves fully informed of changes in the local environment that may have an impact on pilotage performance.

4.3 Check Pilots and Supervising Pilots

4.3.1 Check Pilots

4.3.1.1 A Check Pilot must be:

- (a) a Marine Pilot holding an unrestricted licence for 3 years in the Pilotage Port in which the check is being conducted; and
- (b) qualified and have the necessary aptitude to perform the Check Pilot role by successfully completing a suitable training program; and
- (c) formally appointed as a Check Pilot by the Port Authority.

4.3.1.2 The Port Authority shall include in its procedures a requirement for a Check Pilot to carry out a minimum number of pilotage movements on a periodic basis within the Pilotage Port developed in accordance with the Safety Management System.

4.3.1.3 The role of the Check Pilot is to conduct initial licence checks for a pilot in training, and licence progression checks as set out in the Marine Pilot training plan for the relevant Pilotage Port. The role also includes periodic performance checks of licenced Marine Pilots during the conduct of pilotage. The purposes of such checks are to ensure:

- (a) procedures and protocols are followed; and
- (b) competency levels of Marine Pilots are being maintained; or
- (c) a Marine Pilot is fit to be issued with an upgraded licence.

4.3.1.4 A Check Pilot is to provide a verbal debrief and a written report in an approved format to the Marine Pilot as soon as practicable following the performance check.

4.3.1.5 Performance checks of Check Pilots can be carried out by other Check Pilots or by the Harbour Master for the relevant Pilotage Port.

4.3.2 Supervising Pilots

4.3.2.1 A supervising pilot must be, for the purpose of supervising pilots in training, an unrestricted pilot for the relevant Pilotage Port.

4.3.2.2 The role of a supervising pilot is to facilitate training requirements for pilots in training.

5. Restrictions

5.1 A Marine Pilot's licence may be issued with restrictions.

5.2 Where a restricted licence is held, the licence will be limited for use in accordance with the restrictions recorded on the licence.

6. Records

6.1 Pilots in training and licenced Marine Pilots must maintain a record of training and assessment.

- 6.2 A description of each element of training and assessment undertaken is to be recorded and the details endorsed by the licenced Marine Pilot, master or other person under whom the training or assessment is undertaken.
- 6.3 Training undertaken on a tug must be endorsed by the master of the tug.
- 6.4 The results of all assessments are to be recorded by the person undergoing assessment and endorsed by the Harbour Master on behalf of the Port Authority.
- 6.5 All pilotage training records are to be administered in line with the Port Authority's Organisational Records Policy requirements.

7. Maintaining a Certificate of Competency

- 7.1 The holder of a Certificate of Competency is not required to maintain the validity of that certificate once a Marine Pilot's Licence has been issued.

Schedule 2 – Marine Pilot Health Assessments

1. Preliminary

- 1.1 This Schedule describes the requirements for assessments of the health of Marine Pilots at the time of licensing and the duration of their employment as a Marine Pilot. Annexure 1 to this Code contains the Standard for Health Assessment of Marine Pilots (the Health Standard).
- 1.2 The Health Standard requires Marine Pilots to undergo a Health Assessment and a Physical Assessment prior to the time of initial licensing and periodically to ensure their fitness for duty.
- 1.3 The assessments are conducted for the issue, continuance, renewal, or reinstatement of marine pilotage licences in accordance with the requirements set out in this Code.
- 1.4 The holder of a Marine Pilot's Licence is not required by this Code to maintain the validity of any other health assessment certificate including his or her medical certificate required for a Master Certificate of Competency.
- 1.5 The Health Standard does not apply to holders of Marine Pilotage Exemption Certificates and Certificates of Local Knowledge. The holder of a Marine Pilot Exemption Certificate or a Certificate of Local Knowledge is required only to maintain the medical requirements for the holder's relevant Certificate of Competency.
- 1.6 The Port Authority of New South Wales appoints Authorised Health Professionals to conduct health assessments of Marine Pilots in line with the Health Standard.

2. Requirements and Conditions of the Regulation

- 2.1 The Regulation requires that a Marine Pilot's Licence should not be issued unless the applicant for the licence meets the health requirements set out in this Code.
- 2.2 It is a condition of each Marine Pilot's Licence that the holder of the licence must undergo any health assessment as required under this Code whether or not the holder of the licence has previously undergone similar assessments.

3. Types and Frequency of Assessment

- 3.1 **Initial Licensing Health and Physical Assessments:** Marine Pilots require a Health Assessment and Physical Assessment as a condition of initial licensing. The assessments are aimed at determining a pilot's fitness for duty based on the inherent requirements of pilotage (refer to Part C of the Health Standard – The Inherent Requirements of Pilotage).
- 3.2 **Periodic Health and Physical Assessments:** These assessments aim to identify health conditions or reduced physical capacity that may affect safe performance of piloting duties. They should be conducted for Marine Pilots according to the defined frequencies, from the time of initial licensing:

Type of assessment	Frequency
Health Assessment	<ul style="list-style-type: none"> • At initial licensing, then • Every five years to age 50, then • Every two years to age 60, then • Yearly thereafter
Physical Assessment	<ul style="list-style-type: none"> • At initial licensing, then • Every two and a half years to age 50, then • Yearly thereafter

The program of comprehensive Periodic Assessments should be maintained even if more frequent Triggered Health Assessments are performed for an individual's particular condition.

- 3.3 **Triggered Health Assessments:** This assessment overlays the scheduled Periodic Assessments and enables early intervention, appropriate management and timely monitoring of health problems or reduced physical capacity that are likely to affect safety. Referral for a Triggered Health Assessment may be prompted by a number of different circumstances. In turn, these circumstances will determine the nature and extent of the assessment required.

4. Standard for Health Assessment of Marine Pilots

The [Standard for Health Assessment of Marine Pilots \(NSW\) \(revised 28 November 2022\)](#) is located in Annexure 1 to this Code.

Schedule 3 – Marine Pilot Professional Conduct Standards

1. General

- 1.1 These Standards form a framework of personal and professional conduct and procedures for Marine Pilots. They are to be followed in conjunction with any standards, codes or instructions issued by the Port Authority.

2. Administrative

- 2.1 A Marine Pilot must not hold or acquire any financial interest likely to adversely affect the discharge of that Marine Pilot's duties.
- 2.2 Private interests must not interfere with any required availability for pilotage duties.
- 2.3 A Marine Pilot must not undertake pilotage duties while impaired by drugs or alcohol, as specified in the Act and the drug and alcohol program implemented by the Port Authority under Clause 4.3.1 of this Code. A Marine Pilot who is taking any form of medication should ensure that such medication will not affect the Marine Pilot's ability to pilot vessels safely and effectively.
- 2.4 A Marine Pilot must not undertake pilotage duties if through illness, fatigue or other circumstance the Marine Pilot considers he or she cannot perform those duties in a safe and effective manner.
- 2.5 A Marine Pilot must comply with all relevant occupational health and safety legislation.

3. Operational

- 3.1 A Marine Pilot must ensure that he or she is fully rested and fit for duty at the commencement of their rostered duty periods.
- 3.2 A Marine Pilot is to punctually attend pilotage duties as required during rostered periods of duty and be available for duty in accordance with the terms of any enterprise agreement, or as mutually agreed with the Port Authority employing the Marine Pilot in the absence of such agreement.
- 3.3 A Marine Pilot undertaking pilotage duties must maintain a correct master and Marine Pilot relationship and facilitate the mutual exchange of information between pilot and master as detailed in such guide publications as the International Chamber of Shipping (ICS) - "Bridge Procedures Guide" and the ICS, OCIMF, Intertanko "International Best Practice for Maritime Pilotage".
- 3.4 Notwithstanding the requirements of the master and the owner of a vessel under Part 8 Division 2 of the Act; when a vessel under pilotage has touched the ground, been in contact with any navigational aid, caused damage to any structure or collided or nearly collided with another vessel, the Marine Pilot should immediately report the occurrence to the Port Authority, and thereafter must remain available to assist in any required investigation until otherwise advised by the Port Authority.

- 3.5 A Marine Pilot, who observes any navigational aid to be defective or out of position or any other hazard to navigation, must report the observation as soon as practicable to the Port Authority.
- 3.6 A Marine Pilot who has been engaged to pilot a vessel and who has reasonable cause to believe the vessel is unsafe, should refuse to pilot that vessel and report the facts immediately to the Port Authority. Section 77 of the Act provides that a Marine Pilot may defer pilotage and cease attendance in such a vessel. For the purposes of this Code a vessel is defined as being unsafe if, because of:
- (a) the condition or equipment of the vessel; or
 - (b) the manner in which cargo or equipment on the vessel is stowed or secured; or
 - (c) the nature of the cargo; or
 - (d) the overloading of the vessel with personnel or cargo; or
 - (e) the number or qualifications of the crew; or
 - (f) any other reason

the operation of the vessel is a danger to human life, the vessel itself, other vessels, port infrastructure or the reputation of the Port Authority, Transport for NSW or the Minister.

4. Pilot Vessel

- 4.1 The master of a pilot vessel has command of that vessel at all times.
- 4.2 When conveying a Marine Pilot to a vessel for pilotage purposes, the master of the pilot vessel and the Marine Pilot must both agree as to the position and manner in which the vessel to be piloted is to be intercepted.

Schedule 4 – Marine Pilotage Exemption Certificate

1. Preliminary

- 1.1 This Schedule outlines how compliance with the requirements and conditions of the Regulation are achieved in regard to Marine Pilotage Exemption Certificates. It refers and applies to an applicant for a Marine Pilotage Exemption Certificate and a Pilot Exempt Master operating in any Pilotage Port.
- 1.2 This Schedule specifies the required elements of training for a Marine Pilotage Exemption Certificate.
- 1.3 The holder of a Marine Pilotage Exemption Certificate is required to maintain a valid Certificate of Competency for the vessel to which the Marine Pilotage Exemption Certificate relates.
- 1.4 The required elements for training and assessment are to be determined by the Port Authority in accordance with this Code and the management of risk through the Port Authority's Safety Management System.

2. Eligibility

2.1 Requirements and Conditions of the Regulation

- 2.1.1 The Regulation requires that a Marine Pilotage Exemption Certificate is not to be issued unless the applicant for the certificate:
 - (a) holds a Certificate of Competency that authorises the applicant to be a master of the vessel to which the application relates; and
 - (b) has satisfactorily completed the training required by this Code and passed an examination approved by the Port Authority; and
 - (c) provides evidence, in accordance with this Code, that the applicant is competent to carry out unsupervised movements of the vessel in the Pilotage Port to which the certificate applies to the satisfaction of the Harbour Master of that Pilotage Port; and
 - (d) meets the health requirements set out in the Certificate of Competency in respect of a master for the vessel to which the application relates; and
 - (e) is the master of the vessel to which the certificate relates.
- 2.1.2 It is a condition of each Marine Pilotage Exemption Certificate that the holder of the certificate:
 - (a) must satisfactorily complete any training as required under this Code whether or not the holder of the certificate has previously undergone similar training; and
 - (b) must hold a certificate of medical fitness as required by any regulations made under the Act for the Certificate of Competency held as a master of the vessel to which the certificate relates; and

- (c) must not move a vessel in the Pilotage Port for which the Marine Pilot Exemption Certificate is valid other than the vessel specified in the certificate; and
- (d) must not move a vessel in the Pilotage Port for which the Marine Pilot Exemption Certificate is valid if the holder becomes aware of any circumstance, condition or injury that might cast doubt on the holder's fitness to conduct such movements as are authorised by the certificate; and
- (e) must maintain the records required to be maintained by this Code; and
- (f) must comply with any direction given by the relevant Harbour Master; and
- (g) must comply with any port procedures published by the relevant Harbour Master, the Port Authority or the Minister.

2.2 Specialised Knowledge

2.2.1 An applicant for a Marine Pilotage Exemption Certificate must have current knowledge of the local environment that includes, but is not limited to, knowledge of:

- (a) the Pilotage Port and the Pilotage Area for which the application is being made, its physical geography and its effect on the manoeuvring of vessels;
- (b) local weather conditions and their effect on the manoeuvring of vessels;
- (c) navigation aids, including vessel traffic services and communications requirements;
- (d) port customs, protocols and security measures;
- (e) port infrastructure – including depths and high risk areas;
- (f) capabilities and limitations of tugs;
- (g) capabilities and limitations of other port services, including those of personnel; and
- (h) an understanding of the port vessel booking system.

2.2.2 Pilot exempt masters must keep themselves fully informed of changes in the local environment that may have an impact on pilotage.

3. Initial Training and Assessment

3.1 Initial Training

3.1.1 Training of a Pilot Exempt Master is the responsibility of the applicant.

3.1.2 A Pilot Exempt Master must undertake and complete such training and assessment as may be required by the Port Authority. This training may be limited to specific berths and the transits to/from such berths.

3.1.3 An applicant for a Marine Pilotage Exemption Certificate must have completed the following:

- (a) Induction
Complete induction training which includes shipping operations, the various risks within the port and the port's emergency response capability.
- (b) Passages
6 passages in and 6 passages out as master, or 4 passages as chief officer on the bridge and 4 passages (in and out) as master, within the previous 6 months in the Pilotage Port for which the application is being made, with a minimum of one half of these passages undertaken during the hours of darkness. No more than 2 of these passages (in and out) may be undertaken in any 24-hour period. All of these passages must be undertaken in the type of vessel for which the certificate will be valid.
- (c) Supervised pilotage
The applicant must satisfactorily complete all passages under supervision of a licensed Marine Pilot for the purpose of becoming familiar with the Pilotage Port and being able to competently pilot and handle a vessel in the Pilotage Port. The final supervised passage must be under check pilotage conditions and be assessed as satisfactory by the Check Pilot.
- (d) Training Requirement
The applicant must provide evidence of pilotage related training for the Pilotage Port and ship type which is assessed as satisfactory by the Harbour Master. This evidence will include:
 - (i) Copies of certificates noting satisfactory completion of relevant shiphandling, contingency procedure, training for non-routine situations and, where necessary, tug familiarisation training.

3.2 Assessment

- 3.2.1 An applicant for a Marine Pilotage Exemption Certificate is to be assessed by the Port Authority following completion of any training and prior to the award of a Marine Pilotage Exemption Certificate. The assessment is to comprise a written, oral and practical examination. The practical examination will be carried out by a Check Pilot under check pilotage conditions – see Clause 3.1.3(c) of this Schedule. The subject matter for assessment is to be determined by the Port Authority in consultation with the Harbour Master and pilot training committee.

4. Maintenance of Standards

4.1 Triggered Training and Assessment

- 4.1.1 A Pilot Exempt Master must undertake additional training when:
 - (a) required by the Harbour Master based on the performance or particular circumstance of the Pilot Exempt Master; or
 - (b) the Pilot Exempt Master self refers to the Harbour Master or the Port Authority and the Harbour Master deems it necessary.

- 4.1.2 The performance of a Pilot Exempt Master is to be assessed, in the Pilotage Area for which the Pilot Exempt Master is licenced, by a Marine Pilot when:
- (a) the exempt master has not completed 6 passages in and 6 passages out as master within the previous 12 months in the Pilotage Port for which the certificate has been issued and on the vessel for which the certificate has been issued. No more than 2 of these passages (in and out) may be counted in any 24-hour period; or
 - (b) when deemed necessary by the Port Authority or Harbour Master.
- 4.1.3 This Clause does not limit the Port Authority or the Harbour Master from requiring additional pilotage training or assessments to be carried out as deemed necessary.

4.2 Performance Checks

- 4.2.1 The performance of every Pilot Exempt Master who holds a valid Marine Pilotage Exemption Certificate shall be checked:
- (a) during a normal pilotage, in the Pilotage Area for which the Pilot Exempt Master is certificated, by a Check Pilot holding the qualifications and experience levels described in Schedule 1 of this Code; and
 - (b) during a discussion on local knowledge with the Harbour Master;
 - (c) at intervals not exceeding 12 months.

4.3 Maintenance of Local Knowledge

- 4.3.1 The Port Authority is to have a procedure for keeping Pilot Exempt Masters informed of changes in the local environment that may have an impact on pilotage.
- 4.3.2 Holders of Marine Pilotage Exemption Certificates should make every effort to keep themselves fully informed of changes in the local environment that may have an impact on pilotage.
- 4.3.3 Holders of Marine Pilotage Exemption Certificates must complete a minimum 6 passages in and 6 passages out as master within the previous 12 months in the Pilotage Port for which the certificate has been issued. No more than 2 of these passages (in and out) may be counted in any 24 hour period. All of these passages must be undertaken in the vessel for which the certificate is valid.

4.4 Risk Event Reporting

- 4.4.1 Pilot exempt masters must participate in risk event reporting. The Port Authority must have a mechanism whereby Pilot Exempt Masters can receive summaries of risk event reports and corrective actions to heighten their awareness of common risk situations.

5. Restrictions

- 5.1.1 The Regulation requires that a Marine Pilotage Exemption Certificate is not to be issued in respect of the following vessels:

- (a) a vessel the length of which exceeds 215 metres, unless approved by the Minister or the Port Authority; For the purposes of a tug and tow the length of the vessel is considered to be measured from the stem of the towing vessel to the stern of the tow.
- (b) a vessel with a single person bridge operation;
- (c) a vessel that is nuclear powered;
- (d) a vessel carrying dangerous or hazardous goods in bulk, unless approved by the Minister or the Port Authority;
- (e) a vessel or class of vessels that, in the opinion of the Minister or the Port Authority, poses a threat to the safety of life or port property;
- (f) any vessel determined by the Minister, by notice in writing given to the master or owner of the vessel, as a vessel for which a Marine Pilotage Exemption Certificate is not to be issued;
- (g) any class of vessel determined by the Minister, by order published on the NSW legislation website, as a class of vessel for which a Marine Pilotage Exemption Certificate is not to be issued.

6. Records

- 6.1 Pilot exempt masters must maintain a record of training and assessment.
- 6.2 A description of each element of training and assessment undertaken is to be recorded and the details endorsed by the licenced Marine Pilot, master or other person under whom the training or assessment was undertaken.
- 6.3 Training undertaken on a tug must be endorsed by the master of the tug.
- 6.4 The results of all assessments are to be recorded by the person undergoing assessment and endorsed by the Port Authority.
- 6.5 The Port Authority must maintain a record of each occasion an exempt master has exercised the Marine Pilotage Exemption Certificate.

Schedule 5 – Certificate of Local Knowledge

1. Preliminary

- 1.1 This Schedule outlines how compliance with the requirements and conditions of the Regulation are achieved in regard to Certificates of Local Knowledge. It refers and applies to an applicant for a certificate and a holder of a Certificate of Local Knowledge operating in any Pilotage Port.
- 1.2 The holder of a Certificate of Local Knowledge is required to maintain the Certificate of Competency for the type of vessel to which the certificate relates.
- 1.3 The required elements for training and assessment are to be determined by the Port Authority in accordance with this Code and the management of risk through the Port Authority's Safety Management System.

2. Eligibility

2.1 Requirements and Conditions of the Regulation

- 2.1.1 The Regulation requires that a Certificate of Local Knowledge is not to be issued unless the applicant for the certificate:
 - (a) holds a Certificate of Competency that authorises the applicant to be a master of the type of vessel to which the application relates; and
 - (b) has satisfactorily passed a Certificate of Local Knowledge examination approved by the relevant Harbour Master for the Pilotage Port; and
 - (c) provides evidence that the applicant is competent to carry out unsupervised movement of the type of vessel in the Pilotage Port to which the certificate relates to the satisfaction of the Harbour Master of that Pilotage Port; and
 - (d) meets the health requirements set out in the Certificate of Competency in respect of a master for the type of vessel to which the application relates.
- 2.1.2 It is a condition of each Certificate of Local Knowledge that the Certificate Holder:
 - (a) must satisfactorily complete any training as required under this Code whether or not the Certificate Holder has previously undergone similar training; and
 - (b) must hold a certificate of medical fitness as required by any regulations made under the Act for the Certificate of Competency held as a master of the type of vessel to which the certificate relates; and
 - (c) must not carry out any unsupervised movements in the Pilotage Port for which the certificate is valid if the holder becomes aware of any circumstance, condition or injury that might cast doubt on the holder's fitness to carry out such movements as are authorised by the certificate; and
 - (d) must maintain the records required to be maintained by this Code; and
 - (e) must comply with any direction given by the relevant Harbour Master; and

- (f) must comply with any port procedures published by the relevant Harbour Master, the Port Authority or the Minister.

2.2 Local Knowledge

2.2.1 An applicant for a Certificate of Local Knowledge is to demonstrate current knowledge of the local environment that includes, but is not limited to, knowledge of:

- (a) the Pilotage Port and Pilotage Area for which the application is being made, its physical geography and its effect on the manoeuvring of vessels;
- (b) local weather conditions and their effect on the manoeuvring of vessels;
- (c) navigation aids, including vessel traffic services and communications requirements;
- (d) port customs, protocols and security measures;
- (e) port infrastructure – including depths and high risk areas.

3. Training and Assessment

3.1 General

- 3.1.1 Training of a holder of a Certificate of Local Knowledge is to ensure competence to carry out unsupervised navigation within a Pilotage Port and is the responsibility of the certificate holder.
- 3.1.2 An applicant for a Certificate of Local Knowledge must undertake initial training as required by the Port Authority.
- 3.1.3 A holder of a Certificate of Local Knowledge must undertake periodic or additional training when:
 - (a) required by the Port Authority based on the performance or particular circumstance of the holder of a Certificate of Local Knowledge; or
 - (b) the holder of a Certificate of Local Knowledge self refers to the Port Authority, and the Port Authority deems it necessary.
- 3.1.4 Holders of a Certificate of Local Knowledge should make every effort to keep themselves fully informed of changes in the local environment that may have an impact on pilotage.

3.2 Renewal

- 3.2.1 The performance of a holder of a Certificate of Local Knowledge should be assessed by written and oral examination in the Pilotage Port by the Harbour Master when:
 - (a) five years has expired since the Certificate of Local Knowledge was issued;
 - (b) the holder of a Certificate of Local Knowledge has not during the preceding 12 months carried out navigation in the Pilotage Port to which his or her certificate applies; or

(c) as deemed necessary by the Port Authority.

3.2.2 This Schedule does not limit the Port Authority or Harbour Master from requiring any additional training or assessments to be carried out as deemed necessary.

4. Restrictions

4.1 The Regulation requires that a Certificate of Local Knowledge is not to be issued in respect of the following vessels:

- (a) a vessel the length of which exceeds 80 metres unless approved by the Minister or the Port Authority; For the purposes of a tug and tow the length of the vessel is considered to be measured from the stem of the towing vessel to the stern of the tow
- (b) a vessel that is nuclear powered;
- (c) a vessel carrying dangerous or hazardous goods in bulk, unless approved by the Minister or the Port Authority;
- (d) a vessel or class of vessels that, in the opinion of the Minister or the Port Authority, poses a threat to the safety of life or port property.

5. Records

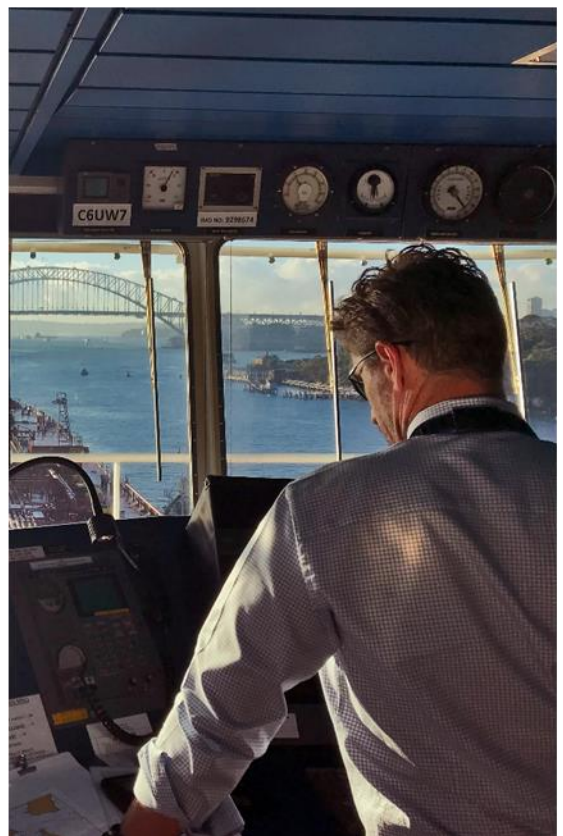
5.1 The holder of a Certificate of Local Knowledge must maintain a record of training and assessment. A description of each element of training and assessment undertaken is to be recorded and the details endorsed by the licensed Marine Pilot, master or other person under whom the training or assessment was undertaken.

Annexure 1: Standard for Health Assessment of Marine Pilots (NSW)

STANDARD

for Health Assessment of Marine Pilots (NSW)

November 2022



Copyright: Transport for NSW

Standard for Health Assessment of Marine Pilots (NSW) 2022

Acknowledgement:

Based on NTC National Standard for Health Assessment of Rail Safety Workers 2017 (with permission) and informed by amendments to the commercial vehicle driver licensing standards (Assessing Fitness to Drive 2022).

Note: The National Standard for Health Assessment of Rail Safety Workers is subject to periodic review. Changes will be considered for relevance to the Standard for Health Assessment of Marine Pilots (NSW) as they occur and will be incorporated if appropriate to the inherent requirements of the marine pilot's task.

FOREWORD

The revised *Standard for Health Assessment of Marine Pilots (NSW)* (the Standard) represents a significant step in the continuous improvement of safety in shipping in NSW.

The Standard reflects contemporary medical knowledge and current understanding of the impact of pilots' health and fitness on safe working performance, while addressing the deficiencies identified in recent safety investigations. Contemporary anti-discrimination and privacy principles legislated in Commonwealth of Australia and NSW have been taken into account.

This revision of the Standard is the result of extensive research, audit findings and input from a wide range of government, industry and medical stakeholders. The most significant development has been the establishment of a separate and more frequent Physical Assessment to support pilots in maintaining the capacity to undertake the physically challenging task of pilot ladder transfers.

Assessments of marine pilots' health and physical fitness against this Standard are conducted by Authorised Health Professionals who have been authorised by Port Authority of NSW and demonstrate knowledge of inherent requirements of marine pilotage, the Standard and the health assessment procedures.

The revised Standard consists of five parts:

- **Part A – Introduction** This section explains how the Health Standard fits within the regulatory scheme of the Marine Safety Act 1998, its associated Regulations and the NSW Marine Pilotage Code.
- **Part B – The Health Assessment System** This part describes the overall health and physical assessment system, fitness for duty categories, reporting framework and quality control. The section specifies timing and frequency of health and physical assessments.
- **Part C – The Inherent Requirements of Pilotage** This section explains the inherent requirements of marine pilots' tasks and the health attributes required to perform these tasks. This forms the basis of the Health Assessment Standard.
- **Part D – Procedures for Authorised Health Professionals** Part D provides guidance to Authorised Health Professionals for conducting the health assessments and physical assessments of marine pilots. It provides an overview of the health assessment procedures, including communication procedures and record keeping.
- **Part E – Assessment and Management of Health Conditions** This section is for use by Authorised Health Professionals. It describes the medical criteria to be applied for judging fitness for duty.

Transport for NSW acknowledges significant contribution made by Dr Bruce Hocking and Ms Fiona Landgren in leading the project and revising the Standard. Transport for NSW thanks the Port Authority of NSW, NSW marine pilots, health professionals and other representatives who generously participated in the working group and provided valuable input.

Matt Fuller
Deputy Secretary, Regional and Outer Metropolitan
Transport for NSW

ACKNOWLEDGEMENTS

The contributions of the following people and organisations are gratefully acknowledged:

National Transport Commission

Consultants – Project Health

Ms Fiona Landgren, Principal Consultant

Dr Bruce Hocking (Occupational Physician)

Transport for NSW

Port Authority of New South Wales

NSW Marine Pilotage Code Review Working Group

CONTENTS

PART A – INTRODUCTION	10
1. Purpose and status	10
2. Legislative basis and interfaces	10
2.1 Work Health and Safety legislation	11
2.2 Anti-discrimination legislation	12
2.3 Privacy legislation	12
3. Risk management approach	13
4. Application and scope	14
5. Development and maintenance	15
6. Responsibilities for Standard implementation	15
7. Structure of the Standard	16
PART B – THE HEALTH ASSESSMENT SYSTEM	17
8. Types of assessment	17
9. Timing and frequency of assessments	18
9.1 Frequency of Periodic Assessments	18
9.2 Triggered Assessments	19
10. Standard reporting framework - Fitness for duty categories	20
11. Authorised Health Professionals	26
11.1 Appointment and management of Authorised Health Professionals	26
11.2 Responsibilities of Authorised Health Professionals	26
12. Management of health information	27
12.1 Primary purpose	28
12.2 Collection of health information	29
12.3 Use and disclosure of information: the “need to know”	29
12.4 Retention and security of information	30
12.5 Health assessment forms (see also Section 18)	31
13. Port Authority scheduling and management of assessments	32
14. Policy and program interfaces	33
14.1 Drug and alcohol controls	34
14.2 Injury management, sick leave, return to work and rehabilitation	34
14.3 Incident management	34
14.4 Employee assistance programs	34
14.5 Fatigue management	35

14.6	Health promotion and health surveillance.....	35
15.	Quality assurance and control.....	35
15.1	General requirements	35
15.2	Nature and extent of quality control system.....	36
PART C – THE INHERENT REQUIREMENTS OF PILOTAGE	38	
16.	Introduction	38
16.1	Risk exposures	39
17.	The inherent requirements (tasks) of pilotage	39
PART D – PROCEDURES FOR AUTHORISED HEALTH PROFESSIONALS	46	
18.	Appointments, forms and supporting documentation	48
19.	Tests required prior to attending assessment	50
20.	Facilities and equipment	51
21.	Orienting the pilot	51
22.	Reviewing the Pilot questionnaire (Pink form).....	52
23.	Clinical assessments	52
24.	Additional tests and marine specific resources.....	53
25.	Specialist referral	54
26.	Informing and counselling the pilot	54
27.	Communicating with the pilot’s general practitioner and other health professionals	55
28.	Reporting to the Port Authority	55
29.	Record keeping	56
PART E – ASSESSMENT & MANAGEMENT OF HEALTH CONDITIONS.....	57	
30.	Introduction and general considerations.....	57
30.1	Fatigue.....	58
30.2	Pregnancy.....	60
30.3	Prescription and over-the-counter (OTC) medications	63
31.	Blackouts	66
31.1	Relevance to marine pilots	66
31.2	General assessment and management guidelines.....	66
31.3	Medical criteria.....	68
32.	Cardiovascular fitness and diseases	70
32.1	Relevance to marine pilots	70
32.2	General assessment and management guidelines.....	70
32.3	Medical criteria.....	82
33.	Diabetes	101

33.1	Relevance to marine pilots	101
33.2	General assessment and management guidelines.....	101
33.3	Medical criteria.....	108
34.	Hearing.....	111
34.1	Relevance to marine pilots	111
34.2	Noise exposure.....	111
34.3	General assessment and management guidelines.....	111
34.4	Medical criteria.....	114
35.	Musculoskeletal conditions (including balance, predicted VO₂ max and BMI)	115
35.1	Relevance to marine pilots	115
35.2	Physical Assessment.....	115
35.3	Other musculoskeletal conditions/considerations	128
35.4	Medical criteria.....	129
36.	Neurological conditions	131
36.1	Relevance to pilotage	131
36.2	General assessment and management guidelines.....	131
36.3	Dementia and Mild Cognitive Impairment (MCI)	132
36.4	Seizures and epilepsy.....	135
36.5	Balance and vestibular disorders.....	143
36.6	Other neurological conditions	146
37.	Psychiatric conditions	157
37.1	Scope and interfacing programs.....	157
37.2	Relevance to marine pilots	158
37.3	General assessment and management guidelines.....	160
37.4	Medical criteria.....	163
38.	Respiratory diseases	168
38.1	Relevance to marine pilots	168
38.2	General assessment and management guidelines.....	168
38.3	Medical criteria.....	168
39.	Sleep disorders	170
39.1	Relevance to marine pilots	170
39.2	General assessment and management guidelines.....	171
39.3	Medical criteria.....	176
40.	Substance misuse and dependence	180
40.1	Scope and definitions	180
40.2	Interface with drug and alcohol management programs.....	181
40.3	Relevance to pilotage	183
40.4	General assessment and management guidelines.....	184
40.5	Medical criteria.....	186

41. Vision and eye disorders.....	193
41.1 Relevance to marine pilots	193
41.2 General assessment and management guidelines.....	193
41.3 Medical criteria.....	196
APPENDICES	202
Appendix 1. Detailed description of inherent requirements	202
Appendix 2. Model forms	210
1. Forms for conduct of Health Assessments	211
2. Forms for conduct of the Physical Assessments	234
Appendix 3. Procedures for the appointment and management of Authorised Health Professionals.....	252

Figures

Figure 1. Legislative context.....	11
Figure 2. The main tasks for pilotage – on the bridge and dis/embarking using a pilot rope ladder	13
Figure 3. Health and physical assessments supporting fitness for duty of marine pilots* ..	20
Figure 4. Reporting framework for Health Assessment (the Physical Assessment follows similar principles, refer Section 35 Musculoskeletal conditions).....	23
Figure 5. Relationships and flow of information in the conduct of health assessments for marine pilots	28
Figure 6. Use of health assessment forms (Pre-employment and Periodic Assessments)	32
Figure 7. Interfacing health and human resources policies/programs	33
Figure 8. The main tasks for pilotage - on the bridge and dis/embarking using pilot rope ladder	41
Figure 9. The conceptual relationship between Port Authority, AHP–Physiotherapist and AHP–Medical.....	46
Figure 10. Conducting a marine pilot health assessment for fitness for duty / licensing	47
Figure 11. Flow of forms for a Periodic Physical Assessment (conducted before the Health Assessment).....	49
Figure 12. Flow of forms for a Periodic Health Assessment (conducted after Physical Assessment).....	50
Figure 13. A bridge simulator (Launceston, Tasmania).....	53
Figure 14. A scale model for assessing pilotage skills (Port Ash, Newcastle).....	54
Figure 15. Management of blackouts in marine pilots	67
Figure 16. Australian cardiovascular risk charts	73
Figure 17. Management of cardiac risk level (CRL)	74
Figure 18. Bruce protocol nomogram for men and women	75
Figure 19. Male and female VO ₂ max norms.....	77
Figure 20. Management of high blood pressure	81

Figure 21. Management of diabetes	106
Figure 22. Hearing assessment for marine pilots	113
Figure 23. Musculoskeletal system: inherent requirements and medical criteria for climbing up or down pilot ladder	116
Figure 24. Decision flow chart for Physical Assessment	118
Figure 25. Body Mass Index (BMI) nomogram	120
Figure 26. Decision flow chart for BMI Assessment	121
Figure 27. Grip strength test using Jamar device	121
Figure 28. Normative data for hand grip strength (in kg) (Australian fitness norms)	122
Figure 29. Romberg test	122
Figure 30. Step test for aerobic capacity	123
Figure 31. Male and female VO ₂ max norms	124
Figure 32. Trunk lift test	125
Figure 33. Hover test	125
Figure 34. Ropes test for upper body strength and grip strength (Harden, 2016)	126
Figure 35. Step up test	127
Figure 36. Jump down test	128
Figure 37. Overview of management of pilots following seizure	136
Figure 38. Management of pilots' psychological health	158
Figure 39. Sleep disorder assessment and management	172
Figure 40. Organisational and medical management of drug and alcohol misuse / dependence in marine pilots	182
Figure 41. Visual acuity (far vision) requirements for marine pilots	194

Tables

Table 1. Types of health assessments conducted for marine pilots	18
Table 2. Frequency of periodic Health and Physical Assessments for marine pilots	19
Table 3. Health assessment outcome categories for marine pilots – Interpretation for recruitment, ongoing fitness for duty and licensing	24
Table 4. Audit points for quality control of marine pilot health assessment	36
Table 5. The inherent requirements of marine pilotage, the associated health attributes and assessment.	42
Table 6. Timing and frequency of Health Assessments and Physical Assessments	48
Table 7. Changes and complications associated with pregnancy that may be relevant to pilotage	60
Table 8. Medical criteria for marine pilots – Blackouts	68
Table 9. Minimum non-working periods post cardiovascular events or procedures	82
Table 10. Medical criteria for marine pilots – Cardiovascular fitness and diseases	84
Table 11. Medical criteria for marine pilots – Diabetes	108
Table 12. Medical criteria for marine pilots – Hearing	114
Table 13. Medical criteria for marine pilots - Musculoskeletal conditions	129

Table 14.	Medical criteria for marine pilots – Dementia and MCI.....	134
Table 15.	Medical criteria for marine pilots – Seizures and epilepsy.....	140
Table 16.	Medical criteria for marine pilots – Vestibular disorders.....	145
Table 17.	Medical criteria for marine pilots – Other neurological disorders.....	149
Table 18.	Potential impairments associated with various psychiatric conditions.....	159
Table 19.	Medical criteria for pilots – Psychiatric disorders.....	164
Table 20.	Medical criteria for marine pilots – Respiratory diseases	169
Table 21.	Medical criteria for marine pilots – Sleep disorders.....	177
Table 22.	Medical criteria for pilots – Substance misuse and dependence.....	187
Table 23.	Medical criteria for marine pilots – Vision and eye disorders	197

Boxes

Box 1.	Clarke hypoglycaemia awareness survey (Clarke, 1995)	107
Box 2.	Speech discrimination in noise test	112
Box 3.	Checklist for neurological disorders	132
Box 4.	Use and scoring of the K10 Questionnaire for anxiety/depression.....	165
Box 5.	Epworth Sleepiness Scale.....	173
Box 6.	AUDIT Questionnaire	188
Box 7.	Test Procedure for the Holmes-Wright Lantern Type B	199

PART A – INTRODUCTION

This section of the Standard explains:

- the purpose and status of the Health Assessment Standard for Marine Pilots;
- the legislative basis of the Standard and the interfaces with other legislative requirements related to the health and safety of marine pilots;
- the risk management approach on which the Standard is based;
- the process of development and maintenance;
- the application and scope of the Standard;
- the broad responsibilities for Standard implementation; and
- the structure of the Standard document.

1. Purpose and status

Marine pilots are safety critical workers, which means their actions or inactions may lead directly to a serious incident affecting the public or the maritime environment. The health and fitness of marine pilots is therefore an important consideration for public safety, property, economic prosperity, and the environment, as well as for the work health and safety of themselves and their fellow workers.

The Standard, developed under the Marine Safety Regulation 2016¹, requires the Port Authority of New South Wales (the Port Authority) to implement a system of health assessments to ensure pilots' fitness for duty. The Standard sets out the detailed requirements, including medical and administrative procedures, and the medical criteria for determining fitness for duty.

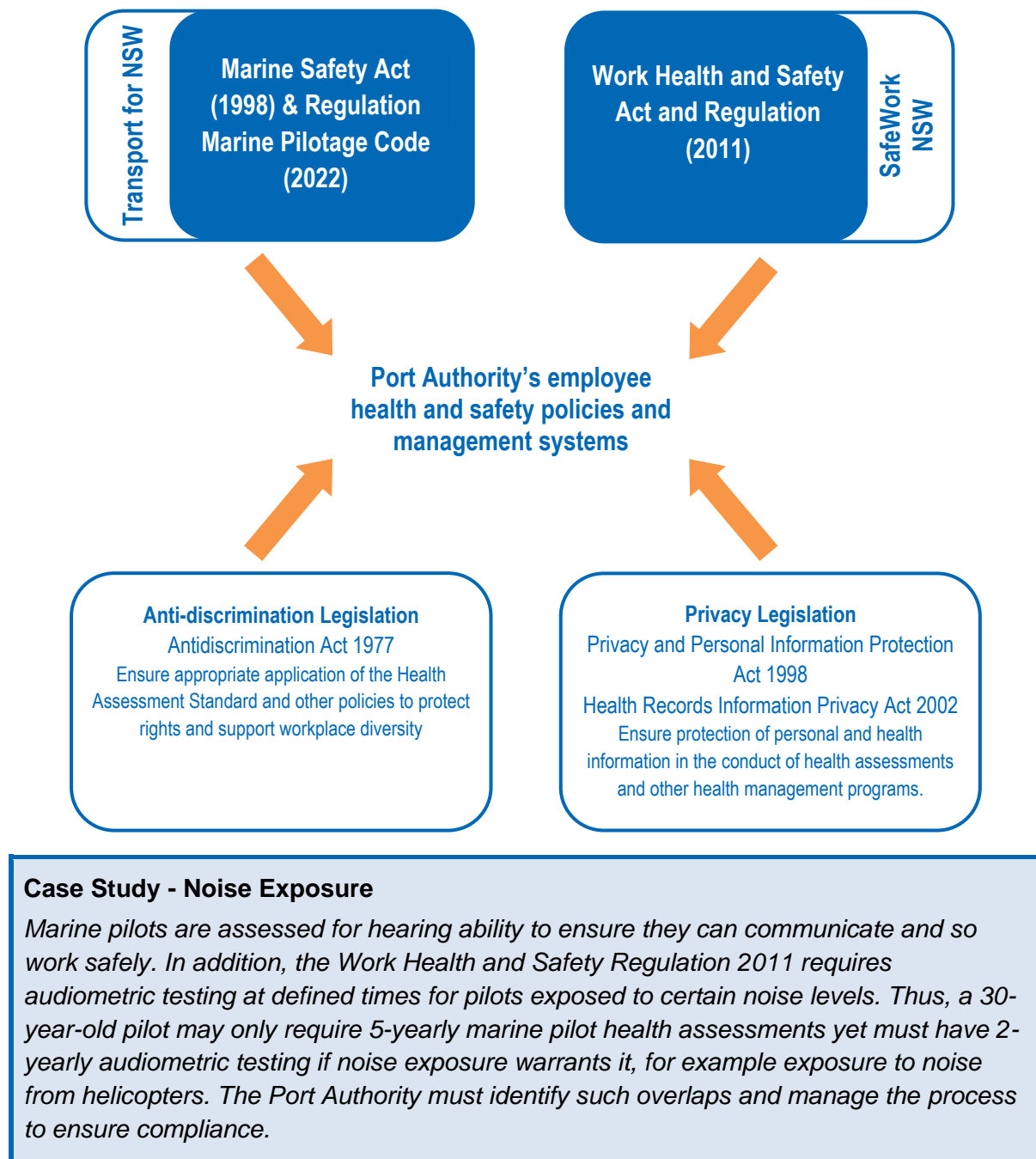
Health assessments are one aspect of an integrated port operations risk management system aimed at achieving safety in the maritime environment.

2. Legislative basis and interfaces

The Standard forms part of Schedule 2 of the NSW Marine Pilotage Code which is authorised under the Marine Safety Regulation 2016. Applicants for a pilot's licence must comply with the health requirements of the Pilotage Code, and licence holders must also comply with ongoing training requirements in the Code. Various other legislation is relevant to the application and implementation of marine safety, as outlined below and shown in Figure 1.

¹ Marine Safety Regulation 2016 (NSW) under the Marine Safety Act 1998
<https://legislation.nsw.gov.au/view/pdf/asmade/sl-2016-308>

Figure 1. Legislative context



2.1 Work Health and Safety legislation

Work Health and Safety (WHS) legislation² imposes a general duty of care on the Port Authority and marine pilots regarding risk management and therefore must be considered together with safety obligations under the *Marine Safety Act*³ and the NSW Marine Pilotage

² Work Health and Safety Act 2011 as at 27 May 2022

http://www.austlii.edu.au/au/legis/nsw/consol_act/whsa2011218/ [accessed 1 June 2022]

³ Marine Safety Act 1998, as at 5 May 2021

http://www.austlii.edu.au/au/legis/nsw/consol_act/msa1998145/ [accessed 1 June 2022]

Code⁴. The focus of the Standard is the assessment of health and fitness to perform the pilotage task.

The Standard addresses requirements to ensure the pilot can safely and properly undertake their duties. It does not include or replace health monitoring required under WHS legislation. For example, there are WHS requirements for occupational exposure to noise (see case study above), lead and asbestos. These should be addressed by the Port Authority and should interface with the health assessment system as required.

2.2 Anti-discrimination legislation

Anti-discrimination legislation⁵ has been considered in the development of the Standard and is an ongoing consideration for implementation by the Port Authority. For example:

- The health and fitness assessments and medical criteria as defined in the Standard are guided by risk assessment. They focus on inherent job requirements (refer [Part C. Inherent requirements of pilotage](#)), not peripheral requirements.
- The Standard identifies circumstances where practical tests are required to demonstrate that a condition prevents the pilot from performing the required piloting tasks, for example through practical tests for hearing, neuropsychological conditions or musculoskeletal capacity.
- The Standard draws on validated tests with a clear rationale in relation to the pilotage task.
- The health and fitness requirements at entry are the same as those assessed periodically during employment.
- The Standard incorporates the option for job modification where feasible.

2.3 Privacy legislation

In administering and conducting marine pilots' health assessments, the Port Authority and Authorised Health Professionals must ensure compliance with the Health Privacy Principles⁶ and must ensure that health records are managed and stored in line with the *Health Records and Information Privacy Act 2002*⁷ and its associated Regulation. Provisions for these specific requirements are described in [Section 12 Management of health information](#).

⁴ New South Wales Marine Pilotage Code, Revised 2022

⁵ Anti-Discrimination Act 1977 No 48 <https://legislation.nsw.gov.au/view/html/inforce/current/act-1977-048>

⁶ Health Records Information Privacy Act 2002 No 71, Schedule 1 Health Privacy Principles <https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1998-133#pt.2> [accesses 1 June 2022]

⁷ Health Records Information Privacy Act NSW, 2002 <https://legislation.nsw.gov.au/view/html/inforce/current/act-2002-071> [accessed 1 June 2022]

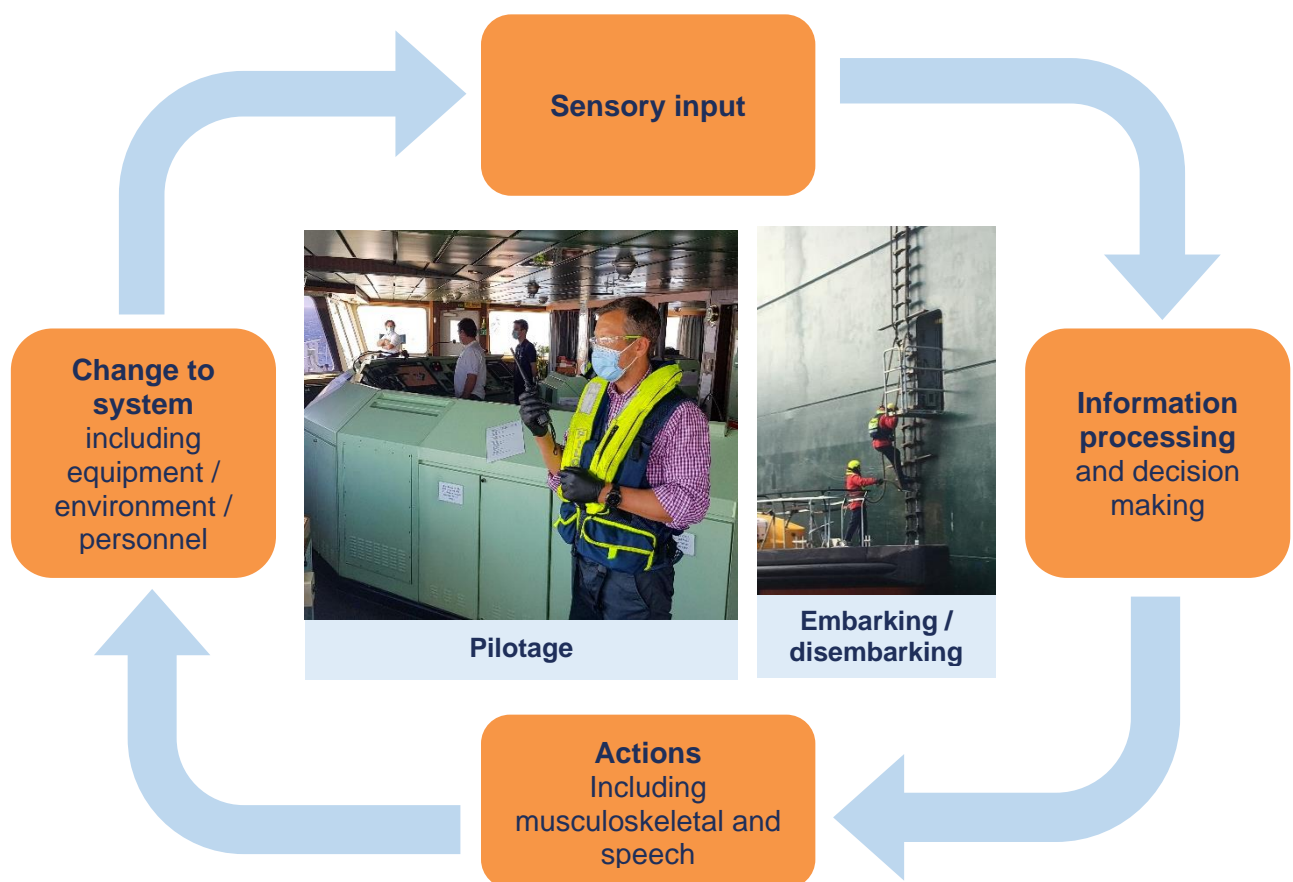
3. Risk management approach

The requirements for marine pilot health assessments have been determined by a risk management approach, which ensures the level and frequency of health assessments conducted is commensurate with the risk associated with the tasks performed. Health assessment standards cannot be simply set at the highest level for safety's sake.

Figure 2 shows the ergonomics of the marine pilot's job and provides a framework for understanding and applying a risk management approach to health assessments. It shows that information is gained about the pilotage task by the senses (mainly vision and hearing and balance); the information is then processed by the brain (cognition, or 'situational awareness') and decisions are made that are then put into effect by the musculoskeletal system to alter the operation of the system. This cycle rapidly repeats. These processes take place within the operational environment of pilotage.

Figure 2. The main tasks for pilotage – on the bridge and dis/embarking using a pilot rope ladder

a) on the bridge the pilot, on left, is navigating and giving orders to the master and helm; b) the pilot is about to ascend the pilot ladder from the deck of the cutter.



The aim of the health risk management process is to:

- identify what could go wrong in the case of physical or psychological ill health;
- assess the consequences; and
- establish appropriate controls for the risks associated with ill health.

The health risk management process focuses on a consideration of the extent to which the pilot's physical or psychological health could contribute to a serious incident that may result in:

- the death of a person (member of public, other workers or self); or
- incapacitating injury to a person (member of public, other workers or self); or
- a collision or allision involving a ship; or
- any other occurrence that results in significant property damage.

Health assessments are one approach to treating the risk of serious incidents and the risk to individual safety, thus a mix of engineering, administrative and health assessment measures is required. In determining the health assessment requirements of pilots, consideration has been given to the operational and engineering environment, since overall risk management significantly determines the human attributes that are required for safety.

4. Application and scope

Health assessments should be conducted at various points during a marine pilot's employment to ensure they meet the level of health and fitness required to perform the inherent requirements and demands of their position (refer [Part C – Inherent requirements of pilotage](#)).

This Standard is used as a basis for all health assessments conducted to assess fitness for duty of marine pilots including:

- at initial licensing to confirm that the health and fitness of an applicant is suited to the tasks to be performed;
- periodically during employment to monitor the pilot's health and detect conditions that might affect safety and delivery of service; and
- as required between scheduled periodic assessments:
 - to monitor conditions that might impact on fitness for duty;
 - to determine fitness for duty following illness, injury or extended sick leave; and
 - to address concerns about the pilot's health that may arise during their employment.

The Standard focuses on medical and physical fitness to perform the inherent requirements of piloting duties. It does not cover other work health and safety matters such as work exposures, nor does it cover aspects such as fatigue or critical incident management, although the interfaces with these are recognised (refer to [Section 14 Policy and program interfaces](#))

The Standard does not apply to holders of Marine Pilotage Exemption Certificates and Certificates of Local Knowledge.

5. Development and maintenance

Development and maintenance of the Standard is the responsibility of Transport for NSW as delegate for the Minister. The development and review are undertaken in consultation with the Port Authority, as well as pilots, unions and medical experts.

This Standard is modelled on the medico-legal framework contained in the *National Standard for Health Assessment of Rail Safety Workers* (National Transport Commission, 2017) and has been adapted where appropriate to address the specific inherent requirements and risks of marine pilotage. This enables some uniformity in standards and systems across various safety critical industries. The Standard also draws on changes made during the 2021 review of the driver licensing standards, *Assessing Fitness to Drive* (National Transport Commission, 2022).

Evidence has been sought regarding the impact of health on marine pilotage. While there is limited research in this area, a systematic review published in 2015 provides a useful overview (Main and Chambers, 2015).

Where contributing professional organisations and experts have provided more current references to support changes to the Standard, these have been incorporated. Where evidence was lacking, expert opinion from members of specialist medical colleges and other health professional organisations provides the basis for the Standard.

The Standard is reviewed periodically to ensure it aligns with developments in medical management and changes in the inherent requirements of pilotage.

6. Responsibilities for Standard implementation

The NSW Marine Pilotage Code outlines how the Port Authority should comply with requirements for marine pilot licences and pilotage. As the employer and licensing authority for marine pilots (under delegation from the Minister for Transport), the Port Authority has a responsibility to protect the safety of the public. This includes a responsibility to ensure that the health and fitness of pilots is monitored and does not jeopardise marine safety. The Port Authority is therefore responsible for the overall implementation of the Standard as described in this document. The final decision regarding fitness to hold a pilot licence rests with the Port Authority.

The Minister for Transport issues the Port Authority with a Port Safety Operating Licence (PSOL). The PSOL sets out performance standards for a range of safety functions, including marine pilot licensing. Transport for NSW plays an active role in monitoring the effectiveness of the PSOL through its participation in formal auditing of the Port Authority (refer [Section 15 Quality Assurance and Control](#)).

Details of these responsibilities, and responsibilities of pilots and Authorised Health Professionals are provided elsewhere in this Standard and in Port Authority procedures.

7. Structure of the Standard

The Standard comprises the following parts:

- A. Introduction:** A description of the purpose, legal basis, scope and development of the Standard, as well as responsibilities for implementation.
- B. The Health Assessment System:** A description of the overall health assessment system and the requirements for application and implementation.
- C. The Inherent Requirements of pilotage:** A summary description of the inherent requirements and health attributes which form the basis of the assessments and the medical criteria. [Appendix 1](#) includes a detailed narrative and photographic description of the inherent requirements.
- D. Procedures for Authorised Health Professionals:** A description of the processes and procedures for managing health assessments for marine pilots. It is intended mainly as a reference for examining health professionals. The Port Authority should develop procedures to support conduct of the administrative aspects.
- E. Assessment and management of health conditions:** Detailed chapters addressing the main health conditions likely to impact on fitness for duty. Each chapter describes the relevance of the health condition to pilotage, the assessment and management of the conditions and the specific medical criteria for determining fitness for duty.

The appendices also include model forms (refer [Appendix 2](#)) and procedures for appointing and managing Authorised Health Professionals ([Appendix 3](#)).

References

Main LC, Chambers TP. Factors affecting maritime pilots' health and well-being: a systematic review. *Int Marit Health*. 2015;66(4):220-32.

National Transport Commission. National Standard for Health Assessment of Rail Safety Workers, 2017 <https://www.ntc.gov.au/codes-and-guidelines/national-standard-health-assessment-rail-safety-workers> [accessed 1 June 2022]

National Transport Commission. Assessing Fitness to Drive 2020-21 review, Project Report February 2022. https://austroads.com.au/_data/assets/pdf_file/0033/473595/AFTD-2022_Final-report.pdf [accessed 12 July 2022]

PART B – THE HEALTH ASSESSMENT SYSTEM

This section describes the features, rationale and management of the health assessment system, including:

- the **types of assessment** required to determine a pilot's fitness for duty;
- the **timing and frequency** of these assessments during a pilot's employment;
- the **fitness for duty categories** used to define the outcomes of the assessments and guide management of the pilot;
- the requirements for **authorisation of health professionals** to conduct the assessments;
- the requirements for **managing health information**, including requirements associated with privacy legislation;
- how the health assessment **system interfaces** with other policies and programs relevant to marine pilots; and
- **quality assurance/control** in relation to the health assessment system.

8. Types of assessment

Risk assessment of the pilotage task has led to the establishment of two types of health assessment:

- **Health Assessment** aimed at identifying health conditions or health risks that may impact on the safe performance of the pilotage task.
- **Physical Assessment** aimed at determining if the pilot has adequate physical capacity to safely conduct ship transfers via the pilot ladder.

Table 1 summarises the features of these two assessments.

Note, assessments may be conducted only by Authorised Health Professionals (as detailed in [Section 11](#)). Instructions for Authorised Health Professionals conducting the assessments are contained in Part D and E of the Standard and reflected in the forms contained in [Appendix 2](#). The conduct and interfacing of these two assessments is described further below.

Table 1. Types of health assessments conducted for marine pilots

Physical Assessment	Health Assessment
<ul style="list-style-type: none">• Screening Questionnaire to determine fitness to undertake the assessment and physical fitness related information• Functional tests to establish fitness to undertake ship transfers via the pilot ladder• Results of the Physical Assessment feed into the Health Assessment	<ul style="list-style-type: none">• Health Questionnaire• Medical history• Vision and hearing assessment• Consideration of the outcomes of the Physical Assessment• Comprehensive clinical examination including physical and psychological aspects and a Cardiac Risk Level

9. Timing and frequency of assessments

Health and physical assessments for marine pilots are further defined in terms of their timing, in which:

- **Initial Licensing Assessments** are conducted to confirm that a marine pilot candidate is medically and physically suited to the tasks to be performed;
- **Periodic Assessments** are conducted to monitor the marine pilot's health and fitness during employment to detect health conditions or a decline in physical fitness that might affect safety; and
- **Triggered Assessments** may be initiated at any time between Periodic Assessments to enable a timely response to concerns about the pilot's health or fitness.

Figure 3 overleaf shows how the timing of health and physical assessments work together to support ongoing fitness for duty.

9.1 Frequency of Periodic Assessments

Periodic Assessments aim to identify health conditions or decline in physical fitness that may affect safe performance of piloting duties. The frequencies of the Health and Physical Assessments are shown in Table 2 and reflect the fact that chronic medical conditions increase gradually with age, while physical fitness may decline more rapidly, and not necessarily associated with age.

When the requirement for a Periodic Physical Assessment coincides with the timing of a Periodic Health Assessment (for example every 5 years for pilots up to age 50), the results of the Physical Assessment should be integrated into the findings of the Health Assessment so that an overall assessment of the pilot's health can be made.

The program of comprehensive Periodic Assessments should be maintained even if more frequent Triggered Health Assessments are performed for an individual's particular condition, as described below.

Table 2. Frequency of periodic Health and Physical Assessments for marine pilots

Type of assessment	Frequency
Health Assessment	<ul style="list-style-type: none"> • At initial licensing, then • Every five years to age 50, then • Every two years to age 60, then • Yearly thereafter
Physical Assessment	<ul style="list-style-type: none"> • At initial licensing, then • Every two and a half years to age 50, then • Yearly thereafter

9.2 Triggered Assessments

Triggered Assessments overlay the scheduled Periodic Assessments and enable early intervention, appropriate management and timely monitoring of health problems or decline in physical fitness that are likely to affect safety.

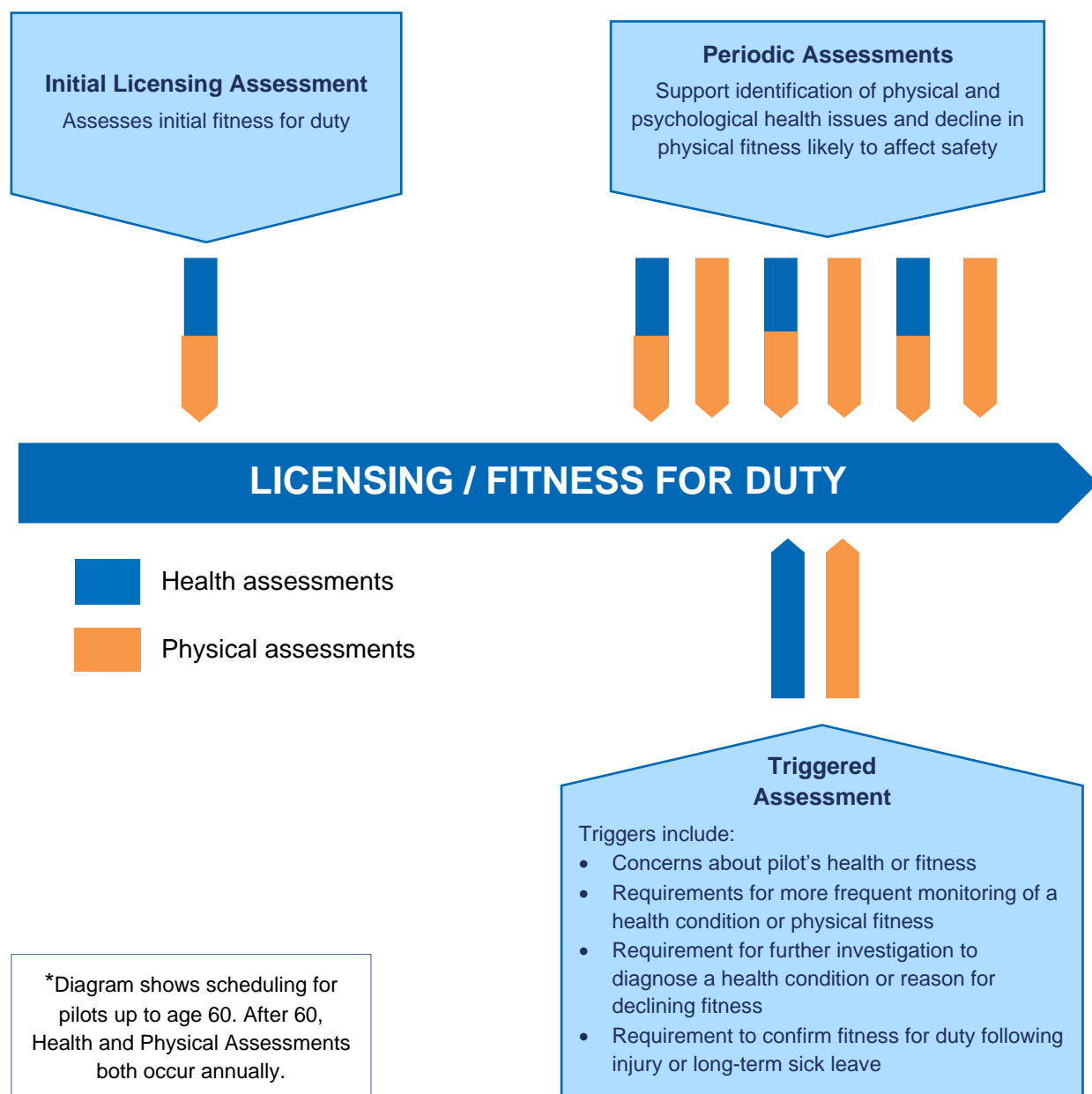
Referral for a Triggered Assessment (Health or Physical Assessment) may be prompted by a relevant Authorised Health Professional, the Port Authority or the pilot themselves.

Examples of triggering circumstances include:

- When an Authorised Health Professional recommends more frequent review than required under the normal Periodic Assessment schedule due to the need to investigate or monitor a health condition.
- When there are concerns about the pilot's health that may be indicated by recurrent absenteeism, repeated incidents, and recent traumatic events.
- When the pilot is concerned about their health or about the impact of treatment on their ability to perform their work safely.
- When fitness for duty needs to be confirmed following leave due to illness or injury.

The following section also shows how Triggered Assessments are utilised in relation to the fitness for duty reporting categories.

Figure 3. Health and physical assessments supporting fitness for duty of marine pilots*



10. Standard reporting framework - Fitness for duty categories

Fitness for duty is expressed in terms of one of four main categories as described below and summarised in Table 3. These include:

- Fit for Duty Unconditional
- Fit for Duty Subject to Review
- Temporarily Unfit for Duty
- Permanently Unfit for Duty

Only one of these outcome categories can be applied following any one assessment, however the outcome may change as the pilot progresses through investigation, treatment and reassessment, and the return-to-work process. For example, if there is uncertainty about the nature and/or impact of a pilot's health status, and there is a significant risk for safety, they may be categorised as Temporarily Unfit for Duty, pending further investigation. Similarly, an Authorised Health Professional may categorise a pilot as Fit Subject to Review pending such investigation if they feel there is minimal risk to safety. This process is shown in Figure 4 for the Health Assessment. The principles are similar for the Physical Assessment (refer [Section 35 Musculoskeletal conditions](#)).

Fit for Duty Unconditional

This assessment category indicates that the pilot has met all the criteria for Fit for Duty Unconditional and is to be reviewed in line with the normal Periodic Health/Physical Assessment schedule. It means the pilot does not have a health condition or health risk (e.g., Cardiac Risk Score) that is likely to impact on their ability to undertake the inherent requirements of the pilotage task now or in the foreseeable future. They are not subject to any restrictions or conditions, or more frequent review.

Fit for Duty Subject to Review

This category indicates that the pilot has not met all the criteria for Fit for Duty Unconditional. It means they have a condition or health risk (e.g., Cardiac Risk Score) that may impact on their ability to perform pilotage duties, but the condition or risk is sufficiently well controlled/managed such that pilotage duties can be undertaken safely.

Continuation of normal duties is conditional on the pilot meeting the criteria for Fit Subject to Review, which may include:

- Compliance with treatment, including wearing corrective lenses, hearing aids at work.
- More frequent medical review (Triggered Assessment), including specialist review as required. The review period is specified by the Authorised Health Professional.
- Job modification (of the pilotage task) indicating that the person could continue piloting duties, subject to short-term modifications that can be reasonably accommodated within operational requirements. Job modification should be differentiated from alternative (non-pilotage) duties.

It is recognised that in most cases suitable job modification may not be practicable for marine pilots. Modification should be considered on a case-by-case basis and the subject is covered in general terms within any Enterprise Agreement. For example, in some situations, where helicopter transfer is available, work may be limited to this mode for an agreed time, subject to operational requirements. Other WHS requirements such as capacity for underwater escape will need to be considered. An Authorised Health Professional may also propose/discuss possible roster changes in cases of fatigue. It is likely that establishing suitable job modification will require consultation between the Authorised Health Professional and the Port Authority.

The category of Fit Subject to Review may also apply as a provisional category for a newly diagnosed condition, which does not pose an immediate risk to safety but requires further investigation. In this situation, pilots must undergo prompt assessment to determine their

ongoing status and be definitively categorised. Such cases may also be categorised Temporarily Unfit for Duty (see below).

An applicant may be categorised Fit Subject to Review at initial licensing indicating that employment would be conditional on them attending more frequent health assessments than required for a standard Periodic Health Assessment.

Temporarily Unfit for Duty

This indicates that the pilot has not met the criteria for Fit for Duty Unconditional nor those for Fit for Duty Subject to Review. It means they are not fit to conduct piloting work at present but may do so in the near future. This category may be applied for a number of reasons.

It may be that a condition or health risk has been found and it is anticipated that it will improve with treatment. The pilot would be reviewed following investigation and treatment to determine ongoing fitness status. This differs from ordinary short-term illness causing absence from duty.

Temporarily Unfit for Duty may also be applied in situations where a clear diagnosis has not yet been made in the case of an undifferentiated illness, for example where a pilot is being investigated for blackouts. The Authorised Health Professional should immediately advise the Port Authority about the duration of the period for review (so that roster changes can be made). A pilot who is assessed as Temporarily Unfit for Duty may be assessed fit for non-safety critical alternative duties (i.e. non-piloting duties).

Temporarily Unfit for Duty may also be determined if the pilot has not cooperated in the conduct of the assessment (see below, *Failure to complete health assessment*).

In the case of Initial Licensing Health/Physical Assessments, an applicant judged Temporarily Unfit for Duty would not be considered fit to hold a license, however they may be reassessed in the future if the medical/physical issue(s) were to be resolved, for example by obtaining glasses to meet the visual requirements of the Standard. Given this advice, the licensing authority / recruitment manager may advise the applicant that they may reapply in the future.

Permanently Unfit for Duty

This category indicates that the pilot has not met all criteria in the Standard, their condition is likely to be long term (12 months or more) and they will not be able to undertake piloting work in the foreseeable future. Options for redeployment to other work compatible with a pilot's health condition/capabilities may be considered on a case-by-case basis. This category is likely to have an impact on pilot licensing. The subject should be covered in general terms within any Enterprise Agreement.

Failure to complete health assessment

If the Health or Physical Assessment cannot be completed satisfactorily due to lack of cooperation of the pilot, they should be categorised as Temporarily Unfit for Duty. The pilot and the Port Authority should be advised accordingly.

Figure 4. Reporting framework for Health Assessment (the Physical Assessment follows similar principles, refer [Section 35 Musculoskeletal conditions](#))

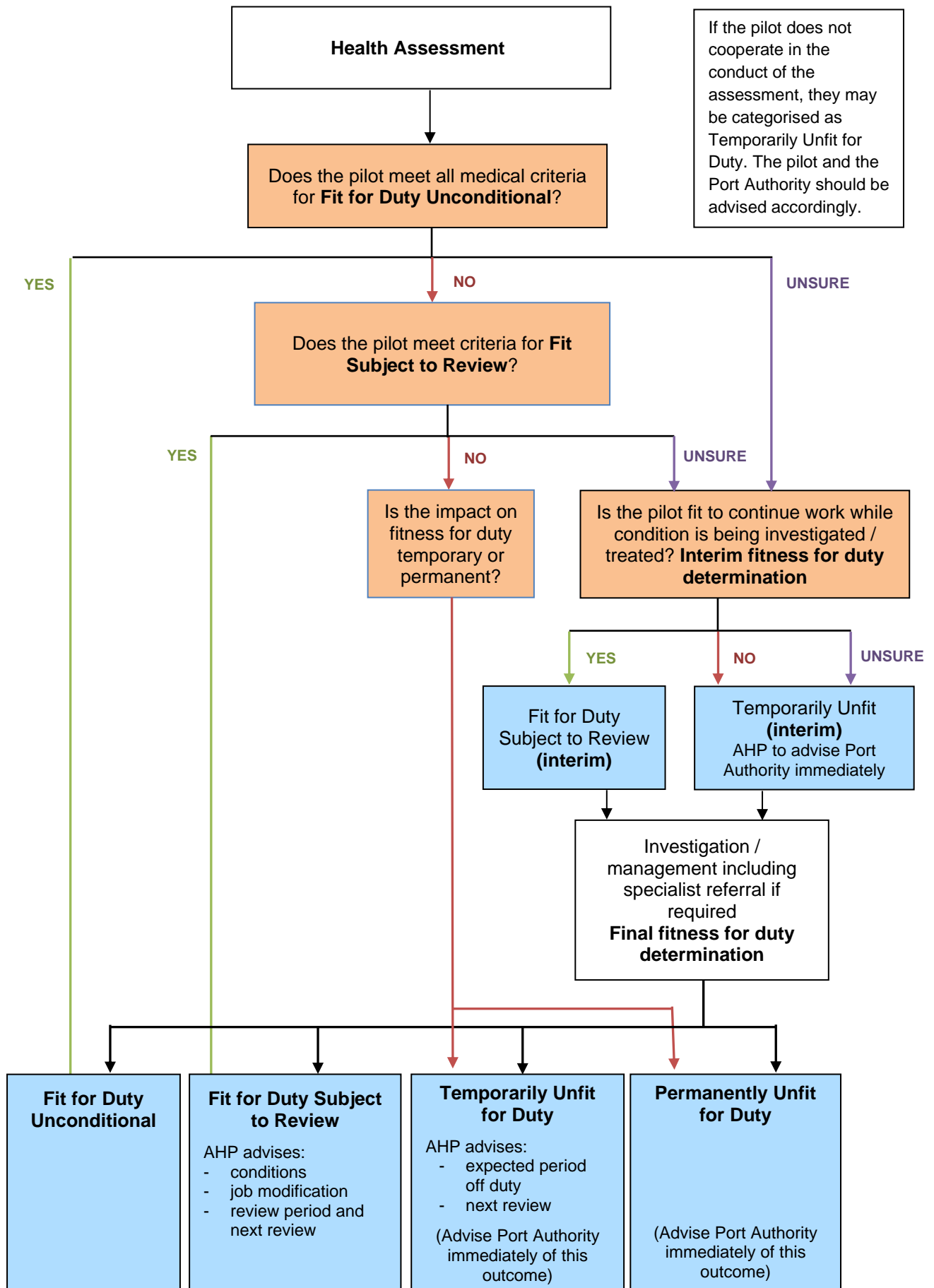


Table 3. Health assessment outcome categories for marine pilots – Interpretation for recruitment, ongoing fitness for duty and licensing

OUTCOME CATEGORY& DEFINITION	INTERPRETATION		
	Initial licensing	Ongoing Fitness for Duty	Ongoing licensing/ renewal
Fit Unconditional <ul style="list-style-type: none"> The pilot meets all the criteria for Fit for Duty Unconditional (The pilot does not have a health condition or health risk that is likely to impact on their ability to undertake the inherent requirements of the pilotage task now or in the foreseeable future). They are not subject to any restrictions or conditions. They should be reviewed in line with the normal Periodic Health Assessment schedule. 	Fit to obtain a pilot's licence – no restriction or conditions.	Fit to continue piloting duties – no restriction or conditions.	Fit to continue to hold a pilot's licence – no restriction or conditions.
Fit Subject to Review <ul style="list-style-type: none"> The pilot does not meet all the criteria for Fit for Duty Unconditional. (The pilot has a health condition or health risk that may impact on their ability to perform the pilotage task, but they are presently well managed so as not be a risk to the pilot or to the safe conduct of the pilotage task). For the medical condition/risk in question, they do meet the criteria for Fit Subject to Review and may continue to undertake pilotage duties if they continue to meet the criteria, including, as appropriate: <ul style="list-style-type: none"> compliance with treatment, including wearing corrective lenses or hearing aids when on duty. more frequent medical review (Triggered Assessment) based on the recommendation of the AHP. being able to secure temporary job modification, which may also be recommended as part of the initial determination and reviewed at subsequent triggered review assessments. 	Fit to obtain a pilot's licence. Must meet conditional criteria (Fit Subject to Review) including compliance with treatment. May be required to have more frequent assessment (Triggered) to manage the particular condition.	Fit to continue piloting duties. Must meet conditional criteria (Fit Subject to Review) including compliance with treatment as required. May require more frequent health assessments (Triggered).	Fit to continue to hold a pilot's licence. Must meet conditional criteria (Fit Subject to Review) including compliance with treatment. May require more frequent health assessments (Triggered).

OUTCOME CATEGORY& DEFINITION	INTERPRETATION		
	Initial licensing	Ongoing Fitness for Duty	Ongoing licensing/ renewal
Temporarily Unfit' <ul style="list-style-type: none"> The pilot has or is suspected of having a health condition or conditions that are likely to impact on their ability to perform the pilotage task in the short to medium term. For the relevant condition, the pilot does not currently meet the criteria for Fit for Duty Unconditional nor Fit Subject to Review or the diagnosis is uncertain, but the symptoms indicate the person is unfit for duty. During/following investigation/treatment, the pilot will be subject to repeat medical assessment (Triggered assessment) to establish fitness for duty and return to work. If the categorisation is an interim outcome, subsequent investigation and treatment they may result in classification under any of the other categories. This category may also be applied if the pilot has not cooperated in the conduct of the assessment. 	<p>Not fit to obtain a pilot's licence.</p> <p>May reapply when health issue satisfactorily addressed.</p>	<p>Not fit to continue piloting duties, pending appropriate management of health issue.</p> <p>Will be subject to more frequent health assessments (Triggered) while health condition is being treated/managed.</p>	<p>Not a licensing issue.</p> <p>Person will continue to hold licence but will not undertake pilot's duties until medically cleared.</p>
Permanently Unfit (Unfit for duty >1yr) <ul style="list-style-type: none"> The pilot has a long-term health condition or conditions that renders them unfit to undertake pilotage duties in the foreseeable future. For the relevant condition, the pilot does not meet the criteria for Fit for Duty Unconditional or Fit Subject to Review and is unlikely to do so in the foreseeable future. 	<p>Not fit to obtain a pilot's licence.</p>	<p>Not fit to continue piloting duties in the foreseeable future.</p>	<p>Not fit to hold a pilot's licence in the foreseeable future.</p>

11. Authorised Health Professionals

Health assessments for marine pilots should only be conducted by health professionals who have been authorised to do so (Authorised Health Professionals). Health Assessments are conducted by authorised medical practitioners and Physical Assessments are conducted by authorised physiotherapists.

11.1 Appointment and management of Authorised Health Professionals

The appointment and management of Authorised Health Professionals is the responsibility of the Port Authority. The criteria and process for authorisation are outlined in [Appendix 3](#) – Procedures for appointment and management of Authorised Health Professionals.

11.2 Responsibilities of Authorised Health Professionals

Authorised Health Professionals must conduct the assessments in line with the procedures and criteria contained in this Standard and are accountable to the Port Authority.

Providing advice regarding fitness for duty

Authorised Health Professionals provide advice to the Port Authority regarding the fitness for duty of marine pilots. This advice is based on an understanding of the inherent requirements of the pilotage task, the results of the assessment and the application of the criteria contained in the Standard. While the Authorised Health Professional provides their opinion regarding an individual's fitness for duty, it is the responsibility of the Port Authority to make an ultimate determination of the pilot's ability to undertake their duties, taking into consideration the operational requirements of the Port. The Authorised Health Professional and the Port Authority should engage in discussion as required to determine an outcome that addresses the safety risks to the Port and the pilot and meets the operational needs of the Port.

Managing the relationship with the pilot

The relationship between the Authorised Health Professional and the pilot/patient is governed by the ethics of the relevant health profession and by privacy laws. The relationship differs from the usual health professional-patient relationship because of the involvement of a third party, the Port Authority. The Authorised Health Professional should not provide personal or health information to the Port Authority unless it is relevant to the purpose of determining fitness for duty (refer to [Section 12 Management of health information](#)).

Managing communication with other health professionals

The Authorised Health Professional should liaise with the pilot's general practitioner and treating specialists where appropriate to clarify information relating to the pilot's current health status. Such communication should occur with the consent of the pilot and should be limited to health issues that impact on marine safety (refer to [Section 12 Management of health information](#)).

Where specialist referral is required to determine a marine pilot's fitness for duty, the referral should be made by the Authorised Health Professional, and they should request that the report be copied to the pilot's general practitioner. The specialist should be briefed regarding the

requirements of the Standard, including the inherent requirements (Table 5) and relevant medical criteria. Where a pilot is already seeing a specialist, referrals for specialist opinion or further investigation for fitness for duty may be made to that specialist. Referrals made for the ongoing management of the pilot's health should be made by the treating doctor, not by the Authorised Health Professional.

The ongoing treatment and management of medical conditions is the responsibility of the pilot's general practitioner. Authorised Health Professionals should communicate and consult with the general practitioner and other relevant providers to ensure the effective management of the pilot's health.

This Standard generally requires marine pilots who are assessed Fit for Duty Subject to Review to be seen by a specialist leading up to their review appointment with the Authorised Health Professional. The report from the specialist provides an input into the decision regarding ongoing fitness for duty. The specialist should be made familiar with the requirements of the Standard in relation to the condition in question by the Authorised Health Professional.

In certain circumstances, the Authorised Health Professional, with the knowledge and agreement of the specialist, may determine that review by a pilot's treating general practitioner is sufficient if there is an established pattern of compliance and good response to treatment. The initial granting of Fit for Duty Subject to Review must be based on information provided by a specialist. These circumstances are identified in this Standard. Where appropriate and available, the use of telemedicine technologies such as videoconferencing is encouraged as a means of facilitating access to specialist opinion.

12. Management of health information

In administering and conducting marine pilot health assessments, the Port Authority and Authorised Health Professionals must comply with the Health Privacy Principles⁸ and must ensure that health records are managed and stored in line with the *Health Records and Information Privacy Act 2002* (the Act).⁹

The Port Authority *Privacy Management Plan* sets out the policy and procedures relating to its privacy obligations in broad terms. The information below addresses the circumstances of the health assessments conducted for fitness for duty. The flow of information is illustrated in Figure 5.

This section also explains how the use of the specific forms helps support flow of relevant information between the pilot, Authorised Health Professional and the Port Authority to support and facilitate decisions regarding fitness for duty, while also complying with privacy legislation.

⁸ Health records Information Privacy Act 2002 No 71, Schedule 1 Health Privacy Principles
<https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1998-133#pt.2> [accessed 1 June 2022]

⁹ Health Records Information Privacy Act NSW, 2002
<https://legislation.nsw.gov.au/view/html/inforce/current/act-2002-071> [accessed 1 June 2022]

12.1 Primary purpose

Underpinning the privacy principles is the concept of the health information's 'primary purpose', which in relation to this Standard and the health assessments conducted under this Standard is 'to assess and manage marine pilots' fitness for duty'.

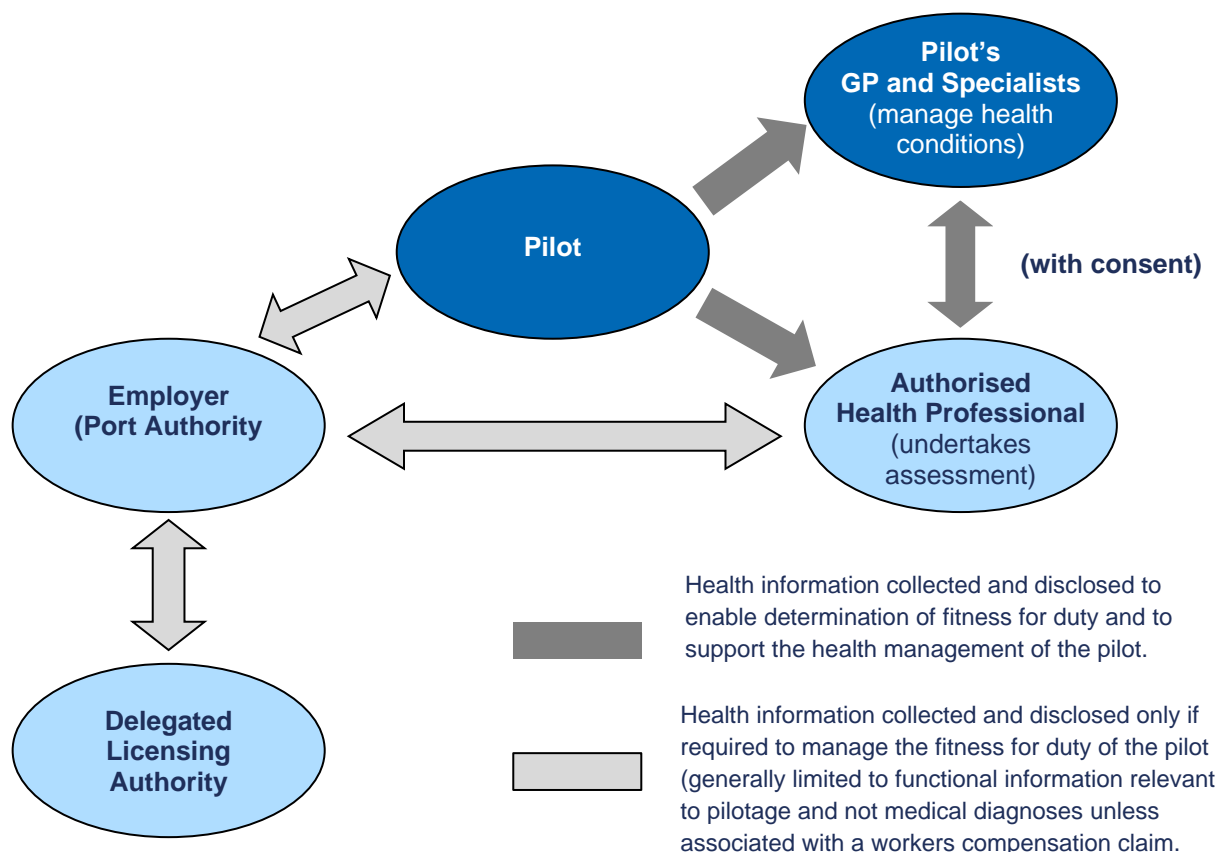
Thus, only information justifiably necessary to assess fitness for duty should be collected. This means the Port Authority cannot ask an Authorised Health Professional to collect information that is not relevant to the health requirements of the piloting task.

Similarly, information must only be used and disclosed for the primary purpose, or for a directly related purpose that could reasonably be expected by the pilot, unless the pilot gives their consent to use of the information for a secondary purpose. Thus, the Port Authority cannot provide the Authorised Health Professional with information that is not relevant to the health assessment unless the pilot gives their consent. Authorised Health Professionals also cannot provide information back to the Port Authority that is not relevant to management of the pilot and their fitness for duty.

The main privacy principles relevant to the management of health information under this Standard can be grouped into 3 categories:

1. collection principles
2. use and disclosure principles
3. retention and security principles

Figure 5. Relationships and flow of information in the conduct of health assessments for marine pilots



12.2 Collection of health information

The Health Privacy Principles require that when collecting pilots' health information pilots are clearly informed about:

- why the health information is being collected;
- what information will be stored and where;
- the fact that they can access it;
- to whom the information may be disclosed; and
- whether the information is required to be collected by law.

These requirements are detailed on the Health Questionnaire (Pink Form) which the pilot completes and signs to acknowledge and agree with how their information will be managed.

Both the Port Authority and Authorised Health Professionals have a role in ensuring marine pilots understand how their health information will be managed.

12.3 Use and disclosure of information: the “need to know”

Health information should be used and disclosed in line with the primary purpose. This means that Authorised Health Professionals should only report a pilot's health information to the Port Authority if the Port Authority needs to know that information for managing the pilot and their fitness for duty.

The Port Authority needs to know:

- how a pilot's ability to undertake their job might be affected by a health condition (e.g., their ability to climb a pilot ladder, their ability to navigate safely or their ability to hear radio communication); and
- what controls (if any) must be put in place to mitigate risks related to a health condition.

The Port Authority usually does not need to know:

- the exact nature or details of the underlying medical conditions (e.g., high blood pressure, anxiety state, diabetes; or
- the exact nature of the treatment or management of the condition.

Thus, the Authorised Health Professional can give the Port Authority advice about a pilot's fitness to perform specific tasks, provided they do not refer to the pilot's diagnosis or treatment. The Authorised Health Professional should not provide the pilot's clinical records (Green Form or other clinical information) to the Port Authority.

Within the Port Authority there are also layers of disclosure that will need to be managed to ensure privacy. For example, it is possible that in seeking to manage a medical condition, such as during the Port Authority's discussions with the pilot regarding alternative duties or job modification, the diagnosis may become self-evident. Careful consideration should be given to how privacy is maintained in this situation, including where information is recorded and who has access to this documentation.

As a further example, invoices for investigations and specialist referrals will need to be paid by the Port Authority and these may indicate a medical condition e.g., cardiac stress test, referral to

psychiatrist. Access to this information should be restricted to those involved in paying the supplier and the information should not be filed in the pilot's general personnel file.

Workers compensation and other legal requirements

The Health Privacy Principles apply to workers compensation claims. By law, the nature of a pilot's injury will be disclosed to the Port Authority on any workers compensation claim form. Therefore, in situations where the Authorised Health Professional is assessing a pilot who has had a workers compensation injury regarding fitness for duty, the nature of that injury may be disclosed.

Health information may also be disclosed if permitted or authorised under another law, such as when a report is subpoenaed by a court of law, for an investigation of an accident or incident, or when a notifiable disease is diagnosed. It may also be used and disclosed for auditing purposes as described below.

Consent for disclosure

Pilot consent must be obtained to disclose any health information to a third party unless permitted by law.

When appropriate, it is helpful if the pilot gives consent for the nature of their condition(s) to be disclosed to the Port Authority to facilitate a sensible plan of health management.

Where an Authorised Health Professional seeks information from a pilot's general practitioner or treating doctor to clarify the pilot's current health status, such communication should occur with the consent of the pilot and should be limited to health issues that impact on the ability of the pilot to undertake their job. This consent may be recorded on the Pink Form.

Use and disclosure for audit purposes

A Transport for NSW authorised medical auditor may access the complete individual health records held by the Authorised Health Professional for the purposes of audit in order to ensure consistency and quality of health assessments for marine pilots. Where such records are accessed, confidentiality must be assured. The report to Transport for NSW or the Port Authority should be in aggregate terms and not report on individual cases or identify individuals (refer [Section 15 Quality assurance and control](#)).

Similarly, a pilot's personnel record in relation to health assessments may be accessed by a Transport for NSW authorised auditor (refer [Section 15 Quality assurance and control](#)).

12.4 Retention and security of information

Information should be kept accurate, up to date and protected from loss and unauthorised access, use, disclosure and modification. Records may be scanned and kept in electronic form. The pilot's signature on the completed health questionnaire is legally valid after scanning. Similarly, this applies to the Authorised Health Professional's signature.

12.5 Health assessment forms (see also [Section 18](#))

Model forms are provided in [Appendix 2](#) as a basis for the Port Authority to develop their administrative processes and procedures. There are three forms required for conduct of the Health Assessment and a similar set of forms for the Physical Assessment:

- Health/Physical Assessment Request and Report form (Blue Form);
- Health/Physical Assessment Notification and Health Questionnaire (Pink Form); and
- Health/Physical Assessment Record for Authorised Health Professional (Green Form).

The forms are colour-coded (Blue, Pink, Green) to facilitate use by the Authorised Health Professional and the Port Authority.

Administrative detail on the forms may be altered consistent with a Port Authority's requirements. The provisions for reporting from the Authorised Health Professional to the Port Authority (on the Blue Form) and the content of the Health Questionnaire (on the Pink Form) represent standardised data collection and should not be altered.

The model forms are also consistent with privacy principles. The Port Authority should ensure any changes made to the forms are consistent with the *Health Records and Information Privacy Act 2002*. Use of the forms is described below and in Figure 6.

Health/Physical Assessment Request and Report Form - Blue Form

This form facilitates communication between the Port Authority and the Authorised Health Professional. The Port Authority completes relevant details regarding the pilot and the type of assessment requested. The Authorised Health Professional summarises fitness for duty assessment findings on the form and returns it to the Port Authority. Medical data is not conveyed, only functional capacity. Refer [Section 18 Appointments, forms and supporting documentation](#).

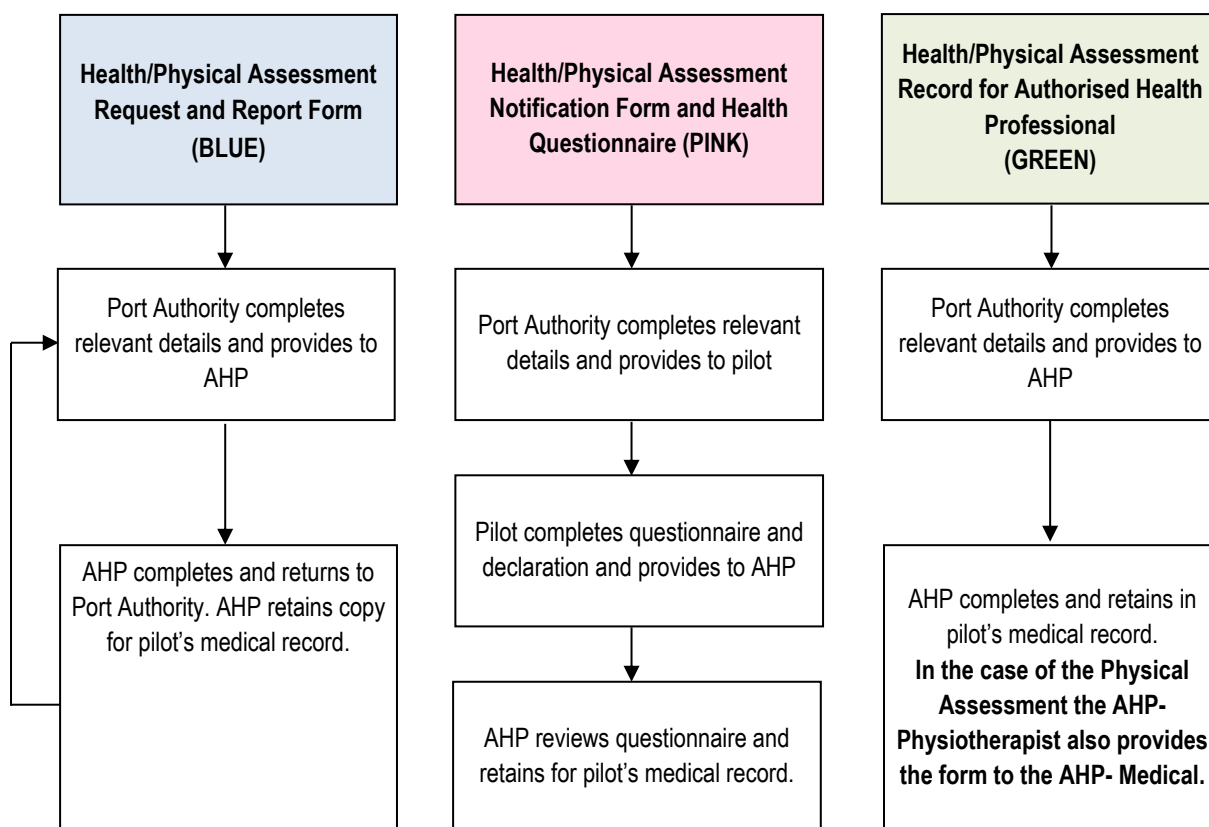
Health/Physical Assessment Notification and Questionnaire - Pink Form

This form notifies the pilot of the requirement to attend a health assessment. It includes:

- the reasons for the assessment;
- the instructions for the pilot including relevant declarations; and
- the Health/Physical screening Questionnaire, which the marine pilot completes before attending the assessment appointment.

The Pink Form is generally not required for a Triggered Health Assessment as the questionnaire is general in nature and not relevant to assessment for a specific health condition or concern. The Pink Form is usually required for a Triggered Physical Assessment as it includes a safety screen to ensure the pilot is fit to conduct the functional tests. Refer [Section 18 Appointments, forms and supporting documentation](#).

Figure 6. Use of health assessment forms (Pre-employment and Periodic Assessments)



Health/Physical Assessment Record for Authorised Health Professionals - Green Form

This form guides the Authorised Health Professional through the assessment process and provides a standard clinical record. The Port Authority issues the form but, since it will contain details of the clinical findings, it is retained by the Authorised Health Professional rather than returned to the Port Authority. In the case of a Physical Assessment, the Green Form is provided to the AHP-Medical to consider in relation to the Health Assessment findings.

The Green Form is generally not required for a Triggered Health Assessment, which will focus on a particular condition or health concern. Triggered Physical Assessments will generally involve the full suite of tests and will therefore require the full set of forms (refer [Section 18 Appointments, forms and supporting documentation](#)). The Authorised Health Professional should keep appropriate records of the assessment in the pilot's health record.

13. Port Authority scheduling and management of assessments

The Port Authority is responsible for the overall management of the assessments and should establish procedures accordingly to guide effective and timely administration of the health assessments in line with this Standard.

The Port Authority also should establish an appropriate database to support scheduling of assessments and management of outcomes. The database should be secure and comply with privacy legislation (refer to [Section 12 Management of health information](#)) and should:

- enable the Port Authority to establish a pilot's health assessment status in line with Periodic and Triggered requirements;
- facilitate communication with pilots and scheduling of assessments;
- provide a record of the fitness for duty outcome of assessments;
- provide a record of requirements such as job modification or alternative duties;
- provide a record of any restrictions or conditions on the pilot's fitness for duty, such as wearing glasses or having more frequent health assessments for monitoring purposes; and
- any other information that will assist in the appropriate management of the health assessments and the health of the pilot.

A pilot's health assessment status must be kept confidential and released only as required to the pilot, the supervisor and the Authorised Health Professional (refer [Section 12 Management of health information](#)).

14. Policy and program interfaces

Health assessments interface with a range of other health and human resources programs, as well as with quality and risk management systems and international conventions. The interfaces with health and human resources policies/programs are illustrated in Figure 7. Interfaces should be identified and managed by the Port Authority to optimise health management of pilots and to reduce duplication/conflict between policies/programs and the Health Assessment Standard.

Figure 7. Interfacing health and human resources policies/programs



14.1 Drug and alcohol controls

The Port Authority has a responsibility to ensure that marine pilots are not impaired by alcohol or drugs when performing their work. Marine pilots themselves also have a duty not to perform piloting duties while impaired by alcohol or drugs.¹⁰¹¹ The Port Authority has a program of drug and alcohol screening.

Health assessments have a role in identifying problems associated with dependence, and in identifying and managing the potential effects of prescribed treatment on the pilot's fitness for duty. Health assessments interface with, but should not substitute, policies to monitor or control drug and alcohol use by marine pilots (refer to [Section 40 Substance misuse and dependence](#)).

14.2 Injury management, sick leave, return to work and rehabilitation

Policies and procedures for injury management, sick leave, return to work and rehabilitation interface with health assessments for marine pilots. For example, a pilot on an injury management program will have to undergo a health assessment under this Standard (Triggered Health or Physical Assessment) to determine fitness for piloting duties. The Port Authority should ensure relevant providers of health assessments and rehabilitation/return to work programs are aware of the Standard and assess pilots accordingly for recommending fitness to return to work.

Pilots returning from extended sick, maternity or other types of leave may also be required to have an assessment under this Standard in order to establish their fitness to undertake piloting duties (refer to [Section 9.2 Triggered Health Assessments](#), [Section 30.2 Pregnancy](#)).

14.3 Incident management

The Port Authority has counselling and support programs available for pilots involved in incidents and near misses affecting the safety of ships and the marine environment. Periodic Health Assessments provide a further opportunity to review pilots' responses to incidents and to assess general psychological wellbeing. Interfacing these programs supports the effectiveness of the health assessment process and incident management overall.

14.4 Employee assistance programs

Personal and work-related issues can affect work performance. Employee Assistance Programs (EAPs) are available to help Port Authority employees and their families resolve these issues via independent and confidential professional counselling. A Peer Assistance Network is also available to pilots through the Australasian Marine Pilots Institute. There is potential for referral to an EAP or to the Peer Assistance Network by the Authorised Health Professional (refer to [Section 37 Psychiatric conditions](#)).

¹⁰ New South Wales Marine Pilotage Code, 2022

¹¹ Marine Safety Act 1998, as at 5 May 2021, http://www.austlii.edu.au/au/legis/nsw/consol_act/msa1998145/ [accessed 1 June 2022]

14.5 Fatigue management

Fatigue is an important consideration for risk management. The NSW Pilotage Code outlines responsibilities of the Port Authority and pilots in this regard.

Health assessments have a role in identifying health problems as a possible cause of fatigue. The opinion of an Authorised Health Professional may be sought in appropriate cases by a triggered referral (refer to [Section 9.2 Triggered Health Assessments](#), [Section 30 General considerations](#)).

Periodic Health Assessments may detect sleep apnoea syndrome which manifests itself as a tendency to doze and lose concentration at inappropriate times. Assessments may also support sleep hygiene education (refer to [Section 39 Sleep disorders](#)).

14.6 Health promotion and health surveillance

The health and fitness of marine pilots may be supported by health promotion programs. These might typically include heart health, nutrition and weight control, physical fitness, mental health, smoking cessation and skin cancer prevention programs. Health promotion programs should not be confused with health assessments for fitness for duty, however there may be opportunities for Authorised Health Professionals to address chronic disease health risks that might impact on fitness for duty in the future. The Physical Assessment provides an opportunity for the Authorised Health Professional to provide advice that may support maintenance of physical fitness.

15. Quality assurance and control

15.1 General requirements

The adoption of quality assurance/control systems is essential for the effective implementation of the health assessments for marine pilots. It is important both for the conduct of the health assessments by the Authorised Health Professionals and for the management systems employed by the Port Authority.

The Port Authority should implement a system of formal quality assurance/control to ensure that:

- pilots are receiving health assessments in accordance with the requirements of this Standard;
- pilot health assessments are being administered and managed in accordance with the requirements of this Standard, both within the organisation and by Authorised Health Professionals; and
- privacy of health information is maintained.

Transport for NSW may also conduct audits to establish that the Standard is being effectively implemented by the Port Authority.

15.2 Nature and extent of quality control system

This Standard does not identify specific requirements for quality assurance/control. Systems may include elements such as:

- internal or external audits — for example, audits of databases to ensure health assessments are being scheduled and completed as required;
- document reviews — for example, reviews of procedures and documentation to ensure consistency with this Standard; and
- consultation and feedback — for example, through discussions with Authorised Health Professionals and internal staff managing the processes, as well as pilots.

The following table describes possible points for audit. These points provide an indication of the scope of quality assurance/control systems and are not exhaustive.

Table 4. Audit points for quality control of marine pilot health assessment

<p>1 Authorisation of Authorised Health Professionals</p> <p>With respect to the authorisation and management of health professionals, the Port Authority should consider audit or review processes that:</p> <ul style="list-style-type: none">• confirm up-to-date records are maintained of health professionals who are authorised by the Port Authority;• confirm that all health professionals who have conducted assessments are appropriately authorised by the Port Authority; and• confirm that all Authorised Health Professionals have received initial training and maintain currency, including receiving relevant update information from the Port Authority.
<p>2. Performance and outcomes of health assessments by Authorised Health Professionals</p> <p>With respect to health assessments performed by Authorised Health Professionals, the Port Authority should consider audit or review processes that:</p> <ul style="list-style-type: none">• confirm the Authorised Health Professional maintains suitable systems and procedures for managing and conducting health assessments, including the use of the appropriate forms;• confirm the timeliness of various aspects of health assessments from initial assessment to reporting and follow-up as required;• confirm the continuity of assessment from a medical viewpoint, including the number of different Authorised Health Professionals involved;• confirm the consistency of the health assessments with the requirements of the Standard;• confirm the appropriateness of decision-making in terms of fitness for duty;• confirm the appropriateness of interaction with the Port Authority; and• confirm the appropriateness of interaction with the marine pilot.

3. Management of the health assessment process

With respect to management of the health assessment process, the Port Authority should consider adopting audit or review processes that:

- confirm there are adequate internal procedures in place that are in line with this Standard;
- confirm marine pilots hold current medical certification and that they attend health assessments as requested;
- confirm recall and monitoring systems adequately identify when health assessments are due, and adequately monitor assessment status;
- confirm the timeliness of reporting by Authorised Health Professionals;
- confirm the recall and monitoring system are effective in managing marine pilots with temporary medical certificates (requiring follow-up investigation) and those found Temporarily Unfit for Duty;
- confirm the appropriateness of interaction between the Authorised Health Professional and the Port Authority (e.g., compliance with privacy requirements).

PART C – THE INHERENT REQUIREMENTS OF PILOTAGE

This section of the Standard explains:

- the inherent requirements of pilotage as the basis for the Standard and in relation to the broader context of port safety;
- the risks exposures; and
- the specific inherent requirements in relation to the two major tasks, being pilotage itself and embarking and disembarking ships.

16. Introduction

Determination of the inherent requirements of a pilot's job is fundamental to a risk management approach to pilot health.

For the purpose of this Standard, the inherent requirements of pilotage are ***the core duties that must be carried out in order to fulfil the purpose of the position***.¹² This definition encompasses the broad requirements of the job, not just those related to health, however this Standard is limited to addressing the risks associated with ill health, while interfacing with broader safety measures as required by the Port Safety Operating Licence (PSOL)¹³.

This section of the Standard sets out 'generic' inherent requirements of marine pilot tasks and the risks associated with failure to complete these tasks, based on a review across New South Wales ports. It also identifies the health attributes (such as senses, psychological, musculoskeletal and cardiovascular capacities) needed to fulfill these inherent requirements. This in turn provides the basis for applying the medical criteria, which are set out in detail in Part E of this Standard.

Reflecting the requirements of the Port Safety Operating Licence (Part 2, Section 7 Risk Profile), the Port Authority should consider any additional risks associated with circumstances at individual ports. They should also consider ongoing changes in port operations that may impact the inherent requirements of pilots and therefore their health requirements. Significant changes to the inherent requirements should be communicated to Authorised Health Professionals.

¹² Australasian Human Rights Commission. <https://www.humanrights.gov.au/quick-guide/12052> [accessed 1 June 2022]

¹³ Port Authority of New South Wales, Port Safety Operating Licence, Ports and Maritime Administration Act 1995 as at 21 January 2021 <https://legislation.nsw.gov.au/view/html/inforce/current/act-1995-013> [accessed 1 June 2022]

An understanding of the inherent requirements also helps to identify those health attributes that cannot be readily assessed through a health assessment (e.g., cognitive capacities) and for which other assessment tools may be required.

16.1 Risk exposures

The pilot's role is to provide advice to a ship's master regarding safe passage of a ship through pilotage waters. The potential consequences of failures in marine pilot operations are considerable and may include:

- ship grounding;
- allision with structures such as bridges;
- collision with another vessel;
- inappropriate letting go of anchors; and
- capsizing or damaging a tug.

In turn, such incidents have the potential to result in:

- serious injury and loss of life;
- environmental damage;
- property and infrastructure damage;
- commercial damage to port and trade;
- disruption of transport; and
- damage to reputation.

These risks are of low frequency but potentially catastrophic in terms of consequence. There are critical phases during pilotage when the ship's master may not be capable of maintaining the safety of the ship without the expertise of the pilot. Also, ill health of the pilot may result in poor decision making which may not be obvious to the bridge team. Thus, the work of a pilot should be regarded as 'safety critical work'.

17. The inherent requirements (tasks) of pilotage

Marine pilots are responsible for the safe navigation of vessels through restricted and challenging waterways. The work is conducted in an internationally dynamic environment of changes in ships and cargoes.

The work is both psychologically and physically demanding and may be separated into two main categories of tasks:

- **Pilotage itself**, which is a highly complex, process driven task. It is cognitively demanding and involves rapidly integrating extensive knowledge of a diverse range of ships and navigation in a variable environment to make and implement decisions affecting ship movements. Pilotage tasks include, but are not limited to:
 - Before boarding a vessel to pilot in or out of port, the marine pilot is required to plan the course of the vessel taking into account tides, weather, dimensions, draft and operational characteristics of the vessel, including the need for one or more tugs.

- Once on the bridge, the marine pilot is responsible for navigating the vessel safely in and out of the harbour.
- The marine pilot must demonstrate communication skills such as effective teamwork, cultural awareness, interpersonal relationships, and easily understandable commands.
- The marine pilot must be able to respond effectively to emergency situations.
- **Embarking and disembarking ships**, which can be physically demanding. Marine pilots are required to board and disembark from ships from the deck of small cutters often in rough seas. This involves climbing/descending high ladders to access vessels. Alternatively, in some ports, marine pilots access vessels via helicopters landing on the vessel. Once boarded, pilots may need to climb several flights of stairs if lifts are not present or not operational.

These tasks are described in further detail in Table 5, where they are related to the health attributes and the nature of the health assessment. A detailed narrative and photographic description of the pilotage and transfer tasks is included in [Appendix 1](#).

Frequency and duration of pilotage and transfers:

- In most ports, pilots work shifts (fixed or belt rosters up to 7 days) to enable provision of services 24 hours, 7 days a week. Shipping movements can be changed at short notice.
- Pilot transfer frequency is determined by port movement of vessels. The task of embarking/disembarking may be performed typically 1-2 times per shift, depending on the port and duration of each pilotage.
- In Newcastle, transfer is by helicopter in suitable weather; approximately 80% of transfers. Generally, all transfers in Sydney are made via pilot cutter.
- The duration of this transfer activity can be less than 1 minute and up to 10 minutes depending on weather conditions of wind and swell.
- The duration of the pilotage task overall varies depending on the port and the conditions. On average the duration from transfer onto a vessel and off a vessel at task completion may take up 60 – 120 mins.

Personal protective equipment includes:

- Soft covered shoes to allow toe grip when utilising ladders;
- Long pants and long sleeve shirts;
- Hard hat;
- High visibility self-inflating buoyancy safety vest (including light, whistle and beacon);
- Gloves for prevention of friction burns when accessing rope ladders;
- Safety glasses; and
- Hearing protection when using helicopter for transfer.

The work is conducted in highly variable weather conditions, but each port has defined parameters in terms of the conditions in which the port will operate.

Figure 8. The main tasks for pilotage - on the bridge and dis/embarking using pilot rope ladder

a) on the bridge the pilot, on left, is navigating and giving orders to the master and helm; b) the pilot is about to ascend the pilot ladder from the deck of the cutter.

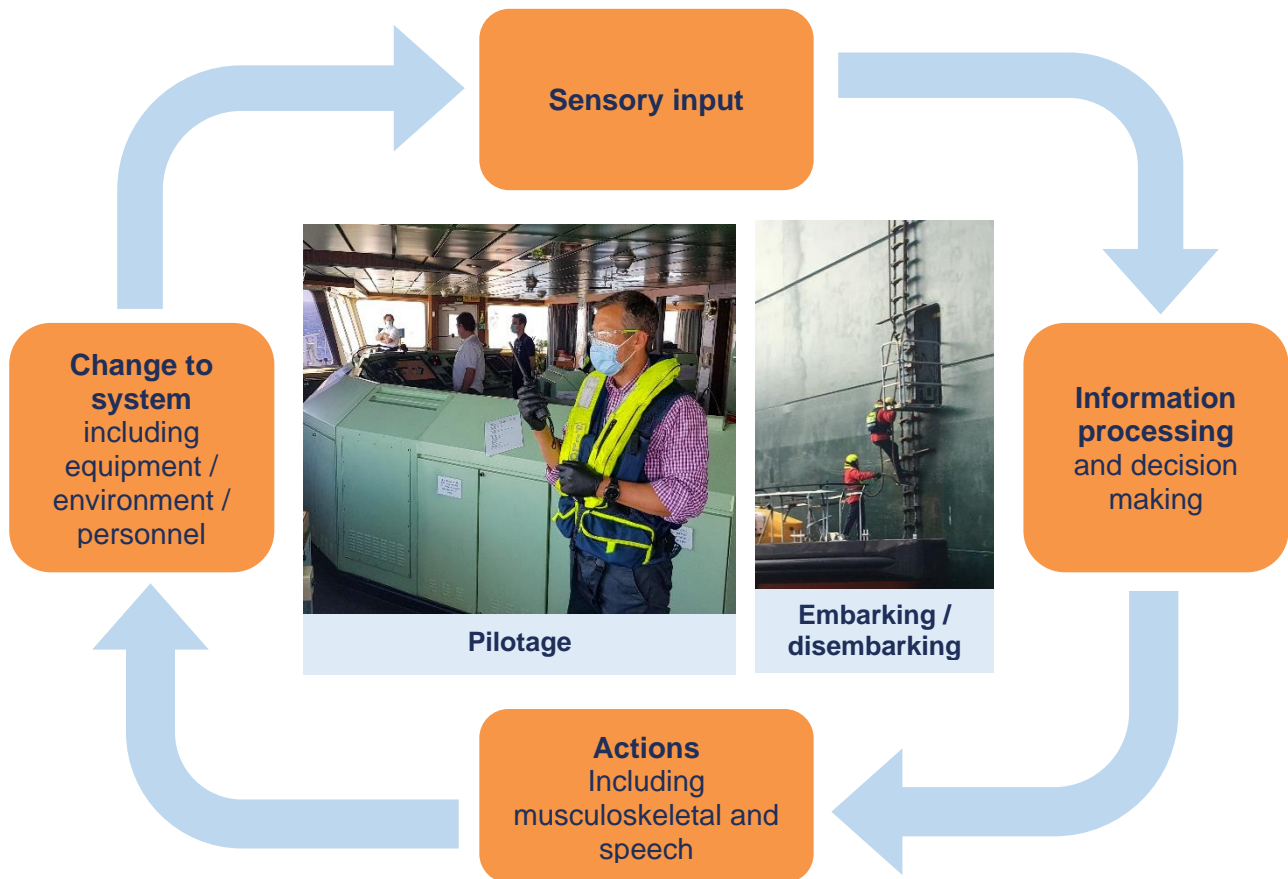


Table 5. The inherent requirements of marine pilotage, the associated health attributes and assessment.

The table is divided into the requirements for Pilotage and for Embarking/disembarking ships.

Tasks of marine pilots	Health attributes required	Purpose/scope of health assessment
PILOTAGE (including preparation)		
<i>Sensory input</i>	<i>Sensory attributes</i>	<i>Sensory assessment and management</i>
<ul style="list-style-type: none"> Continually scanning ahead for navigation aids (including coloured lights/signals) and other vessels under conditions of varying visibility. Monitoring instruments. Reading navigation charts. Processing speech input from several sources including radio and voice at the same time (noting that closed loop communication is a safety feature for radio communication, and radio sound levels can be adjusted). 	<p><i>Vision</i></p> <ul style="list-style-type: none"> Far, intermediate and near visual acuity Full visual fields Normal colour vision Rapid accommodation when repeatedly looking into the dark and then bright light (as when berthing) Ability to manage glare <p><i>Hearing</i></p> <ul style="list-style-type: none"> Hearing in quiet 	<p>The health assessment includes assessment of near and far visual acuity and visual fields as well as colour vision.</p> <p>The assessment assesses speech in quiet (as distinct from speech in noise for work involving embarking and disembarking – see below).</p> <p>The assessment seeks to establish a management approach to reduced sensory capacity including visual correction and hearing aids.</p>
<i>Information processing and decision making</i>	<i>Psychological and behavioural attributes</i>	<i>Psychological assessment and management</i>
<ul style="list-style-type: none"> Planning the course of the vessel within the confines of a standard passage plan, taking into account tides, weather, dimensions, draft and operational characteristics of the vessel. Once on the bridge and as a member of the bridge team, navigating the vessel safely in and out of the harbour. This requires interpreting complex information from multiple sources e.g., navigation aids, radar, GPS, compass, charts. Working effectively as part of a team to implement the pilotage requirements. 	<ul style="list-style-type: none"> Visuospatial perception Concentration Responsiveness / reaction time Judgement and aforethought Memory – short/long/working Psychological stamina Situational awareness Emotional intelligence 	<p>The health assessment seeks to screen for, assess and manage medical conditions that may impair these attributes including:</p> <ul style="list-style-type: none"> psychiatric conditions such as anxiety or depression; neurological conditions such as after a stroke or head injury or Alzheimer's disease; sleep disorders such as obstructive sleep apnoea; substance misuse; hypoglycaemia associated with diabetes; fatigue.

Tasks of marine pilots	Health attributes required	Purpose/scope of health assessment
PILOTAGE (including preparation)		
<ul style="list-style-type: none"> Effectively managing interpersonal relationships, including with people of diverse cultures and clear and easily understandable commands. Responding effectively and appropriately in an emergency situation based on their detailed knowledge of the complex collision avoidance rules which are part of the pilot's knowledge base. 		<p>It takes into consideration the impact on psychological functioning of other medical conditions. It seeks to identify and manage the risk or occurrence of collapse, such as from:</p> <ul style="list-style-type: none"> cardiovascular conditions such as ischaemic heart disease or arrhythmias; epilepsy; hypoglycaemic coma associated with diabetes; and stroke.
<i>Musculoskeletal and other actions (including speech)</i>	<i>Physical and general health attributes</i>	<i>Musculoskeletal, cardiovascular and general health assessment and management</i>
<ul style="list-style-type: none"> Maintaining and performing radio operations for communication with other vessels and Port Authority. Clearly delivering instruction to implement the pilotage requirements. Desk top documentation and computer workstation operation for planning and record keeping. Reaching and bending to review marine charts and documents relating to vessel movement whilst located on the bridge. Standing throughout pilotage operations on the bridge. 	<p>The musculoskeletal and cardiovascular demands on the bridge are limited compared to those of embarking and disembarking and include:</p> <ul style="list-style-type: none"> General stability and the ability to move rapidly from wing to wing. Communication requires clarity of speech. 	<p>The physical aptitude aspect of the health assessment assesses the complete range of musculoskeletal requirements for pilotage, including balance.</p> <p>It seeks to identify and manage the risk or occurrence of collapse, such as from:</p> <ul style="list-style-type: none"> cardiovascular conditions such as ischaemic heart disease or arrhythmias; epilepsy; hypoglycaemic coma associated with diabetes; and stroke.

Tasks of marine pilots	Health attributes required	Purpose/scope of health assessment
EMBARKING & DISEMBARKING SHIPS		
<i>Sensory input</i>	<i>Sensory attributes</i>	<i>Sensory assessment and management</i>
<ul style="list-style-type: none"> • Safely utilising the pilot ladder. • Taking instruction from the deck hand counting the steps left in the ladder. • Maintaining balance on moving cutter and ladder. 	<p><i>Vision</i></p> <ul style="list-style-type: none"> • Sufficient far vision to see steps and ropes and general position with regard to the ship and the cutter or helicopter <p><i>Hearing</i></p> <ul style="list-style-type: none"> • Good hearing to hear speech against a noisy background <p><i>Balance</i></p> <ul style="list-style-type: none"> • Good balance for maintaining safety on the cutter deck and ladder. 	<p>The health assessment includes assessment of near and far visual acuity and visual fields.</p> <p>The assessment assesses speech in noise (as distinct from speech in quiet for work on the bridge).</p> <p>Balance is assessed in the physical assessment – see below.</p> <p>The assessment seeks to establish a management approach to reduced sensory capacity including visual correction and hearing aids.</p>
<i>Information processing and decision making</i>	<i>Psychological and behavioural attributes</i>	<i>Psychological assessment and management</i>
<ul style="list-style-type: none"> • Maintaining high levels of situational awareness to safely embark/disembark ships via the pilot ladder or helicopter. 	<ul style="list-style-type: none"> • Concentration • Judgement • Responsiveness / reaction time 	<p>The assessment aims to identify, assess and manage conditions that may impact the psychological attributes.</p>
<i>Musculoskeletal and other actions</i>	<i>Physical attributes</i>	<i>Musculoskeletal, cardiovascular and general assessment and management</i>
<ul style="list-style-type: none"> • Moving around deck of marine cutter, often in poor weather. • Climbing (both ascending and descending) ladders both fixed (steel – wharf) and flexible (9m pilot rope ladder on side of vessel). • Ascending and descending steeply raked stairs, up to 7 flights. 	<ul style="list-style-type: none"> • General stamina and high levels of cardiovascular/respiratory fitness • Intact sense of balance • Full range of movement and good power of neck, shoulders, back, arms (including hand grip) and legs. The bodily distribution of demands is shown below – where the red body areas indicate highest demand. (Ethos Report, 2013). 	<p>The physical aptitude aspect of the health assessment assesses the complete range of musculoskeletal requirements for pilotage.</p> <p>The general health assessment seeks to screen for, assess and manage medical conditions that may impair cardiovascular/respiratory capacity including:</p>

Tasks of marine pilots	Health attributes required	Purpose/scope of health assessment
EMBARKING & DISEMBARKING SHIPS		
<ul style="list-style-type: none"> Negotiating vessel port doors, archways and other access points to walk to/from the bridge and access ladders/stairs Climbing into and out of helicopters Carrying a few kilograms of gear for use during vessel pilotage (radio, PPU unit, drinking water, food supplies etc) 		<ul style="list-style-type: none"> cardiovascular disease including ischaemic heart disease or arrhythmias; respiratory disease such as advanced chronic obstructive lung disease or severe asthma; and anaemia. <p>It seeks to identify and manage the risk or occurrence of collapse, such as from:</p> <ul style="list-style-type: none"> cardiovascular conditions such as ischaemic heart disease or arrhythmias; epilepsy; hypoglycaemic coma associated with diabetes; and stroke.

General references:

Daniel O'Neil, Ethos Health (2013), Marine Pilot Role Report for Newcastle Port Corporation [revalidated by Ethos Health 2022]

Fiona Weigall, Katrina Simpson, Health and Safety Matters Pty Ltd, 2005. A risk assessment of pilot ladder transfers.

PART D – PROCEDURES FOR AUTHORISED HEALTH PROFESSIONALS

This section of the Standard explains:

- the procedures associated with conduct of the Physical and Health Assessment for marine pilots;
- the relationships, use of forms and flow of information between Authorised Health Professionals and the Port Authority;
- the nature of the tests required for Pre-employment and Periodic Assessments;
- the equipment requirements;
- general considerations for conducting the assessments;
- considerations for communicating with pilots, other health professionals and the Port Authority; and
- considerations for record keeping.

The administrative, clinical and reporting procedures which should be followed by Authorised Health Professionals in conducting pre-employment and periodic health assessments for marine pilots are described in this section.

Where processes apply to both medical practitioners and physiotherapists, the term “Authorised Health Professional” is collectively used. Where actions specific to medical practitioners or physiotherapists are specified the terms “AHP-Medical” and “AHP-Physiotherapist” are used respectively. Further detail in relation to the conduct of the specific aspects of the clinical assessment and the interpretation of test results is included in [Part E –Assessment and management of health conditions](#).

The roles and relationships are shown in Figure 9. The detailed process is shown in Figure 10 overleaf.

Figure 9. The conceptual relationship between Port Authority, AHP–Physiotherapist and AHP–Medical

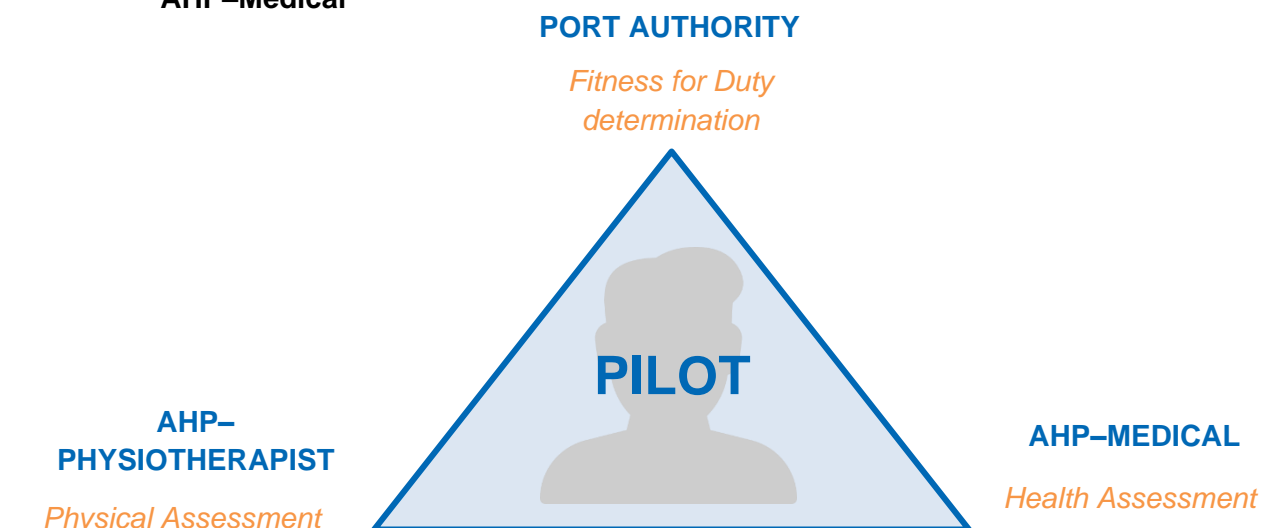
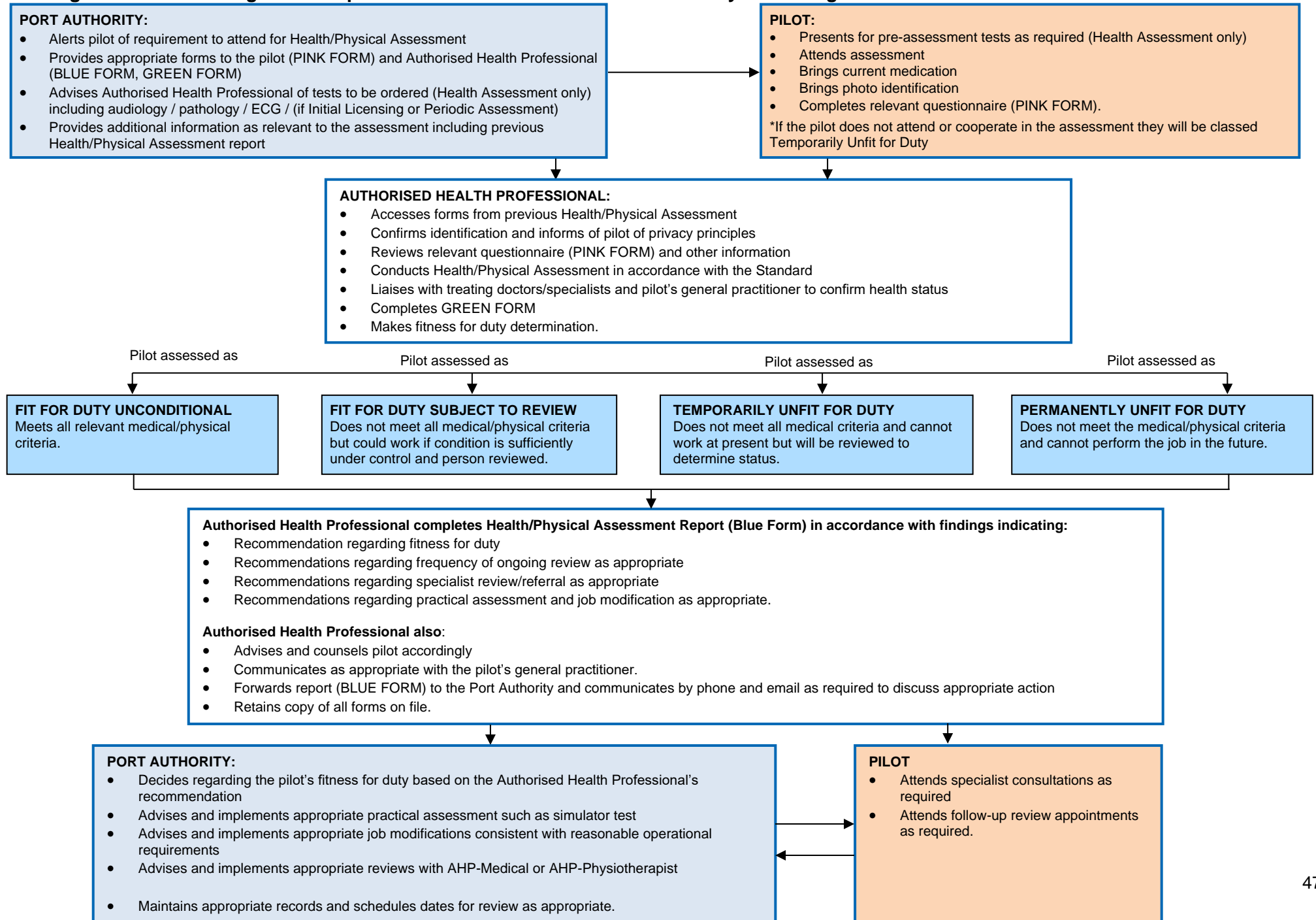


Figure 10. Conducting a marine pilot health assessment for fitness for duty / licensing



18. Appointments, forms and supporting documentation

The Port Authority will notify pilots when they are due for their Periodic Assessment or when they are required to undertake a Triggered Assessment. Appointments for assessments will be made by the Port Authority or the pilot. As noted in [Part B, Health Assessment System](#), the timing of Periodic Assessments varies for Physical and Health Assessments as per Table 6 below. When Health and Physical Periodic Assessments coincide, the Physical Assessment is conducted before the Health Assessment so that the results of the Physical Assessment may be considered by the AHP-Medical.

Table 6. Timing and frequency of Health Assessments and Physical Assessments

Type of assessment	Frequency
Health Assessment	<ul style="list-style-type: none">• At initial licensing, then• Every five years to age 50, then• Every two years to age 60, then• Yearly thereafter
Physical Assessment	<ul style="list-style-type: none">• At initial licensing, then• Every two and a half years to age 50, then• Yearly thereafter

Prior to the appointment, the Port Authority will provide the Authorised Health Professional and the pilot with the relevant forms (refer [Section 12.5 Health assessment forms](#)):

- There are separate forms for the Health and Physical Assessments, but they are colour coded in the same way (i.e., Pink, Green, Blue).
- The health professional must **not** initiate the forms – they represent a formal request from the Port Authority.
- Marine pilots should also not initiate the forms.

The Port Authority will also send relevant supporting documentation to the Authorised Health Professional:

- At a minimum, this must include a copy of the report from the previous Health/Physical Assessment (Blue Form).
- Additional information such as a summary of sick leave and workplace injuries may also be included if relevant to the assessment, particularly for a Triggered Assessment.

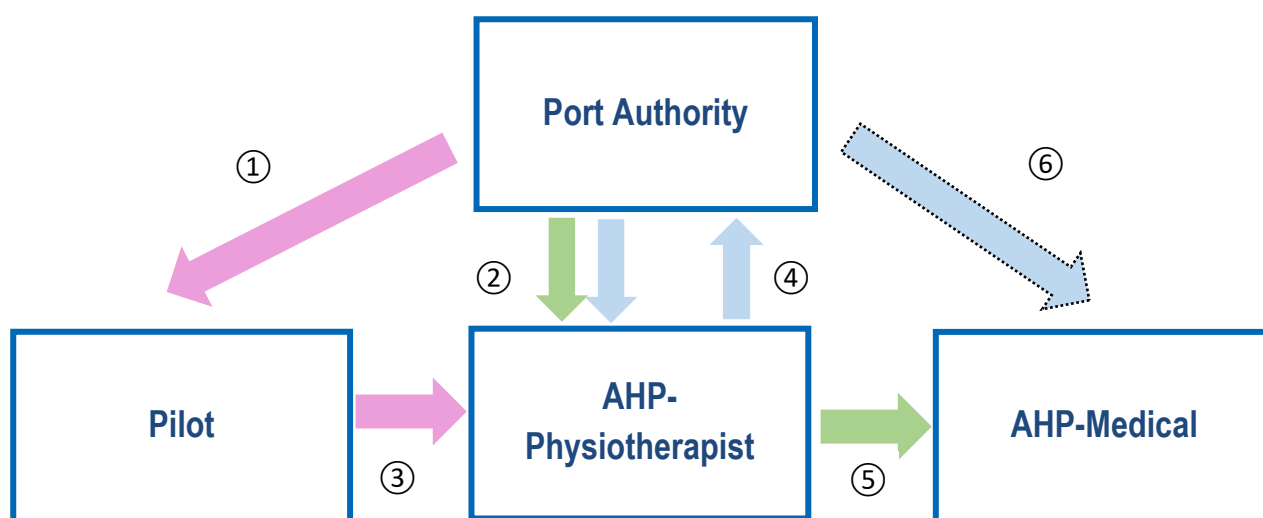
The AHP-Medical should also have received the most recent Green Form from the Physical Assessment which contains information regarding musculoskeletal and cardiovascular fitness.

The Authorised Health Professional may seek further information from the Port Authority or from previous Authorised Health Professionals if required.

The Authorised Health Professional should not conduct the assessment if the forms and other necessary documentation such as pathology results (refer [Section 19 Tests required prior to attending an assessment](#)) are not available at the time of the assessment.

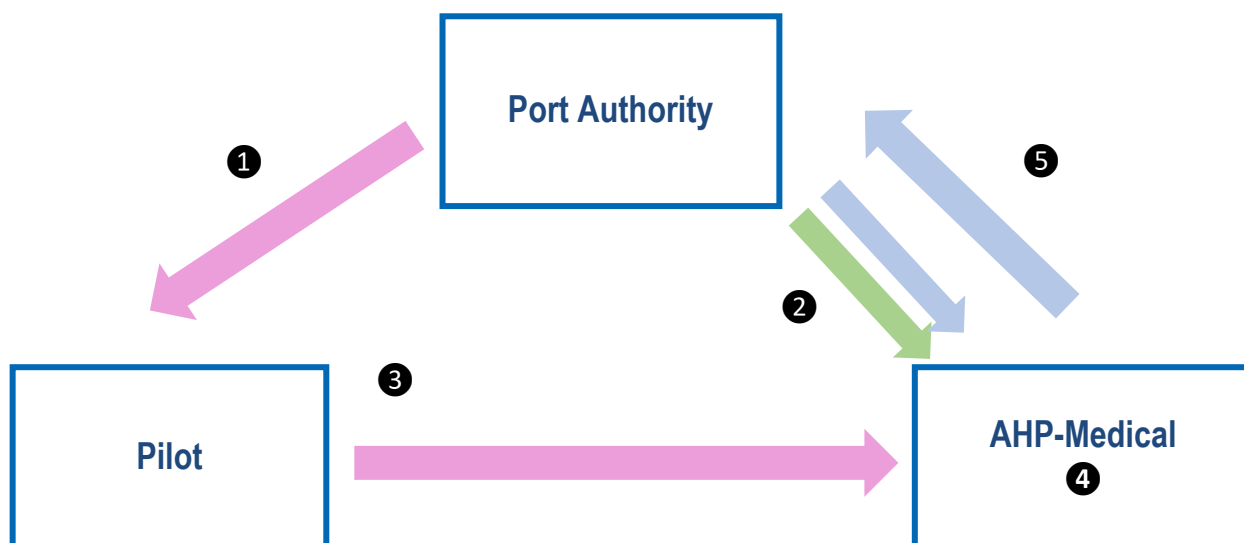
Figure 11 and Figure 12 show the flow information (forms) between the Port Authority, pilot and Authorised Health Professionals for the Periodic Physical and Health Assessments. NOTE: Triggered Health Assessments do not usually require the pilot to complete the health questionnaire (Pink Form) and do not usually involve a full clinical examination as per the Green Form, so those form will not usually be required. Triggered Physical Assessments will generally involve the full suite of tests and will therefore require the full set of forms.

Figure 11. Flow of forms for a Periodic Physical Assessment (conducted before the Health Assessment)



- ① The Port Authority provides the PINK FORM to the pilot as a request to attend their Periodic Physical Assessment
- ② The Port Authority provides the BLUE FORM to the AHP-Physiotherapist as a request to conduct the Physical Assessment, and the GREEN FORM as the clinical record.
- ③ The pilot attends the Physical Assessment and provides the completed PINK FORM to the AHP-Physiotherapist.
- ④ Following completion of the assessment, the AHP-Physiotherapist completes the BLUE FORM with the fitness for duty recommendations and returns it to the Port Authority.
- ⑤ The AHP-Physiotherapist sends a copy of the completed GREEN FORM to the AHP-Medical who will be conducting the Health Assessment. This communication should occur when Physical and Health Assessment coincide as well as when the Physical Assessment is conducted on its own.
- ⑥ If the pilot does not pass the Physical Assessment, the Port Authority will indicate this on the request for the Periodic Health Assessment.

Figure 12. Flow of forms for a Periodic Health Assessment (conducted after Physical Assessment)



- ① The Port Authority provides the PINK FORM to the pilot as a request to attend their Periodic Health Assessment
- ② The Port Authority provides the BLUE FORM to the AHP-Medical as a request to conduct the Health Assessment, and the GREEN FORM as the clinical record
- ③ The pilot attends the Health Assessment and provides the completed PINK FORM to the AHP-Medical
- ④ The AHP-Medical has on hand the GREEN FORM from the Physical Assessment (provided by the AHP-Physiotherapist) as well as the forms from the previous Health Assessment from their own files
- ⑤ Following completion of the assessment, the AHP-Medical completes the BLUE FORM with the fitness for duty recommendations and returns it to the Port Authority.

19. Tests required prior to attending assessment

Marine pilots are required to have the following tests before attending a **Health Assessment** for Initial Licensing or Periodic Health Assessment:

- audiometry;
- an electrocardiogram (ECG);
- non-fasting blood tests for cholesterol (total and HDL);
- non-fasting blood test for HbA1c.

These should be completed in advance so that the results are available at the health assessment. The marine pilot will also be asked by the Port Authority to bring all medications or a list of their medications to the appointment, as well as copies of any medical management plans, such as for diabetes or other conditions.

The Port Authority has an Alcohol and Other Drugs procedure including random testing for specified substances. Drug and alcohol screening at the time of a Periodic Health Assessment is not required.

The **Periodic Physical Assessment** should also be completed before the pilot attends the Health Assessment and the results (Green Form) should be made available to the AHP-Medical.

There are no specific tests prescribed for a Triggered Health Assessment. Any tests will be determined by the Authorised Health Professional.

There are no tests required before a **Physical Assessment**.

20. Facilities and equipment

The examination room should be well lit, quiet and offer privacy.

Equipment for the **Health Assessment** should include:

- Snellen chart and Times-Roman chart (40cm) for far and near visual acuity tests;
- Ishihara plates (24 plate edition) for colour vision test;
- sphygmomanometer; and
- lap top/PC for recording data and calculating cardiac risk score.

Equipment for the **Physical Assessment** should include:

- sphygmomanometer;
- equipment for step test for predicted VO₂ max test;
- *Jamar* hydraulic handgrip dynamometer (or equivalent);
- equipment for ropes test, which comprises two 'man ropes' (28mm in diameter) secured from the ceiling and spaced 50cm apart, and a set of scales; and
- 500mm/600mm plyometric box or platform for step up/jump down test.

21. Orienting the pilot

To orient and inform the pilot about the Health/Physical Assessment procedure, the Authorised Health Professional should:

- explain the purpose and process of the assessment, and that the results will be discussed with them;
- confirm their identity;
- explain how their health information will be collected, used, disclosed and stored in line with privacy principles – this is summarised on the Pink Form (refer [Section 12. Management of health information](#)). The Authorised Health Professional should ask the pilot to sign the front page of the 'Pink Form' stating that they have understood these privacy principles.

A confident doctor-patient relationship is crucial for open discussion regarding a pilot's health, particularly in relation to psychological health. Adequate time should be allowed to develop rapport.

22. Reviewing the Pilot questionnaire (Pink form)

The Pink Form notifies the pilot of the requirement to attend a Health/Physical Assessment. It includes the reasons for the assessment and the instructions for the pilot. It also includes questions relevant to the **Health Assessment** and **Physical Assessment** as described below and which are completed before the pilot attends the assessment. For Health Assessments, the Pink Form is generally applicable to the Pre-employment and Periodic Assessments. Triggered Health Assessments are likely to be targeted to a specific issue and concern.

The **Health Assessment** questionnaire is broad ranging including a review of symptoms by body system, past history, medications and specific screening questionnaires. The **Physical Assessment** screening questionnaire is focused on matters related to current symptoms and general fitness as well as injuries relevant to pilot ladder transfers. This questionnaire is applicable for both Periodic and Triggered Physical Assessments as it incorporates a safety screen to ensure the pilot is fit to undertake the functional aspects of the assessment.

The assessment should not proceed unless the relevant questionnaire has been completed.

The Authorised Health Professional should review the pilot's responses to the questionnaire and elicit further information as required. Reviewing the Pink Form with the pilot using a conversational style is encouraged to support engagement. Comments should be noted on the form as appropriate.

For the **Health Assessment** questionnaire, scores should be calculated for various sections (e.g., Epworth Sleepiness Scale (Question 6); and Alcohol AUDIT questionnaire (Question 7)). Note the K10 questionnaire is administered verbally by the Authorised Health Professional – see below regarding the Green Form. The Authorised Health Professional should clarify and discuss aspects of the questionnaire as required.

The pilot should be asked to sign the questionnaire as a truthful statement. The Authorised Health Professional then countersigns and dates the completed questionnaire (last page of Pink Form).

23. Clinical assessments

The clinical assessment for both the **Health Assessment** and the **Physical Assessment** are guided by the respective Green Forms, with detail of specific assessments and considerations outlined in the relevant chapters of [Part E](#) of the Standard. For Health Assessments, the Green Form is generally applicable to the Pre-employment and Periodic Assessments. Triggered Health Assessments are likely to be targeted to a specific issue and concern requiring a more focussed assessment and more detailed clinical records around the issue.

The assessment will also be contextualised by the Authorised Health Professional being familiar with the health attributes which are required to meet the inherent requirements of pilotage tasks (refer to [Part C – The inherent requirements of pilotage](#)).

Additional tests or referral to a specialist may be required if the clinical examination raises the possibility of potentially significant problems. It may be necessary to contact the treating doctor to clarify information regarding the pilot's health. This must be done with their consent, confirmed in writing via the Pink Form.

If at the time of examination, the Authorised Health Professional is of the opinion that the pilot is under the influence of alcohol or other substances the examination may be terminated and the pilot classified as Temporally Unfit.

24. Additional tests and marine specific resources

There are additional tests and marine specific resources that may inform the assessment, particularly for Triggered Assessments. For example, training records, or reports from annual performance assessments and triannual simulator assessments.

Where appropriate, cognitive capacity may be assessed under normal or stressful situations using computer simulation (refer Figure 13) or scale model simulation of pilotage (refer Figure 14).

The Authorised Health Professional should discuss the role of such resources with the Port Authority on a case-by-case basis.

Figure 13. A bridge simulator (Launceston, Tasmania)



Figure 14. A scale model for assessing pilotage skills (Port Ash, Newcastle)



25. Specialist referral

The pilot's condition may warrant referral to a specialist. In such cases the Port Authority should be advised and expenses anticipated but the diagnosis should remain confidential. In such cases the Authorised Health Professional should explain fully to the specialist the nature of the piloting task and the concerns regarding health status of the pilot. The specialist should also be provided with the relevant sections of the Standard, including the inherent requirements (Table 5) so that their assessment can be made with insight. Communication between the specialist and the Authorised Health Professional should be conducted directly, not via the pilot, while keeping the pilot informed.

The pilot may need to be categorised Temporarily Unfit while their health status is being resolved in which case the Port Authority should be promptly advised of the likely duration.

The specialist report should be sent to the Authorised Health Professional for interpretation and classification regarding fitness for duty, not to the Port Authority.

26. Informing and counselling the pilot

The Authorised Health Professional should advise the pilot of the results of the assessment and where relevant, about the ways in which their condition and overall trends may impair their ability to perform their duties. As part of this process, the pilot becomes informed about:

- their health and fitness in general;
- the nature of any condition and the extent to which he or she can maintain control over it;
- the importance of regular medical review; and
- the need for medication or talking therapies where appropriate.

Should the pilot be found Temporarily or Permanently Unfit for Duty, the Authorised Health Professional should take a conciliatory and supportive role while explaining fully the risks posed by the pilot's condition with respect to marine piloting.

The Authorised Health Professional should be alert to and refer to interfacing programs as appropriate (refer to [Part B – The health assessment system](#)).

27. Communicating with the pilot's general practitioner and other health professionals

The Authorised Health Professional should ensure an ethical relationship with the pilot's general practitioner and other treating professionals and should ensure continuity of care is maintained through timely and appropriate communication. Communication with other health professionals should be conducted directly, not via the pilot, while keeping the pilot informed.

The Authorised Health Professional should obtain the pilot's consent if needing to contact their general practitioner or treating specialist to clarify information relating to the pilot's health condition. This should be confirmed in writing via the Pink Form.

Reference to the general practitioner should be made for ongoing treatment requirements, for management of lifestyle issues and to discuss issues such as medication side effects.

The finding of coincidental illness, for example a skin lesion suggestive of a melanoma, should be noted and referred to the general practitioner.

It is inappropriate for a pilot's general practitioner to be the Authorised Health Professional as there may be a conflict of interest.

28. Reporting to the Port Authority

All pilots must be categorised regarding their fitness for duty. The possible classifications regarding fitness for duty are set out in [Section 10 Standard reporting framework](#).

- Fit for Duty Unconditional;
- Fit for Duty Subject to Review;
- Temporarily Unfit for Duty;
- Permanently Unfit for Duty i.e., predicted to be unfit for at least 12 months.

The final decision regarding fitness to hold a pilots' licence rests with the Port Authority.

Should the pilot be assessed as Unfit for Duty either temporarily or permanently, the Authorised Health Professional should notify the Port Authority immediately by phone to discuss the implications of the assessment and to allow the Port Authority to make appropriate roster arrangements. The Authorised Health Professional should not discuss specific clinical information, only recommendations in terms of fitness for duty including any necessary job modifications.

In all cases the Authorised Health Professional should complete the health assessment report (Blue Form) in line with privacy requirements (refer [Section 12 Management of health information](#)).

The Health Questionnaire (Pink Form) and Health Assessment Record (Green Form) should **not** be returned to the Port Authority (refer Figure 11 and Figure 12).

If the examination cannot be completed satisfactorily the pilot should be categorised as Temporarily Unfit for Duty and the pilot and the Port Authority so advised.

Where possible, subject to reasonable operational requirements, the Port Authority will accommodate the limitations of the pilot's capabilities due to health issues through strategies such as job modifications, alternative duties or supervision as appropriate.

29. Record keeping

All health information should be managed in line with privacy legislation as outlined in [Section 12 Management of health information](#).

Appropriate records should be maintained by the Authorised Health Professional including:

- completed Health/Physical Questionnaire (Pink Form);
- completed Health/Physical Assessment Record (Green Form);
- copies of test results;
- copy of the report form sent to the Port Authority (Blue Form);
- copies of relevant supporting information; and
- any additional clinical or referral notes.

Records may be scanned and kept in electronic form. The pilot's signature on the completed Health/Physical Questionnaire is legally valid after scanning. This also applies to the health professional's signature.

The pilot's medical records should be made available to them on request.

PART E – ASSESSMENT & MANAGEMENT OF HEALTH CONDITIONS

This section of the Standard explains:

- detailed guidance regarding the impacts of various health conditions on the work of marine pilots;
- considerations for identification, assessment and management of health conditions; and
- general considerations including management of health conditions not specifically mentioned in this Standard, including short-term conditions.

30. Introduction and general considerations

In general terms, the assessment of pilots under the Standard involves:

- Identification of health issues
- Assessment to determine impact on pilotage
- Application of fitness for duty criteria
- Management in terms of monitoring and review

The detailed assessment processes, medical criteria and general management guidelines for various health conditions and body systems are contained in this section. The information is arranged in chapters alphabetically according to body system or condition. Each chapter provides general information about the body system/condition and its effects on safety, and then provides advice about the assessment of the body system/condition and management, where appropriate. The table in each chapter sets out the criteria to be met for fitness for duty.

The focus is on serious conditions that would impact the ability to perform piloting duties. The criteria emphasise function in relation to the job rather than being based on diagnosis or impairment per se.

It is not possible to cover the complete range of conditions that may need to be considered. A generic approach may be applied in situations where conditions or symptoms are encountered which are not covered in the Standard. This approach also applies to the situation where there are multiple minor conditions where concern may arise regarding their net effect on safety of the pilot and pilotage. This may occur, for example, in the setting of degenerative disease or multiple traumas after a motor car crash.

The basic principle in such assessments is to be mindful of the inherent requirements of pilotage and the associated necessary health attributes to be able to perform the key tasks. These matters are discussed in detail in [Part C – The inherent requirements of pilotage](#).

Clinical judgement is then required regarding assessing the severity of the condition in relation to the demands of performing the pilotage job safely. It is desirable that the examining health professional has first-hand understanding of the job requirements to make this assessment with

insight. Where necessary, additional tests may be required or discussions with the pilot's treating doctors or others may be helpful.

Generally, a marine pilot who presents with symptoms of a potentially serious nature, for example chest pains, blackouts, delusional states or dizzy spells, should be categorised Temporarily Unfit for Duty until their condition can be adequately assessed.

The Standard does not deal with the myriad of conditions that may affect health on a short-term basis and for which a marine pilot may be referred for assessment regarding fitness to resume duty. Such conditions may include recurrent respiratory infections, post-major surgery, recurrent migraine, fractures to limbs or situational stress (Jenkins, 2020). Clinical judgment is required on a case-by-case basis with reference to the principles outlined above.

There are a few situations that are not covered in specific chapters but for which advice is provided below. These include:

- Fatigue
- Pregnancy
- Prescription and over-the-counter medications

30.1 Fatigue

Fatigue management is a responsibility of the Port Authority¹⁴. The following advice is provided to assist the Authorised Health Professional in the management of pilots' health in this context.

Pilots may self-declare symptoms of fatigue (Q10 of Health Questionnaire, Pink Form) or identify concerns/symptoms of fatigue during a Periodic Assessment. They may also be referred for a Triggered Assessment by the Port Authority due to concerns about job performance and fatigue.

Pilots with fatigue may present with non-specific symptoms of tiredness, feeling drained or exhausted, loss of alertness, poor judgement and irritability. Sleepiness is not necessarily a feature. These features are a concern for the safe conduct of pilotage duties.

The potential causes of fatigue are numerous and include medical conditions, organisational factors and/or social factors, which warrant holistic consideration by the Authorised Health Professional as described below.

Medical conditions

There are many medical causes of fatigue. The Royal Australian College of General Practitioners (RACGP) recommends the following diagnostic approach based on consideration of likely causes as well as indicators of severe illness (Wilson, 2014):

- **Diagnoses of high probability:** stress and anxiety, depression, post-viral infections, and primary sleep related disorders including obstructive sleep apnoea, (refer [Section 39 Sleep disorders](#))
- **Red flags of serious underlying disease:** include unintentional weight loss, bleeding, fever, lymphadenopathy, shortness of breath.

¹⁴ NSW Marine Pilotage Code 2022, Vol 1

- **Diagnoses often overlooked:** coeliac disease, haemochromatosis, pregnancy, metabolic disturbances and side effects of medications.

Potential medical causes should be investigated, in the first instance through the pilot's general practitioner and potentially through specialist referral in consultation with the general practitioner.

Fitness for duty should be based on criteria in the relevant chapter of the Standard or on clinical judgement based on the severity of the presenting symptoms if the circumstances are not covered by the Standard.

Organisational factors

Organisational factors may include shift work, burnout, interpersonal conflict, et cetera.

- Shift work can contribute significantly to fatigue. The structure of marine pilot rosters varies between ports based on operational requirements and may be a "belt" roster spanning a few days or a fixed roster. Shift Work Sleep Disorder consists of symptoms of insomnia or excessive sleepiness that occur as transient phenomena in relation to work schedules. Patients are likely to present as extremely tired (fatigue), depending on time of day and day in shift schedule. Their mood may be depressed (Australian Sleep Association).
- Burnout can also present as fatigue. Burnout has features of exhaustion and reduced professional efficiency and empathy. Perfectionism is a predisposing personality feature (Parker, 2021).
- Other organisational factors causing fatigue may include interpersonal conflict and changing work demands.

Specialist assessment may be required for conditions such as sleep disorder or burnout. Prior to referral for specialist assessment, it is efficient practice to have screened for common medical conditions discussed above. Determination of fitness for duty will require clinical judgement based on the severity of the presenting symptoms.

In reporting to the Port Authority, the Authorised Health Professional may indicate to what degree organisational issues may be contributing to fatigue and need to be addressed.

Psychosocial factors

These include family situations, divorce, bereavement, financial distress, gambling, intimate partner abuse, et cetera.

Various supports are available to pilots including through the Port Authority EAP and the Pilot Assistance Network. Refer [Section 14, Policy and program interfaces](#). Determination of fitness for duty will require clinical judgement based on the severity of the presenting symptoms.

30.2 Pregnancy

Pregnancy is not a medical condition; however it does present a range of physiological and sometimes psychological issues to be considered regarding fitness for pilotage duties. Pregnancy may also result in medical complications that affect fitness for duty (refer Table 7).

This section of the Standard explains the potential risks associated with pregnancy as they relate to marine pilotage and the implications for fitness for duty. It also explains the role of the Authorised Health Professional and obstetric care givers in advising regarding fitness for duty.

From the Port Authority's perspective, any issues need to be managed on a case-by-case basis consistent with relevant legislation (including where applicable the *Fair Work Act 2009*, *Anti-Discrimination Act 1977* and *Work Health and Safety Act 2011*) and company policy on pregnancy and maternity leave. The Port Authority will also communicate the risks and responsibilities to female pilots as part of their WHS obligations. Discussion of these obligations is beyond the scope of this Standard.

Pregnancy risks relevant to pilotage

Various changes occur during pregnancy which may increase the risks for pregnant women and for pilotage operations. These changes can vary considerably between individuals in terms of onset, severity and impact. However, ultimately the changes in the mother's centre of gravity, balance and general mobility in the third trimester will have implications for safety during cutter transfers. This, together with risks associated with trauma, such as placental abruption, and the increased prevalence of complications such as carpal tunnel syndrome (which may affect grip strength) in the third trimester is the basis of the working restrictions for pregnant pilots, as noted below.

In terms of the impact of pilotage work on pregnancy, there is some evidence that shift work may be associated with adverse pregnancy outcomes. Fatigue may also be exacerbated. Trauma to the abdomen significantly increases the risk of having a placental abruption where the placenta separates from the uterus too early. This increases the risk of miscarriage and poor maternal health outcomes.

Table 7 outlines the main changes and complications of concern regarding safety. Reference is made to relevant sections of the Standard as appropriate.

Table 7. Changes and complications associated with pregnancy that may be relevant to pilotage

Pregnancy related change or complication	Onset / prevalence	Relevance/risk for pilotage Current Standard if applicable
Hyperemesis	Common in the first trimester but may continue.	May be exacerbated by sea-state conditions. If severe may impact nutritional and hydration status.
Fatigue	Common in the first trimester. May be associated with anaemia – see below.	May be exacerbated by shift work.

		Note: Shiftwork itself may also have a negative impact on pregnancy outcomes (Cai et al).
Cardiovascular changes	Common in the first two trimesters, resolving in the third. Anaemia may occur during pregnancy (25%) (Frayne J, Pinchon D, 2019) and postpartum.	May cause hypotension, dizziness, fainting (syncope), lack of concentration, vision problems such as blurred or double vision. Anaemia may contribute to fatigue and reduced mental performance (refer Section 30.1 Fatigue). Refer Section 32 Cardiovascular fitness and diseases Refer Section 41 Vision and eye disorders
Mood swings	Common in the first trimester.	May impact communication and planning.
Relaxation of ligaments of pelvis and other joints	Usually begins in the first trimester.	May cause low back pain (affects 50-80% of women in the third trimester, Sabino et al) and affect stability. May impact all aspects of pilotage including embarking/disembarking and work on the bridge. Refer Section 35 Musculoskeletal conditions
Increased abdominal girth and enlarged breasts	Most affected in the third trimester.	Results in changes in centre of gravity with implications for balance and mobility. May impact stability on the cutter deck and climbing the pilot ladder. Possible difficulty in fastening lifejacket. Refer Section 35 Musculoskeletal conditions
Carpal tunnel syndrome and De Quervain's tenosynovitis	Anytime but more common in third trimester. Prevalence of up to 62% self-reported. (Afshar et al)	Pain, reduced grip strength may affect safety on the pilot ladder. Refer Section 35 Musculoskeletal conditions
Hypertension / pre-eclampsia	Higher risk in the third trimester. 3-4% of mothers have gestational hypertension (AIHW 2019).	A significant complication that would necessitate cessation of pilotage duties. Refer Section 32 Cardiovascular fitness and diseases
Gestational diabetes	Usually occurs in the third trimester. Affects approximately 13.5% of mothers (AIHW 2019).	Raises the risk of hypertension and preeclampsia (AIHW, 2019) Refer Section 32 Cardiovascular fitness and diseases

Placental abruption (premature separation of placenta from the uterus to varying degrees)	Can occur any time after 20 weeks but most commonly in the third trimester. Prevalence of about 1%. Highest in younger (<25) and older (>35) mothers. (Ananth, 2015).	A significant complication that requires close monitoring as increases the risk of miscarriage. Trauma to the abdomen significantly increases the risk of having a placental abruption. This is relevant to cutter transfers and any other physical risks associated with embarking and disembarking.
---	--	--

Fitness for duty monitoring and restrictions

Based on the risks outlined above, including the potential compounding of risks and the lack of predictability of some risks, 26 weeks gestation is the point at which pregnant pilots will no longer be unconditionally fit to undertake pilotage tasks. Safe duties may be arranged as per Port Authority policy.

Prior to 26 weeks gestation, fitness for duty will be determined based on consideration of the risks outlined above and any additional risks identified by the obstetric care team. There should be discussion between the pilot, obstetric caregiver, AHP-Medical and the Port Authority regarding the risks associated with continuing pilotage work.

Pilots are required to request a Triggered Assessment with the Authorised Health Professional at 13 weeks to enable early engagement with their obstetric care team and management of their fitness to undertake pilotage work.

Where an Authorised Health Professional becomes aware of a pilot's pregnancy, their main role is to ensure that the pilot's obstetric care team is aware of the requirements and risks of the pilotage task and that they provide recommendations regarding the pilot's fitness for duty and monitoring requirements.

The Authorised Health Professional should:

- Consider the relevant obstetric history in relation to the inherent requirements of pilotage, the risks detailed in Table 7 and any concerns raised by the pilot;
- Communicate directly with the obstetric care giver with the consent of the pilot. In the first instance this will include explaining the unique features and risks of the marine pilot's job (providing Table 5 and Table 7 as reference material) and the role of the Authorised Health Professional in advising pilots and the Port Authority regarding fitness for duty;
- Seek a formal opinion and pregnancy plan regarding the pilot's fitness to undertake pilotage duties (providing the Green Form) including establishing whether the pilot is fit to undergo

the Physical Assessment for ladder transfers as set out in [Section 35 Musculoskeletal conditions](#);

- Consider this opinion in completing the report to the Port Authority and advising regarding management; and
- Establish a process for ongoing professional communication and management, and engagement with the pilot.

Consistent with [Section 12 Management of health information](#) and the Port Authority Privacy Policy, the information provided by the pregnant pilot will be kept confidential and will only be disclosed as is necessary to ensure the health and safety of the pilot and the safety of marine operations, and in line with the relevant privacy policies.

Return to work

Return to work after maternity leave should be managed as per return to work after any extended leave (refer [Section 14.2 Injury management, sick leave, return to work and rehabilitation](#)). A Triggered Health and Physical Assessment may be initiated by the Port Authority.

30.3 Prescription and over-the-counter (OTC) medications

The potential impact of prescription and OTC medication should be a consideration in determining a pilot's fitness for duty. Pilots are asked to record all current prescription and OTC medication on the Pink Form when attending a Health Assessment. This provides an opportunity for the Authorised Health Professional to consider and discuss potential impacts and provide advice accordingly.

The effects of medication and non-compliance with prescribed medication should be considered, including:

- how medication may help to control or overcome aspects of a health condition that may impact on working safely;
- whether medication side effects may affect working safely, including risk of sedation, impaired reaction time, impaired motor skills, blurred vision, hypotension or dizziness; and
- whether medication may result in a positive or non-negative result on a random drug screen carried out under the Port Authority Alcohol and Other Drug Procedure¹⁵. Prescription medications likely to result in a positive/non-negative test include benzodiazepines and opiates (see below).

Any drug that acts on the central nervous system has the potential to adversely affect a pilot's functioning. Central nervous system depressants, for example, may reduce vigilance, increase reaction times and impair decision making in a very similar way to alcohol. In addition, drugs that affect behaviour may exaggerate adverse behavioural traits and introduce risk-taking behaviours (Austroads and NTC, 2022).

The potential effects of specific drug classes are well documented but can vary between individuals. And, while the impact on safety in marine pilotage has not been systematically studied, evidence in relation to driving performance and crash risk provides an indication of the potential

¹⁵ Port Authority of New South Wales. Alcohol and Other Drugs Procedure 2021

risk. While many drugs have effects on the central nervous system, most, except for benzodiazepines, tend not to pose a significantly increased driving crash risk when the drugs are used as prescribed and once the patient is stabilised on the treatment.

Benzodiazepines

Benzodiazepines are well known to increase the risk of a vehicle crash and are found in about 4 per cent of road fatalities and 16 per cent of injured drivers taken to hospital. In many of these cases benzodiazepines were either abused or used in combination with other impairing substances. If a hypnotic is needed, a shorter acting drug is preferred. Tolerance to the sedative effects of the longer acting benzodiazepines used to treat anxiety gradually reduces their adverse impact on driving skills.

Benzodiazepine use will be identified on a random drug screen and pilots should be so advised.

Antidepressants

Although antidepressants are one of the more commonly detected drug groups in fatally injured drivers, this tends to reflect their wide use in the community. The ability to impair is greater with sedating tricyclic antidepressants (e.g., amitriptyline and dothiepin) than with the less sedating serotonin and mixed reuptake inhibitors such as fluoxetine and sertraline. However, antidepressants can reduce the psychomotor and cognitive impairment caused by depression and return mood towards normal. This can improve driving performance.

Antipsychotics

This diverse class of drugs can improve performance if substantial psychotic-related cognitive deficits are present. However, most antipsychotics are sedating and have the potential to adversely affect pilotage skills through blocking central dopaminergic and other receptors. Older drugs such as chlorpromazine are very sedating due to their additional actions on the cholinergic and histamine receptors. Some newer drugs (clozapine, olanzapine, quetiapine) are also sedating, while others (aripiprazole, risperidone and ziprasidone) are less sedating. Sedation may be a particular problem early in treatment and at higher doses.

Opioids

Opioid analgesics are central nervous system depressants and as such can suppress cognitive and psychomotor responses. While cognitive performance is reduced early in treatment (largely due to their sedative effects) neuroadaptation is rapidly established. This means that patients on a stable dose of an opioid may not have a higher risk of a crash. Working at night may be a problem due to the persistent miotic effects of these drugs reducing peripheral vision.

Opioid use will be identified on a random drug screen and pilots should be so advised.

Medicinal cannabis

There is limited evidence for the usefulness of medicinal cannabis. Medicinal cannabis products contain the cannabinoids cannabidiol (CBD) and delta-9-tetrahydrocannabinol (THC). THC is hallucinogenic potentially affecting performance. It will result in a positive drug test in random

screening; it is a banned substance under the Port Authority procedure for Alcohol and Other Drugs. Pilots should be so advised.

References and further reading

Afshar A, Tabrizi A. Pregnancy-related hand and wrist problems. *Archives of Bone and Joint Surgery* 2021; 9(3):345-349

Ananth CV, Keyes KM, Hamilton A, Gissler M, Wu C, et al. (2015) An International Contrast of Rates of Placental Abruption: An Age-Period-Cohort Analysis. *PLOS ONE* 10(5): e0125246. <https://doi.org/10.1371/journal.pone.0125246>

Australian Institute of Health and Welfare (2019) Incidence of gestational diabetes in Australia, AIHW, Australian Government, accessed 12 July 2022.

Australian Institute of Health and Welfare (2022) Australia's mothers and babies, AIHW, Australian Government, accessed 12 July 2022.

Australasian Sleep Association. Shift Work Sleep Disorder.

https://sleep.org.au/common/Uploaded%20files/Public%20Files/Professional%20resources/Adult%20resources/Shiftwork%20Disorder_0617.pdf

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Cai C, Vandermeer B, Khurana R, Nerenberg K, Featherstone R, Sebastianski M, Davenport MH. The impact of occupational activities during pregnancy on pregnancy outcomes: a systematic review and metaanalysis. *Am J Obstet Gynecol*. 2020 Mar;222(3):224-238. doi: 10.1016/j.ajog.2019.08.059. Epub 2019 Sep 21. PMID: 31550447.

Cai C, Vandermeer B, Khurana R, Nerenberg K, Featherstone R, Sebastianski M, Davenport MH. The impact of occupational shift work and working hours during pregnancy on health outcomes: a systematic review and meta-analysis. *Am J Obstet Gynecol*. 2019 Dec;221(6):563-576. doi: 10.1016/j.ajog.2019.06.051. Epub 2019 Jul 2. PMID: 31276631.

Frayne J, Pinchon D. Anaemia and pregnancy. *Australian Journal of General Practice*. 2019 Mar;48(3):125-129

Jenkins R. Migraine Management, *Australian Prescriber* 2020; 43; 148 – 151.

Parker G, Tawella G. Burnout: modelling, measuring, and managing. *Australasian Psychiatry* 2021; 29(6); 625 – 627.

Sabino J, Grauer J. Pregnancy and low back pain. *Current reviews in Musculoskeletal Medicine* 2008; 1:137-141 <https://doi.org/10.1007/s12178-008-9021-8>

Wilson J, Morgan S, Magin PJ, van Driel ML. Fatigue--a rational approach to investigation. *Aust Fam Physician*. 2014 Jul;43(7):457-61. PMID: 25006608.

31. Blackouts

31.1 Relevance to marine pilots

Unpredictable, spontaneous loss of consciousness is incompatible with piloting ships and climbing ladders.

31.2 General assessment and management guidelines

31.2.1 General considerations

Blackout may arise from various causes, including:

- cardiac syncope (e.g., arrhythmias, flow obstruction);
- hypotension due to inappropriate vasodilation (e.g., vasovagal faints, autonomic system disorder);
- neurogenic (e.g., epilepsy, transient ischaemic attacks);
- metabolic (e.g., hypoglycaemia);
- psychiatric (e.g., hyperventilation, psychosomatic states, non-epileptic psychogenic seizures);
- other uncommon conditions.

However, in other cases determination of the cause of blackouts may be difficult and require extensive investigations and specialist referral. Blackouts should be managed as per Figure 15. Pilots should generally be classed as Temporarily Unfit for Duty until the cause of the blackout is established although some conditions causing blackout are temporarily (e.g., fainting in hot weather) and may not impact on fitness for duty.

For the purposes of this Standard, a syncopal event is defined as a loss of consciousness (blackout) arising from a cardiovascular cause.

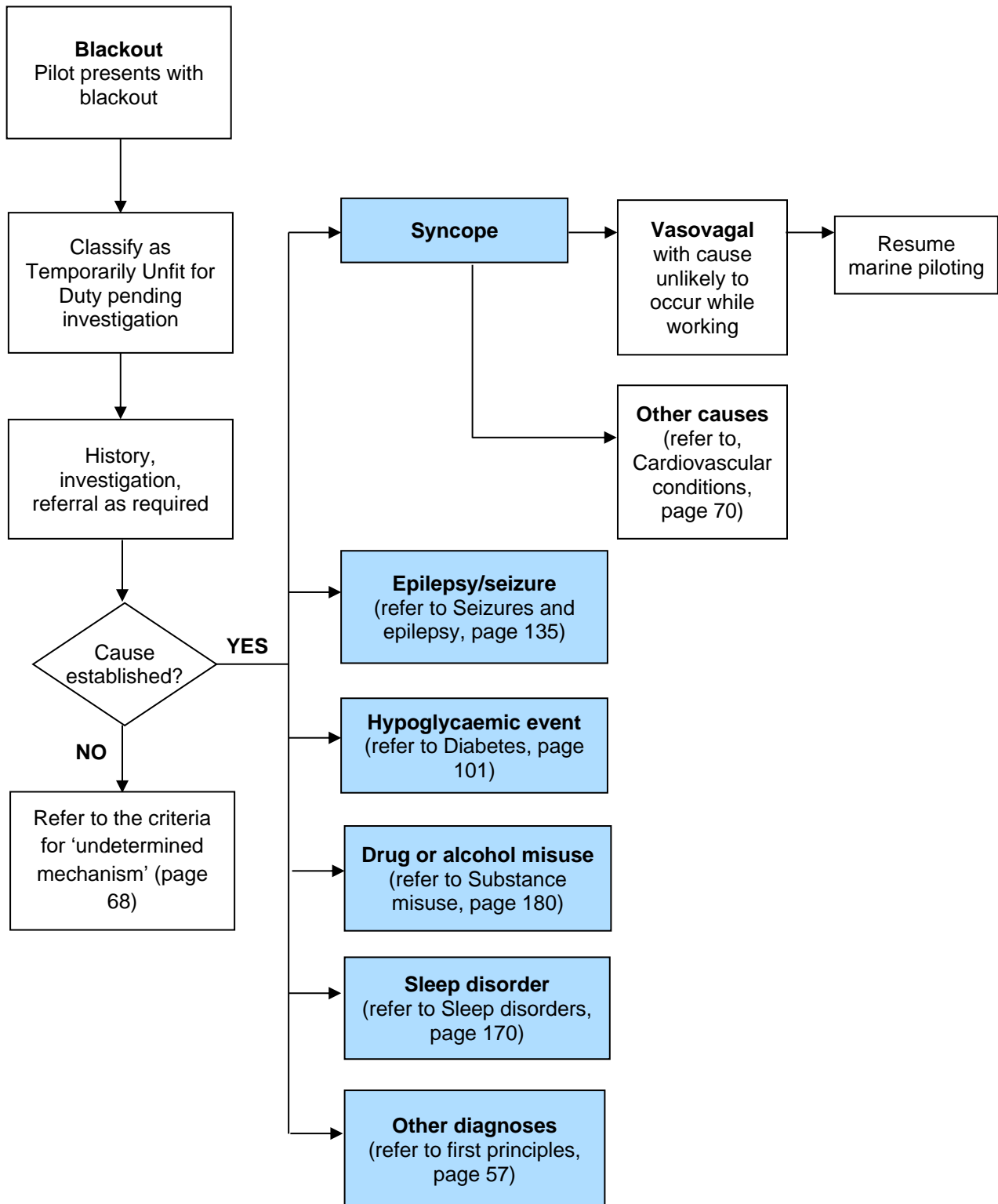
31.2.2 Vasovagal syncope

The most common cause of transient loss of consciousness is vasovagal syncope ('fainting'). Where this has been triggered by a well-defined provoking factor or a situation that is unlikely to recur while working (e.g., prolonged standing, venepuncture or emotional situation), it is not necessary to restrict work. However, vasovagal syncope may also result from other causes that are not so benign. In such cases, fitness for pilotage work should be assessed according to the cardiovascular conditions standard for syncope (refer to [Section 32 Cardiovascular fitness and diseases](#)).

31.2.3 Blackouts due to medical causes not covered in the Standard

If the cause of the blackout is determined to be due to a medical condition not covered in the Standard, then first principles regarding fitness for duty should be applied (refer to [Section 30 Introduction and general considerations](#)). Considerations include the likelihood of recurrence of blackout and the treatability of the condition as well as the nature of the safety critical task. There should also be an appropriate review period.

Figure 15. Management of blackouts in marine pilots



31.2.4 Blackouts of undetermined mechanism

If despite extensive investigation, the mechanism of a blackout cannot be determined, fitness for duty should be assessed according to Table 8. The criteria for blackout of undetermined mechanism are similar to those for seizure.

31.3 Medical criteria

Where a firm diagnosis has been made, the criteria appropriate to the condition should be referred to elsewhere in this Standard.

It is important that health professionals familiarise themselves with both the general information previously described and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 8. Medical criteria for marine pilots – Blackouts

Condition	Criteria
Blackouts: episode(s) of impaired consciousness of uncertain nature	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">if the pilot has experienced blackouts that cannot be diagnosed as syncope, seizure or another condition. <p>If there has been a single blackout or more than one blackout within a 24-hour period, Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account information provided by an appropriate specialist as to whether the following criterion is met:</p> <ul style="list-style-type: none">there have been no further blackouts for at least 5 years. <p>If there have been 2 or more blackouts separated by at least 24 hours, Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account information provided by an appropriate specialist as to whether the following criterion is met:</p> <ul style="list-style-type: none">there have been no further blackouts for at least 10 years.
Exceptional cases	<p>Where a pilot with one or more blackouts of undetermined mechanism does not meet the above criteria, Fit for Duty Subject to Review may be determined, based on consideration of the pilotage task and subject to annual review:</p> <ul style="list-style-type: none">if, in the opinion of the treating specialist and in consultation with the Authorised Health Professional the risk to pilotage caused by a blackout is acceptably low.

References and further reading

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Moya, A. et al. Guidelines for the diagnosis and management of syncope (version 2009). European Heart Journal 30, 2631–2671 (2009).

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

Shen, W. K. et al. 2017 ACC/AHA/HRS guideline for the evaluation and management of patients with syncope: A report of the American college of cardiology/American Heart Association task force on clinical practice guidelines and the Heart Rhythm Society. Circulation 136, e60–e122 (2017).

Sorajja D, Nesbitt GC, Hodge DO, Low PA, Hammill SC, Gersh BJ & Shen WK. Syncope while driving: clinical characteristics, causes, and prognosis. Circulation. 2009;119(12):928–934.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3918881/>

32. Cardiovascular fitness and diseases

32.1 Relevance to marine pilots

32.1.1 Effects of cardiovascular conditions on pilotage work

Cardiorespiratory fitness of a high order is required for pilotage work. This is particularly in relation to climbing the pilot ladder and then climbing up to six flights of stairs to reach the bridge. It is important the pilot is in good physical condition on reaching the bridge and not exhausted because the subsequent work involves high mental demands.

Collapse or loss of concentration due to other cardiac symptoms such as palpitations may jeopardise control of the ship at critical times. However, should collapse occur, others on the bridge may take appropriate action to mitigate the consequences, possibly in conjunction with tugs and harbour control.

Cardiovascular disease also may have end organ effects such as on the brain (stroke), vasculature of the extremities and vision. The relevant sections should be referred to for advice on assessment of these effects.

There are a few epidemiological studies of the health of pilots which have mainly found average or low cardiovascular mortality indicating this is not a high-risk group (Saarni, 1996).

32.1.2 Effects of marine piloting on the heart

A further problem in those who have established ischaemic heart disease is that pilotage work causes occasional emotional and sensorimotor arousal leading to a faster heart rate and fluctuation in blood pressure. Pilots may need to respond to an emergency, which theoretically could trigger angina, or even infarction.

Pilots work in environments with electromagnetic fields. For example, they extensively use handheld VHF radios with a power of up to 5W. These fields may cause interference with medical devices such as cardiac pacemakers. This is discussed further in the following pages.

32.2 General assessment and management guidelines

Symptomatic heart disease as well as asymptomatic disease needs to be detected. This is possible by using screening tests beginning with the Cardiac Risk Score as well as predicted VO₂ max testing and clinical examination.

A marine pilot who is asymptomatic but found to have an increased likelihood of a heart attack on a Cardiac Risk Score, should be assessed more fully than an ordinary patient because of the risks they pose to public safety.

32.2.1 Cardiac risk assessment

Assessment of cardiac risk involves clinical assessment as well as a cardiac risk level measurement. Clinical assessment includes the evaluation of information such as:

- symptoms, such as chest pain or palpitations that may cause distraction from pilotage work, as well as being a harbinger of possible collapse;

- family history, such as first-degree relatives having cardiovascular events in midlife;
- past history;
- comorbidities such as obesity, inactivity, obstructive sleep apnoea and depression; and
- work factors such as exposure to climatic extremes in the course of work.

All information should be used in assessing fitness. Clinical judgement may be needed to determine if a person is Fit for Duty, Fit for Duty Subject to Review or Temporarily Unfit for Duty while being further assessed.

Cardiac risk level

The health assessment incorporates the cardiac risk level as a tool for predicting risk of a cardiovascular event, and in particular heart attack, during a 5-year period. It considerably increases the power of the assessment to identify pilots at risk of sudden incapacity and to guide their management.

1. Data collection

Obtain the following information for the cardiac risk level calculator:

- age and sex;
- whether or not the patient smokes cigarettes;
- blood pressure as measured supine;
- TC:HDL ratio - calculated based on total cholesterol (TC) and high-density lipoprotein (HDL); (non-fasting blood is acceptable);
- whether diabetic (a pilot is diabetic if they are under treatment for diabetes or if diabetes is confirmed on HbA1c testing (refer to [Section 33 Diabetes](#));
- ECG - report specifically requiring information regarding presence of left ventricular hypertrophy¹⁶.

2. Determine risk level

The Australian absolute cardiovascular disease web-based calculator should be used to calculate risk so as to ensure uniformity <http://www.cvdcheck.org.au/>. Where the online calculator is not available, the charts in Figure 16 may also be used.

(https://www.heartfoundation.org.au/getmedia/dbb102e3-850f-41da-afbe-2776d8d4b97e/Absolute-CVD-Risk-Quick-Reference-Guide_2018.pdf)

Within the chart, the cell nearest to the person's age, systolic blood pressure and total cholesterol:HDL ratio should be used. Pilots who fall exactly on a threshold between cells should be placed in the cell indicating a higher risk. For example, pilots less than 35 years old should be managed as if they are 35 years old.

3. Stratification and risk management (refer to Figure 17)

The cardiac risk level is associated with a probability of a cardiovascular event in the next 5 years. The higher the cardiac risk level, the higher the probability of an event. Therefore, management of pilots is determined partly by their risk level and partly by their overall cardiac risk assessment.

¹⁶ Left Ventricular Hypertrophy (LVH) - The Sokolow-Lyon criterion for LVH is met if the amplitude of the S wave in V1 added to the amplitude of the R wave in V5 is greater than 35mm. There are other considerations, with LVH regarded as more severe if there are additional S-T and T wave changes.

- **Probability $\geq 25\%$ in 5 years (red and orange cells).** The pilot is unfit for work. They should be referred for a stress echocardiograph (EchoCG) and classed as Temporarily Unfit for Duty pending results and appropriate management.
- **Probability 10–24% in 5 years (light orange, yellow and blue cells).** The pilot is referred for a stress EchoCG. While awaiting results of the ECG, the pilot may be assessed as Fit for Duty Subject to Review or Temporarily Unfit for Duty, depending on the overall cardiac risk assessment.
- **Probability 5–9% in 5 years (dark green cells).** The pilot is assessed for specific risk factors and overall cardiac risk including obesity, physical activity and family history. The pilot may be managed by referral to their general practitioner for risk factor modification, a stress EchoCG and/or other tests as clinically appropriate. While awaiting results of further investigations, the pilot may be classed as Fit for Duty Subject to Review or Temporarily Unfit for Duty, depending on the overall assessment.

Coronary Artery Calcium Score, in conjunction with the advice of a cardiologist, may be used to assess the need for a stress EchoCG in pilots with a cardiac risk level of 5-9%.

- **Probability $< 5\%$ in 5 years (light green cells).** The pilot is assessed regarding overall cardiac risk assessment and managed accordingly including referral to their general practitioner as required. They may be classed as Fit for Duty or Fit for Duty Subject to Review, depending on the overall assessment.

The Coronary Artery Calcium Score (CACS) may be used to further assist in risk stratification (refer Figure 17). (Chua, 2020)

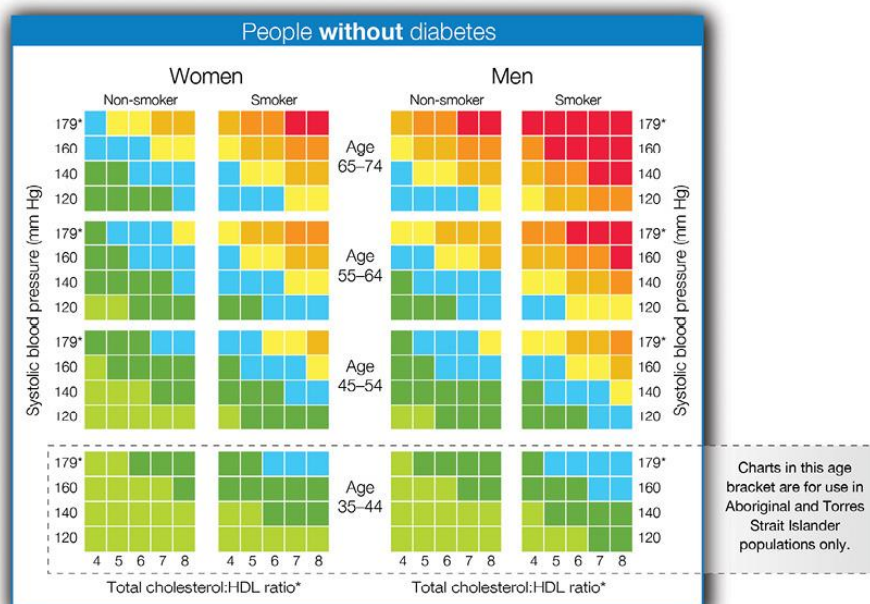
Stress echocardiograph (McLellan, 2012)

The stress echocardiograph (EchoCG) should be conducted using the Bruce protocol or equivalent functional exercise test protocol. The exercise capacity should be greater than or equal to 90% of the age/sex predicted capacity (refer to Figure 18). Where a stress EchoCG is positive or clinical assessment warrants it, referral to a cardiologist should be made for further assessment such as CACS, and advice on management. The results of a stress EchoCG are valid for up to 2 years, provided that the person remains asymptomatic.

Management of risk factors

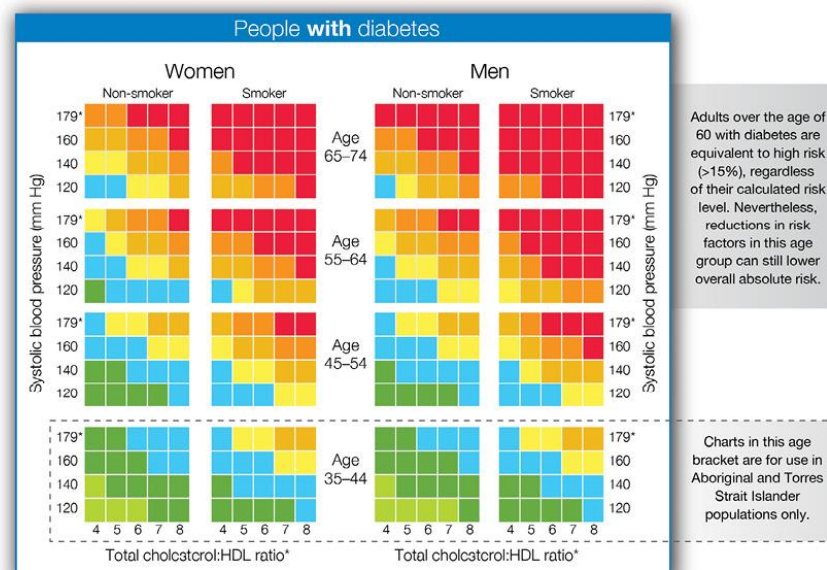
Where risk factors are identified, such as having increased blood pressure or being a smoker, the pilot should be referred to their general practitioner and other appropriate programs. The pilot should be reviewed to monitor management of their risk factor profile (National Vascular Disease Prevention Alliance, 2012). Where hypertension is identified as a risk factor, also refer to the section on hypertension.

Figure 16. Australian cardiovascular risk charts



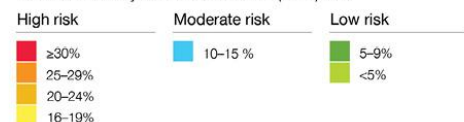
* In accordance with Australian guidelines, patients with systolic blood pressure ≥ 180 mm Hg, or a total cholesterol of >7.5 mmol/L, should be considered at clinically determined high absolute risk of CVD.

Risk level for 5-year cardiovascular (CVD) risk



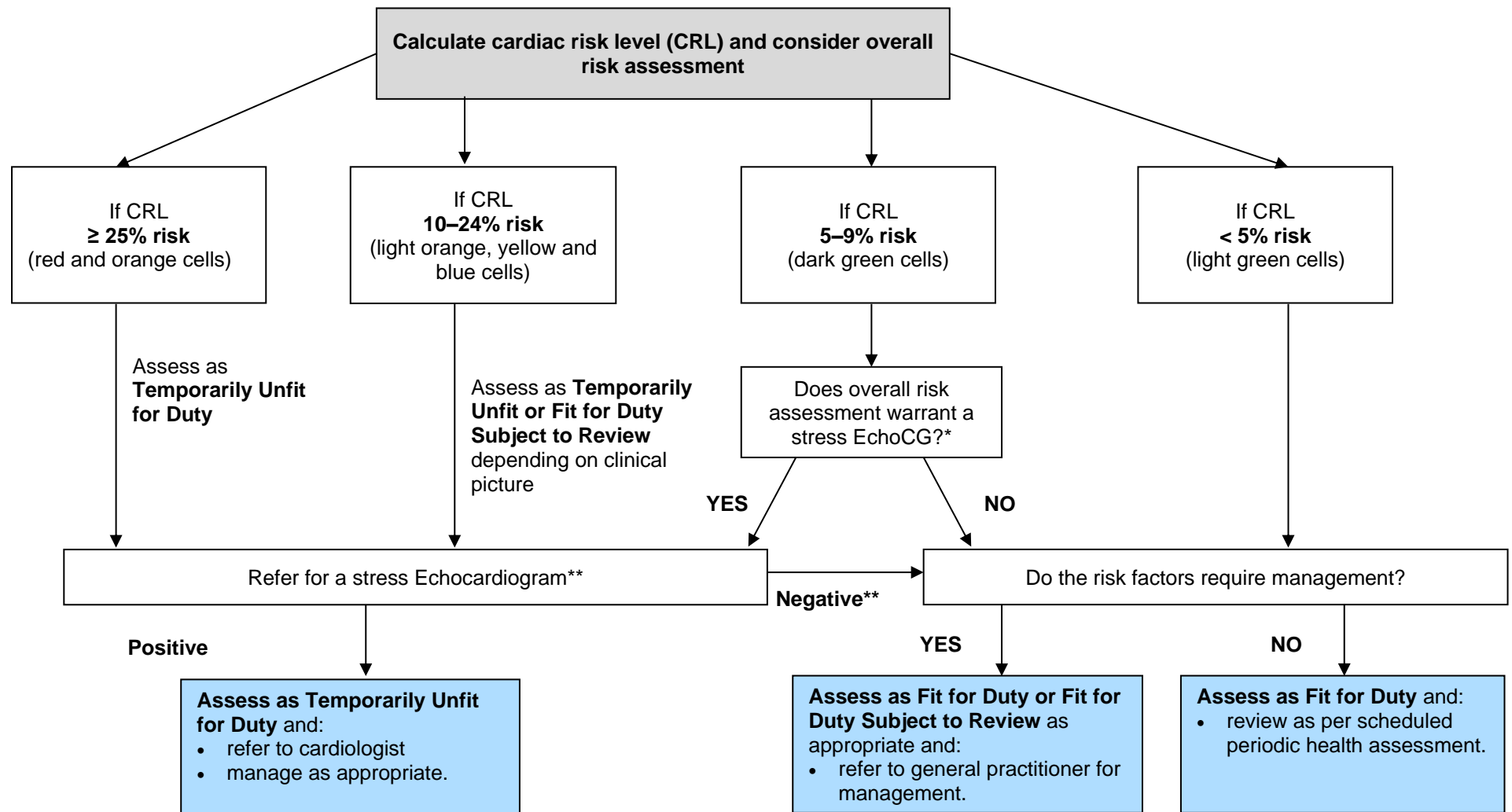
* In accordance with Australian guidelines, patients with systolic blood pressure ≥ 180 mm Hg, or a total cholesterol of >7.5 mmol/L, should be considered at clinically determined high absolute risk of CVD.

Risk level for 5-year cardiovascular (CVD) risk



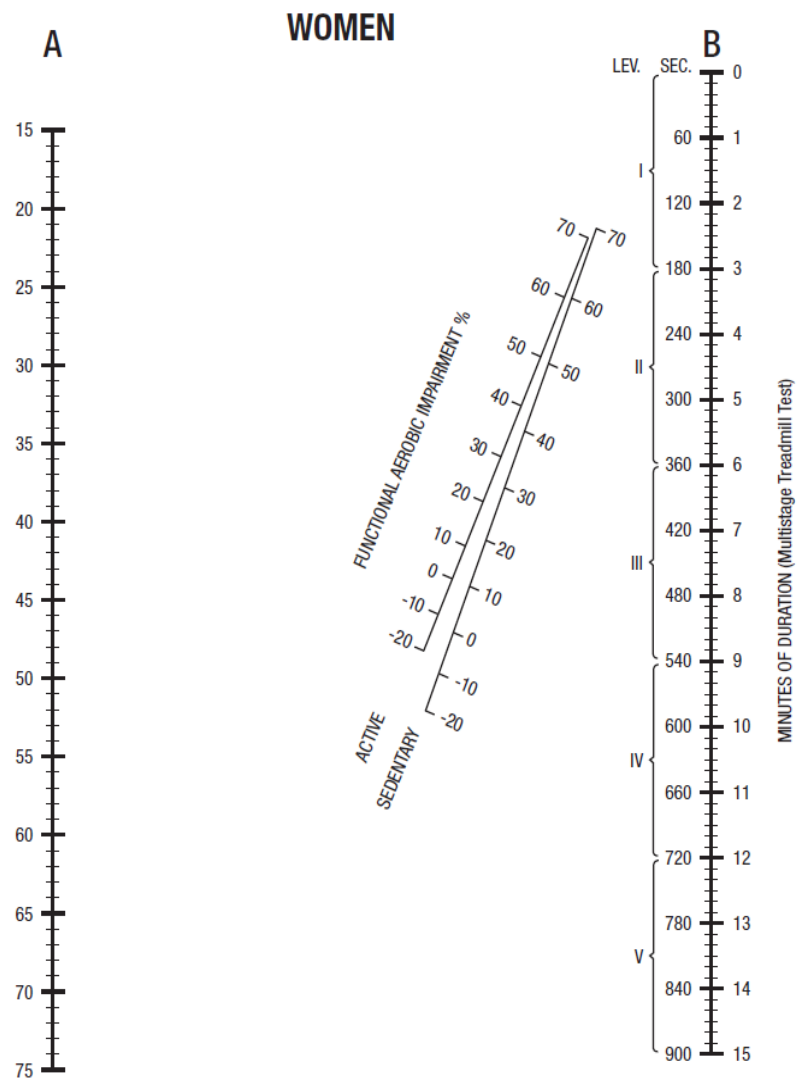
Source: Reproduced with permission from the *Absolute cardiovascular disease risk assessment. Quick reference guide for health professionals*, an initiative of the National Vascular Disease Prevention Alliance. © 2012 National Heart Foundation of Australia

Figure 17. Management of cardiac risk level (CRL)



*Coronary Artery Calcium Score, in conjunction with the advice of a cardiologist, may be used to assess the need for a stress EchoCG in pilots with a cardiac risk level of 5-9%

** Pilots who test negative for a stress echocardiogram but for whom there is cause for concern may be further assessed with a CACS, in conjunction with the advice of a cardiologist.



Standard for Health Assessment of Marine Pilots NSW 2022 – November 2022

32.2.2 Cardiorespiratory fitness (predicted VO₂ max)

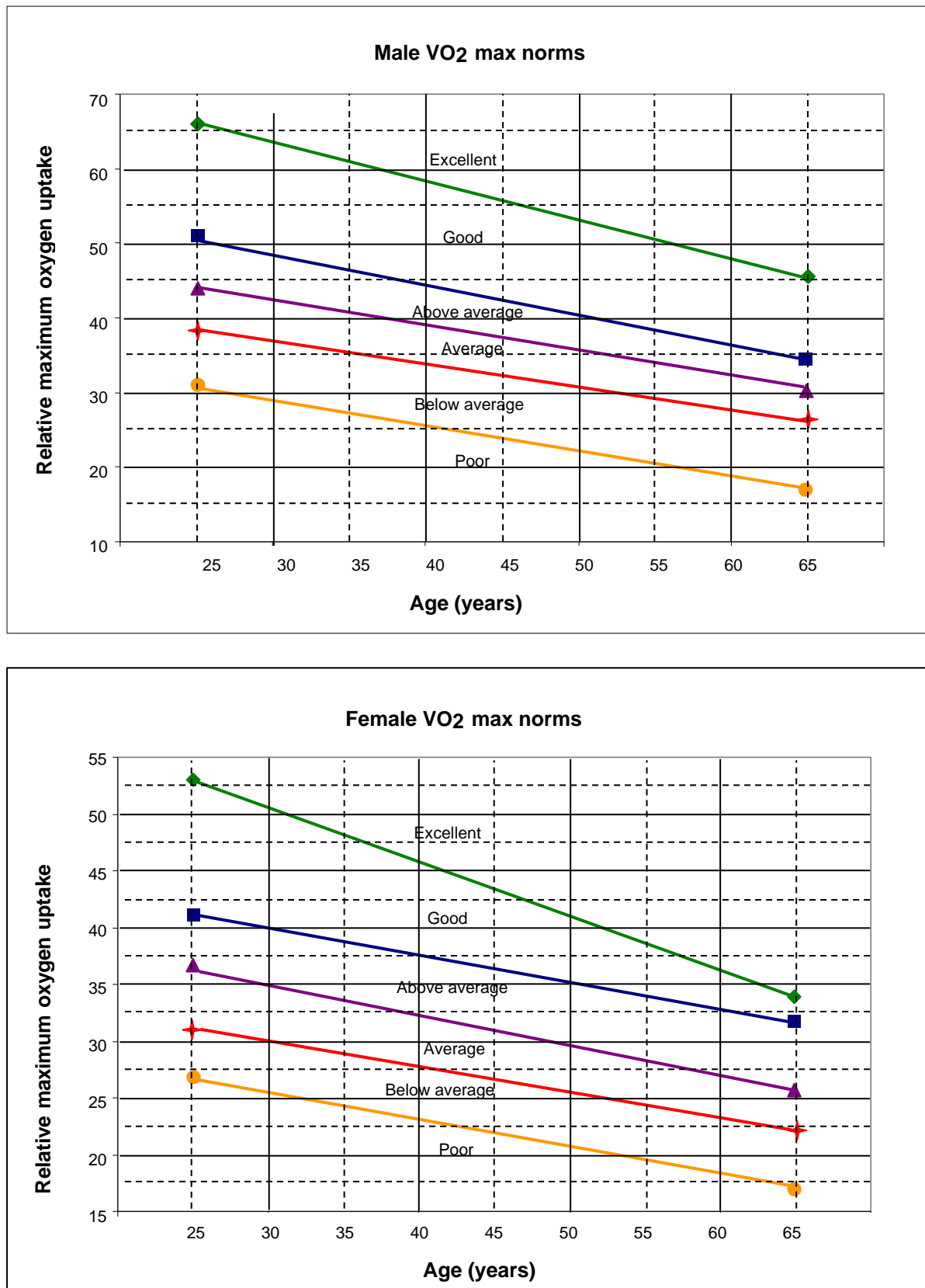
Cardiorespiratory fitness of a high degree is required for pilotage work particularly for climbing the pilot ladder and up to six storeys of stairs to reach the bridge. It is important the pilot is in good physical condition on reaching the bridge and not exhausted because the subsequent work involves high mental demands.

Cardiorespiratory fitness may be assessed by measuring maximal oxygen uptake (VO₂ max). This is an estimate of the capacity to transport and utilize oxygen during incremental exercise. It is usually expressed in millilitres of oxygen per kilogram of bodyweight per minute (ml/kg/min). Predicted VO₂ max is measured using a number of tests - a step test is preferred as it is similar to climbing the ladder and stairs. Step tests include the Chester, Queens College and YMCA tests. The resulting VO₂ max value should be compared to normal values by age and sex (Figure 19).

Initial and Periodic Assessments

Predicted VO₂ max testing is conducted as part of the Periodic Physical Assessment by the AHP-Physiotherapist and is not required to be repeated as part of the Periodic Health Assessment. The results will be forwarded to the AHP-Medical (refer [Section 35 Musculoskeletal conditions](#)). If an abnormal result is found, the pilot will be referred promptly to the AHP-Medical for assessment. The pilot is categorised Temporarily Unfit for Duty if the predicted VO₂ is in the “below average” or worse range for age and sex. The Authorised Health Professional investigates each case on their merits and manages accordingly.

Figure 19. Male and female VO₂ max norms



Adapted from: Gore CJ, Edwards DA. Australian Fitness Norms: A manual for fitness assessors (Eds). *The Health Development Foundation*. North Adelaide, SA. 1992

32.2.4 Ischaemic heart disease and related interventions

In individuals with ischaemic heart disease, the severity rather than the mere presence of ischaemic heart disease should be the primary consideration when assessing fitness for duty. The Authorised Health Professional should consider if any symptoms are of sufficient severity to be a risk to stamina or attentiveness while working as well as the risk of sudden collapse. Those who have had a previous myocardial infarction or similar event are at greater risk of recurrence than the normal population, thus cardiac history is an important consideration.

Exercise testing

The Bruce protocol is recommended for formal exercise testing. Nomograms for assessing functional capacity are shown in Figure 18.

Suspected angina pectoris

Where chest pains of uncertain origin are reported the pilot should be categorised as Temporarily Unfit for Duty until cardiovascular or other serious disease is excluded. If the tests are positive, or the person remains symptomatic and requires antianginal medication for the control of symptoms, the requirements listed for proven angina pectoris apply (refer to Table 10).

32.2.5 Cardiac surgery

Cardiac surgery may be performed for various reasons including valve replacement, excision of atrial myxoma or correction of congenital heart disease. In some cases, this is curative of the underlying disorder and so will not affect fitness for duty in the long term, although the pilot should be classed Temporarily Unfit for Duty (refer also to regarding non-working periods).

In other cases, the condition may not be stabilised and needs to be individually assessed. All cardiac surgery patients should be advised regarding returning to pilotage work in the short-term as for any other post-surgery patient and may be classed as Temporarily Unfit for Duty. Cardiovascular fitness will need to be assessed prior to return to work. After thoracotomy an assessment will be particularly needed of the strength of the pilot's arms and their ability to resume climbing pilot ladders safely as per the functional test component of the Physical Assessment.

A person with congenital cardiac disease which was corrected in childhood and in the opinion of the treating surgeon has been successfully corrected and the patient has no symptoms may be accepted as a recruit and assessed as per normal cardiac risk assessment protocols.

32.2.6 Disorders of rate, rhythm and conduction

Pilots with recurrent arrhythmias causing syncope or presyncope are usually not fit for duty. A classification of Fit for Duty Subject to Review may be considered after appropriate treatment and a non-working period (refer to Table 9).

An implantable cardioverter defibrillator (ICD) is acceptable only for primary prevention and under strict conditions as per Table 10.

There is a wide diversity of ECG changes and a diversity of consequences arising from these changes. Sometimes palpitations, and hence loss of attentiveness, may occur. Occasionally there is a risk of collapse. Each case needs to be individually assessed as to the potential consequences and impacts on the pilotage work being undertaken.

Pilots treated with pacemakers, defibrillators or other electronic devices should have their devices assessed for sensitivity to electromagnetic fields (static, extremely low frequency or radiofrequency) that are likely to be present in their work environment and may cause interference with the device.

32.2.7 Vascular disease

Aneurysms (Boodhwani, 2014)

Thoracic aortic aneurysms are largely asymptomatic until a sudden and catastrophic event occurs, such as rupture or dissection. Such events are rapidly fatal in a large proportion of patients. Risk varies with the type and size of aneurysm. The standard is set more stringently for atherosclerotic aneurysms or aneurysms associated with bicuspid aortic valve, compared with aneurysms associated with genetic aortopathy, including Marfan's, Turner's and Ehlers-Danlos syndromes, and familial aortopathy.

Deep vein thrombosis and pulmonary embolism

Although deep vein thrombosis (DVT) may lead to an acute pulmonary embolus (PE), there is little evidence that such an event affects safety. Therefore, there is no standard for either DVT or PE per se, although non-working periods (Temporarily Unfit for Duty) are advised (refer to Table 9). If long-term anticoagulation treatment is prescribed, the standard for anticoagulant therapy should be applied (refer to [Section 32.2.9 Other cardiovascular conditions](#)).

Valvular disease

Valvular disease may present with diverse symptoms including exertional dyspnoea, palpitations, angina, syncope, cardiac arrest or heart failure. It may also be asymptomatic and found on examination. The symptoms, if severe, may cause distraction from work and as such are relevant to pilots. The risk of collapse is particularly relevant.

32.2.8 Myocardial disease

The dilated and hypertrophic cardiomyopathies may present with diverse symptoms, including exertional dyspnoea, palpitations, angina, syncope, cardiac arrest or heart failure. They may also be asymptomatic and found on examination. The symptoms, if severe, may cause distraction from work and as such are relevant to pilots and the risk of collapse is particularly relevant.

Specific criteria are set for the complications of cardiac arrest, heart failure and implanted devices (refer to Table 10).

There are several other causes of myocardial disease. These may be managed using the principles for the cardiomyopathies or by consideration of the basic principles regarding pilotage work. ICD may be permitted under some circumstances – refer [Section 32.2.6](#).

32.2.9 Other cardiovascular conditions

Long-term anticoagulant therapy

Long-term anticoagulant therapy may be used to lessen the risk of emboli in disorders of cardiac rhythm, following valve replacement, for deep venous thrombosis and so on. If not adequately controlled, there is a risk of bleeding that may acutely affect pilotage, such as an intracranial bleed.

Pilots on long-term anticoagulant therapy do not meet the criteria but may be classed as Fit for Duty Subject to Review if their therapy is adequate and stable.

Hypertension

Hypertension is associated with increased risk of heart attack and stroke, which is particularly important in marine pilots. Assessment of pilots with high blood pressure should include end organ damage relevant to safe working, the presence of other risk factors, which increase the likelihood of cardiovascular event, and the possibility that treatment may cause hypotension.

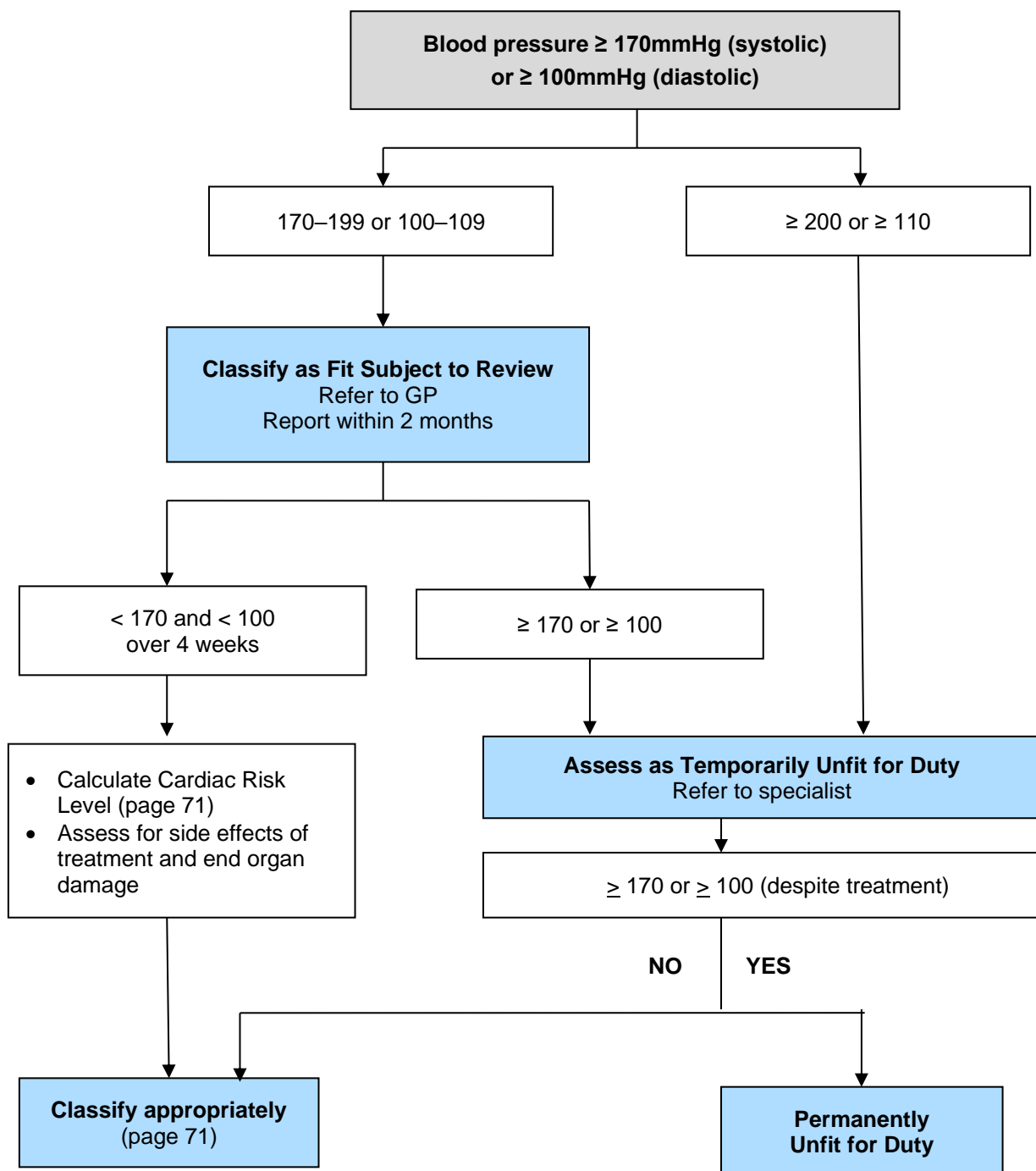
- **Pilots with blood pressure levels $\geq 170/100$** should be managed as follows (refer Figure 20). Those with blood pressure 170-199/100-109 should be categorised Fit Subject to Review and referred to their general practitioner for assessment and treatment. White coat hypertension should be excluded. If high blood pressure is confirmed it should be treated. If after four weeks of treatment levels remain $\geq 170/100$, the person should be classed Temporarily Unfit for Duty and referred to a specialist. On the other hand, if the blood pressure is satisfactorily controlled, the cardiac risk level should then be calculated (Figure 17) and the person managed according to the flow chart in Figure 20. In addition, the effects of medication on pilotage work and any end organ effects as per this publication will need to be considered regarding fitness.
- **Those with blood pressure $\geq 200/110$** , or those whose blood pressure remains $>170/100$ after 4 weeks of treatment by their general practitioner, should be classed as Temporarily Unfit for Duty and referred to a specialist for investigation and treatment. Fit for Duty Subject to Review may be determined if their blood pressure can be reduced to $<170/100$ over 4 weeks. These pilots should have their cardiac risk level assessed and managed accordingly (Figure 17). In addition, the effects of medication on pilotage work and any end organ affects as per this publication will need to be considered regarding fitness.
- **Pilots whose blood pressure remains $\geq 170/100$** after specialist investigation and treatment will be categorised Permanently Unfit for Duty.

Where causative factors of hypertension have been identified and cured the pilot should initially be classed Fit for Duty Subject to Review but after adequate follow-up shows blood pressure is normal may be exempted from review.

Syncope

If an episode of syncope is vasovagal in nature with a clear-cut precipitating factor (e.g., venesection), and the situation is unlikely to occur while performing pilotage, the pilot may generally resume work within 24 hours. With syncope due to other cardiovascular causes, a pilot should not perform pilotage for at least 3 months, after which time their ongoing fitness for duty should be assessed. In cases where it is not possible to be certain that an episode of loss of consciousness is due to syncope or some other causes (refer to [Section 31.2.4 Blackouts of undetermined mechanism](#)).

Figure 20. Management of high blood pressure



Electro-magnetic interference (EMI)

Pilots work in environments with electromagnetic fields. For example, they extensively use handheld VHF radios with a power of up to 5W. These fields may cause interference with medical devices such as cardiac pacemakers. Pacemakers are usually implanted under the clavicle (collarbone) and hence are close to the hand-held radios. A major manufacturer of pacemakers (Medtronic) advises avoidance of interference by maintaining a distance of 6 inches /15 cm for radio sources of 3 W or less, and a distance of 12 inches (30 cm) for sources of 3- 15W. Therefore, use of a hand-held radio may cause interference with the pacemaker. In the event of a pacemaker being prescribed this will need careful discussion with the manufacturer and cardiologist regarding the risks of interference and the consequences should it occur, noting that most pacemakers are 'fail-safe' and hand-held radios are not used when on the ladder.

32.3 Medical criteria

There are two aspects of the medical criteria regarding cardiac conditions and pilots. One is the non-working period (Temporarily Unfit for Duty) following a cardiac event or intervention (Table 9) and the other is the criteria regarding long-term fitness for duty in relation to a range of cardiovascular conditions (Table 10).

All pilots returning to work following a cardiac event or treatment for a cardiac condition will be required to pass the Physical Assessment (refer [Section 35 Musculoskeletal conditions](#)).

32.3.1 Non-working periods

A number of cardiovascular incidents and procedures may impact on short-term and long-term fitness for duty, for example, AMI or aneurysm repair. Such situations present an obvious risk. The pilot should be categorised as Temporarily Unfit for Duty and should not undertake piloting duties for the appropriate period, as laid out in Table 9. The recommendations regarding fitness for duty should be considered once the condition has stabilised and work capacity can be assessed as per the functional assessment of the Physical Assessment.

Table 9. Minimum non-working periods post cardiovascular events or procedures

Event / Procedure	Minimum non- working period for marine pilots
<i>Ischaemic events</i>	
Acute myocardial infarction	3 months
Angioplasty	4 weeks
Coronary artery by-pass grafts	3 months
<i>Disorders of rate and rhythm</i>	
Cardiac arrest	As determined by treating specialist
Cardiac pacemaker insertion	1 month
Implantable cardiac defibrillator	6 months
<i>Vascular disease</i>	
Aneurysm repair	3 months

Event / Procedure	Minimum non- working period for marine pilots
Valvular replacement (including treatment with mitra clips and transcatheter aortic valve replacement)	3 months
Deep vein thrombosis	As determined by treating specialist
Pulmonary embolism	As determined by treating specialist
Other	
Congenital heart disease treatments	
- Surgical intervention	3 months
- Percutaneous intervention	4 weeks
Heart/ lung transplant	3 months
Syncope	3 months

32.3.2 Criteria for long-term fitness for duty

Criteria for chronic disorders are made with the presumption that the disorder is stable and well controlled. If this is not the case, a specialist consultation should be conducted, and the pilot may need to be categorised Temporarily Unfit for Duty while such opinion is being sought. A classification of Fit for Duty Subject to Review may be determined after initial assessment by an appropriate specialist.

Requirements for safe working are included in Table 10 for the following conditions:

- **Ischaemic heart disease**
 - acute myocardial infarction
 - angina
 - coronary artery bypass grafting
 - percutaneous coronary intervention
- **Disorders of rate, rhythm and conduction**
 - arrhythmia
 - cardiac arrest
 - cardiac pacemaker
 - implantable cardioverter defibrillator
 - ECG changes
- **Vascular disease**
 - aneurysms (abdominal and thoracic)
 - deep vein thrombosis
 - pulmonary embolism
 - valvular heart disease
- **Myocardial diseases**
 - dilated cardiomyopathy
 - hypertrophic cardiomyopathy
- **Other conditions and treatments**
 - anticoagulant therapy
 - congenital disorders
 - heart failure
 - heart transplant

- hypertension
- stroke
- syncope.

Because many cardiac conditions are stabilised and not cured, the pilot usually should be categorised as Fit for Duty Subject to Review. In general, the review interval should not exceed 12 months for pilots with diagnosed cardiac disease (as distinct from raised risk factors).

Where a condition has been effectively treated and there is minimal risk of recurrence, the pilot may be categorised as Fit for Duty (with no requirements for more frequent review) on the advice of a specialist.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a pilot's fitness for duty.

Table 10. Medical criteria for marine pilots – Cardiovascular fitness and diseases

Condition	Criteria
Cardiac risk level <i>(Refer to text and flow chart)</i>	<p>The cardiac risk level is to be interpreted in the context of overall cardiovascular risk assessment. For details of management, refer to the text in Section 17.2 General assessment and management guidelines)</p> <p>If cardiac risk level has a:</p> <ul style="list-style-type: none"> • Probability of $\geq 25\%$ in 5 years (red and orange cells): pilot is unfit for Category 1 Pilotage work. Refer for stress ECG and classify as Temporarily Unfit for Duty pending results. Review as appropriate. • Probability of 10–24% in 5 years (light orange, yellow and blue cells): refer for stress ECG. While awaiting results, classify as Fit for Duty Subject to Review or Temporarily Unfit for Duty depending on overall risk assessment. Review as appropriate. • Probability of 5–9% in 5 years (dark green cells): refer to general practitioner for risk factor modification or refer for stress ECG if appropriate. While awaiting investigation, classify as Fit for Duty Subject to Review or Temporarily Unfit for Duty depending on overall risk assessment. Review as appropriate. • Probability of $< 5\%$ in 5 years (light green cells): assess risk factors and other clinical data, and refer to general practitioner as appropriate. Classify as Fit for Duty or Fit for Duty Subject to Review depending on overall risk assessment. <p>Refer to related criteria as required (e.g., hypertension and diabetes).</p>

Condition	Criteria
<p>Cardiorespiratory fitness (screening) – Predicted VO₂ max.</p> <p><i>This will be conducted as part of Physical Assessment. In the event of a fail the pilot will be referred to AHP-medical for assessment.</i></p> <p>Refer Section 35 Musculoskeletal conditions</p>	<p>The pilot is categorised as Temporarily Unfit for Duty if their predicted VO₂ max is in the “below average” or worse range for age and sex.</p> <p>Each case is managed on their merits – refer text.</p>
Ischaemic heart disease	
<p>Acute myocardial infarction (AMI)</p> <p><i>Refer also to percutaneous coronary intervention (PCI)</i></p> <p><i>Refer also to coronary artery bypass grafting (CABG)</i></p>	<p>The pilot should be categorised Temporarily Unfit for Duty for at least 4 weeks following an acute myocardial infarction.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has had an acute myocardial infarction. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the criteria described below are met.</p> <ul style="list-style-type: none"> • it is at least 4 weeks after an uncomplicated acute myocardial infarction; and • there is a satisfactory response to treatment; and • there is an exercise tolerance of ≥ 90% of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • the VO₂ max is in the average or better range for age and sex; and • there is no evidence of severe ischaemia (i.e. < 2 mm ST segment depression on an exercise ECG, or a reversible regional wall abnormality on an exercise stress ECG, or absence of a large defect on a stress perfusion scan); and • there is an ejection fraction of ≥ 40%; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
<p>Angina</p> <p><i>(continued overleaf)</i></p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot is subject to angina pectoris. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • the VO_2 max is in the average or better range for age and sex; and • there is no evidence of severe ischaemia (i.e., < 2 mm ST segment depression on an exercise ECG or a reversible regional wall abnormality on an exercise stress echocardiogram or absence of a large defect on a stress perfusion scan); and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p> <p><i>Myocardial ischaemia</i></p> <p>If myocardial ischaemia is demonstrated (as per the criteria above), a coronary angiogram may be offered.</p> <p>The pilot may be categorised as Fit for Duty Subject to (annual) Review:</p> <ul style="list-style-type: none"> • if the result of the angiogram shows lumen diameter reduction of $< 70\%$ in a major coronary branch and $< 50\%$ in the left main coronary artery. <p>If the result of the angiogram shows a lumen diameter reduction of $\geq 70\%$ in a major coronary branch and $< 50\%$ in the left main coronary artery (or if an angiogram is not conducted), Fit for Duty Subject to (annual) Review may be considered if:</p> <ul style="list-style-type: none"> • there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • the VO_2 max is in the 'above average' range for age and sex; and • there is no evidence of severe ischaemia (i.e., < 2 mm ST segment depression on an exercise ECG or a reversible regional wall abnormality on an exercise stress echocardiogram or absence of a large defect on a stress perfusion scan); and

Condition	Criteria
Angina (continued)	<ul style="list-style-type: none"> • there is an ejection fraction of $\geq 40\%$; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>Where surgery or percutaneous coronary intervention (PCI) is undertaken to relieve the angina, the requirements listed for PCI apply (see below).</p>
Coronary artery bypass grafting (CABG)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 3 months following coronary artery bypass grafting.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot requires or has had coronary artery bypass grafting. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • it is at least 3 months after coronary artery bypass grafting; and • there is a satisfactory response to treatment; and • there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • the VO_2 max is in the average or better range for age and sex; and • there is no evidence of severe ischaemia (i.e., $< 2\text{mm}$ ST segment depression on an exercise ECG or a reversible regional wall abnormality on an exercise stress echocardiogram or absence of a large defect on a stress perfusion scan); and • there is an ejection fraction of $\geq 40\%$; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness); and • there is minimal residual musculoskeletal pain after the chest surgery. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Percutaneous coronary intervention (PCI) (e.g. angioplasty/stent) (continued overleaf)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 4 weeks after percutaneous coronary intervention (PCI).</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot requires or has had PCI.

Condition	Criteria
Atrial fibrillation (continued)	<p>The pilot should not perform pilotage work for:</p> <ul style="list-style-type: none"> • at least 4 weeks following percutaneous intervention; • at least 4 weeks following initiation of successful medical treatment; • at least 3 months following open chest surgery. <p>If the pilot is taking anticoagulants, refer to the anticoagulant therapy section, below.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Paroxysmal arrhythmias (e.g., supraventricular tachycardia [SVT] atrial flutter, idiopathic ventricular tachycardia)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 4 weeks following near or definite collapse due to paroxysmal arrhythmia.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if there was near or definite collapse. <p>Fit for Duty Subject to Review* may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there is a satisfactory response to treatment; and • there are normal haemodynamic responses at a moderate level of exercise; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>*Where the condition is considered to be cured, the requirement for periodic review may be waived.</p> <p>The pilot should not perform pilotage:</p> <ul style="list-style-type: none"> • for at least 4 weeks following percutaneous intervention; • for at least 4 weeks following initiation of successful medical treatment. <p>If the pilot is taking anticoagulants, refer to the anticoagulant therapy section, below.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
Cardiac arrest	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 6 months following a cardiac arrest.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has suffered a cardiac arrest. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • it is at least 6 months after the arrest; and • a reversible cause is identified, and recurrence is unlikely; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Cardiac pacemaker	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 4 weeks after insertion of a pacemaker.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if a cardiac pacemaker is required or has been implanted or replaced. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • it is at least 4 weeks after insertion of the cardiac pacemaker; and • the relative risks of pacemaker dysfunction have been considered; and • there are normal haemodynamic responses at a moderate level of exercise; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
ECG changes (continued)	<p>Fit for Duty Subject to Review* may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • if the condition has been treated medically for at least 3 months or follow-up investigation has excluded underlying cardiac disease; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>*Where the condition is considered to be cured, the requirement for periodic review may be waived.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Vascular disease	
Aneurysms (abdominal and thoracic)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has an unrepaired aortic aneurysm, thoracic or abdominal. <p>The pilot should be categorised Temporarily Unfit for Duty for at least 3 months post-repair.</p> <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether either of the following criteria are met:</p> <ul style="list-style-type: none"> • the aneurysm (repaired or unrepaired) diameter is less than 55mm for atherosclerotic aneurysm or aneurysm associated with a bicuspid aortic valve; or • the aneurysm (repaired or unrepaired) diameter is less than 50mm for aneurysm associated with all other causes. • in the case of repaired aneurysm, it is at least three months after repair and the response to treatment is satisfactory according to the vascular surgeon. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Deep vein thrombosis (DVT)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 2 weeks after a DVT.</p> <p>There are no specific criteria for long-term fitness for duty. For long-term anticoagulation see below.</p>
(continued overleaf)	

Condition	Criteria
Deep vein thrombosis (DVT) - continued	<p>Also refer to Section 32.2 General assessment and management guidelines.</p> <p>Requirement for pilots to undertake a Physical Assessment before returning to work will be at the discretion of the Authorised Health Professional (refer Section 35 Musculoskeletal conditions).</p>
Pulmonary embolism (PE)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 6 weeks after a PE.</p> <p>There are no specific criteria for long-term fitness for duty for PE. For long-term anticoagulation see below. Also refer to Section 32.2 General assessment and management guidelines.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Valvular heart disease (including treatment with Mitra Clips and Transcatheter Aortic Valve Replacement)	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 3 months following valve repair.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has any history or evidence of valve disease, with or without surgical repair or replacement, associated with symptoms or a history of embolism, arrhythmia, cardiac enlargement, abnormal ECG, high blood pressure, or • if the pilot is taking long-term anticoagulants. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot's cardiological assessment shows valvular disease of no haemodynamic significance; or • it is 3 months following surgery and there is no evidence of valvular dysfunction; and • the VO₂ max is in the average or better range for age and sex; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness); and • there is minimal residual musculoskeletal pain after chest surgery. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
Myocardial diseases	
Dilated cardiomyopathy (see also heart failure)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a dilated cardiomyopathy. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the ejection fraction is $\geq 40\%$; and the VO_2 max is in the average or better range for age and sex; and there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness); and the person is not subject to arrhythmias. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Hypertrophic cardiomyopathy (HCM) Refer also ICD	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has HCM. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the left ventricular ejection fraction is $\geq 40\%$; and there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and the VO_2 max is in the average or better range for age and sex; and there is an absence of a history of syncope, severe left ventricle hypertrophy, a family history of sudden death or ventricular arrhythmia on Holter testing; and there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>A pilot should not work for at least 3 months following surgical treatment for congenital heart disease.</p> <p>A pilot should not work for 4 weeks following a percutaneous intervention for congenital heart disease.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
Other cardiovascular diseases	
Anticoagulant therapy	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot is on long-term anticoagulant therapy. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criterion is met:</p> <ul style="list-style-type: none"> anticoagulation is maintained at the appropriate degree for the underlying condition.
Congenital disorders See also text, Pacemakers, ICD	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a complicated congenital heart disorder. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> there is a minor congenital heart disorder of no haemodynamic significance, such as pulmonary stenosis, atrial septal defect, small ventricular septal defect, bicuspid aortic valve, patent ductus arteriosus or mild coarctation of the aorta; and the VO₂ max is in the average or better range for age and sex; and there are minimal symptoms relevant to performing pilotage (chest pain, palpitations, breathlessness), or there has been surgical/percutaneous correction of the congenital lesion including atrial septal defect, ventricular septal defect, patent ductus arteriosus, coarctation, pulmonary stenosis, total correction of tetralogy of Fallot or total correction of transposition of the great arteries and there are no or minimal symptoms. <p>A pilot should not perform pilotage duties for at least 3 months following surgical treatment for congenital heart disease.</p> <p>A pilot should not perform pilotage duties for 4 weeks following a percutaneous intervention for congenital heart disease.</p> <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
Heart failure	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has heart failure. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there is a satisfactory response to treatment; and • there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • there is an ejection fraction of $\geq 40\%$; and • the VO_2 max is in the average or better range for age; and • the underlying cause of the heart failure is considered; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Heart transplant	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 3 months after transplant.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot requires or has had a heart or heart/lung transplant. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • it is at least 3 months after transplant; and • there is a satisfactory response to treatment; and • there is an exercise tolerance of $\geq 90\%$ of the age/sex predicted exercise capacity according to the Bruce protocol (or equivalent exercise test protocol); and • the VO_2 max is in the average or better range for age; and • there are minimal symptoms relevant to performing pilotage work (chest pain, palpitations, breathlessness). <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

Condition	Criteria
Hypertension	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has blood pressure consistently ≥ 170 mmHg systolic or ≥ 100 mmHg diastolic (treated or untreated). <p>Management of the pilot and subsequent categorisation will depend on:</p> <ul style="list-style-type: none"> the level of blood pressure; the response to treatment; the cardiac risk level; the effects of medication relevant to pilotage work; and the presence of end organ damage relevant to pilotage work. <p><i>For blood pressure between 170-199mmHg systolic or 100-109mmHg diastolic:</i></p> <ul style="list-style-type: none"> The pilot should be categorised Fit Subject to Review and referred to their general practitioner for appropriate investigation and treatment. A report should be provided within 2 months. If the pilot's blood pressure is <170 mmHg systolic and <100 mmHg diastolic after 4 weeks of treatment, they should have their cardiac risk level calculated based on the new level of blood pressure and they should be managed and categorised accordingly (refer to Figure 20), including whether they meet the following criteria: <ul style="list-style-type: none"> there are no side effects from the medication that will impair pilotage work; and there is no evidence of damage to target organs relevant to pilotage work. If the pilot's blood pressure remains $\geq 170/100$ after 4 weeks of treatment, they should be categorised Temporarily Unfit for Duty and referred to an appropriate specialist for investigation and treatment. Categorisation will subsequently depend on response to treatment, the cardiac risk score and meeting of other criteria as above. If blood pressure remains ≥ 170 mmHg systolic or ≥ 100 mm Hg diastolic despite treatment, the pilot should be categorised Permanently Unfit for Duty. <p><i>For blood pressure ≥ 200mmHg systolic or ≥ 100mmHg diastolic</i></p> <ul style="list-style-type: none"> The pilot should be categorised Temporarily Unfit for Duty and referred to an appropriate specialist for investigation and treatment. If the pilot's blood pressure is <170 mmHg systolic and <100 mmHg diastolic after 4 weeks of treatment, they should have their cardiac risk level calculated based on the new level of

(continued overleaf)

Condition	Criteria
Hypertension (continued)	<p>blood pressure and they should be managed and categorised accordingly (refer to Figure 20), including whether they meet the following criteria:</p> <ul style="list-style-type: none"> - there are no side effects from the medication that will impair pilotage; and - there is no evidence of damage to target organs relevant to pilotage. • If blood pressure remains ≥ 170 mmHg systolic or ≥ 100 mmHg diastolic despite treatment, the pilot should be categorised Permanently Unfit for Duty. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>
Stroke	Refer to Section 36 Neurological Conditions
Syncope due to hypotension Refer also to Section 31 Blackouts	<p>The pilot could resume piloting work within 24 hours if the episode was vasovagal in nature with a clear-cut precipitating factor (e.g. venesection) and the situation is unlikely to occur while performing pilotage.</p> <p>A pilot should be categorised Temporarily Unfit for Duty for at least 3 months after syncope due to other cardiovascular causes.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the condition is severe enough to cause episodes of loss of consciousness without warning. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by the treating specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the underlying cause has been identified; and • satisfactory treatment has been instituted; and • the person has been symptom-free for 3 months. <p>All pilots returning to work following a cardiac event or treatment for a cardiac condition will also be required to pass the Physical Assessment (refer Section 35 Musculoskeletal conditions).</p>

References and further reading

Atherton, J. J. et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the prevention, detection, and management of heart failure in Australia 2018. Heart Lung and Circulation 27,1123–1208 (2018).

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

- Bassett DR Jr, Howley ET. Limiting factors for maximum oxygen uptake and determinants of endurance performance. *Medicine and Science in Sport and Exercise*. 2000;32(1);70-84
- Bruce RA, Kusumi F, Hosmer D. Maximal oxygen intake and nomographic assessment of functional aerobic impairment in cardiovascular disease. *American Heart Journal*. 1973;85;546-562
- Boodhwani, M. et al. Canadian cardiovascular society position statement on the management of thoracic aortic disease. *Canadian Journal of Cardiology* 30, 577–589 (2014).
- Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.
https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk-Report-MUARC-report-no-353_JUNE2022.pdf
- Chua, A., Blankstein, R., Ko, B. Coronary artery calcium in primary prevention. *AJGP*. 2020;49(8):464-469.
- Erikssen J, Johansen AH, Rodahl K. Coronary heart disease in Norwegian sea-pilots: part of the occupational hazard? *Acta Medica Scandinavica Supplementum*. 1981;645:79-83.
- Gore CJ, Edwards DA. Australian Fitness Norms: A manual for fitness assessors (eds). The Health Development Foundation North Adelaide, SA. 1992
- McLellan, A., Prior, D. Cardiac stress testing: Stress electrocardiography and stress echocardiography. *Australian Family Physician*. 2012;41(3):199-122.
- Moya, A. et al. Guidelines for the diagnosis and management of syncope (version 2009). *European Heart Journal* 30, 2631–2671 (2009).
- Mundal R, Erikssen J, Rodahl K. Latent ischemic heart disease in sea captains. *Scandinavian Journal of Work, Environment & Health*. 1982;8(3):178-84
- National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)
- National Vascular Disease Prevention Alliance. Guidelines for the management of absolute cardiovascular disease risk. 2012. https://www.heartfoundation.org.au/getmedia/4342a70f-4487-496e-bbb0-dae33a47fcb2/Absolute-CVD-Risk-Full-Guidelines_2.pdf
- Nystrom L, Kolmodin-Hedman B, Jonsson E, Thomasson L. Mortality from circulatory diseases, especially ischaemic heart disease in sea pilots and boatmen in Sweden 1951-84: a retrospective cohort study. *British Journal of Industrial Medicine*. 1990;47(2):122-6
- Palmer K, Pearson S. Respiratory disorders. Chapter 18 in *Fitness for Work*; Eds: Palmer K, Cox R and Brown I. Oxford University Press. 2007
- Price A, Petch M. Cardiovascular disorders. Chapter 17 in *Fitness for Work*; Eds: Palmer K, Cox R and Brown I. Oxford University Press. 2007
- Saarni et al. Mortality among Finnish sea pilots 1956 - 85. *Occupational medicine*. 1996;46:281-284
- Shen, W. K. et al. 2017 ACC/AHA/HRS guideline for the evaluation and management of patients with syncope: a report of the American college of cardiology/American Heart Association task force on clinical practice guidelines and the Heart Rhythm Society. *Circulation* 136, e60–e122 (2017).

Slaughter, M. S. et al. Advanced heart failure treated with continuous-flow left ventricular assist device. *New England Journal of Medicine* 361, 2241–2251 (2009).

Singhvi, A. & Trachtenberg, B. Left ventricular assist devices 101: shared care for general cardiologists and primary care. *Journal of Clinical Medicine* 8, 1720 (2019).

Zorn EW, Harrington JM, Goethe H. Ischemic heart disease and work stress in West German sea pilots. *Journal of Occupational and Environmental Med.* 1977 Nov;19(11):762-5

33. Diabetes

(Refer also to Sections [32 Cardiovascular fitness and disease](#); [36 Neurological conditions](#), [39 Sleep disorders](#) and [41 Vision and eye disorders](#))

33.1 Relevance to marine pilots

Diabetes may affect the ability to pilot a ship either through decreased cognitive performance or loss of consciousness in a hypoglycaemic episode, or from end organ effects on relevant functions, including effects on vision, the heart, the peripheral nerves and vasculature of the extremities, particularly the feet. Sleep apnoea is also more common in people with type 2 diabetes (refer to [Section 39 Sleep disorders](#)). Similar considerations apply to safety during transfers using the pilot ladder.

The main hazard in marine pilots with diabetes is the occurrence of hypoglycaemia. It is mainly associated with insulin but can occur with oral treatments.

Pilots work shifts and need to be responsive to shipping movements which is not conducive to regular mealtimes.

There is also evidence that 'tighter control', as measured by the HbA1c, may be associated with increased vehicle crash risk (Redelmeier, 2009). This has implications for the management of pilots with diabetes in terms of targets for satisfactory control.

33.2 General assessment and management guidelines

General management of diabetes in relation to pilots is summarised in Figure 21.

For the purposes of this Standard, an appropriate medical specialist is an endocrinologist specialising in diabetes or a consultant physician specialising in diabetes.

33.2.1 Screening for diabetes

For the purposes of this Standard, diabetes may be diagnosed on history or on (non-fasting) HbA1c testing*(or on fasting or random blood glucose) (d'Emden, 2014).

- If HbA1c is equal to or greater than 48 mmol/mol (6.5%) regard as diabetic.
- If HbA1c is 48 mmol/mol (6.5%) or greater but less than 53 mmol/mol (7.0%) arrange a repeat (confirmatory) test.
 - If the repeat test is 48 mmol/mol (6.5%) or greater, diagnosis of diabetes is confirmed.
 - If the repeat test is less than 48 mmol/mol (6.5%), regard as non-diabetic and review as per normal periodic schedule.
- If the initial test is less than 48 mmol/mol (6.5%), regard as non-diabetic and review as per normal periodic schedule.

*Note: any condition that leads to a shortened red cell survival time can interfere with the HbA1c assay. This includes the haemoglobinopathies, therapeutic venesection, anaemia, haemolysis, recent transfusion, and chronic renal failure. In this situation fasting blood glucose should be used with oral glucose tolerance testing as required.

33.2.2 Satisfactory control of diabetes

When assessing if a pilot with diabetes is fit to perform pilotage, individualised assessment of control is important. The pilot should be asked to bring their diabetes management plan to the assessment.

HbA1c is a reasonable indicator of control, however the general goal of HbA1c of less than 7.0% may not be applicable or safe for pilots due to increased risk of hypoglycaemia associated with tight control. If the HbA1c is 9.0% or higher, the Authorised Health Professional should usually refer the person to their treating specialist for review of their diabetes management, but the pilot may remain on duty.

For pilots on insulin treatment, blood glucose monitoring and other related records should be reviewed. The pilot should keep a diary of blood glucose levels, taking rosters into account, as agreed with the Authorised Health Professional. This is partly so the pilot knows they are safe for work and partly so that control of their diabetes can be readily checked at their review. In general, at least the last 3 months of blood glucose monitoring records should be reviewed. Work performance reports may be helpful in assessing if hypoglycaemia is interfering with safety critical decisions.

33.2.3 Input from treating doctor or specialist

When assessing a pilot with diabetes, a report from the treating specialist is generally required in order to determine fitness for duty. The report should include details of general health, indication of satisfactory diabetes control (as above) and freedom from severe complications.

For diabetes controlled by diet and exercise alone, a report from the treating general practitioner will suffice.

In the case of type 2 diabetes managed by oral agents alone, ongoing fitness for duty may be assessed based on information (including an HbA1c level) received from the treating general practitioner, by mutual agreement with the treating specialist. The initial recommendation of Fit for Duty Subject to Review must be based on the opinion of a specialist in diabetes.

Where appropriate and available, the use of telemedicine technologies such as videoconferencing is encouraged as a means of facilitating access to specialist opinion.

33.2.4 Hypoglycaemia

Definition: severe hypoglycaemic event

For the purpose of this document, a 'severe hypoglycaemic event' is defined as an event of hypoglycaemia of sufficient severity such that the person is unable to treat the hypoglycaemia themselves, and thus requires an outside party to administer treatment. It includes hypoglycaemia causing loss of consciousness. Episodes occurring during working time or at any other time of the day or night are relevant to the assessment in relation to this Standard.

A severe hypoglycaemic event is particularly relevant to pilotage because it affects brain function and may cause impairment of perception, motor skills or consciousness. It may also cause abnormal behaviour and injury during a transfer. A severe hypoglycaemic event is to be distinguished from mild hypoglycaemic events, with symptoms such as sweating, tremulousness,

hunger and tingling around the mouth, which are common occurrences in the life of a person with diabetes treated with insulin and some hypoglycaemic agents.

Potential causes of hypoglycaemia

Hypoglycaemia may be caused by many factors, including non-adherence or alteration to medication, unexpected exertion, alcohol intake or irregular meals and reduced awareness (see below). Irregular meals and variability in medication administration may be an important consideration for those operating on shifts. Impairment of consciousness and judgement can develop rapidly.

Managing a 'severe hypoglycaemic event' including non-working period

Pilots with diabetes should be advised to cease pilotage duties if a severe hypoglycaemic event is experienced while working or at any other time. Such an event should result in a Triggered Health Assessment. The pilot should be classed Temporarily Unfit for Duty and not work for a significant period of time. The **minimum period** of time before returning to pilotage is **generally 6 weeks** because it often takes many weeks for patterns of glucose control and behaviour to be re-established and for any temporary 'lack of hypoglycaemia awareness' to resolve. The non-working period will depend on factors such as identifying the reason for the episode, specialist opinion and the nature of the work. Specialist support of a return to pilotage should be based on patient behaviour and objective measures of glycaemic control (documented blood glucose) over a reasonable time interval.

Reducing the risk of hypoglycaemia: advice to pilots

Pilots with diabetes should be advised to take appropriate precautionary steps to help avoid a severe hypoglycaemic event, for example by:

- complying with specified medical review requirements (general practitioner or specialist);
- not working if either their blood glucose is at or less than 5 mmol/L or if, while wearing a continuous or flash glucose monitor, the predicted glucose level is showing downward trends into the hypoglycaemia range;
- wearing a continuous or flash glucose monitor, preferably with an active hypoglycaemia alert or alarm;
- not working for more than 2 hours without considering having a snack;
- not delaying or missing a main meal;
- self-monitoring blood glucose levels before working and every few hours at work, as reasonably practical, taking into account the history of control;
- carrying adequate glucose for self-treatment;
- treating mild hypoglycaemia if symptoms occur while working, including;
 - ceasing work as practical;
 - self-treating the low blood glucose;
 - checking the blood glucose levels 15 minutes or more after the hypoglycaemia has been treated and ensuring it is above 5 mmol/L; and
 - not recommencing working until feeling well and until at least 30 minutes after the blood glucose is above 5 mmol/L.

Pilots should be instructed to request a Triggered Health Assessment if their condition deteriorates or their treatment changes.

Impaired hypoglycaemia awareness

Impaired hypoglycaemic awareness exists when a person does not regularly sense the usual early warning symptoms of mild hypoglycaemia such as sweating, tremulousness, hunger, tingling around the mouth, palpitations and headache. It markedly increases the risk of a severe hypoglycaemic event occurring and is therefore a risk for marine safety.

Rates of severe hypoglycaemia maybe up to seven times higher compared to those who retain hypoglycaemia awareness. Impaired hypoglycaemia awareness occurs in 20-25% of people with type 1 diabetes and about 10% of those with type 2 diabetes. Prevalence is higher in older people and in those with a longer duration of diabetes.

Impaired hypoglycaemic awareness may be screened for using the Clarke Questionnaire (Box 1), which may be particularly useful for people with insulin-treated diabetes of longer duration (more than 10 years), or following a severe hypoglycaemic event or after an incident. When impaired hypoglycaemia awareness develops in a person who has experienced a severe hypoglycaemic event, it may improve in the subsequent weeks and months if further hypoglycaemia can be avoided.

The use of devices such as continuous or flash glucose monitors do not replace the need for a person to be able to sense the warning signs of hypoglycaemia or to compensate for impaired hypoglycaemia awareness.

A person with impaired hypoglycaemia awareness should be under the regular care of a medical practitioner with expert knowledge in managing diabetes (e.g., endocrinologist or diabetes specialist), who should be involved in assessing their fitness for duty. Any pilot who has a lack of hypoglycaemia awareness is generally not fit for duty unless their ability to experience early warning symptoms returns.

In managing impaired hypoglycaemic awareness, the treating medical practitioner should focus on aspects of the person's self-care to minimise a severe hypoglycaemic event occurring while working, including the points described in the section, 'Reducing the risk of hypoglycaemia: advice to pilots' (see above). In addition, self-care behaviours that help to minimise severe hypoglycaemic events in general should be a major ongoing focus of regular diabetes care. This requires attention by both the treating medical practitioner and the person with diabetes to diet and exercise programs, insulin regimens and blood glucose testing protocols.

33.2.5 Acute hyperglycaemia

Although acute hyperglycaemia may affect some aspects of brain function, there is insufficient evidence to determine regular effects on work performance. Each person with diabetes should be counselled about management of their diabetes during days when they are unwell and should be advised not to work if they are acutely unwell with metabolically unstable diabetes.

33.2.6 Electromagnetic interference

Pilots using insulin pumps or other electronic devices should have their devices assessed for sensitivity to electromagnetic fields (e.g., 5W two-way radios) that are likely to be present in the work environment and may cause interference with the device.

33.2.7 Comorbidities and end-organ complications

Assessment and management of comorbidities is an important aspect of managing pilots with diabetes with respect to their fitness for pilotage. This includes but is not limited to the following.

Vision (refer to [Section 41 Vision and eye disorders](#))

Visual acuity should be tested annually. Retinal screening should be undertaken every second year if there is no retinopathy, or more frequently if at high risk. Visual field testing, additional to usual confrontation testing, is not required unless clinically indicated.

Neuropathy and foot care

Although it can be difficult to be prescriptive about neuropathy in the context of pilotage, it is important that the severity of the condition is assessed. Adequate sensation and movement is required for climbing the pilot ladder and stairs on a ship (refer to Sections [36 Neurological conditions](#) and [35 Musculoskeletal disorders](#)).

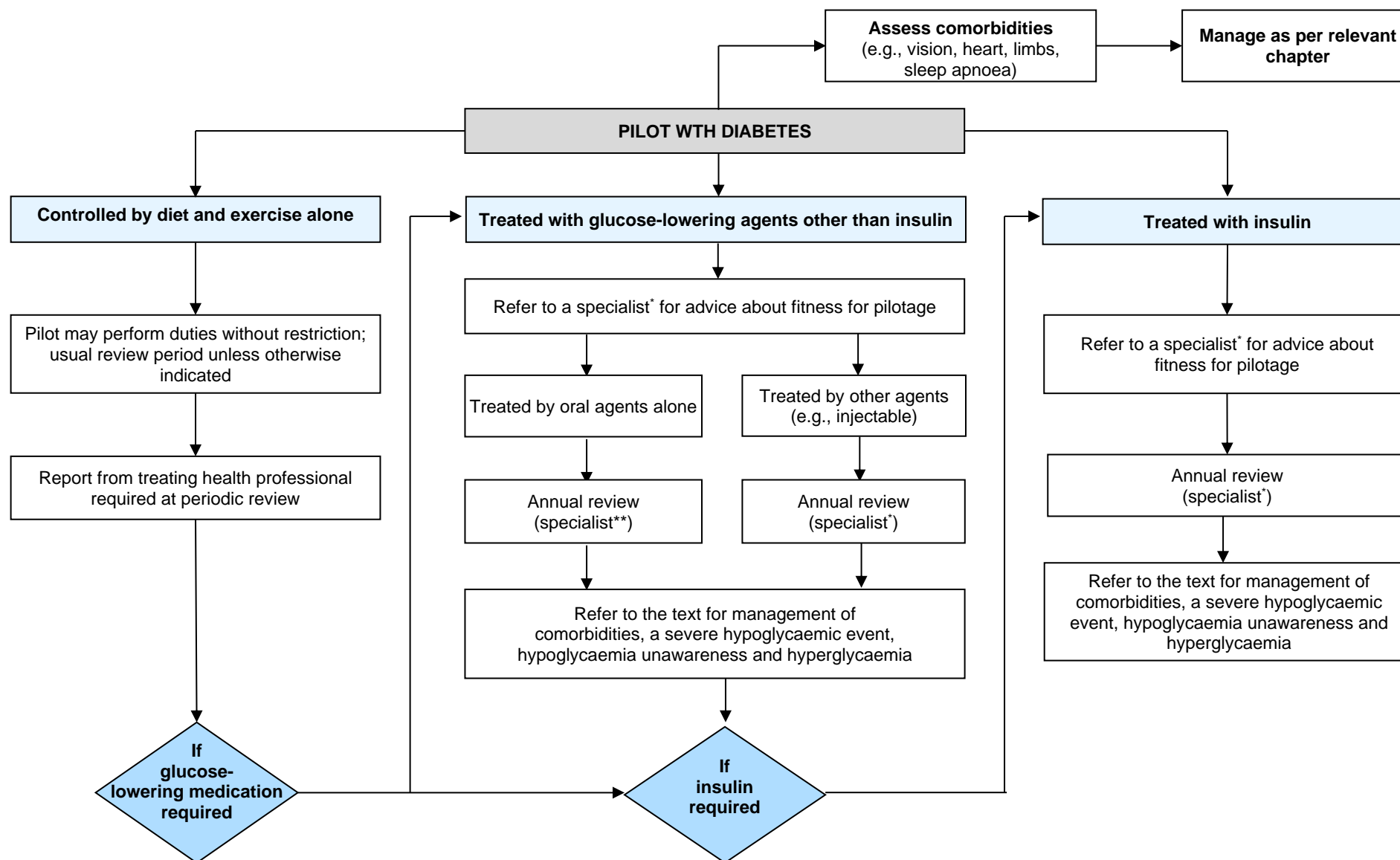
Sleep apnoea

Sleep apnoea is a common comorbidity affecting many people with type 2 diabetes and has substantial implications for safety. Raised BMI (35 or greater) is a strong predictor of sleep apnoea (refer to [39 Sleep disorders](#)).

Cardiovascular

Diabetes is an important risk factor in assessing the cardiac risk level (refer to [Section 32 Cardiovascular fitness and diseases](#)).

Figure 21. Management of diabetes



*Endocrinologist or diabetes specialist

** Review is by specialist. If well controlled, may be reviewed by treating doctor with agreement of the specialist

Box 1. Clarke hypoglycaemia awareness survey (Clarke, 1995)

The survey is useful to administer to assess hypoglycaemia awareness including: for people who have been on insulin for many years; after a severe hypoglycaemic event or after an incident.

1. Check the category that best describes you: (check one only)
☐ I always have symptoms when my blood sugar is low (A)
☐ I sometimes have symptoms when my blood sugar is low (R)
☐ I no longer have symptoms when my blood sugar is low (R)
 2. Have you lost some of the symptoms that used to occur when your blood sugar was low?
☐ Yes (R) ☐ No (A)
 3. In the past six months how often have you had moderate hypoglycaemia episodes? (*Episodes where you might feel confused, disoriented, or lethargic and were unable to treat yourself*)
☐ Never (A) ☐ Once a month (R)
☐ Once or twice (R) ☐ More than once a month (R)
☐ Every other month (R)
 4. In the past year how often have you had severe hypoglycaemia episodes? (*Episodes where you were unconscious or had a seizure and needed glucagon or intravenous glucose*)
☐ Never (A) ☐ 3 times (R) ☐ 7 times (R) ☐ 10 times (R)
☐ 1 time (R) ☐ 5 times (R) ☐ 8 times (R) ☐ 11 times (R)
☐ 2 times (R) ☐ 6 times (R) ☐ 9 times (R) ☐ 12 or more times (U)
 5. How often in the last month have you had readings <3.8mmol/L with symptoms?
☐ Never ☐ 2 to 3 times/week
☐ 1 to 3 times ☐ 4 to 5 times/week
☐ 1 time/week ☐ Almost daily
 6. How often in the last month have you had readings <3.8mmol/L without any symptoms?
☐ Never ☐ 2 to 3 times/week
☐ 1 to 3 times ☐ 4 to 5 times/week
☐ 1 time/week ☐ Almost daily
- (R = answer to 5 < answer to 6, A = answer to 5 ≥ answer to 6)
7. How low does your blood sugar need to go before you feel symptoms?
☐ 3.3-3.8mmol/L (A) ☐ 2.2-2.7mmol/L (R)
☐ 2.7-3.3mmol/L (A) ☐ <2.2mmol/L (R)
 8. To what extent can you tell by your symptoms that your blood sugar level is low?
☐ Never (R) ☐ Often (A)
☐ Rarely (R) ☐ Always (A)
☐ Sometimes (R)

Note: Units of measure have been converted from g/dl to mmol/L as per
http://www.onlineconversion.com/blood_sugar.html

SCORING:

- Four or more 'R' responses implies reduced awareness.
- For Question 5 and 6, one 'R' response is given if the answer to question 5 is less than the answer to question 6.
- 'A' responses imply awareness.
- 'U' response (12 or more severe hypoglycaemic episodes in the last 12 months) indicates unawareness.

33.3 Medical criteria

Medical criteria for fitness for duty are outlined in Table 11.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 11. Medical criteria for marine pilots – Diabetes

Condition	Criteria
Screening for diabetes	<p>Diabetes may be diagnosed on history or on HbA1c testing (or on fasting or random blood glucose).</p> <ul style="list-style-type: none"> • If HbA1c is equal to or greater than 48 mmol/mol (6.5%) regard as diabetic. • If HbA1c is 48 mmol/mol (6.5%) or greater but less than 53 mmol/mol (7.0%) arrange a repeat (confirmatory) test. <ul style="list-style-type: none"> - If repeat HbA1c is 48 mmol/mol (6.5%) or greater, diagnosis of diabetes is confirmed. - If repeat test is not raised, regard as non-diabetic and review as per normal periodic schedule. • If initial test is less than 48 mmol/mol (6.5%), regard as non-diabetic and review as per normal periodic schedule.
Diabetes controlled by diet and exercise alone	<p>A pilot with diabetes controlled by diet and exercise alone may perform pilotage without restriction. More frequent reviews may not be necessary. They should be reviewed by their treating doctor periodically regarding progression of diabetes. A report from the treating doctor should be available for review by the Authorised Health Professional at Periodic Health Assessment appointments. The pilot should be instructed to request a Triggered Health Assessment if their condition deteriorates or their treatment changes.</p>
Diabetes treated by glucose-lowering agents other than insulin (oral agents and other agents e.g. injectable agents) (continued overleaf)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has non-insulin-treated diabetes mellitus and is being treated with glucose-lowering agents other than insulin. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by a specialist (endocrinologist / consultant physician specialising in diabetes) on whether the following criteria are met:</p> <ul style="list-style-type: none"> • the condition is satisfactorily controlled (refer to Section 33.2.2 Satisfactory control of diabetes) and the person is compliant with treatment; and • there is no history of a severe hypoglycaemic event during recent years as assessed by the specialist; and

Condition	Criteria
Diabetes treated by glucose-lowering agents other than insulin (continued)	<ul style="list-style-type: none"> the pilot experiences early warning symptoms (awareness) of hypoglycaemia (refer to Section 33.2.2 Satisfactory control of diabetes); and the pilot is following a treatment regimen that minimises the risk of hypoglycaemia; and there is an absence of end-organ effects that may affect working as per this Standard. <p>*For pilots treated by oral agents, the Authorised Health Professional may determine that review by the pilot's treating general practitioner is sufficient if there is an established pattern of compliance and good response to treatment, and this is agreed by the specialist. The initial granting of Fit for Duty Subject to Review must be based on information provided by a specialist (endocrinologist / consultant physician specialising in diabetes).</p>
Insulin-treated diabetes	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has insulin-treated diabetes. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by a specialist in endocrinology or diabetes on whether the following criteria are met, subject to at least annual review:</p> <ul style="list-style-type: none"> the condition is satisfactorily controlled (refer to Section 33.2.2 Satisfactory control of diabetes) and the person is adherent with treatment; and there is no history of a severe hypoglycaemic event during recent years as assessed by the specialist; and the pilot experiences early warning symptoms (awareness) of hypoglycaemia (refer to Section 33.2.2 Satisfactory control of diabetes); and the pilot is following a treatment regimen that minimises the risk of hypoglycaemia; and there is an absence of end-organ effects that may affect working as per this Standard.

References and further reading

Australian Type 1 Diabetes Guidelines Expert Advisory Group. National evidence-based clinical care guidelines for type 1 diabetes in children, adolescents, and adults. (Australian Government Department of Health and Ageing, 2011).

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Clarke W, et al. Reduced awareness of hypoglycemia in adults with IDDM. Diabetes Care. 1995;18(4): 517-22.

Cox DJ, Ford D, Gonder-Frederick L, Clarke W, Mazze R, Weinger K & Ritterband L. Driving mishaps among individuals with type 1 diabetes: a prospective study. Diabetes Care. 2009;32(12):2177–80.

d'Emden M. Glycated haemoglobin for the diagnosis of diabetes. Australian Prescriber 2014;37:98–100

Geddes, J., Schopman, J. E., Zammitt, N. N. & Frier, B. M. Prevalence of impaired awareness of hypoglycaemia in adults with type 1 diabetes. Diabetic Medicine 25, 501–504 (2008).

Geddes, J., Wright, R. J., Zammitt, N. N., Deary, I. J. & Frier, B. M. An evaluation of methods of assessing impaired awareness of hypoglycemia in type 1 diabetes. Diabetes Care 30, 1868–1870 (2007).

Høi-Hansen T, Pedersen-Bjergaard U & Thorsteinsson B. Classification of hypoglycemia awareness in people with type 1 diabetes in clinical practice. Journal of Diabetes Complications. 2009.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

Redelmeier DA, Kenshole AB, Ray JG. Motor vehicle crashes in diabetic patients with tight glycemic control: a population-based case control analysis. PLoS Medicine. 2009;6(12):e1000192

Royal Australian College of General Practitioners. Management of type 2 diabetes: A handbook for general practice. (2020).

Schopman, J. E., Geddes, J. & Frier, B. M. Prevalence of impaired awareness of hypoglycaemia and frequency of hypoglycaemia in insulin-treated Type 2 diabetes. Diabetes Research and Clinical Practice 87, 64–68 (2010).

34. Hearing

34.1 Relevance to marine pilots

Hearing is critical to the pilot's work. It is intrinsic to bridge management, which requires clear communication with bridge officers including closed-loop communication for confirmation of orders (which offers safety in redundancy). The bridge is relatively quiet but open wings may be noisy when a sheltered place is needed to be found to use radio-communication.

There is extensive use of hand-held radios for communication with tugs, line boats, harbour control, etc. again using closed-loop communication. Most hand-held radios can be amplified to help hearing in the case of poor reception. The pilot may need to hear voice (on the bridge) and radio inputs from various parties at the same time.

When descending the pilot ladder the pilot needs to communicate with the crewman on the cutter. Speech may need to be heard against a noisy background due to bad weather and the engine of the cutter. This is an important safety consideration.

34.2 Noise exposure

Pilots who are transferred by helicopter are noise exposed. It is crucial their hearing is protected for the reasons given above regarding doing their job. If the daily averaged noise exposure is excessive, they also need to be managed as per SafeWork NSW regulations. However, the conduct of audiometry for hearing speech required to meet this Standard is not to be confused with any audiometry required for compliance with noise regulations and the early detection of noise induced hearing loss.

34.3 General assessment and management guidelines

34.3.1 Screening and initial assessment

Pilots should be screened by pure tone audiometry at 0.5, 1.0, 2.0, and 3.0 kHz as per Australian Standard AS/ISO 8253:2009 Parts 1-3. The assessment of hearing loss should be conducted at each of these frequencies individually (not averaged).

Hearing levels do not meet the requirements for marine pilotage if the hearing loss is ≥ 40 dBA at 0.5, 1.0, 2.0 or 3.0 KHz in either ear. Hearing aids should not be worn during initial pure tone audiometry.

All those who fail screening audiometry must be referred to an audiologist* or ENT specialist for a more detailed audiological evaluation. This evaluation should involve:

- diagnostic test of hearing sensitivity;
- conduct of a speech in noise test (SPIN) according to the protocol shown in Box 2;
- an evaluation of whether hearing aids would enable the pilot to meet the Standard; and
- an assessment of whether the aids are suitable for work in the pilotage environment.

If the pilot passes the speech discrimination in noise test, they may be classed Fit Subject to Review and any hearing loss monitored. The frequency of review will be determined by the progressiveness of the underlying pathology.

*An audiologist should be accredited with Audiology Australia www.audiology.asn.au.

Box 2. Speech discrimination in noise test

- Speech discrimination ability in noise will be assessed using phonemically balanced monosyllabic word lists in noise (PBNs). These are 50-word lists. PBN wordlists are imbedded in noise (at a +10 signal:noise ratio).
- The work environment involves binaural listening to speech in background noise; therefore, the test should be binaural free-field PBN's.
- The presentation level should be 70 dB via a calibrated single speaker stationed at 0 degrees azimuth with the candidate seated at approximately 1 metre from the speaker.
- Scoring for PBNs is calculated as: score = percentage words correctly identified. Therefore, number of words correct multiplied by 2 = % correct.
- A pass score should be set at 50% of words accurately identified. This standard assumes closed-loop communication is practised.
- In jobs where use of hearing aids is permitted, they may be used as long as they are self-contained and fit within or behind the ear (refer Hearing aids).
- Workers using hearing aids must provide evidence from an accredited audiologist using functional-gain or real ear measurements that the hearing aids meet the stipulated manufacturer's standards.
- Workers using a hearing aid must have aided free-field speech discrimination testing in noise.
- Workers should be classed Fit for Duty Subject to Review and reviewed at periods determined by the prognosis of the underlying pathology.

34.3.2 Hearing aids

Pilots with hearing aids should undergo routine audiometry as above (without hearing aids) and should be routinely assessed using the speech in noise test. If they pass, they may be categorised Fit Subject to Review and their hearing and hearing aid should be assessed at least annually.

Pilots who use hearing aids should be advised of the following requirements:

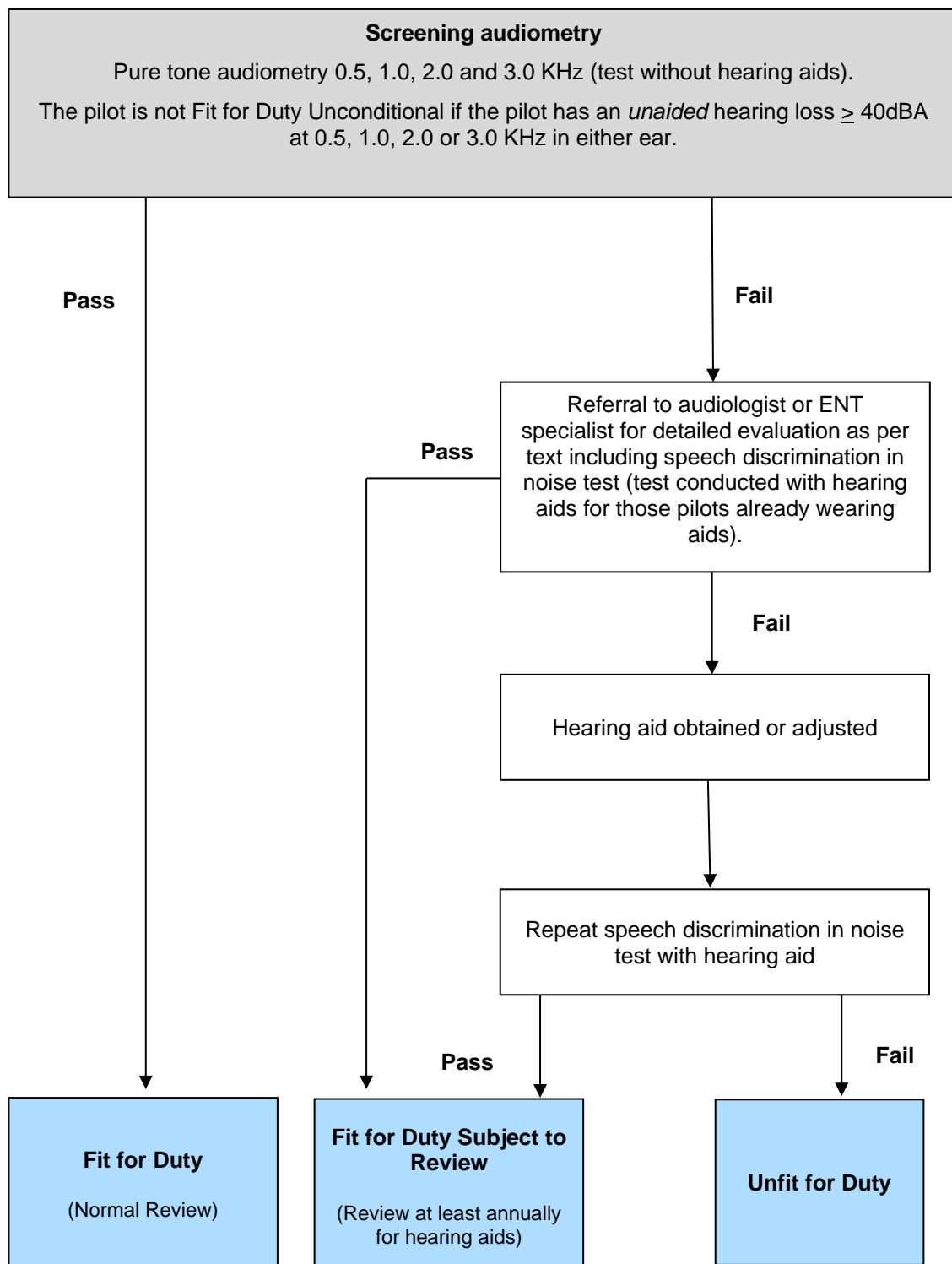
- the aids should always be worn on the bridge and on the ladder;
- they must be worn at the recommended settings;
- the pilot should carry a supply of batteries;
- the aids must be self-contained and fit within or behind the ear and worn to minimise wetting;
- they should report the development of any medical condition that may temporarily reduce efficient function of the hearing aid (e.g., ear infection, wax build-up), or if a hearing aid fails or is lost;
- they should have the hearing aid serviced annually;
- in the event of replacement or upgrading of hearing aids, or further deterioration in hearing, speech discrimination in quiet should be re-examined (Triggered Health Assessment).

34.3.3 Cochlear implants

Pilots with a cochlear implant will generally have difficulty with speech recognition in background noise. Cochlear implants generally should not be used in marine piloting. Exemptions may be

made by an ear nose and throat (ENT) specialist or audiologist based on careful consideration of the job requirements in relation to the type of cochlear implant.

Figure 22. Hearing assessment for marine pilots



34.4 Medical criteria

Medical criteria for fitness for duty are outlined in Table 12. This Standard assumes closed-loop communication is practised.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a pilot's fitness for duty.

Table 12. Medical criteria for marine pilots – Hearing

Condition	Criteria
Hearing	<p>Compliance with the Standard should be initially assessed by audiometry without hearing aids or use of a cochlear implant.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">if the pilot has an <i>unaided</i> hearing loss ≥ 40 dBA at 0.5, 1.0, 2.0 or 3.0 KHz in either ear. <p><i>Pilots without hearing aids</i></p> <p>Fit for Duty Subject to Review may be determined if the pilot passes a speech discrimination in noise hearing test (refer Box 2). The frequency of review will be determined by the progressiveness of the underlying pathology.</p> <p><i>Pilots with hearing aids</i></p> <p>Fit for Duty Subject to Review may be recommended if the pilot uses a hearing aid and passes a speech discrimination in noise hearing test (see text). The frequency of review will be determined by the progressiveness of the underlying pathology. Their fitness for duty is also conditional on wearing the hearing aid.</p> <p>Cochlear implants are generally not acceptable.</p>

References

Australian Government, Australian Maritime Safety Authority. Guidelines for the Medical Examination of seafarers and coastal pilots, October 2016.

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Bentler RA. Effectiveness of directional microphones and noise reduction schemes in hearing aids: A systemic review of the evidence. Journal of American Academy of Audiology. 2005;16:477-488.

Ludlow B, Hughes K. Hearing and vestibular disorders. Chapter 10 in Fitness for Work; Eds: Palmer K, Cox and Brown I. Oxford University Press. 2007.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

35. Musculoskeletal conditions (including balance, predicted VO₂ max and BMI)

See also [Section 36.5 Balance and vestibular disorders](#).

35.1 Relevance to marine pilots

Pilots need to embark and disembark ships using the pilot ladder as detailed in Part C (Inherent Requirements). The work requires considerable musculoskeletal and cardiovascular fitness and carries with it a high risk of injury, particularly of the upper and lower limbs. The ladder is 9 metres long and requires a vertical ascent or descent, day or night, sometimes in adverse weather conditions. Marine pilots therefore require soundness of limbs, neck and back, as well as good balance and stamina.

Body Mass Index (BMI - (weight/height²) is also an important aspect of fitness for pilotage work. Excessive body mass (weight) in proportion to height places excessive strain on the musculoskeletal and cardiorespiratory systems when climbing/descending the pilot ladder and predisposes to injury. Excessive body mass also places extra load on the deckhand on the cutter assisting the pilot on/off the ladder. Excessive BMI is also a risk factor for sleep apnoea (refer to [Section 39 Sleep disorders](#)) and diabetes. However, it is the pilot's ability to complete the functional tests that determines their fitness for duty, not their BMI per se.

35.2 Physical Assessment

35.2.1 Overview

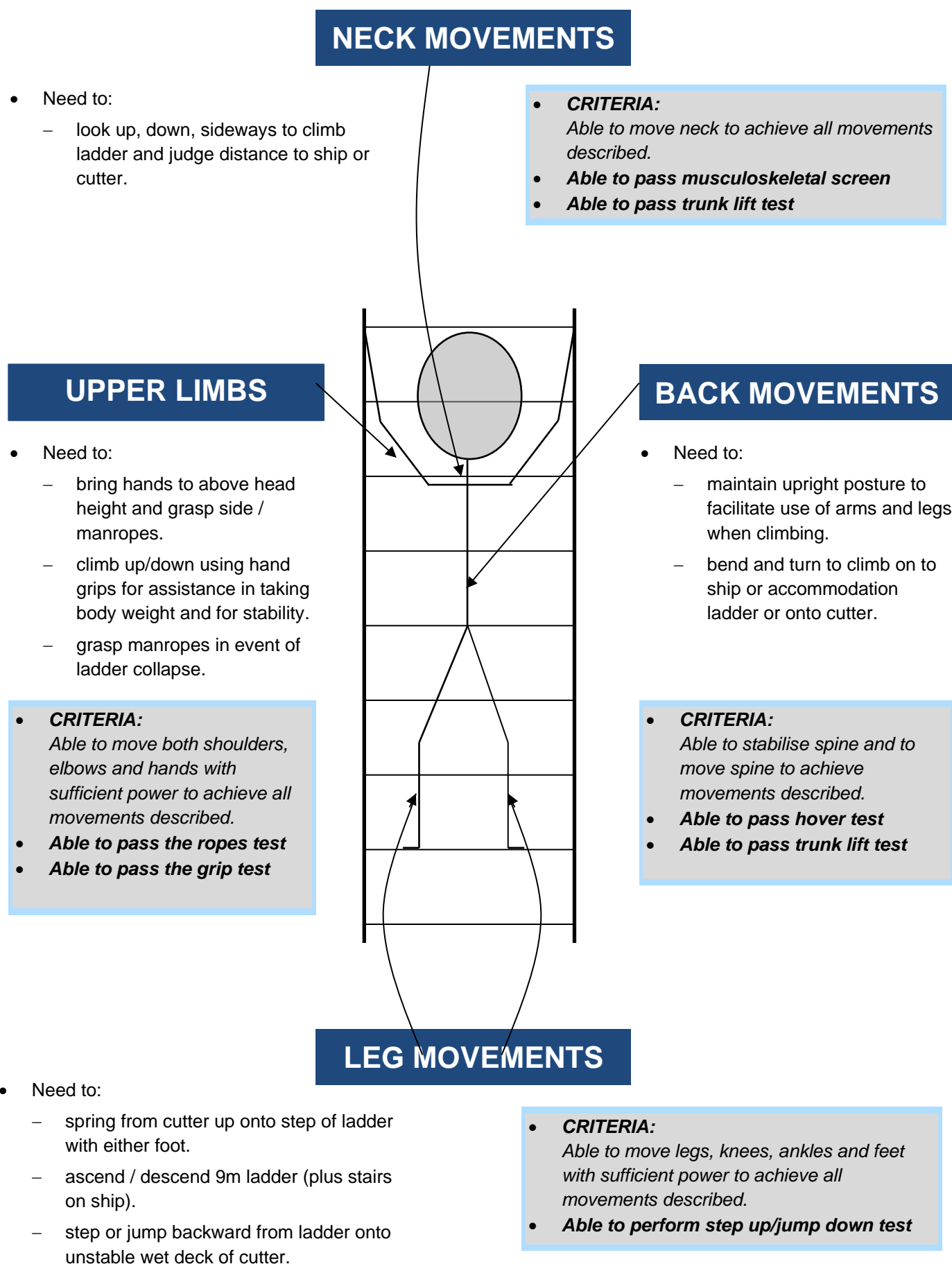
As from 2022, the Physical Assessment for marine pilots is a standalone assessment, which is generally conducted by a physiotherapist (AHP-Physiotherapist) (refer [Section 11. Authorised Health Professionals](#)). In the event of a significant abnormality being identified the pilot will be referred to an AHP-Medical for further assessment.

The Physical Assessment aims to identify pilots who may have difficulty performing ladder transfers safely, and those who would benefit from remedial exercises or functional restoration.

Periodic Physical Assessments are conducted more frequently than Periodic Health Assessments, reflecting the potential for physical capacity to decline more rapidly over time, independently of age (refer [Section 9 Timing and frequency of assessments](#)).

Figure 23 shows the inherent requirements of the ladder transfer task. These form the basis of the Physical Assessment protocol described in this section.

Figure 23. Musculoskeletal system: inherent requirements and medical criteria for climbing up or down pilot ladder



The Physical Assessment is a comprehensive assessment of musculoskeletal capacity, grip strength, balance, cardiorespiratory function (Predicted VO₂max), dynamic tests and Body Mass Index (BMI).

It features the following:

- Screening assessments to ensure safety to conduct the functional tests, including:
 - a questionnaire aimed at securing a general musculoskeletal history and establishing any potential contraindications to conducting the functional tests;
 - a basic musculoskeletal screen to confirm capability to undertake more vigorous assessment; and
 - measurement of blood pressure, also to ensure safety to undertake more vigorous assessment.
- Calculation of Body Mass Index (BMI)
- Functional tests, designed to assess aerobic capacity and actions of maximum stressfulness during a transfer using the pilot ladder, including:
 - Predicted VO₂ max test of aerobic capacity. This should be assessed by Chester or Queens University or equivalent step test.
 - Grip strength
 - Romberg (balance) test
 - Hover test
 - Trunk lift
 - Ropes test
 - Step up/jump down test.

The examination is guided by content of the Physical Assessment Clinical Record Form (Green Form – Physical Assessment) (refer to [Appendix 2.3](#)) and summarised in the flow chart in Figure 24 and Figure 26 (for BMI). Details of the tests and the fitness for duty criteria are shown in [Section 35.2.2 Physical Assessment tests and outcome management](#).

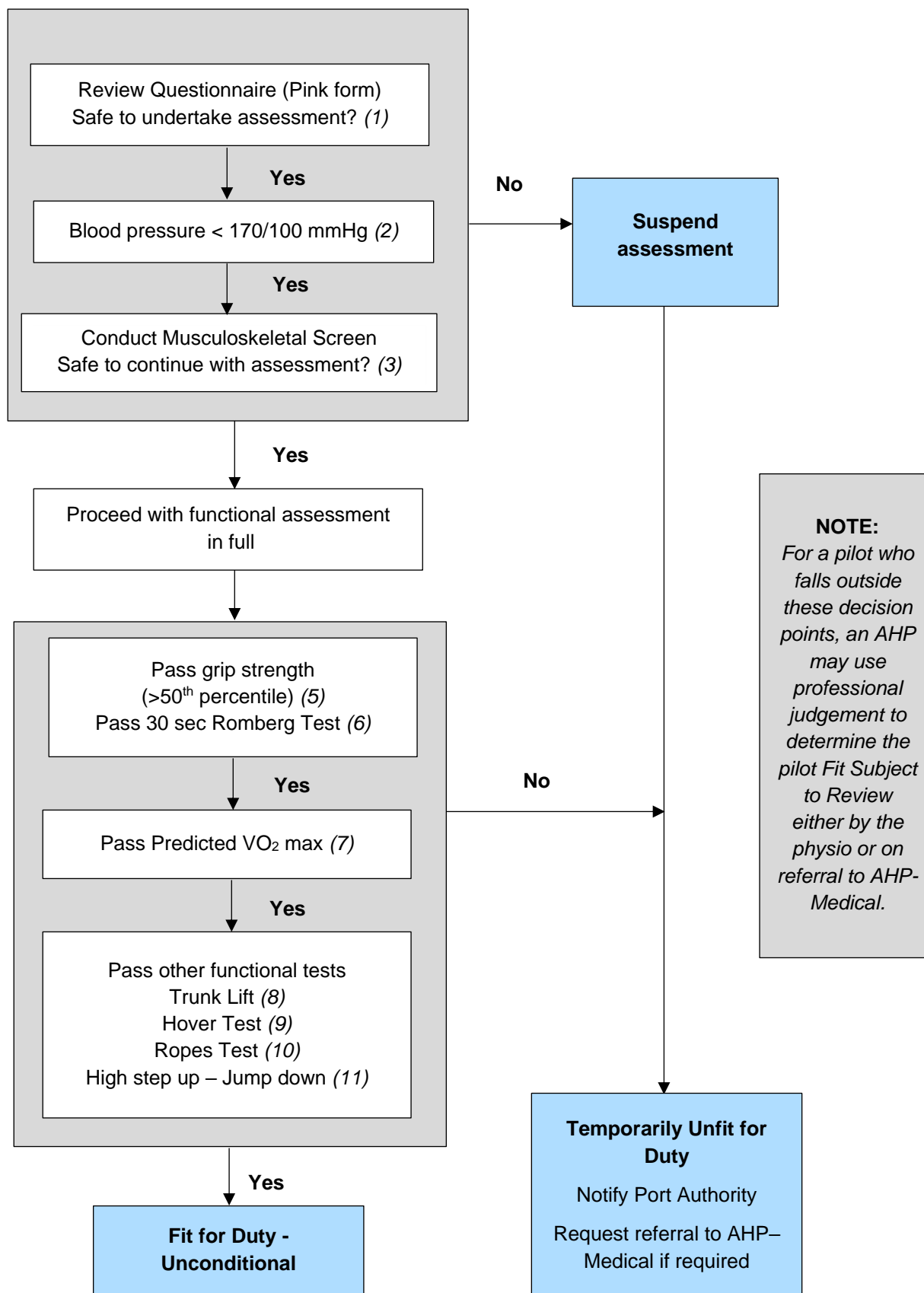
Failure of the screening aspect of the Physical Assessment will mean the assessment is suspended. The pilot may be referred to the AHP-Medical for further assessment as appropriate, or the Physical Assessment may be deferred. Failure of any of the other tests will also result in referral to the AHP-Medical. Referrals to the AHP-Medical should be accompanied by a copy of the Green Form and an explanatory note. If the pilot is classified as being Temporarily Unfit for Duty, the Port Authority must be promptly advised.

Counselling of the pilot is an important aspect of the Physical Assessment, aimed at proactively addressing any trends towards reduced physical capacity. Where a pilot fails any of the tests or trends point to a decline in physical capacity or an increase in BMI, the results should be discussed, and any trends noted. Where appropriate, advice may be given regarding maintenance of fitness including recreational activities. The Authorised Health Professional should be alert to and refer to interfacing programs as appropriate (refer to [Section 14 Policy and program interfaces](#)).

It may be assumed that if a pilot is fit enough to climb ladders, they are fit enough for other tasks requiring musculoskeletal capacity such as walking around the bridge or climbing ladders and gangways on wharves at port.

Figure 24. Decision flow chart for Physical Assessment

(Numbers refer to sections in the Green Form) See also Figure 26 for flow chart relating to BMI



35.2.2 Physical Assessment tests and outcome management

The following narrative descriptions and figures describe the conduct of the tests to support uniformity. It also describes the management of outcomes in terms of categorisation and referral.

Screening assessment

The screening assessment provides a basis for judging safety to proceed with the more vigorous assessments. It comprises a review of the completed questionnaire (Pink Form) regarding current musculoskeletal health and physical fitness, and other potential contraindications to progressing with the functional aspects of the assessment. Blood pressure is then measured – if it is higher than 170/100 the assessment should be suspended, and the pilot referred to the AHP-Medical (refer [Section 32.2.9 Other cardiovascular conditions – Hypertension](#)).

An examination of the musculoskeletal system relevant to pilotage is then undertaken as the final step in the screening assessment. In the event of a significant abnormality being found the pilot should be referred to the AHP-Medical for assessment and treatment, as appropriate, in conjunction with the pilot's general practitioner. Upon clearance by the AHP-Medical, the pilot may then resume the Physical Assessment by the physiotherapist.

Body Mass Index

It is the pilot's ability to complete the functional tests that determines their fitness for duty, not their BMI per se. The BMI is assessed irrespective of the outcome of the rest of the Physical Assessment. Height and weight should be measured, and BMI calculated using the nomogram (Figure 25). Some allowance is made for body composition as determined by waist circumference because very muscular persons may have a high BMI but will be fit and at low risk on the ladder.

The BMI of pilots should be progressively tracked at Periodic Physical Assessments to encourage maintenance of BMI and early detection of untoward trends. Where an untoward trend is detected, possible reasons should be assessed and appropriate advice given or referral made, e.g., for dietetic advice, in discussion with the pilot's general practitioner.

The pilot should be categorised as below and per Figure 26.

- If the BMI is 30-35 and the waist circumference for men is >94cm or for women is >80cm and/or the BMI is increasing, the pilot should be categorised Fit Subject to Review and managed by the AHP-Physiotherapist, providing there is no other reason for referral to AHP-Medical. The pilot should be counselled regarding weight gain and the effect on overall fitness. They should be reviewed once only after three months regarding BMI and the potential impact on physical fitness. They may be referred to their general practitioner for further management following the initial or review assessment.
- If BMI is greater than 35, the pilot should be classified Fit Subject to Review and referred to AHP-Medical for assessment for sleep disorder (refer to [Section 39 Sleep disorders](#)).

Figure 25. Body Mass Index (BMI) nomogram

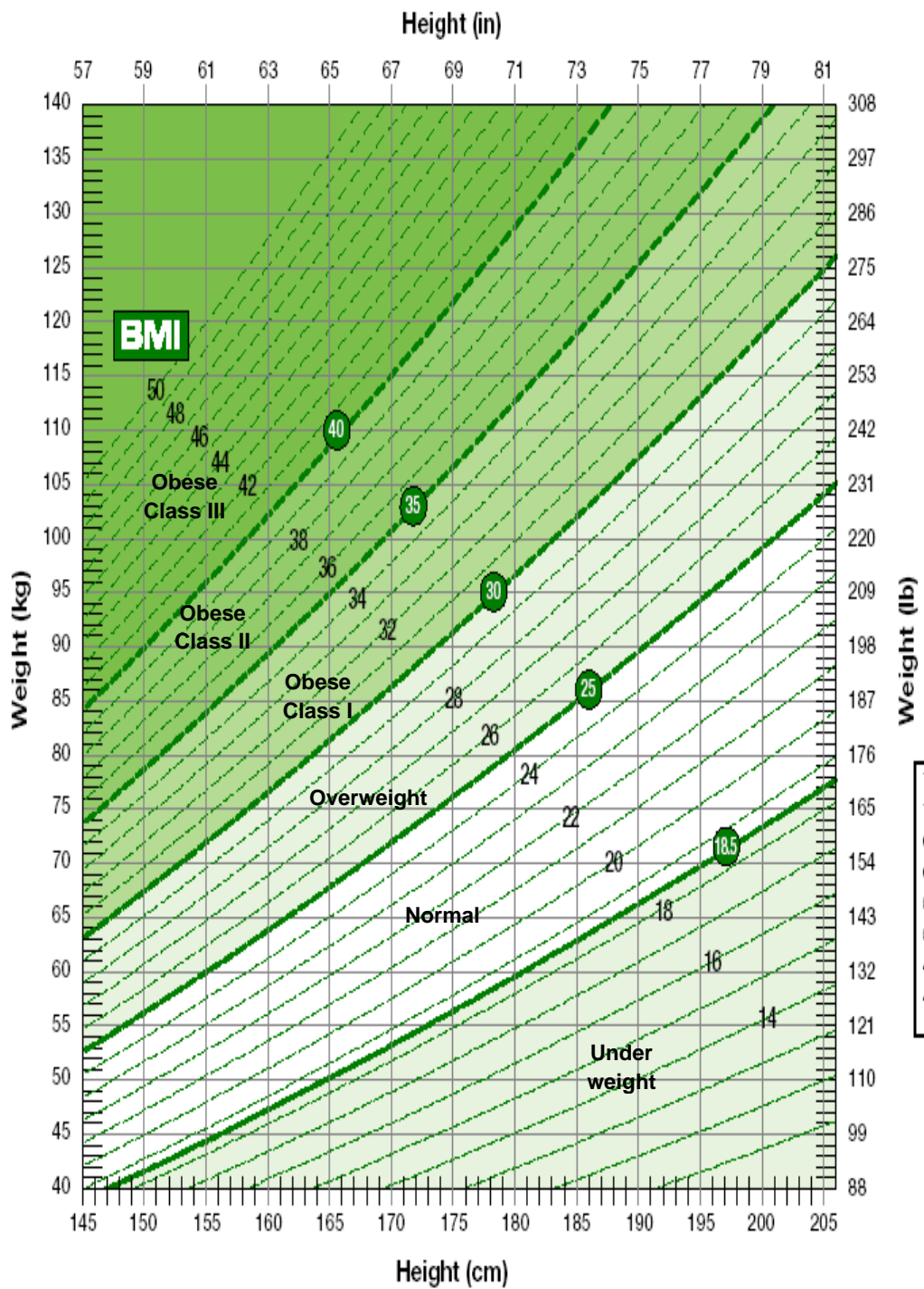
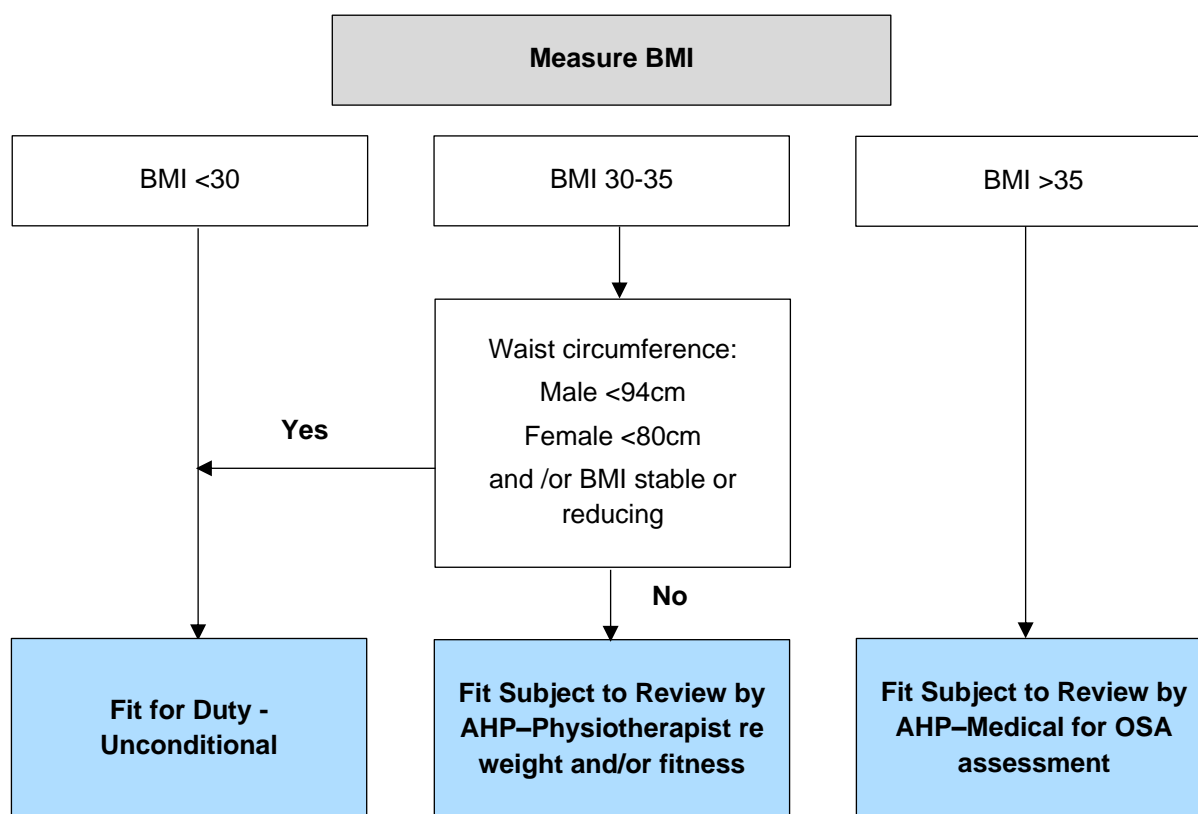


Figure 26. Decision flow chart for BMI Assessment

(Item 4 on Green form)



Functional tests

Grip strength

Grip strength is important for safe use of the pilot ladder. Grip strength is assessed using a Jamar device (or equivalent).

Instructions:

- Set the Jamar at a distance to approximate the diameter of the manrope (28mm) plus thin gloves (~30mm).
- Ask the pilot to complete the test alternating between hands for 2 readings on each hand.
- Average the readings for each hand.
- Compare the strength in kilograms to the table of norms (Figure 28).

Assess as follows:

- Pass: The pilot demonstrates grip strength ≥ 50 th percentile for age in each hand.
- The pilot is classed as Temporally Unfit if they do not meet the pass criteria in either hand.

Figure 27. Grip strength test using Jamar device



Figure 28. Normative data for hand grip strength (in kg) (Australian fitness norms)

	Hand grip strength(kg) by age range				
	18-29	30-39	40-49	50-59	60-69
Percentile – MEN					
5	34	40	38	36	32
25	42	46	44	43	37
50	50	51	49	47	41
75	56	57	55	51	46
95	65	66	61	60	52
Percentile – WOMEN					
5	24	23	23	19	18
25	29	28	27	25	23
50	30	31	30	29	25
75	34	35	33	32	28
95	39	40	38	36	34

Source: Gore, C.J. and Edwards, D. A. (Eds)(1992) 'Australian Fitness Norms: A manual for fitness assessors.' *The Health Development Foundation* North Adelaide SA.

Balance – Romberg test

Balance should be assessed by using the Romberg test (Figure 29).

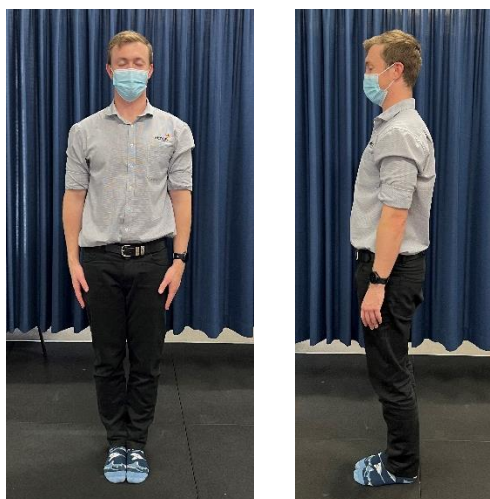
Instructions:

- Instruct the pilot to stand with shoes off, feet together side-by-side, eyes closed and arms by sides. Ask them to hold this position for thirty seconds. They should be allowed three attempts.

Assessment:

- Pass: The pilot is able to hold the position for 30 seconds without adjusting the position of their feet, opening their eyes or moving their arms.
- Fail: If the pilot is unable to meet the pass criteria they should be classed as Temporally Unfit for Duty and referred to the AHP-Medical.

Figure 29. Romberg test



Predicted VO₂ max

VO₂ max may be predicted using various tests. A step test is preferred as it is similar to climbing the ladder and stairs. Step tests include the Chester

<https://academic.oup.com/occmed/article/68/1/70/4866348>, Queens College

<https://www.topendsports.com/testing/tests/step-queens.htm> and YMCA tests. The resulting predicted VO₂ max value should be compared to normal VO₂ max values by age and sex (Figure 19).

The criteria for predicted VO₂ max are as below:

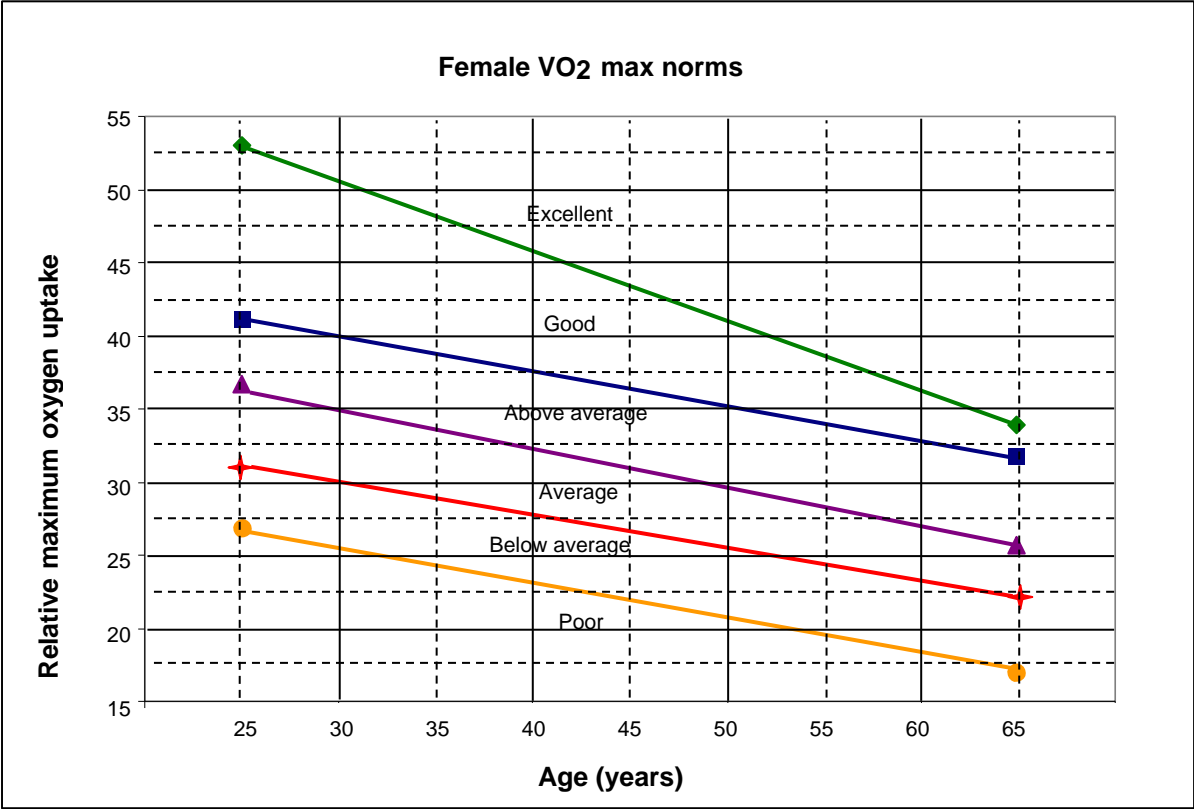
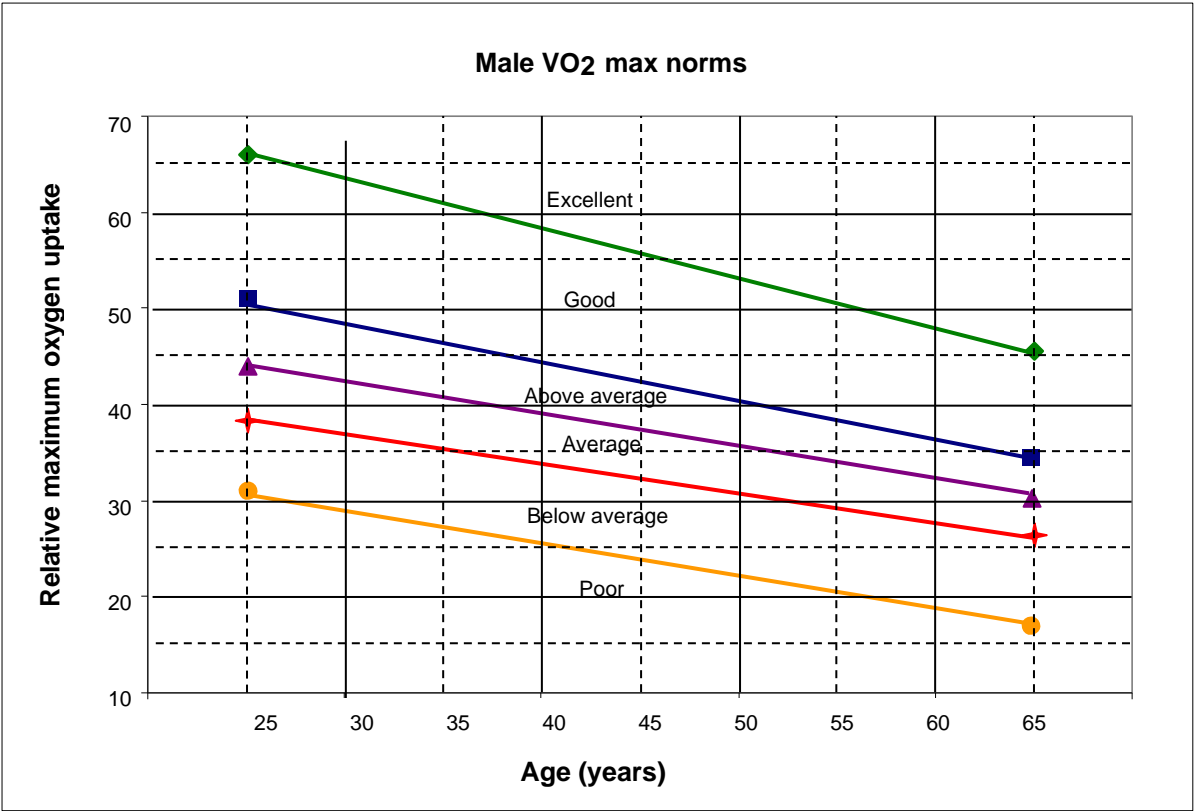
- Pass: The pilot is in the “average” or “above average” range for age and sex.
- Fail: The pilot is in the “below average” range for age and sex.

The trend for predicted VO₂ max should be noted at each assessment considering the pilot’s age and sex. If there is an untoward trend, the reasons for this should be discussed and the pilot counselled accordingly.

Figure 30. Step test for aerobic capacity



Figure 31. Male and female VO₂ max norms



Trunk lift

Instructions:

- Instruct the pilot to lie prone on the floor or an exam table with chin on their hands and palms facing down.
- Instruct them to arch backwards, lifting their palms and forearms as far as they comfortably can and hold for 15 seconds.

Assess as follows:

- Pass: The pilot is able to hold for 15 seconds.
- Fail: If the pilot is unable to meet the pass criteria they should be classed as Temporally Unfit for Duty and referred to the AHP-Medical.

Figure 32. Trunk lift test



Hover test

Instructions:

- Instruct the person to position themselves as per Figure 33, resting on forearms, supporting their weight on their toes and holding their back straight.
- Instruct them to hold for 60 seconds.

Assess as follows:

- Pass: The pilot is able to hold for 60 seconds.
- Fail: If the pilot is unable to meet the pass criteria they should be classed as Temporally Unfit for Duty and referred to the AHP-Medical.

Figure 33. Hover test



Ropes test

Instructions:

- Instruct the pilot to stand on a set of scales with man ropes (28mm diameter and 50cm apart) extended vertically above.
- Record their weight at this starting position. Calculate the 40% value and record on the Green Form.
- Instruct the pilot to grip the ropes (bare-handed or with gloves as per their usual practice) with both hands in a manner they feel comfortable.
- Instruct them to pull down on the ropes to create a pull-down force, maintaining contact with the scales, and thus reducing their body weight on the scales.
- Instruct them to take as much of their weight as possible through the man ropes without losing contact with the scales.
- Instruct them to hold this weight for six (6) seconds.

Assess as follows:

- Pass: The pilot is able to take 60% or more of their body weight through the man ropes for six (6) seconds. That is, the scales indicate $\leq 40\%$ of the pilot's full weight.
- Fail: If the pilot is unable to meet the pass criteria they should be classed as Temporally Unfit for Duty and referred to the AHP-Medical.

Figure 34. Ropes test for upper body strength and grip strength (Harden, 2016)



High step up and jump down tests

Note that the height for the Step up test is set at 500mm, while the Jump down is 600mm.

Step up

Instructions:

- In place of the scales used for the ropes test, position a 500mm plyometric box or platform under the ropes.
- Ensure the box is adequately stabilised.
- Ask the pilot to grasp the ropes and step up onto the box, leading twice with each leg.

Assess as follows:

- Pass: The pilot is able to perform test leading with one or both legs.
- Fail: If the pilot is unable to perform test leading with either leg they should be classified as Temporally Unfit for Duty and referred to the AHP-Medical for further assessment.

The AHP-Physiotherapist may provide counselling about strengthening if the pilot is unable to complete the test leading with one of their legs, but this does not affect the fitness for duty categorisation.

Figure 35. Step up test



Start position – Step up test (500mm)



Step up test – ascending to stand on top of 500mm box

Jump down

Instructions

- Adjust the box height to 600mm and instruct the pilot to step up as per the Step up test above.
- Instruct the pilot to jump or 'skip' down from the box twice – their second foot must leave the box before their lead leg contacts the floor.

- The pilot may 'slide' down the ropes for support until their second foot has touched the floor.
- The pilot must land without taking more than two stabilising steps, falling, or putting a hand to the ground to stabilise themselves.
- The pilot can jump down leading with either leg, or both legs at once.

Assess as follows

- Pass: The pilot performs test per instructions as above.
- Fail: The pilot is unable to perform the test with both feet momentarily in the air, or requires more than two stabilising steps, or needs to put a hand to the ground when landing. The pilot is classified as Temporally Unfit for Duty and referred to the AHP-Medical for further assessment.

Figure 36. Jump down test



Step down test – pass – trailing leg leaves box before leading leg contacts ground



Step down test – pass – stable landing requiring two or less steps to stabilise.



Step down test – fail – trailing leg remains in contact with box when leading leg contacts ground.

35.3 Other musculoskeletal conditions/considerations

35.3.1 Arthritis

Painful joints may arise due to inflammatory or degenerative arthritis. Pilots who have persistent pain and marked reduction in range of movement in shoulders, elbows, wrists, hands, hips, knees, ankles or feet may not meet the criteria. They should be fully assessed regarding all Physical Assessment criteria.

The long-term use of opioid analgesics is generally not accepted as an appropriate approach for chronic musculoskeletal pain management and therefore should be questioned. Pilots using these agents should be referred for assessment by an appropriate specialist such as an orthopaedic surgeon or rheumatologist or pain specialist or, if appropriate, an addiction medicine specialist or addiction psychiatrist. They may also need to be advised of the Port Authority Alcohol and Other

Drugs procedure. For more information about the management of prescription and OTC medication refer to [Section 30.3 Prescription and OTC medications](#).

35.3.2 Post orthopaedic surgery including joint replacement

Pilots who have had orthopaedic surgery including joint replacements need to be assessed on an individual basis. They should be fully assessed regarding all Physical Assessment criteria. This may include practical assessment on a pilot ladder on land.

35.4 Medical criteria

Medical criteria for fitness for duty are outlined in Table 13.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 13. Medical criteria for marine pilots - Musculoskeletal conditions

Condition	Criteria
Physical Assessment	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">if the pilot is unable to adequately perform the inherent requirements as assessed by the Physical Assessment protocol comprising:<ul style="list-style-type: none">the musculoskeletal screenthe grip strength testthe Romberg (balance) testthe predicted VO₂ max testthe hover testthe trunk lift testthe ropes test, andthe high step up/jump down test <p>A pilot is Temporarily Unfit for Duty if they fail any of the above tests as defined in the Physical Assessment protocol.</p> <p>The pilot should be referred promptly to an AHP-Medical for further assessment and classified according to the appropriate chapter(s) of the Standard. The failed physical test(s) will need to be passed before resuming ladder transfer duties.</p>
BMI (to be assessed irrespective of physical assessment categorisation)	<p>A pilot is not Fit for Duty Unconditional</p> <ul style="list-style-type: none">if the BMI is 30-35 and the waist circumference for men is >94cm or >80cm for women and/or the BMI is increasing. <p>Fit Subject to Review may be determined subject to counselling regarding weight gain and the impact on overall fitness and a once only review by the AHP-Physiotherapist after 3 months.</p>

Condition	Criteria
BMI (to be assessed irrespective of physical assessment categorisation) (continued)	<p>They may be referred to their general practitioner for further management following the initial or review assessment.</p> <p>A pilot is not Fit for Duty Unconditional</p> <ul style="list-style-type: none"> • if the BMI is > 35 <p>The appropriate classification of fitness for duty will be determined following assessment by an AHP-Medical regarding sleep apnoea (refer Section 39 Sleep disorders).</p>

References

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Cox R, Nugent I. Orthopaedics and trauma of the limbs. Chapter 12 in Fitness for Work; Editors: Palmer K, Cox R and Brown I. Oxford University Press. 2007

Harden M, O'Neill D. Site Visit Report – Marine pilot fixed ladder, Newcastle Pilot Station. Dec 2016

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

Palmer K, Greenough C. Spinal disorders. Chapter 11 in Fitness for Work; Eds: Palmer K, Cox R and Brown I. Oxford University Press. 2007

Pollack KM, Sorock GS, Slade MD, Cantley L, Sircar K, Taiwo O, Cullen MR. Association between Body Mass Index and Acute Traumatic Workplace Injury in Hourly Manufacturing Employees. American Journal of Epidemiology. 2007

36. Neurological conditions

36.1 Relevance to pilotage

Pilotage requires a number of intact neurological functions to support:

- safe working on the bridge including high level cognition skills, communication skills and ability to respond in emergency situations; and
- safe dis/embarkation using the pilot ladder including visuospatial perception, judgement, attention, and reaction time.

Although evidence of accident or incident risk is limited, it is apparent that symptoms that are common to many neurological conditions, such as potential spontaneous loss of consciousness, impaired cognition, confusional states and loss of muscular power and coordination, are deleterious to pilotage work.

This section provides guidance and medical criteria for the following conditions:

- dementia (refer to [Section 36.3 Dementia and Mild Cognitive Impairment \(MCI\)](#));
- seizures and epilepsy (refer to [Section 36.4 Seizures and epilepsy](#));
- vestibular disorders (refer to [Section 36.5 Balance and vestibular disorders](#));
- other neurological conditions, including (refer to [Section 36.6 Other neurological conditions](#)):
 - unruptured intracranial aneurysms and other vascular malformations
 - cerebral palsy
 - head injury
 - neuromuscular conditions
 - Parkinson's disease
 - multiple sclerosis
 - stroke
 - transient ischaemic attacks
 - subarachnoid haemorrhage
 - space-occupying lesions, including brain tumours
 - neurodevelopmental disorders.

The focus of this section is on long-term or progressive disorders affecting safe working ability, but some guidance is also provided regarding short-term fitness to work—for example, following head injury and vertigo. Where pilots also experience musculoskeletal, visual or psychological symptoms, the relevant standards should also be considered. Refer to Sections [35 Musculoskeletal conditions](#), [37 Psychiatric conditions](#) and [41 Vision and eye disorders](#).

36.2 General assessment and management guidelines

A pilot with a neurological disorder should be examined to determine the impact on the functions required for safe working as listed below. Work performance reports may also be a useful source of information regarding overall safe working skills.

If the health professional is concerned about a pilot's ability to perform pilotage safely, they may refer the pilot for neuropsychological assessment or a practical assessment of cognitive capacities

(refer to [Section 24 Additional tests and marine specific resources](#)). If the health professional is concerned about the pilot's ability to perform ladder transfers safely the pilot should be referred for a Physical Assessment (refer to [Section 35 Musculoskeletal conditions](#)).

For progressive conditions, deterioration in work performance may be the basis for a Triggered Health and/or Physical Assessment.

Box 3. Checklist for neurological disorders

If the answer is YES to any of the following questions, the person may be unfit for pilotage work and will warrant further assessment.

1. Are there significant impairments of any of the following?
 - visuospatial perception
 - insight
 - judgement and the ability to respond appropriately in emergency situations
 - cognitive skills including attention and concentration
 - communication skills
 - reaction time
 - memory
 - sensation
 - muscle power
 - coordination
 - balance.
2. Are the visual fields abnormal? (Refer to [Section 26 Vision and eye disorders](#))
3. Have there been one or more seizures? (Refer to [Section 21.2 Seizures and epilepsy](#))
4. Is there loss of hearing or vertigo? If so refer to this section and [Section 19 Hearing and Section 21.3 Balance and vestibular disorders](#)

Some neurological conditions are progressive, while others are static. In the case of static conditions in those who meet the criteria for Fit for Duty Subject to Review, more frequent reviews than are required for the usual Periodic Health Assessment may not be needed.

36.3 Dementia and Mild Cognitive Impairment (MCI)

This section focuses on dementia, which for the purposes of this Standard, is defined as a progressive impairment of multiple higher cortical functions, including memory, thinking, orientation, calculation, learning capacity, language and judgement due to degenerative conditions of the central nervous system. For the purposes of this Standard mild cognitive impairment (MCI) is the stage between the expected cognitive decline of normal aging and the more serious decline of dementia.

Other causes of fluctuating or permanent cognitive impairment or delirium, such as hepatic, renal or respiratory failure, may be managed according to general principles. Substance misuse is covered in [Section 40 Substance misuse and dependence](#).

36.3.1 Relevance to marine pilots

Dementia is characterised by significant loss of cognitive abilities such as memory capacity, psychomotor abilities, attention, visuospatial functions and executive functions. These losses are relevant to pilots who have high cognitive demands on the bridge. They are also relevant to safety during transfers using the pilot ladder. Due to the progressive and irreversible nature of the condition, pilots with a diagnosis of dementia will be a risk to themselves and others when working. Dementia is therefore incompatible with work as a pilot.

Dementia may arise due to numerous causes including Alzheimer's disease, Huntington's disease, fronto-temporal dementia and vascular dementia. Alzheimer's disease is the most common cause, accounting for 50–70% of cases. It mainly affects people over the age of 70 and is of some relevance in the maritime industry due to an ageing workforce. It may also occur prematurely.

36.3.2 General assessment and management guidelines

Dementia often affects insight and patients may be referred as a "Triggered Assessment" on the basis of poor work performance, rather than identified at Periodic Assessment.

Dementia may affect safe working ability in a number of ways, including:

- memory loss;
- limited concentration or 'gaps' in attention, such as failing to see or respond to signals
- errors in judgement;
- confusion when making choices;
- poor decision making or problem solving;
- poor insight and denial of deficits;
- errors with navigation, including forgetting details of routes;
- slowed reaction time; and
- poor hand–eye coordination.

Because of the lack of insight and variable memory abilities associated with most dementia syndromes, the person may minimise or deny any difficulties with working. Work performance reports, and feedback from port authorities or co-pilots may be a useful source of information regarding overall coping and safety decision-making skills. Neuropsychological testing helpful to forming an overall opinion of fitness for duty. The ability to respond under stress may be assessed on a simulator or by other means. A physical assessment may be helpful to assess praxis and coordination.

Assessment

Assessment of MCI or dementia requires specialist referral.

The level of impairment of MCI and dementia varies widely; each person will experience a different pattern and timing of impairment as their condition progresses. This presents problems in both diagnosis and management.

The following points may be of assistance in assessing a person:

- **Work history.** Have they been involved in any incidents? Have they been referred for assessment by an employer?

- **Vision.** Can they see things coming straight at them or from the sides? (refer to [Section 41 Vision and eye disorders](#)).
- **Hearing.** Can they hear speech and warning sounds?
- **Reaction time.** Can they respond to signals and emergency situations?
- **Problem solving.** Do they become upset and confused when more than one thing happens at the same time?
- **Coordination.** Have they become clumsy or started to walk differently because their coordination is affected?
- **Praxis.** Do they have difficulty using their hands and feet when asked to follow motor instructions?
- **Alertness and perception.** Are they aware and do they understand what is happening around them? Do they experience hallucinations or delusions?
- **Insight.** Are they aware of the effects of their dementia? Is there denial?

36.3.3 Medical criteria

Medical criteria for fitness for duty are outlined in Table 14. Due to the progressive nature of dementia, a person first diagnosed with suspected dementia should be classed as Temporally Unfit and referred for specialist assessment. A pilot with a diagnosis of dementia will not meet this Standard. In some cases of MCI, a classification of Fit for Duty Subject to Review may be determined subject to careful assessment by an appropriate specialist. Information relating to work performance and, in particular, safety breaches or near misses, should also be considered.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 14. Medical criteria for marine pilots – Dementia and MCI

Condition	Criteria
Dementia and MCI	<p>A pilot is permanently Unfit for Duty if they have a diagnosis of dementia.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has a diagnosis of mild cognitive impairment. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and work performance reports and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot has the psychological capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working, and • the pilot has the psychological capacities (visuospatial perception, judgement, attention, reaction time) for safe dis/embarkation using the pilot ladder.

36.4 Seizures and epilepsy

(Refer also to Sections [31 Blackouts](#), [32 Cardiovascular fitness and diseases](#) and [33 Diabetes](#))
Pseudo-epilepsy should be managed as a psychiatric condition.

36.4.1 Relevance to marine pilots

Effects of seizures on pilotage

Epilepsy refers to the tendency to experience recurrent seizures. Not all people who experience a seizure have epilepsy.

Seizures vary considerably, some being purely subjective experiences (e.g. some focal seizures), but the majority involve some impairment of consciousness (e.g. absence and complex partial seizures) or loss of voluntary control of the limbs (e.g. focal motor and complex partial seizures). Convulsive (tonic–clonic) seizures may be generalised from onset or secondarily generalised with focal onset. Seizures associated with loss of awareness, even if brief or subtle, or loss of motor control, have the potential to impair the ability to perform pilotage.

In addition, sleep deprivation is a common provoking factor in epilepsy and may be experienced in shift work.

Seizures are unpredictable and incapacitating. They pose a considerable risk to safe pilotage and ladder transfers.

Evidence of safety risk

Although evidence of accident or incident risk is limited, it is apparent that symptoms that are common to epilepsy, such as potential spontaneous loss of consciousness, are deleterious to pilotage work.

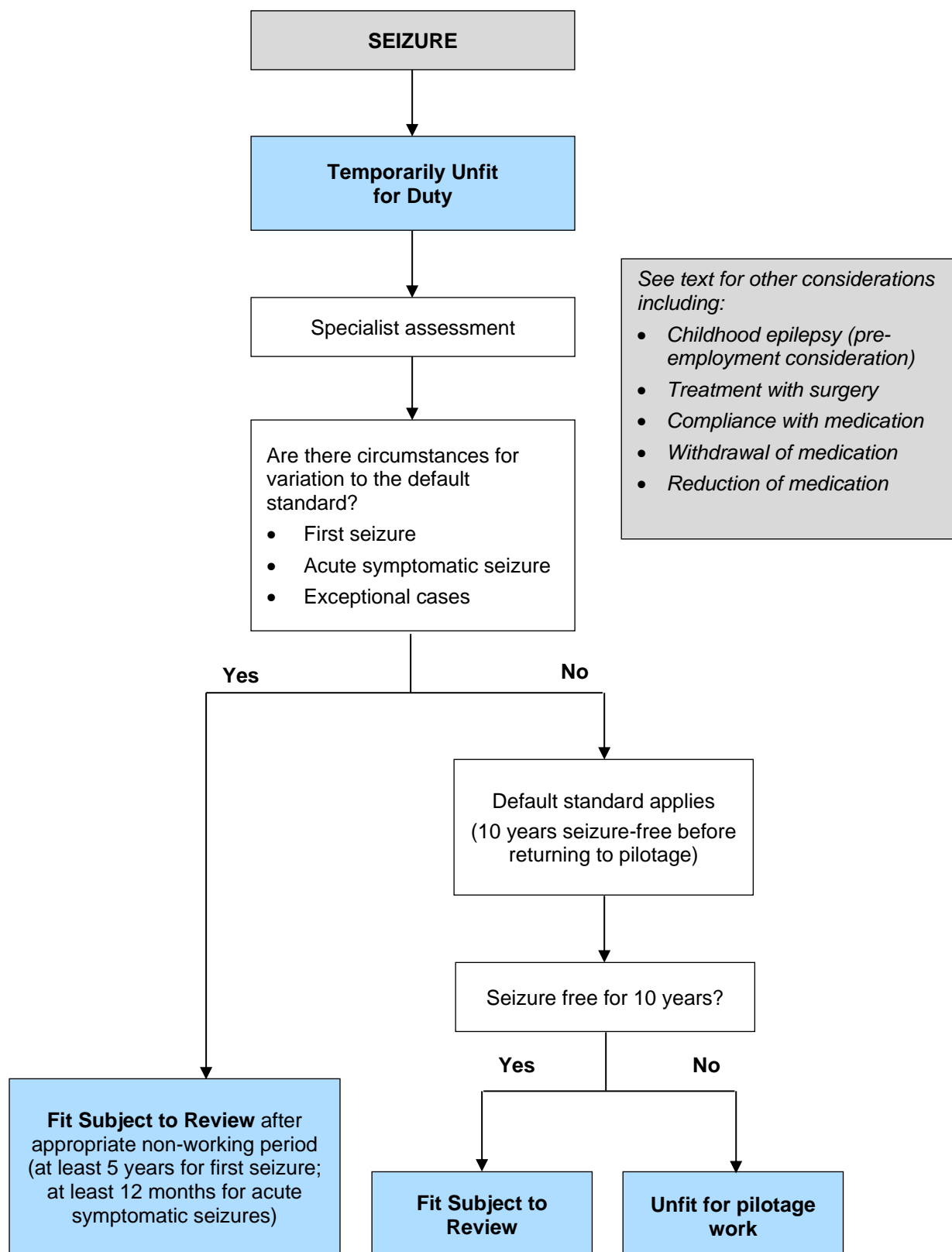
36.4.2 General assessment and management guidelines

An overview of the management of pilots who have had a seizure is shown Figure 37.

Epilepsy is a common disorder with a cumulative incidence of 2% of the population, with 0.5% affected and taking medication at any one time. Most cases respond well to treatment, with a terminal remission rate of 80% or more. The majority suffer few seizures in a lifetime, and about half will have no further seizures in the first 1 or 2 years after starting treatment. Some people with epilepsy may eventually cease medication. For others, surgery may be beneficial.

Pilots experiencing initial seizures should be referred to a specialist for accurate diagnosis of the specific epilepsy syndrome so that appropriate treatment is instituted and all the risks associated with epilepsy, including pilotage, can be explained and acted upon.

Figure 37. Overview of management of pilots following seizure



The default standard (all cases)

Given the considerable variation in seizures and their potential impact on pilotage, a hierarchy of standards has been developed that provides a logical and fair basis for decision making regarding fitness for duty.

The 'default standard' is the standard that applies to all pilots who have had a seizure. It requires a seizure-free period of 10 years before return to pilotage. It applies in all but a number of defined situations that are associated with a lower risk of a seizure-related incident. Only in these situations may work be resumed after a shorter period of seizure freedom. However, the need for adherence to medical advice and at least annual review still apply.

If a seizure has caused an incident or near miss within the preceding 12 months, the required period of seizure freedom may not be reduced below that required under the default standard.

Anti-epileptic medication is not to be withdrawn in pilots (refer to Table 15 for details).

Variations to the default standard

There are some situations in which a variation to the default standard may be considered to allow an earlier return to pilotage. This will require input from a specialist in epilepsy. These situations include:

- **Seizures in childhood.** In some specific childhood epilepsy syndromes, seizures usually cease in the teenage years before working age. The pilots may be categorised as Fit for Duty Subject to Review if no seizures have occurred after 11 years of age. If a seizure has occurred after 11 years of age, the non-working periods apply as outlined in the table.
- **First seizure.** Approximately half of all people experiencing their first seizure will never have another seizure, whereas half will have further seizures (i.e., epilepsy). The risk of recurrence falls with time. Pilotage may be resumed after sufficient time has passed without further seizures (with or without medication) to allow the risk to reach an acceptably low level (refer to Table 15). If a second seizure occurs (except within 24 hours of the first), the risk of recurrence is much higher.
- **Acute symptomatic seizures.** Acute symptomatic seizures are caused by a transient brain disorder or metabolic disturbance (e.g., encephalitis, hyponatraemia, head injury, or drug or alcohol withdrawal) in patients without previous epilepsy. Acute symptomatic seizures can be followed by further seizures weeks, months or years after resolution of the transient brain disorder. This may occur because of permanent changes to the brain caused by the process underlying the acute symptomatic seizures (e.g., seizures may return years after a resolved episode of encephalitis) or because the transient brain disorder has recurred (e.g. benzodiazepine withdrawal).

People who have experienced a seizure only during and because of a transient brain disorder or metabolic disturbance should not perform pilotage work for a sufficient period to allow the risk of recurrence to fall to an acceptably low level (refer to Table 15 for details). Return to pilotage requires input from a specialist in epilepsy. The risk of seizure recurrence varies greatly, depending on the cause.

The management of seizures associated with hypoglycaemia is discussed in [Section 33 Diabetes](#).

If seizures occur after the causative acute illness has resolved, whether or not due to a second transient brain disorder or metabolic disturbance, the acute symptomatic seizures

standard no longer applies. For example, if a person has a seizure during an episode of encephalitis and then, after recovery from the encephalitis, has another seizure and begins treatment for epilepsy, the standard for epilepsy treated for the first time applies. Similarly, if a person experiences seizures during two separate episodes of benzodiazepine withdrawal, the default standard applies.

The management of late post traumatic epilepsy is discussed below under Head Injury (page 146).

- **Exceptional cases.** In addition to the reduction for particular circumstances or seizure types, there is also an allowance for 'exceptional cases' in which Fit for Duty Subject to Review may be considered for a pilot on the recommendation of a medical specialist with specific expertise in epilepsy, and in consultation with the Authorised Health Professional. This enables individualisation of cases where the person does not meet this Standard but may be considered safe to perform their job. Pseudo-epilepsy should be managed as an exceptional case.

Other situations relevant to pilots

- **Epilepsy treated by surgery.** Resection of epileptogenic brain tissue may eliminate seizures completely, allowing safe return to pilotage. However, this is unpredictable, so the default non-working seizure-free period of 10 years applies. The vision standard may also apply if there is a residual visual field defect. If medication withdrawal is being considered, refer to 'Withdrawal of all anti-epileptic medication' (below).
- **'Safe' seizures (including prolonged aura).** Some seizures do not impair consciousness; however, this must be well established without exceptions and corroborated by reliable witnesses or video-electroencephalography (EEG) recording because people may believe their consciousness is unimpaired when it is not. For example, some 'auras' are associated with impaired consciousness that the person does not perceive.

Seizures may begin with a subjective sensation (the 'aura') that precedes impairment of consciousness. If this lasts long enough, the person may have time to stop work. However, this can be relied upon only when this pattern has been well established without exceptions and corroborated by witnesses or video-EEG monitoring. Furthermore, it may be impractical to stop pilotage immediately and safely. For these reasons, such seizures require the application of the default non-working seizure-free period.

- **Sleep-only seizures.** Some seizures occur only in sleep. The default standard applies for pilots.
- **Seizure in a person whose epilepsy has been previously 'well controlled' including provoked seizures.** In people with epilepsy, their seizures are often provoked by factors such as sleep deprivation, missed doses of anti-epileptic medication, over-the-counter medications, alcohol or acute illnesses. If the provoking factor is avoided, the risk of subsequent seizures may be reduced. For pilots, the predisposing factors may not be reliably avoided, thus the default standard applies. Refer also to 'Medication noncompliance' (below).
- **Medication noncompliance.** Compliance with medical advice regarding medication intake is a requirement for fitness for duty. Where noncompliance with medication is suspected, the pilot may be required to have drug-level monitoring. Where a pilot with a history of compliance with medication experiences a seizure because of a missed dose and there were no seizures in the 12 months leading up to that seizure, the situation can be

considered a provoked seizure (refer to standard for 'Seizure in a person whose epilepsy has been previously well controlled'). However generally, there is no reduction in the non-working period for pilots.

- **Withdrawal of all anti-epileptic medication.** Withdrawal of all anti-epileptic medication is incompatible with pilotage. This also applies to a reduction in dose of anti-epileptic medication except if the dose reduction is due only to the presence of dose-related side-effects, and the dose reduction is unlikely to result in a seizure.
- **Seizure causing an incident/near miss.** Not all seizures carry the same risk of causing an incident or near miss. People who have been involved in an incident/near miss within the preceding 12 months as a result of a seizure are likely to have a higher risk of further incidents. For a pilot who has experienced an incident as a result of a seizure, the default non-working seizure-free period applies, even if they fall into one of the categories that allow a reduction.
- **Concurrent conditions.** Where epilepsy is associated with other impairments or conditions, the relevant sections covering those disorders should also be consulted.
- **Other conditions with risk of seizure.** Seizures can occur in association with many brain disorders. Some of these disorders may also impair safe working because of an associated neurological deficit. Both the occurrence of seizures, as well as the effect of any neurological deficit must be taken into account when determining fitness for duty (refer to [Section 36.6 Other neurological conditions](#)).

Advice to pilots

All pilots with a history of seizure or epilepsy should be advised of the following general principles for safety if continuing pilotage:

- The pilot must continue to take anti-epileptic medication regularly when and as prescribed.
- The pilot should ensure they get adequate sleep and should not work when sleep deprived.
- The pilot should avoid circumstances or the use of substances (e.g. alcohol) that are known to increase the risk of seizures.

If a pilot refuses to follow a treating doctor's recommendation to take anti-epileptic medication, the pilot should be assessed as Unfit for Duty (refer also *Medication noncompliance* above).

36.4.3 Medical criteria

Medical criteria for fitness for duty are outlined in Table 15.

All pilots who need active management of a history of a seizure or epilepsy should be under review, including, where necessary, at least annual specialist appraisal. The use of an independent specialist may be considered.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 15. Medical criteria for marine pilots – Seizures and epilepsy

Condition	Criteria
<p>All cases (default standard)</p> <p>Exceptions may be considered only if the situation matches one of those listed below.</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has experienced a seizure. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review*, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no seizures for at least 10 years**; and • an EEG conducted in the last six months has shown no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity (this is only required for initial classification as Fit Subject to Review and not for annual review); and • the pilot follows medical advice, including adherence to medication if prescribed or recommended. <p>* If a pilot undergoing treatment for epilepsy has experienced an extended seizure free period (more than 20 years) consideration may be given to reduce review requirements based on independent specialist advice.</p> <p>** Shorter seizure-free periods may be considered if the pilot's situation matches one of those in the tables that follow.</p>
<p>History of a benign seizure or epilepsy syndrome limited to childhood (e.g., febrile seizures, benign focal epilepsy, childhood absence epilepsy)</p>	<p>A history of a benign seizure or epilepsy syndrome limited to childhood does not disqualify the person from being Fit for Duty, as long as there have been no seizures after 11 years of age.</p> <p>If a seizure has occurred after 11 years of age, there is no reduction, and the default standard applies unless the situation matches one of those listed below.</p>
<p>First seizure (of any type)</p> <p>Note: 2 or more seizures in a 24-hour period are considered a single seizure.</p>	<p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no seizures for at least 5 years (with or without medication); and • an EEG conducted in the last 6 months shows no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity. <p>Resumption of Fitness for Duty Unconditional may be considered, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no seizures for at least 10 years; and • an EEG conducted in the last 6 months has shown no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity.

Condition	Criteria
<p>Acute symptomatic seizures</p> <p>Seizures occurring only during a temporary brain disorder or metabolic disturbance in a person without previous seizures. This includes head injuries, and withdrawal from drugs or alcohol. This is not the same as provoked seizures in a person with epilepsy.</p>	<p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no further seizures for at least 12 months; and • an EEG conducted in the last 6 months has shown no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity. <p>If there have been 2 or more separate transient disorders causing acute symptomatic seizures, the default standard applies (refer above).</p> <p>Resumption of Fitness for Duty Unconditional may be considered, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no seizures for at least 10 years; and • an EEG conducted in the last 6 months has shown no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity.
<p>Unreliable or doubtful clinical information</p>	<p>Where the reliability of relevant clinical information is not clear (e.g., unreported seizures likely due to the pilot not recognising the occurrence of seizures or deliberately not reporting seizures), the person is not fit for duty.</p>
<p>Exceptional cases</p>	<p>Where a pilot with seizures or epilepsy does not meet the above criteria, Fit for Duty Subject to Review may be determined, based on consideration of the nature of the task and subject to annual review:</p> <ul style="list-style-type: none"> • if, in the opinion of a medical specialist with specific expertise in epilepsy, and in consultation with the Authorised Health Professional, the risk to pilotage caused by a seizure is acceptably low; and • the pilot follows medical advice, including adherence to medication if prescribed.

Condition	Criteria
Other factors that may influence fitness for duty status	
Epilepsy treated by surgery (where the primary goal of surgery is the elimination of epilepsy)	<p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account information provided by a specialist in epilepsy as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • there have been no seizures for at least 10 years; and • an EEG conducted in the last six months has shown no epileptiform activity and no other EEG conducted in the last 12 months has shown epileptiform activity; and • the pilot follows medical advice with respect to medication adherence. <p>The vision standard may also apply if there is a visual field defect.</p>
Recommended reduction in dosage of anti-epileptic medication in a person who satisfies the standard for Fit for Duty subject to Review	<p>Withdrawal of any anti-epileptic medication is incompatible with performing pilotage.</p> <p>Pilotage may continue:</p> <ul style="list-style-type: none"> • if the dose reduction is due only to the presence of dose-related side effects and is unlikely to result in a seizure; or • if the dose is being reduced after an increase due to a temporary situation that has now resolved (e.g., pregnancy) to the dose that was effective before the increase. <p>In circumstances other than the above, the person will no longer be fit for duty.</p>

36.5 Balance and vestibular disorders

36.5.1 Relevance to marine pilots

Pilots need to embark and disembark ships using the pilot ladder as detailed in [Part C – The inherent requirements of pilotage](#). The ladder is up to 9 metres long and requires a vertical ascent or descent often in adverse weather conditions.

Pilots require a good sense of balance for climbing the ladder as well as walking and working on rolling ships. Disorders of balance or dizziness (vertigo) may affect the ability to undertake pilotage work.

Balance may be affected by disorders of the peripheral sense organs including the vestibular apparatus, proprioception or vision, as well as central nervous system disorders including those of the cerebellum and extra-pyramidal system. Loss of balance or dizziness may also arise from cardiac, endocrine and psychological causes. Vestibular disorders are of particular relevance and are discussed here. The relevant chapters should be referred to for other conditions.

A fear of heights is not consistent with working on the pilot ladder, however, pilots are recruited from experienced mariners who have experience of such ladders and have self-selected to the job. Assessing for fear of heights is therefore not usually a medical issue.

36.5.2 General assessment and management guidelines

Generally, those who suffer from unheralded attacks of dizziness (vertigo) are not fit for pilotage.

Balance should be clinically assessed by using a Romberg test. A pass requires the ability to maintain balance while standing with shoes off, feet together side-by-side, eyes closed and arms by sides, for thirty seconds. This test is conducted as part of the Physical Assessment by a physiotherapist ([refer Section 35 Musculoskeletal conditions](#)) and need not be repeated in the Health Assessment. The report (Green Form) of the Physical Assessment will be provided by the AHP-Physiotherapist. In the event of an abnormality being found the pilot will be referred to the AHP for further assessment and classified as Temporarily Unfit. If needed the opinion of an appropriate specialist may be sought.

The relevant chapters should be referred to for a lack of balance or dizziness (vertigo) found to be due to disorders of the central nervous system ([refer to Section 36.6 Other neurological conditions](#)) or visual causes ([refer to Section 41 Vision and eye disorders](#)). Episodes of dizziness or disturbances of balance without a clear diagnosis should be managed as for undifferentiated illness and the person classed Temporarily Unfit for Duty.

Post-traumatic vertigo can arise from falls, car crashes, etc. and have multiple causes due to injury to the middle and inner ear. Surgical and medical treatments may be helpful. Individual assessment of balancing skills is needed regarding time of return to work.

Vestibular disorders are of particular relevance and are discussed below.

Vestibular disorders

Vestibular disorders may vary between symptomatic and quiescent with little warning of recurrence. Vestibular malfunction can occur suddenly and with sufficient severity to make safe marine piloting impossible. It is often accompanied by nystagmus, which compounds the disability.

A pilot who suffers attacks of vertigo is not fit for operational duties.

Meniere's disease

Meniere's disease often results in recurrent vertigo despite treatment. The timing and frequency of the attacks vary. Some individuals can regularly predict when they will have an attack. Others note a completely random pattern. Attacks are often heralded by a sense of fullness in the affected ear. One in 25 sufferers also experience drop attacks (Tumarkin's Otolithic Crisis) – sudden falls without loss of consciousness. The natural history is one of progression in the affected ear associated with increasing hearing loss. In extreme cases total loss of vestibular function and partial loss of cochlear function can occur in the affected ear. Meniere's disease may not be compatible in the long run with operational duties. Due to considerable variation in symptoms cases need individual consideration regarding predictability of attacks.

Benign paroxysmal positional vertigo (BPPV)

Symptoms are typically triggered by changing head position, commonly by stooping or extending the neck to look up ('top-shelf vertigo'). Given the requirement to look up when climbing a pilot ladder, vertigo may be precipitated. Pilots with BPPV must be symptom-free for a minimum of six months before a return to piloting duties can be considered. However, severity varies considerably and variations to this exclusion period may be made on advice of an ENT specialist.

Vestibular neuritis and labyrinthitis (vestibular neuronitis, neurolabyrinthitis)

Vestibular neuritis and labyrinthitis are thought to result mostly from viral infections. Generally, they are self-limiting conditions, however, symptoms such as vertigo may become persistent in some individuals. Where symptoms persist, fitness to resume piloting duties should be assessed on a case-by-case basis, although a significant symptom free period will be required prior to resuming duties. Persistence of symptoms beyond two to three months should prompt review of diagnosis.

Central causes

In persons with vertigo of recent onset, the clinical history should be considered carefully and the possibility of a cerebrovascular cause be considered. Note that posteriorly cerebellar artery infarction is the main differential diagnosis for vestibular neuritis. For central causes of vertigo (such as stroke or TIA) refer to [Section 36.6 Other neurological conditions](#).

36.5.3 Medical criteria

Medical criteria for fitness for duty are outlined in Table 16.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 16. Medical criteria for marine pilots – Vestibular disorders

Condition	Criteria
Meniere's disease	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">• if the pilot has Meniere's or suspected Meniere's disease. <p>Fit for Duty Subject to Review, subject to at least annual review, may be determined taking into account the nature of the work and reports on work performance, and information provided by the treating ENT specialist, including response to treatment and whether the following criteria are met:</p> <ul style="list-style-type: none">• there is sufficient predictability of attacks to avoid occurrence when performing pilotage, and• the hearing standard is met.
Benign paroxysmal positional vertigo (BPPV)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">• if the pilot has BPPV in any direction. <p>Fit for Duty Subject to Review, subject to at least annual review, may be determined taking into account the nature of the work and reports on work performance, and information provided by the treating general practitioner and/or ENT specialist, including response to treatment, pattern of disease and whether the following criterion is met:</p> <ul style="list-style-type: none">• the pilot has been free of BPPV for at least six months. <p>A shorter period may be considered taking into account information provided by an ENT specialist.</p>

36.6 Other neurological conditions

For relevance to pilotage refer [Section 36.1](#) and for guidance on assessment refer [Section 36.2](#).

Aneurysms (unruptured intracranial aneurysms and other vascular malformations)

Sudden severe haemorrhage from an intracranial aneurysm or vascular malformation may cause acute incapacity and affect safe working. However, the risk of sudden severe haemorrhage from some unruptured intracranial aneurysms and vascular malformations may be low enough to allow working. Pilots should be individually assessed for suitability for pilotage.

If the vascular malformation has bled and produced a neurological deficit, the pilot should be assessed to determine if any of the functions listed above are impaired of sufficient severity to affect pilotage.

If treated surgically, the advice regarding intracranial surgery applies (see 'Intracranial surgery', below). If the pilot has had a seizure, the seizures and epilepsy standards also apply (refer to [Section 36.4 Seizures and epilepsy](#)).

Cerebral palsy

Cerebral palsy may impair a pilot's ability to perform pilotage because of difficulty with motor control, or if it is associated with intellectual impairment or other disabilities. However, applicants with very mild cases may pass the necessary aptitude and musculoskeletal tests (refer to [Section 35 Musculoskeletal conditions](#)). As the disorder is usually static, more frequent review is not normally required.

Head injury

There are various severities of head injury. Any person who has had a traumatic injury causing loss of consciousness should not perform pilotage for a minimum of 24 hours, and the effects on functions listed in the checklist on page 131 should be monitored. Minor head injuries involving a loss of consciousness of less than one minute with no complications do not usually result in any long-term impairment. Similarly, immediate seizures that occur within 24 hours of a head injury are not considered to be epilepsy, but part of the acute process (refer to '[symptomatic seizures](#)' in Table 15). Long-term risk of seizures will also need to be considered in light of the nature and severity of the head injury.

More significant head injuries may impair any of the neurological functions listed in the checklist on page 132 and can impair long-term fitness for pilotage. There may be a focal neurological injury affecting motor or sensory tracts as well as the cranial nerves. Also, personality or behavioural changes may affect judgement and tolerance, and be associated with a psychiatric disorder such as depression or post-traumatic stress disorder (PTSD). Clinical, neuropsychological, or functional/practical assessments may be helpful in determining fitness for duty (refer to [Section 24 Additional tests and marine specific resources](#)).

Neurological recovery from a traumatic brain injury may occur over a long period and some people who are initially unfit may recover sufficiently after many months such that pilotage can be resumed. Pilots with appreciable impairments should initially be classed as Temporarily Unfit for Duty and then managed according to their progress.

Risk of posttraumatic epilepsy (PTE)

Persons with depressed skull fractures, traumatic intracranial haematoma or severe traumatic brain injury are at increased risk of epilepsy, especially in the first year. Pilots should be classed Temporarily Unfit for Duty for 12 months after such an injury. If one or more seizures have occurred, the symptomatic seizures standard applies. PTE should be distinguished from immediate post traumatic (acute symptomatic) seizures occurring within 24 hours of a head injury, which are considered part of the acute process (refer to 'acute symptomatic seizures' in Table 15).

Comorbidities such as drug or alcohol misuse, and musculoskeletal injuries may also need to be considered (refer to Sections [40 Substance misuse and dependence](#) and [35 Musculoskeletal conditions](#)).

Intracranial surgery (non-working periods may be varied by the neurosurgeon)

Non-working periods are advised to allow for the risk of seizures occurring after certain types of intracranial surgery. Following supratentorial surgery or surgery requiring retraction of the cerebral hemispheres, the pilot generally should not perform pilotage for 12 months and should be classed as Temporarily Unfit for Duty. There is no specific restriction after infratentorial or trans-sphenoidal surgery.

If one or more seizures occur, the standards for seizures and epilepsy apply (refer to [Section 36.4 Seizures and epilepsy](#)). Similarly, if there is long-term impairment of any of the functions listed in the checklist on page 132, fitness for work will need to be assessed.

Multiple sclerosis

Multiple sclerosis may produce a wide range of neurological deficits that may be temporary or permanent, and impair the performance of pilots. Possible deficits that may impair safe working include all of those listed on page 132. Where practical, job modifications such as use of helicopters may be made to assist with some of these impairments.

Neuromuscular disorders

Neuromuscular disorders include diseases of the peripheral nerves, muscles or neuromuscular junction, and may impair the performance of pilots. Peripheral neuropathy may impair safe working due to difficulties with sensation (particularly proprioception) or from severe weakness. Disorders of the muscles or neuromuscular junction may also interfere with the ability to climb a ladder (refer to [Section 35 Musculoskeletal conditions](#)). Referral for a Physical Assessment may be required (refer [Section 35 Musculoskeletal conditions](#)).

Parkinson's disease

Parkinson's disease is a common, progressive disease that may affect safe working in the advanced stages due to motor manifestations (bradykinesia and rigidity) or cognitive impairments (deficits in executive function and memory, and visuospatial difficulties) and hence may impair the performance of pilots and safety during transfers. When assessing the response to treatment, the response over the whole dose cycle should be considered (e.g., in patients with motor fluctuations, it would not be appropriate to assess fitness only on the basis of the best 'on' response). Most patients with severe motor fluctuations will be unfit for duty. Referral for a Physical Assessment may be required (refer [Section 35 Musculoskeletal conditions](#)).

There may also be disturbances of sleep with episodes of sleepiness when working (refer to [Section 39 Sleep disorders](#)).

Stroke (cerebral infarction or intracerebral haemorrhage)

Stroke may impair safe working ability due to long-term neurological or an unrecognised visual field deficit, or due to the risk of a recurrent stroke or transient ischaemic attack (TIA) (refer below). However, stroke and TIA rarely cause loss of consciousness.

The risk of recurrent stroke is probably highest in the first month after the initial stroke but is still sufficiently low (about 10% in the first year) that it does not on its own require suspension from pilotage. However, fatigue and impairments in concentration and attention are common after stroke, even in those with no persisting neurological deficits, and will impair the ability to perform pilotage. For this reason, there should be a non-working period after stroke for pilots, even in those with no detectable persisting neurological deficit.

For those with a persistent neurological deficit, subsequent fitness for duty will depend on the extent of impairment of the functions listed in the checklist on page 132. Referral for a Physical Assessment may be required (refer [Section 35 Musculoskeletal conditions](#)) or a simulator assessment (refer to [Section 24 Additional tests and marine specific resources](#)). The vision standard may also apply (refer to [Section 41 Vision and eye disorders](#)). If the person has had a seizure, the seizures and epilepsy standards also apply (refer to [Section 36.4 Seizures and epilepsy](#)).

Transient ischaemic attack (TIA)

TIAs can be single or recurrent and may be followed by stroke. They may impair safe working if they occur while at work. The risk of a further TIA or stroke is about 15% in the first 3 months and about half of that risk occurs in the first week. In view of the low risk of TIA or stroke affecting safe working, pilots should not work for 4 weeks after a TIA (Temporarily Unfit for Duty) and should be reassessed at that point. The pilot may then be classed as Fit for Duty Subject to Review by an appropriate specialist if there is no long-term impairment and risk of recurrence is low.

Subarachnoid haemorrhage

Pilots should not work for at least 6 months following a subarachnoid haemorrhage. Fit for Duty Subject to Review may be determined after this non-working period, taking into account the presence of neurological disabilities as described on page 131. The vision standard may also apply (refer to [Section 41 Vision and eye disorders](#)). If the person has had one or more seizures, the seizures and epilepsy standards also apply (refer to [Section 36.4 Seizures and epilepsy](#)). If a craniotomy has been performed, the advice for intracranial surgery also applies (refer to page 150). Referral for a Physical Assessment may be required (refer [Section 35 Musculoskeletal conditions](#)) or a neuropsychology assessment or simulator assessment (refer to [Section 24 Additional tests and marine specific resources](#)).

Space-occupying lesions, including brain tumours

Brain tumours and other space-occupying lesions (e.g., abscesses, chronic subdural haematomas and cysticercosis) may cause diverse effects depending on their location and type. They may impair any of the neurological functions listed on page 131. If the person has had one or more seizures, the seizures and epilepsy standards also apply (refer to [Section 36.4 Seizures and epilepsy](#)). If a craniotomy has been performed, the advice regarding intracranial surgery also applies (refer above).

36.6.1 Medical criteria

Medical criteria for fitness for duty are outlined in Table 17 (in alphabetical order), including standards for:

- aneurysms (unruptured intracranial aneurysms and other vascular malformations)
- cerebral palsy
- head injury
- intracranial surgery
- multiple sclerosis
- neuromuscular conditions
- Parkinson's disease
- stroke
- transient ischaemic attacks
- space-occupying lesions, including brain tumours
- subarachnoid haemorrhage.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 17. Medical criteria for marine pilots – Other neurological disorders

Condition	Criteria
Aneurysms (unruptured intracranial aneurysms) and other vascular malformations of the brain (refer also to Subarachnoid haemorrhage, page 152)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none">• if the pilot has an unruptured intracranial aneurysm or other vascular malformation. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist:</p> <ul style="list-style-type: none">• regarding the risk of symptomatic haemorrhage and the response to treatment; and• whether the following criteria are met:<ul style="list-style-type: none">○ the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and○ the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer Section 35 Musculoskeletal conditions) <p>If treated surgically, the intracranial surgery advice applies (page 150).</p> <p>If the person has had a seizure, the seizure and epilepsy standards apply (refer to Section 36.4 Seizures and epilepsy).</p>

Condition	Criteria
<p>Head injury and post traumatic epilepsy (refer also to intracranial surgery, page 150)</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a traumatic brain injury producing significant impairment of any of the following: visuospatial perception, insight, judgement, attention, reaction time, sensation, muscle power, balance, coordination or vision (including visual fields). <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions). <p>More frequent review than prescribed for the general Periodic Assessment is not required if the condition is static.</p>
<p>Post traumatic epilepsy</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a high risk of post traumatic epilepsy (penetrating brain injury, brain contusion, subdural haematoma, loss of consciousness/alteration of consciousness or post traumatic amnesia greater than 24 hours). <p>Fit for Duty Subject to Review subject to at least annual review may be considered:</p> <ul style="list-style-type: none"> if the pilot has had no seizures for at least 12 months. <p>If a seizure has occurred, refer Table 15.</p> <p>Resumption of Fitness for Duty Unconditional may be considered, taking into account information provided by a specialist in epilepsy</p>
<p>Intracranial surgery</p>	<p>A pilot should be categorised Temporarily Unfit for Duty for 12 months following supratentorial surgery or surgery that involves retraction of the cerebral hemispheres.</p> <p>If there are seizures or long-term neurological deficits, refer to Section 36.4 Seizures and epilepsy or Section 36.6 Other neurological conditions</p>

Condition	Criteria
Multiple sclerosis	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has multiple sclerosis. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and • the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions).
Neuromuscular conditions (peripheral neuropathy, muscular dystrophy, etc.)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has peripheral neuropathy, muscular dystrophy or any other neuromuscular disorder that significantly impairs muscle power, sensation or coordination. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist:</p> <ul style="list-style-type: none"> • regarding the level of impairment of muscle power, sensation balance or coordination; and • whether the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer Section 35 Musculoskeletal conditions)
Parkinson's disease	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has Parkinson's disease. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and • the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions).

Condition	Criteria
<p>Space-occupying lesions (including brain tumours) (refer also to Intracranial surgery, page 150)</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has a space-occupying lesion. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and • the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions). <p>If seizures occur, the standards for seizures and epilepsy apply (refer to Section 36.4 Seizures and epilepsy).</p> <p>If surgically treated, the criteria for 'intracranial surgery' apply (refer to page 150).</p>
<p>Stroke (cerebral infarction or intracerebral haemorrhage)</p>	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 3 months following a stroke.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has had a stroke. <p>Fit for Duty Subject to Review may be determined after at least 3 months, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and • the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions).
<p>Subarachnoid haemorrhage (refer also to 'aneurysms', page 79)</p> <p><i>(continued overleaf)</i></p>	<p>A pilot should be categorised Temporarily Unfit for Duty for at least 6 months after a subarachnoid haemorrhage.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has had a subarachnoid haemorrhage. <p>Fit for Duty Subject to Review may be determined after at least 6 months, subject to at least annual review, taking into account the nature</p>

Condition	Criteria
Subarachnoid haemorrhage (continued)	<p>of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions).
Transient ischaemic attack (TIA)	<p>A person should be categorised Temporarily Unfit for Duty for at least 4 weeks following a TIA.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has had a TIA. <p>Fit for Duty Subject to Review, subject to at least annual review, may be determined after at least 4 weeks, taking into consideration the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the risk of recurrence is low; and the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions). <p>Resumption of Fitness for Duty Unconditional may be considered, taking into account information provided by a neurologist.</p>
Other neurological conditions	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a neurological disorder that significantly impairs any of the following: visuospatial perception, insight, judgement, attention, reaction time, sensation, memory, muscle power, coordination, balance or vision (including visual fields). <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and reports on work performance, and information provided by an appropriate specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and the pilot has the capacity for safe dis/embarkation using the pilot ladder. This may require referral for a Physical Assessment (refer to Section 35 Musculoskeletal conditions). <p>More frequent review than prescribed for the general Periodic Assessment is not required if the condition is static.</p>

References and further reading

Dementia

Alzheimers Australia <<https://alzheimers.com.au/>>

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Dubois, B. et al. Preclinical Alzheimer's disease: Definition, natural history, and diagnostic criteria. *Alzheimer's and Dementia* vol. 12 292–323 (2016).

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

Seizures and epilepsy

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au.

Beghi, E. et al. Recommendation for a definition of acute symptomatic seizure. *Epilepsia* 51, 671–675 (2010).

Brodie, M. J., Perucca, E., Ryvlin, P., Ben-Menachem, E. & Meencke, H. J. Comparison of levetiracetam and controlled-release carbamazepine in newly diagnosed epilepsy. *Neurology* 68, 402–408 (2007).

Brown J, et al. When is it safe to return to driving following first-ever seizure? *Journal of Neurology, Neurosurgery & Psychiatry*. 2015;86:60-4.

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Classen S, et al. Evidence-based review on epilepsy and driving. *Epilepsy and Behavior*. 2012;23:103-12.

Driving Licence Committee of the European Union 2005. Epilepsy and driving in Europe, A report of the Second European Working Group on Epilepsy and Driving, Driving Licence Committee of the European Union.

Engel J, et al. Expert Panel Recommendations: Seizure disorders and commercial motor vehicle driver safety. 2007.

Fisher RS, et al. Epilepsy and driving: an international perspective. *Epilepsia*. 1994;35:675–84

Hansotia P, Broste SK. The effects of epilepsy or diabetes mellitus on the risk of automobile accidents, *New England Journal of Medicine*. 1991;324:22–6.

Krumholz, A. et al. Evidence-based guideline: management of an unprovoked first seizure in adults. *Neurology* 84, 1705–1713 (2015).

Lawn, N., Chan, J., Lee, J. & Dunne, J. Is the first seizure epilepsy? And when? *Epilepsia* 56, 1425–1431 (2015).

Leung, H., Man, C. B. L., Hui, A. C. F., Kwan, P. & Wong, K. S. Prognosticating acute symptomatic seizures using two different seizure outcomes. *Epilepsia* 51, 1570–1579 (2010).

Marson, A. et al. Immediate versus deferred antiepileptic drug treatment for early epilepsy and single seizures: a randomised controlled trial. *Lancet* 365, 2007–2013 (2005).

Naik P, et al. Do drivers with epilepsy have higher rates of motor vehicle accidents than those without epilepsy? *Epilepsy and Behavior*. 2015.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Somerville ER, Black AB & Dunne JW. Driving to distraction-certification of fitness to drive with epilepsy. *Medical Journal of Australia*. 2010;s192(6):342–4.

Balance and vestibular disorders

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au.

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Ernst A, Basta D, Seidl RO, Todt I, Scherer H, Clarke A. Management of posttraumatic vertigo. *Otolaryngology Head Neck Surgery*. 2005;132(4):554-8.

Ludlow B, Hughes K. Hearing and Vestibular Disorders. Ch10 in: Palmer K, Cox R and Brown I (Eds) *Fitness for work: The medical aspects*. Faculty of Occupational Medicine, Oxford University Press. 2007.

Mckiernan D, Jonathon D. Driving and Vertigo. *Clinical Otolaryngology*. 2001;26:1-2.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Other neurological conditions

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au.

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Giovannoni, G. et al. Brain health: time matters in multiple sclerosis. Multiple Sclerosis and Related Disorders 9, S5–S48 (2016).

Hawley CA. Return to driving after head injury. Journal of Neurology, Neurosurgery and Psychiatry. 2001;70(6):761–6.

Heikkila VM, et al. Decreased driving ability in people with Parkinson's disease. Journal of Neurology, Neurosurgery and Psychiatry. 1998;64(3):325–330.

Lioutas, V. A. et al. Incidence of transient ischemic attack and association with longterm risk of stroke. JAMA: Journal of the American Medical Association 325, 373–381 (2021).

Mckiernan D & Jonathon D. Driving and vertigo. Clinical Otolaryngology. 2001;26:1–2.

Mohan, K. M. et al. Risk and cumulative risk of stroke recurrence: a systematic review and meta-analysis. Stroke 42, 1489–1494 (2011)

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Shahjouei, S. et al. A 5-decade analysis of incidence trends of ischemic stroke after transient ischemic attack: a systematic review and meta-analysis. JAMA Neurology (2020) doi:10.1001/jamaneurol.2020.3627.

Wood JM, Worringham C, Kerr G, Mallon K & Silburn P. Quantitative assessment of driving performance in Parkinson's disease. Journal of Neurology, Neurosurgery and Psychiatry. 2005;76:176–80.

37. Psychiatric conditions

(Refer also to Sections [36 Neurological conditions](#) and [40 Substance misuse and dependence](#)) and Fatigue ([Section 30 General considerations](#)).

37.1 Scope and interfacing programs

The health assessment program for marine pilots focuses on the identification and management of psychiatric conditions that may affect the pilotage task (refer Table 18). The highly demanding psychologically tasks of pilotage are detailed in Part C. In brief, pilotage requires a number of intact psychological functions for:

- safe working on the bridge including high level cognition skills, communication skills and ability to respond in emergency situations, and
- safe dis/embarkation using the pilot ladder including visuospatial perception, judgement, attention, and reaction time.

The assessment operates within the context of the Port Authority's comprehensive approach to ensuring pilots are fit to undertake the psychologically demanding task of pilotage.

Marine pilots undergo initial training and assessment, periodic training and performance assessment as specified in the NSW Marine Pilotage Code to demonstrate a range of skills and capacities. This includes psychometric assessment at recruitment (for example, cognitive, personality, communication, safety, etc skills) as well as an annual assessment of competency undertaken by a senior pilot and a triennial assessment in a simulator of the pilot's ability to respond to emergency situations.

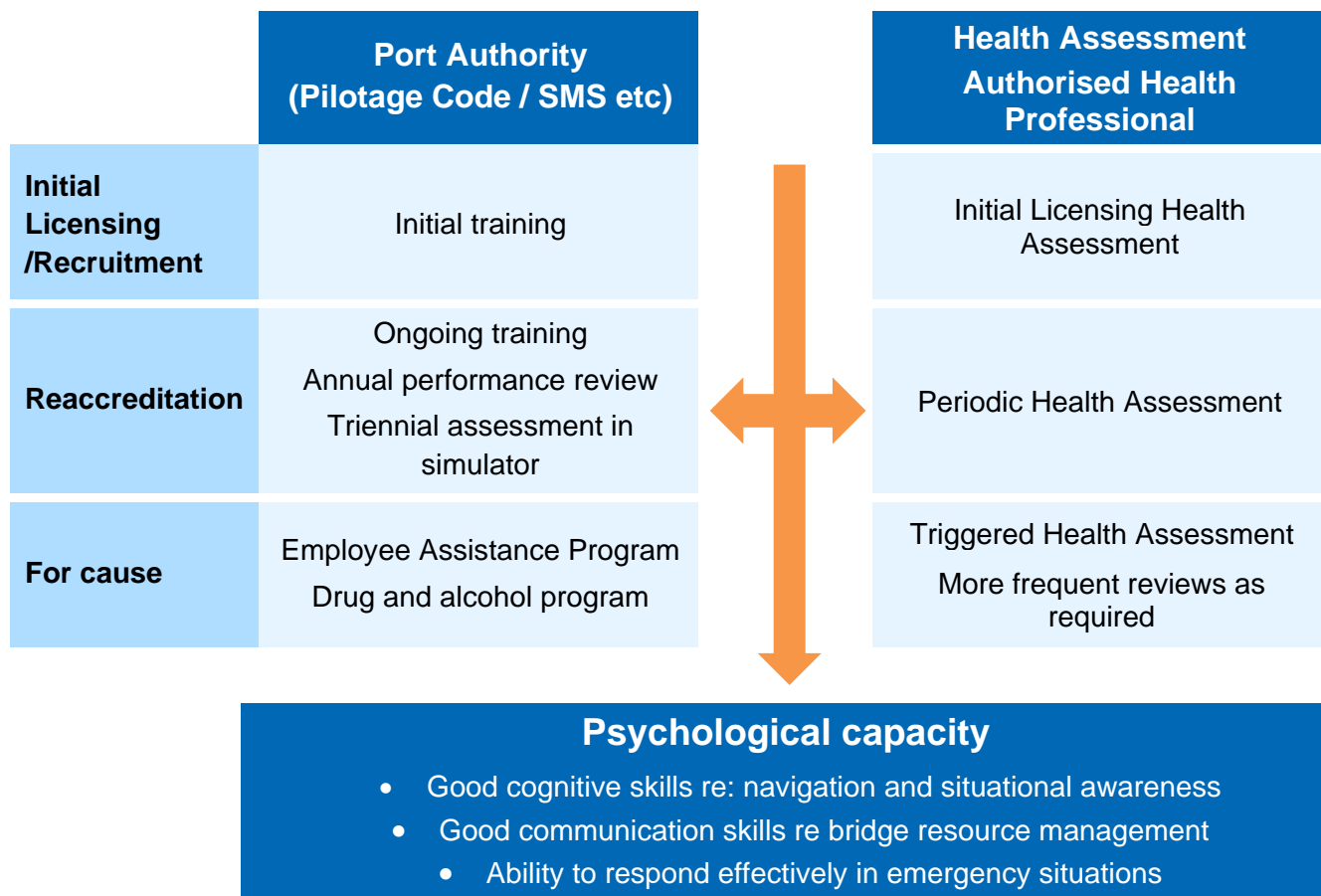
In addition, where pilots are concerned about issues that may impact on their mental health (e.g., financial, marital, work stress, substance misuse, health, etc.) they are encouraged to utilise confidential counselling through Employee Assistance Programs and may also access peer support programs as available.

The Port Authority may seek the opinion of an Authorised Health Professional regarding a possible physical or psychiatric condition affecting performance (Triggered Assessment). Referrals may be made because of concerns regarding unsatisfactory performance at routine competency assessment, general concerns about job performance, unexplained absenteeism, interpersonal conflicts, et cetera. The assessment will depend on the clinical presentation and may be orientated towards psychiatric disorders, substance misuse or neurological disorders and possibly other medical conditions.

Policies relating to alcohol and substance use are a further interface, where referral for a Triggered Health Assessment may result from a positive drug/alcohol screen.

Figure 38 summarises these complementary approaches.

Figure 38. Management of pilots' psychological health



37.2 Relevance to marine pilots

Psychiatric disorders may be associated with disturbances of cognitive abilities, behaviour and communication, as well as ability to respond in emergency, and therefore have the potential to affect performance of pilotage work. They do, however, differ considerably in their aetiology, symptoms and severity, and may be temporary (situational), intermittent or persistent. In addition, the work of a pilot, such as working shifts, may affect existing mental health conditions, through impacts such as insomnia. Fatigue/burnout may also present as depression or a stress reaction or another psychiatric disorder.

The range of potential impairments for various conditions is described in Table 18.

The extent of impairment on pilotage can be difficult to determine precisely because impairment differs at various phases of the illness and may vary markedly between individuals. Assessment of fitness for duty must be individualised, and should rely on evaluation of the specific pattern of illness and potential impact on mental capacities necessary for pilotage, and response to treatment rather than the diagnosis per se.

Psychological impairments due to dementia and substance abuse disorders are addressed elsewhere in the Standard (refer to sections [36.3 Dementia and Mild Cognitive Impairment \(MCI\)](#) and [40 Substance misuse and dependence](#)).

Table 18. Potential impairments associated with various psychiatric conditions

Condition	Potential impairment/effects on abilities relevant to pilotage work
Anxiety disorders	<p>Preoccupation or distraction</p> <p>Decreased working memory</p> <p>Panic attacks</p> <p>Obsessional behaviours, including obsessional slowness, that impairs the ability to work efficiently and safely</p>
Depression	<p>Disturbance of attention, information processing and judgement, including reduced ability to anticipate situations</p> <p>Psychomotor retardation and reduced reaction times</p> <p>Sleep disturbance and fatigue</p> <p>Suicidal ideation that may result in reckless conduct</p>
Post traumatic stress disorder (PTSD)	<p>Avoidance of certain situations related to traumatic experience</p> <p>Increased startle response</p> <p>Poor sleep and nightmares</p> <p>Recurrent intrusive memories</p> <p>(There may be overlap with depression and substance misuse)</p>
Bipolar affective disorder	<p>Depression and suicidal ideation</p> <p>Mania or hypomania, with impaired judgement about working safely, skill and associated recklessness</p> <p>Delusional beliefs that may directly affect work</p> <p>Grandiose beliefs that may result in extreme risk taking</p>
Personality disorders	<p>Aggressive or impulsive behaviour</p> <p>Resentment of authority or reckless behaviour</p> <p>Disordered interpersonal relationships</p> <p>Impaired decision making</p>
Adult attention deficit hyperactivity disorder	<p>Difficulty with sustaining attention, decision making, planning, organisation and prioritisation</p>
Schizophrenia	<p>Reduced ability to sustain concentration or attention</p> <p>Reduced cognitive and perceptual processing speeds, including reaction time</p> <p>Reduced ability to perform in complex situations such as when there are multiple distractions</p> <p>Abnormalities of perceptions such as hallucinations, which are distracting and pre-occupying</p> <p>Delusional beliefs that interfere with working, for example, persecutory beliefs may include being followed and result in erratic working</p> <p>Current antipsychotic medications do not have marked beneficial effects on cognition</p>

37.3 General assessment and management guidelines

37.3.1 Identifying psychological health problems

Unlike chronic degenerative disease where the incidence increases with age, common psychiatric disorders show a relatively constant incidence across working age. (ABS National Health Survey, 2017–18). Such conditions may therefore arise between Periodic Health Assessments, relying on the employee or manager to initiate a Triggered Assessment.

Triggered referral for assessment is therefore an important mechanism of identifying and managing pilots with psychiatric conditions, underpinned by a positive organisational culture of reporting and confidence in the process. For example, new onset of forgetfulness, inability to pass competency assessments that were previously passed (refer [Section 37.1](#)), or inability to learn and retain new information, or poor behaviour may indicate the need for a Triggered Health Assessment.

While identification of psychiatric conditions via screening at Periodic Health Assessment remains important, the limitations of self-administered screening tools are acknowledged and the value of establishing a rapport with the pilot is emphasised.

Screening at Recruitment and Periodic Health Assessment

Substantial anxiety/depression affects up to 10% of the adult population, thus screening for these conditions is incorporated into health assessments conducted at recruitment and periodically. The K10 Questionnaire is administered for this purpose (Box 4).

While the tool is well-validated in community settings, its limitations as a self-administered questionnaire in the occupational context is acknowledged; thus, it should be administered verbally by the Authorised Health Professional, incorporating follow-up questions as required to build a rapport with the pilot. The results should be recorded on the Health Assessment Record for Health Professional (Green Form) ([Appendix 2](#)).

It should be noted that the K10 is a screening instrument, not a diagnostic tool; thus, examining health professionals should apply clinical judgement in the interpretation of the score and the action required. If the person appears unduly familiar with the K10, other validated questionnaires such as DASS21 may be used and verbally applied.

Assessment for psychiatric conditions during a Triggered Assessment

Screening tools such as the K10 are less likely to be useful in a triggered situation, where specific concerns may have been raised regarding possible psychological ill-health.

The nature of the assessment will depend on the circumstances and the clinical presentation and be orientated towards psychiatric disorders, substance misuse or neurological disorders and possibly other medical conditions.

Further assessments may include relevant questionnaires, neuropsychological assessment, or stress tests of performance in simulators (refer to [Section 24 Additional tests and marine specific resources](#)). A “dual diagnosis” with substance misuse is often a consideration. Referral to specialists will be appropriate to the working diagnosis.

An Authorised Health Professional may access a pilot's training record and the annual competence report or triennial assessment for emergency response to help assess a pilot's cognitive and interpersonal skills.

In the event of a pilot not being cooperative in the conduct of the assessment, they should be assessed as Temporarily Unfit and the Port Authority notified. (Refer [Section 10 Standard reporting framework - Fitness for duty categories](#)).

Mental state examination

The mental state examination can be usefully applied in identifying areas of impairment that may affect fitness for duty. A routine assessment includes appearance, demeanour and speech. When clinically indicated a formal mental state examination would include the following.

- **Appearance.** Appearance is suggestive of general functioning (e.g., attention to personal hygiene, grooming, sedation, indications of substance use).
- **Attitude.** This may, for example, be described as cooperative, uncooperative, hostile, guarded or suspicious. Although subjective, it helps to evaluate the quality of information gained in the rest of the assessment and may reflect personality attributes.
- **Behaviour.** This may include observation of specific behaviours or general functioning, including ability to function in normal work and social environments.
- **Mood and affect.** This includes elevated mood (increase in risk taking) and low mood (suicidal ideation).
- **Thought form, stream and content.** This relates to the logic, quantity, flow and subject of thoughts, which may be affected by mania, depression, schizophrenia or dementia. Delusions with specific related content may impact on safe working ability.
- **Perception.** This relates to the presence of disturbances, such as hallucinations, that may interfere with attention or concentration, or may influence behaviour.
- **Cognition.** This relates to alertness, orientation, attention, memory, visuospatial functioning, language functions and executive functions. Evidence from formal testing, screening tests and observations related to adaptive functioning may be sought to determine if a psychiatric disorder is associated with deficits in these areas that are relevant to safe working.
- **Insight.** This relates to self-awareness of the effects of the condition on behaviour and thinking. Assessment requires exploration of the person's awareness of the nature and impacts of their condition and has major implications for management.
- **Judgement.** The person's ability to make sound and responsible decisions has obvious implications for safety.

37.3.2 General management considerations

Where a condition is identified, an approach to clinical management should be agreed with the pilot such as referral to the pilot's general practitioner or to a psychiatrist. In some cases, the pilot will need to be immediately classed Temporarily Unfit for Duty pending further assessment.

In addition, where pilots are concerned about issues that are impacting on their mental health (e.g., financial, marital, work stress, substance misuse, health, etc.) they should be encouraged to utilise confidential counselling through Employee Assistance Programs and may also access peer support.

When assessing the impact of a psychological condition on the ability to work safely, the focus should be on assessing the severity and significance of likely functional effects (refer to Table 18), rather than the simple diagnosis of a mental illness. The review period should be tailored to the likely prognosis or pattern of progression of the disorder in an individual with a conservative approach to pilotage. Work performance reports may be a useful source of information regarding overall safe working skills and interpersonal skills. Reports of critical incidents should also be considered particularly difficulty in coping with stressful situations.

Assessment for return to work should be based on clinical grounds possibly in combination with competency assessment such as by a senior pilot or in a simulator (refer to [Section 37.1](#)). The effects of treatments on fitness for duty are discussed below and in [Section 37.3.4](#).

Privacy of medical information is often an important consideration in managing psychiatric illness. Refer to [Section 12 Management of health information](#).

37.3.4 Treatments of psychiatric conditions

Treatments of psychiatric conditions, including medication and ‘talking therapies’, should be considered in terms of the likely impact on fitness for duty, including the benefits and possible adverse side-effects. Compliance with treatment should also be considered and may depend on a number of factors including the nature of the condition and insight by the pilot.

The effects of prescribed medication should be considered, including:

- how medication may help to control or overcome aspects of the condition that may impact on working safely; and
- whether medication side effects may affect working safely, including risk of sedation, impaired reaction time, impaired motor skills, blurred vision, hypotension or dizziness.

Information about the potential effects of various medications is summarised in [Section 30.3 Prescription and over the counter medication](#).

‘Talking therapies’ and on-line therapy may be useful alternatives or supplements to medication in order to lessen the risk of impairment. (e-Mental health <http://www.racgp.org.au/your-practice/guidelines/e-mental-health/>).

Pilots who are already being treated for psychiatric disorders should have a mental health plan which should be discussed at assessment. The plan should reference the need for cognitive and communication skills and responsiveness in emergency situations. Good liaison with the treating doctor/psychologist is important to ensure they understand the implications for the pilot’s safety critical work and the need to work shift rosters.

37.3.5 Acute psychotic episodes

A pilot suffering an acute severe episode of mental illness (e.g., psychosis, moderate–severe depression or mania) may pose a significant risk. They should be classed as Temporarily Unfit for Duty.

37.3.6 Substance misuse

(Also refer to [Section 40 Substance misuse and dependence](#))

People with dual diagnoses (psychiatric disorder and drug or alcohol misuse) are likely to be at higher risk. The assessment should seek to identify:

- problematic alcohol consumption;
- use of illicit substances; and
- prescription drug abuse (e.g., increased use of sedatives or painkillers).

If a person is prescribed stimulants (e.g., dexamphetamine) for treating ADHD, this should be known to the Authorised Health Professional in case the person is subject to drug testing in the future.

37.4 Medical criteria

Medical criteria for fitness for duty are outlined in Table 19.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 19. Medical criteria for pilots – Psychiatric disorders

Condition	Criteria
<p>Screening for anxiety and depression</p> <p>K10 score (Box 4)</p> <p>The scores are a guide and should be interpreted in conjunction with clinical assessment</p>	<p>If the pilot has a K10 score of ≥ 19, the pilot may be categorised as Temporarily Unfit for Duty or Fit for Duty Subject to Review while the causes are being assessed and managed (refer to Box 4):</p> <ul style="list-style-type: none"> For scores of 19–24, the pilot may be categorised Fit for Duty Subject to Review without external referral if the examining doctor feels the issues can be managed within the consultation. For scores of 25–29, the pilot must be referred back to their treating doctor for further management. If score is ≥ 30, the pilot must be categorised Temporarily Unfit for Duty pending further management.
<p>Psychiatric disorders</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has a psychiatric disorder of sufficient severity that it may affect the pilot's ability to undertake any of the inherent tasks safely; or if the Authorised Health Professional believes that there is a significant risk of a previous psychiatric condition relapsing. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work, work performance reports and information provided by a psychiatrist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> the pilot has the psychological capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working, and the pilot has the psychological capacity for safe dis/embarkation using the pilot ladder, and the condition is well controlled and the pilot is compliant with treatment during a substantial period, and the pilot has insight into their condition and its potential effects on safe working; and there are no adverse medication effects that may impair their capacity for safe working; and the impact of comorbidities has been considered (e.g. substance abuse).

Box 4. Use and scoring of the K10 Questionnaire for anxiety/depression

Use of the K10 for marine pilots

The purpose of applying the K10 to marine pilots is to screen for mental health disorders that may affect attentiveness and thus the ability to perform pilotage work.

The examining health professional evaluates the responses to the questionnaire in conjunction with supporting information provided by the organisation, such as absenteeism and accident history, which may provide indications of a mental health problem. The examining health professional should also form a clinical impression of the patient and consider if this is consistent with the score on the K10.

The examining health professional may also feel it is appropriate to contact a pilot's general practitioner to discuss their history. Based on these inputs, the examining health professional will form a view as to whether they believe there is a significant current risk that the pilot might be impaired at work.

Administering the K10

The K10 should be administered by interview.

Scoring the K10 and managing marine pilots

A total score of 50 is possible.

Higher scores indicate a greater likelihood of mental disorder and a need for more intensive treatment.

The table overleaf provides a guide for managing pilots according to their K10 score. Examining health professionals should also consider supporting information such as accident/incident history and sick leave, as well as the clinical examination when selecting the appropriate intervention.

As a general rule, patients who rate most commonly 'Some of the time' or 'All of the time' categories are in need of a more detailed assessment and may not be fit to continue pilotage work.

Pilots who rate most commonly 'A little of the time' or 'None of the time', generally do not require further assessment; however, the clinical examination may indicate otherwise and will guide the final decision in this regard.

It is important to note that high scores may be the result of acute distress brought on by domestic or work stress or may be due to endogenous causes. Interventions appropriate to the particular situation will therefore need to be identified.

Where work stress is identified as a factor in a raised score, the examining health professional is in a good position to constructively intervene and advise on remedial steps regarding work load, job re-organisation, training, conflict resolution and so on.

Risk Zone I — K10 scores between 10 and 18

Scores below 19 indicate that the pilot is likely to be well but should be considered in the context of the overall clinical impression of the pilot.

Although no formal intervention is required, reference to the importance of mental health for pilotage work is appropriate. Information and resources may also be provided to highlight symptoms and sources of support.

Risk Zone II — K10 scores between 19 and 24

Scores in this zone indicate that the pilot is likely to have a mild disorder (specificity greater than 90%). The examining health professional should explore possible reasons including domestic or work stress, and provide brief counselling as required. The examining health professional should identify sources of support or guidance that may be helpful to the pilot, including work-based employee assistance programs, community support services or the pilot's general practitioner.

The examining health professional may assess the pilot as Fit for Duty Subject to Review to flag the issue for attention at subsequent assessments. The period of review may be earlier or in line with normal periodic frequencies, depending on the clinical assessment and other indicators.

Risk Zone III — K10 scores between 25 and 29

This zone indicates the pilot is likely to suffer from a moderate mental disorder (specificity greater than 98%).

Again, the examining health professional should explore possible reasons and consider the supporting information and clinical picture.

Pilots in this zone should be managed by a combination of brief counselling, referral to the pilot's general practitioner and continued monitoring.

The examining health professional may assess the pilot as Fit for Duty Subject to Review and should refer for external assessment via the pilot's general practitioner. Alternatively, the examining health professional may classify the pilot as Temporarily Unfit for Duty if there are immediate concerns for safe working.

Risk Zone IV — K10 scores equal to or greater than 30

Scores in this zone indicate that the pilot is likely to have a severe mental disorder (specificity greater than 99%).

They should be assessed as Temporarily Unfit for Duty pending further assessment and referred to their general practitioner in the first instance.

Box 4. Use and scoring of the K10 Questionnaire for anxiety/depression (continued)

Risk levels	K10 score	Intervention	Assessment conclusion for pilotage work
Zone I (Low levels of psychological distress)	10–18	No formal intervention. Consider the consistency of the clinical impression with the score. General advice about the importance of mental health for pilotage work, and alert to further information and resources.	Fit for Duty
Zone II (Moderate levels of psychological distress)	19–24	Brief counselling and reference to self-help materials and support services as applicable to the situation.	May be assessed as Fit for Duty Subject to Review. Review period may be in line with normal periodic review periods, or more frequently if the situation warrants it.
Zone III (High levels of psychological distress)	25–29	Brief counselling, referral to general practitioner and continued monitoring.	May be assessed as Fit for Duty Subject to Review or Temporarily Unfit for Duty, depending on the situation. The review period will depend on the individual situation.
Zone IV (Very high levels of psychological distress)	30–50	Refer for diagnostic evaluation and treatment. Review as appropriate.	Should be assessed as Temporarily Unfit for Duty while being evaluated and while treatment is initiated. Return to work will depend on the effectiveness of treatment.

K10 Questionnaire

Please tick the answer that is correct for you:	All of the time (Score 5)	Most of the time (Score 4)	Some of the time (Score 3)	A little of the time (Score 2)	None of the time (Score 1)
1. In the past 4 weeks, about how often did you feel tired out for no good reason?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. In the past 4 weeks, about how often did you feel nervous?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. In the past 4 weeks, about how often did you feel so nervous that nothing could calm you down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. In the past 4 weeks, about how often did you feel hopeless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. In the past 4 weeks, about how often did you feel restless or fidgety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. In the past 4 weeks, about how often did you feel so restless you could not sit still?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. In the past 4 weeks, about how often did you feel depressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. In the past 4 weeks, about how often did you feel that everything was an effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. In the past 4 weeks, about how often did you feel so sad that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

References and further reading

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au.

Andrew G, Slade T. Interpreting scores on the Kessler Psychological Distress Scale. Australian and New Zealand Journal of Public Health 2001. 25(6): 494-497.

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Clinical Research Unit for Anxiety Disorders (CRUFAD) <www.crufad.org>.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Teesdale E, Deahl M. Mental health and psychiatric disorders. Chapter 7 in Fitness for Work; Eds: Palmer, K. Cox and Brown I. Oxford University Press. 2007.

38. Respiratory diseases

See also predicted VO_2 max in [Section 32.2.2 Cardiorespiratory fitness](#) and [Section 35 Musculoskeletal conditions](#).

38.1 Relevance to marine pilots

Chronic respiratory disease such as COPD or asthma may affect the ability of pilots to perform their work safely. Good respiratory function is essential to meet the oxygen demands associated with climbing the pilot ladder and stairs on ships, and not be exhausted on reaching the bridge.

Clear speech is required for communication particularly by radio-communication systems. However, assessment of a speech impediment arising from conditions such as cleft palate or facial trauma, similarly to speech in association with a foreign accent, is not a medical matter. It should be assessed as part of general competencies by the Port Authority (refer to NSW Marine Pilotage Code competencies).

38.2 General assessment and management guidelines

38.2.1 Screening respiratory function

The adequacy of respiratory function is screened by testing for predicted VO_2 max which is conducted as part of the Periodic Physical Assessment by the AHP-Physiotherapist (refer [Section 35 Musculoskeletal conditions](#)). If an abnormal result is found the pilot will be referred promptly to the AHP-Medical for assessment. The pilot is categorised Temporarily Unfit for Duty if the predicted VO_2 is in the “below average” or worse range for age and sex. The Authorised Health Professional investigates each case on their merits and manages accordingly.

38.2.2 Chronic respiratory conditions

Pilots with mild, well-controlled disorders should be assessed using the predicted VO_2 max test. Those who meet the criteria of average or better (refer to Figure 19) may be categorised Fit for Duty Subject to Review, with annual review. Pilots with asthma should have ‘Good Control’ as defined in the Australian Asthma Handbook (<http://www.astmahandbook.org.au/management/adults>).

38.2.3 Laryngectomy and tracheostomy

Persons with a tracheostomy or laryngectomy are unsuitable for pilotage. The work requires the ability to speak clearly and quickly, sometimes in a noisy background, including use of radio-communications, as well as high respiratory demands.

38.3 Medical criteria

Medical criteria for fitness for duty are outlined in **Table 20**.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person’s fitness for duty.

Table 20. Medical criteria for marine pilots – Respiratory diseases

Condition	Criteria
Respiratory function screening VO₂ max	Refer to Section 35 Musculoskeletal conditions .
Chronic respiratory disease (e.g., asthma, COPD)	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has chronic respiratory disease. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work, and information provided by a respiratory specialist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the condition is well-controlled; and • the predicted VO₂ max reaches the criteria of average or better for age and sex.
Laryngectomy and tracheostomy	<p>A pilot is not Fit for Duty:</p> <ul style="list-style-type: none"> • post laryngectomy or tracheostomy.

39. Sleep disorders

This chapter focuses on sleep disorders, particularly sleep apnoea, as they present a significant risk to safety through increased sleepiness. This chapter interfaces with fatigue risk management (refer to [Section 30.1 Fatigue](#)).

39.1 Relevance to marine pilots

39.1.1 Effects of sleep disorders on pilotage work

A number of sleep disorders may cause excessive daytime sleepiness, which manifests itself as a tendency to doze at inappropriate times when intending to stay awake, and which has obvious implications for safety. Relevant disorders include:

- sleep apnoea (obstructive sleep apnoea*, central sleep apnoea and nocturnal hypoventilation);
- periodic limb movement disorder;
- circadian rhythm sleep wake disorders (e.g., advanced or delayed sleep-phase syndrome);
- some forms of insomnia; and narcolepsy.

*For the purposes of this document **sleep apnoea syndrome** is excessive daytime sleepiness in combination with sleep apnoea on overnight monitoring.

Such disorders may affect the ability to safely perform pilotage due to sleepiness and/or due to altered blood gases and hypoxia affecting mental function. Sleep apnoea may also worsen conditions relevant to pilotage work such as hypertension and depression and is associated with type 2 diabetes.

39.1.2 Effects of pilotage work on sleep

Pilotage requires working shift rosters (refer [Part C Inherent requirements of pilotage](#)) which may be associated with Shiftwork Sleep Disorder (Australian Sleep Association, 2017). Shift work sleep disorder consists of symptoms of excessive tiredness and often depressed mood. For further advice on management refer [Section 30.1 Fatigue](#).

39.1.2 Evidence of incident risk

Information about risk of accidents due to sleep disorders mainly comes from road crash data. Studies have shown an increased rate of motor vehicle accidents of between 2 and 7 times that of control subjects in those with sleep apnoea. Studies have also demonstrated increased objectively measured sleepiness while driving (electroencephalography and eye closure measurements) and impaired driving-simulator performance in sleep apnoea patients. This performance impairment is similar to that seen due to illegal alcohol impairment or sleep deprivation. Drivers with severe sleep disordered breathing may have a much higher rate of accidents than those with a less severe sleep disorder. Drivers with a high Epworth Sleepiness Scale (ESS) score have a higher crash risk (see below). Those with self-reported episodes of dozing, or frequent sleepiness while driving, are also at a higher crash risk, irrespective of sleep apnoea severity.

Patients with narcolepsy present with excessive sleepiness and can have periods of sleep with little or no warning of sleep onset. Other symptoms include cataplexy, sleep paralysis and vivid

hypnagogic hallucinations, which present a significant risk for pilotage. Those with narcolepsy perform worse than control subjects on simulated driving tasks and are more likely to have (motor vehicle) accidents.

39.2 General assessment and management guidelines

39.2.1 General considerations

Sleep apnoea is present on overnight monitoring in 9% of adult women and 24% of adult men. Sleep apnoea syndrome (see above) is present in 2% of women and 4% of men.

Obstructive sleep apnoea involves repetitive obstruction to the upper airway during sleep, precipitated by relaxation of the dilator muscles of the pharynx and tongue and/or narrowing of the upper airway, resulting in cessation (apnoea) or reduction (hypopnoea) of breathing.

Central sleep apnoea refers to a similar pattern of cyclic apnoea or hypopnoea caused by oscillating instability of respiratory neural drive, and not due to upper airways factors. This condition is less common than obstructive sleep apnoea, and is associated with cardiac or neurological conditions, or may be idiopathic. Hypoventilation associated with chronic obstructive pulmonary disease (COPD) or chronic neuromuscular conditions may also interfere with sleep quality, causing excessive sleepiness.

Increased sleepiness during the daytime may also occur in otherwise normal people and may be due to either:

- previous sleep deprivation (restricting the time for sleep); or
- poor sleep hygiene habits; or
- irregular sleep–wake schedules (e.g., rosters); or
- the influence of sedative medications including alcohol.

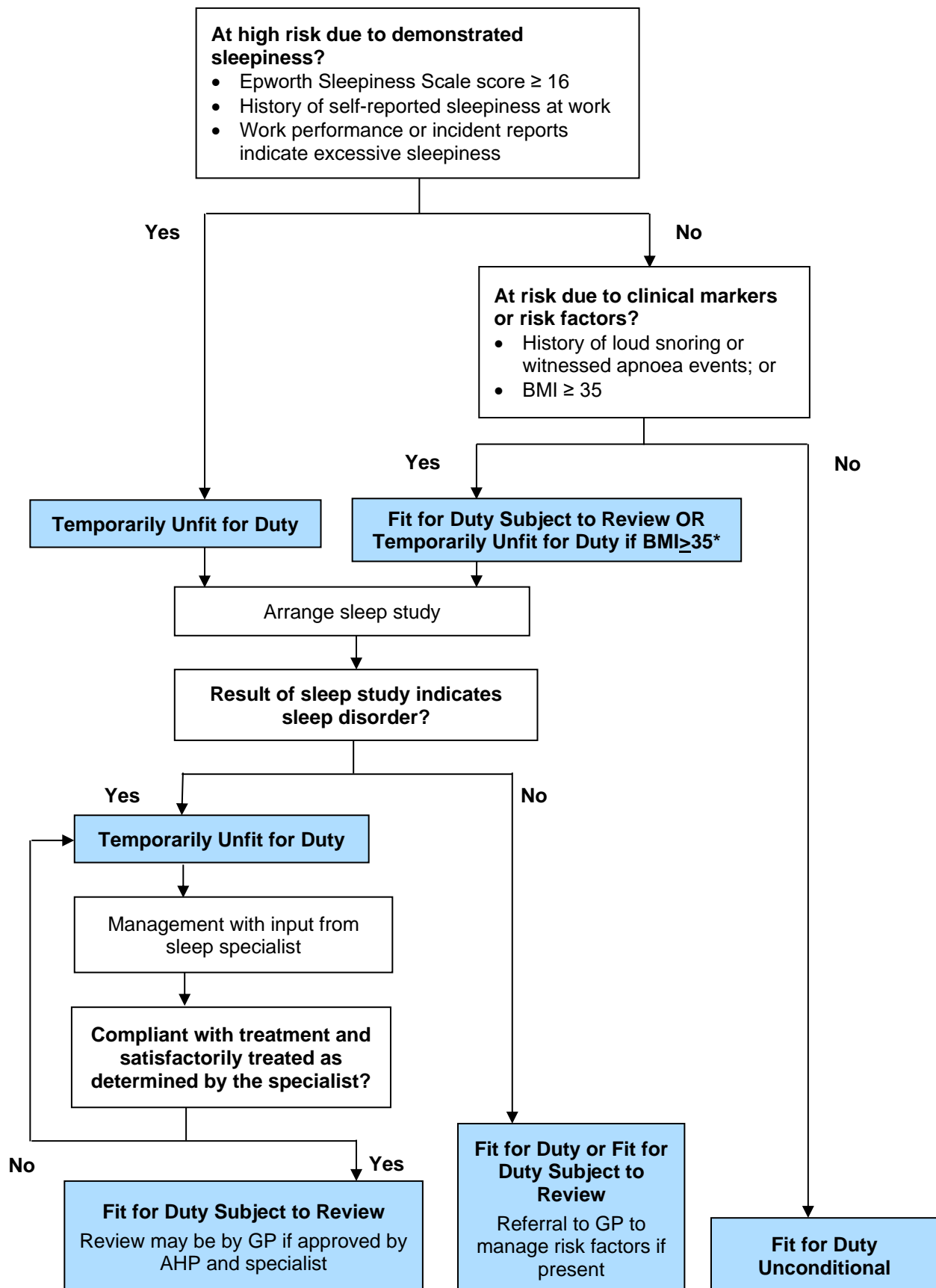
These factors may increase the severity of sleep disorders and result in more severe sleepiness in pilots with sleep disorders.

Unexplained episodes of ‘sleepiness’ may also require consideration of the several causes of blackouts (refer to [Section 31 Blackouts](#)).

The approach to the assessment for sleep disorders is summarised in Figure 39 and described below. It involves identifying:

- whether there is evidence or indicators of excessive daytime sleepiness;
- whether there is clinical evidence of sleep apnoea (loud snoring, witnessed apnoea events); and
- whether there are clinical risk factors that warrant further investigation (raised BMI, diabetes etc).

Figure 39. Sleep disorder assessment and management



*If BMI ≥ 35 the pilot should also be managed regarding musculoskeletal capacity on the pilot ladder as per [Section 20 Musculoskeletal conditions \(including BMI\)](#).

39.2.2 Assessing for high risk of excessive daytime sleepiness

Epworth Sleepiness Scale (ESS)

Determining excessive daytime sleepiness may be assisted with screening tools. Subjective measures include tools such as the ESS (refer to Box 5), which is incorporated into the health questionnaire. The ESS is scored by summing the numeric values in the boxes in the questionnaire; the maximum possible is $8 \times 3 = 24$. A score of between 0 and 10 is within the normal range.

Mild to moderate self-reported sleepiness (ESS score of 11 to 15) may be associated with a significant sleep disorder, although the degree of increased risk of sleepiness-related (motor vehicle) accidents is unknown. Scores of 16 to 24 are consistent with moderate to severe sleepiness and are associated with an increased risk of sleepiness-related accidents.

If the score is raised (16 or more) or other clinical findings warrant it, discuss the findings with the pilot to determine possible explanations, such as the demands of shift work, lifestyle factors or sleep disorders, to help guide the approach to management. This may include referral to their general practitioner or to a sleep clinic for polysomnography (PSG). In most cases, the pilot will need to be immediately classed Temporarily Unfit for Duty pending further assessment.

It is recognised that tests such as the ESS rely on honest completion by the pilot, and there is evidence that incorrect reporting may occur (Colquhoun, 2015). The use of such tools is therefore just one aspect of the comprehensive assessment.

Box 5. Epworth Sleepiness Scale

How likely are you to doze off or fall asleep (rather than just feeling tired) in the following situations:	would never doze off (0)	slight chance of dozing (1)	moderate chance of dozing (2)	high chance of dozing (3)
Sitting and reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Watching TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sitting inactive in a public place (e.g. a theatre or a meeting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As a passenger in a car for an hour without a break	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lying down to rest in the afternoon when circumstances permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sitting and talking to someone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sitting quietly after a lunch without alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In a car, while stopped for a few minutes in the traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SCORING:

- The ESS is scored by summing the numeric values in the boxes in the questionnaire; the maximum possible is $8 \times 3 = 24$.
- A score of between 0 and 10 is within the normal range.
- A score of between 11 and 15 indicates mild to moderate sleepiness.
- A score of between 16 and 24 indicates moderate to severe sleepiness.

** The Epworth Sleepiness Scale is under copyright to Dr Murray Jones 1991 – 1997. It may be used by individual doctors without permission, but its use on a commercial basis must be negotiated.*

Other indicators of excessive daytime sleepiness – Triggered referral

Witnessed episodes of dozing at work and work performance or incident reports are indicative of excessive sleepiness at work and may result in a Triggered Assessment by the Port Authority. These warrants prompt investigation, including a sleep study (see below). Pilots should be classed Temporarily Unfit for Duty while being investigated.

39.2.3 Clinical assessment including biometric markers of sleep apnoea

Common clinical indicators of sleep apnoea include:

- habitual loud snoring during sleep; or
- witnessed apnoeic events (often in bed by a partner) or
- falling asleep inappropriately (particularly during non-stimulating activities such as watching TV, sitting and reading, travelling in a car or when talking with someone, as measured by the Epworth Sleepiness Scale (ESS)); or
- feeling sleepy despite adequate time in bed.

Poor memory and concentration, morning headaches and insomnia may also be presenting features. The condition is more common in men and with increasing age and in association with type 2 diabetes.

Body mass index is also a strong predictor of sleep disorder. The presence of a body mass index (BMI) greater than or equal to 35 should increase the suspicion of sleep apnoea, even in the absence of self-reported sleepiness. BMI is measured as part of the Physical Assessment by the AHP-physiotherapist (refer Figure 25). In the event of finding BMI > 35 referral will be made to the AHP-Medical for further assessment regarding sleep apnoea and classified Fit Subject to Review.

39.2.4 Referral and management (refer Figure 39)

Pilots with clinical features of sleep apnoea or high-risk features as described above should have a sleep study, which may be arranged by the Authorised Health Professional. They should be classed as follows:

- Fit for Duty Subject to Review for symptoms alone until the disorder is investigated, treated effectively and fitness for duty status finally determined (refer to Figure 39); or
- Fit for Duty Subject to Review or Temporarily Unfit for Duty if the BMI is equal to or greater than 35, depending on the results of the Physical Assessment ([Section 35 Musculoskeletal conditions](#)) (including BMI)) and pending results of a sleep study, then categorised accordingly (refer to Figure 39).

Initial screening may be conducted using polysomnography packages that are available for home assessment. The investigation (during a period of sleep) should include as a minimum:

- respiratory function testing (including oro-nasal airflow, rib cage/abdominal movement, heart rate and oximetry).

The investigation preferably should also include the following where logistics and practicality permits:

- a continuous recording of an electrocardiograph (ECG)
- a continuous recording of an electroencephalograph (EEG).

The results should be interpreted and reported on by a sleep physician who has established quality assurance procedures for the data acquisition. Pilots with a positive result should be examined by the sleep specialist to confirm and explain the diagnosis, to explain treatment options and to explain the monitoring of compliance.

Pilots who are diagnosed with obstructive sleep apnoea syndrome and commence treatment satisfactorily should be categorised Fit for Duty Subject to Review and have annual review to ensure that adequate treatment is maintained. Initial determination of Fit Subject to Review should be established by the treating specialist. The Authorised Health Professional, with agreement of the specialist, may determine that subsequent review by the pilot's treating general practitioner is sufficient if there is an established pattern of compliance and good response to treatment.

Those treated with CPAP should use a CPAP machine with a usage meter to allow objective assessment and recording of treatment compliance. Similarly, for those treated with mandibular splints, only splints with compliance detection devices should be used.

Pilots with severe sleep apnoea on diagnostic sleep study but who do not report moderate to excessive sleepiness, should never-the-less be offered treatment as symptoms are sometimes not recognised. Pilots who refuse treatment may be offered a Maintenance of Wakefulness Test (MWT) for further assessment; (the MWT should include a drug screen and be for 40 minutes). A repeat sleep study may be recommended depending on the clinical review. For those with a normal MWT, they may be categorised fit without sleep apnoea treatment, subject to review in one year. Those with an abnormal MWT should remain Temporarily Unfit for Duty until appropriate treatment is able to be initiated and is shown to be effective.

If the sleep study is normal, this should be clearly documented in the pilot's medical report so that this information is available for consideration at subsequent health assessments. If high-risk features remain present at subsequent assessments, the specialist should be asked to advise regarding the timing of their next sleep study. Pilots with risk factors such as high BMI should be managed accordingly, including with referral to their general practitioner and Port Authority health promotion program as appropriate.

39.2.5 Advice to pilots

Pilots suspected of having, or found to have, sleep apnoea or other sleep disorders should be advised about potential impact on pilotage and strategies for maintaining fitness for duty. General advice should include:

- minimising unnecessary activity at times when normally asleep;
- allowing adequate time for sleep;
- avoiding working after having missed a large portion of their normal sleep;
- avoiding alcohol and sedative medications;
- resting if sleepy;
- ensuring the sleep environment is cool, dark and quiet.

Pilots are responsible for:

- notifying management if they are sleepy and not fit for duty for that shift;
- complying with treatment, including management of lifestyle factors;
- maintaining their treatment device;

- attending review appointments;
- honestly reporting their condition to their treating physician and the Authorised Health Professional.

39.2.6 Narcolepsy

Narcolepsy is present in 0.05% of the population and usually starts in the second or third decade of life. Sufferers present with excessive sleepiness and can have periods of sleep with little or no warning of sleep onset. Other symptoms include cataplexy, sleep paralysis and vivid hypnagogic hallucinations.

The majority of sufferers are HLA-DR2 (a serotype) positive. There is a subgroup of people who are excessively sleepy, but do not have all the diagnostic features of narcolepsy.

Diagnosis of narcolepsy is made on the combination of clinical features (sleep attacks, cataplexy, hypnagogic hallucinations and sleep paralysis), HLA typing and multiple sleep latency test (MSLT), with a diagnostic sleep study on the previous night to exclude other sleep disorders and aid interpretation of the MSLT.

Pilots suspected of having narcolepsy should be referred to a respiratory or sleep physician or neurologist for assessment (including a MSLT) and management. If the diagnosis is confirmed, they should be categorised Temporarily Unfit for Duty until there have been no symptoms for 6 months. They should have a review at least annually by their specialist.

Sleepiness in narcolepsy may be managed effectively with scheduled naps and stimulant medication. Tricyclic antidepressants and monoamine oxidase (MAO) inhibitors are used to treat cataplexy.

39.3 Medical criteria

Medical criteria for fitness for duty are outline in Table 21.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 21. Medical criteria for marine pilots – Sleep disorders

Condition	Criteria
<p>Sleep disorder risk assessment (refer Figure 39)</p>	<p><i>Demonstrated sleepiness</i></p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if there is evidence of excessive daytime sleepiness such as: <ul style="list-style-type: none"> - an ESS score of 16 or greater (refer Box 5); or - a history of self-reported sleepiness at work; or - work performance reports indicating excessive sleepiness; or - incident reports plausibly caused by inattention or sleepiness. <p>They should be classed Temporarily Unfit for Duty and promptly assessed by a specialist in relation to a possible sleep disorder.</p> <p>If a sleep disorder is diagnosed, see relevant criteria below.</p> <p>If excessive daytime sleepiness is not evident, assess risk factors as below.</p> <p><i>Risk factors</i></p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot is assessed as being at risk of sleep disorder, as evidenced by a history of habitual loud snoring during sleep or of witnessed apnoeic events (such as in bed by a partner). <p>They should be classed Fit for Duty Subject to Review and promptly assessed by a specialist in relation to a possible sleep disorder. If a sleep disorder is diagnosed, see relevant criteria below.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot is assessed as being at risk of sleep disorder, as evidenced by a BMI ≥ 35. <p>They should be promptly assessed by a specialist in relation to a possible sleep disorder. Fitness for duty classification (Fit Subject to Review or Temporarily Unfit) while they are waiting to be assessed is dependent on the result of the Physical Assessment.</p> <p>If a sleep disorder is diagnosed, see relevant criteria below.</p>
<p>Sleep apnoea (continued overleaf)</p>	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> if the pilot has established sleep apnoea syndrome); or if the pilot has severe sleep apnoea on a diagnostic sleep study with or without self-reported excessive daytime sleepiness.

Condition	Criteria
Sleep apnoea (continued)	<p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and work performance reports, and information provided by a specialist* in sleep disorders as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot is compliant with treatment**; and • the response to treatment is satisfactory. <p>*The Authorised Health Professional, with agreement by the specialist, may determine that review by the pilot's treating general practitioner is sufficient if there is an established pattern of compliance and good response to treatment. The initial granting of Fit for Duty Subject to Review must be based on information provided by a specialist.</p> <p>**If person refuses treatment, refer text.</p>
Narcolepsy	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if narcolepsy is confirmed. <p>Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and work performance reports, and information provided by a specialist in sleep disorders as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • a clinical assessment has been made by a sleep physician; and • cataplexy has not been a feature in the past; and • medication is taken regularly; and • there have been no symptoms for 6 months; and • normal sleep latency present on multiple sleep latency test (MSLT) (on or off medication).
Other causes of excessive daytime sleepiness	Refer to guidelines in the text.

References and further reading

Aldrich MS, Chervin RD & Malow BA. Value of the multiple sleep latency test (MSLT) for the diagnosis of narcolepsy. *Sleep*. 1997;20(8):620–9

Andrews G, Slade T. Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian and New Zealand Journal of Public Health*. 2001;25(6):494–7

Australian Sleep Association 2017. Shift work Sleep Disorder

https://sleep.org.au/common/Uploaded%20files/Public%20Files/Professional%20resources/Adult%20resources/Shiftwork%20Disorder_0617.pdf.

- Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au
- Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.
- Colquhoun C, Casolin A. Impact of rail medical standard on obstructive sleep apnoea prevalence Occupational Medicine. 2015
- Findley LJ, et al. Driving simulator performance in patients with sleep apnea. American Review of Respiratory Diseases. 1989;140(2):529–30
- George CF. Reduction in motor vehicle collisions following treatment of sleep apnoea with nasal CPAP. Thorax. 2001;56(7):508–12
- Hartenbaum N, et al. Sleep apnea and commercial motor vehicle operators: statement from the Joint Task Force of the American College of Chest Physicians, American College of Occupational and Environmental Medicine, and the National Sleep Foundation. Journal of Occupational and Environmental Medicine. 2006; 48(9 supplementary)
- Howard M, O'Donoghue F. The hidden burden of OSA in Pilotage pilots: how should we deal with it? Occupational Medicine (London). 2016;66(1):2-4.
- Howard M, et al. Sleepiness, sleep-disordered breathing, and accident risk factors in commercial vehicle drivers. American Journal of Respiratory & Critical Care Medicine. 2004;170(9):1014–21
- International Diabetes Federation 2001, Consensus statement on sleep apnoea and type 2 diabetes. <<http://www.idf.org/sleep-apnoea-and-type-2-diabetes>>
- Jenkins R. Migraine Management, Australian Prescriber 2020; 43; 148 – 151.
- Lloberes P, et al. Self-reported sleepiness while driving as a risk factor for traffic accidents in patients with obstructive sleep apnoea syndrome and in non-apnoeic snorers. Respiratory Medicine. 2000;94(10):971–6
- Masa JF, Rubio M & Findley LJ. Habitually sleepy drivers have a high frequency of automobile crashes associated with respiratory disorders during sleep. American Journal of Respiratory & Critical Care Medicine. 2000;162(4):1407–12
- Mehta A, et al. A randomized, controlled study of a mandibular advancement splint for obstructive sleep apnea. American Journal of Respiratory & Critical Care Medicine. 2000;163(6):1457–61
- National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)
- Parker G, Tawella G. Burnout: modeling, measuring, and managing. Australasian Psychiatry 2021; 29(6); 625 – 627.
- Stutts JC, Wilkins JW & Vaughn, BV. Why do people have drowsy driver crashes? AAA Foundation for Traffic Safety, Washington. 1999:1–85
- Turkington PM, et al. Relationship between obstructive sleep apnea, driving simulator performance, and risk of road traffic accidents. Thorax. 2001;56(10):800–5
- Wilson J, Morgan S, Magin PJ, van Driel ML. Fatigue-a rational approach to investigation. Australian Family Physician. 2014;43(7):457-61

40. Substance misuse and dependence

This chapter should be read in the context of overall management of mental health (refer to [Section 37 Psychiatric Conditions](#)) and paragraph [30.3 Prescription and over-the-counter \(OTC\) medications](#) and Port Authority Procedure on Alcohol and Other Drugs.

40.1 Scope and definitions

This section focuses on diagnosis and management of pilots who have substance misuse or substance dependence. It is concerned with all substances that can impair cognition in regards to safety.

Substance misuse may be seen as a continuum ranging from mild / occasional use to severe / dependence.

For the purpose of this Standard, the term substance misuse refers to the use of any substance whether legal or illegal which causes the individual social, psychological, physical or legal problems related to intoxication, binge use or dependence. This includes:

- chronic heavy consumption of alcohol;
- misuse of prescription and over the counter medication;
- use of illicit drugs;
- use of natural unregulated intoxicants e.g., Datura, mushrooms etc.

Substance dependence is a condition that falls within the substance misuse definition and, for the purpose of this Standard, is characterised by several of the following features:

- tolerance, as defined by either a need for markedly increased amounts of the substance to achieve intoxication or desired effect, or a markedly diminished effect with continued use of the same amount of substance;
- withdrawal, as manifested by either the characteristic withdrawal syndrome for the substance, or the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms;
- the substance is often taken in larger amounts or during a longer period of time than was intended;
- there is a persistent desire or unsuccessful efforts to cut down or control substance use;
- a great deal of time is spent in activities to obtain the substance, use the substance or recover from its effects;
- important social, occupational or recreational activities are given up or reduced because of substance use; and the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., continued drinking despite worsening a peptic ulcer; single or multiple convictions for drug and alcohol vehicle driving offences; marital discord and domestic violence, etc).

For the purpose of this Standard, remission / recovery is attained when there is abstinence from use of illicit drugs or where the use of other substances, such as alcohol, has reduced in frequency

to the point where it is unlikely to cause impairment of pilotage work or to result in a positive test at work.

40.2 Interface with drug and alcohol management programs

The section should be read in conjunction with the requirements of the Port Authority drug and alcohol policy and program, which are governed by the NSW Marine Pilotage Code¹⁷ and the Marine Safety Act¹⁸.

The health assessment system for pilots described in this chapter is integral to the organisational management of drugs and alcohol. For example, it provides a mechanism by which a pilot may be referred for a Triggered Health Assessment if they are found to test positive to a drug and alcohol screen (random or for cause) or there are other circumstances that indicate a potential problem. The assessment may result in specialist referral and more regular review as part of a rehabilitation / return to work process.

Periodic Health Assessments conducted under the Standard do not routinely include drug and alcohol screening, however the assessment incorporates a clinical assessment, with specialist referral if indicated.

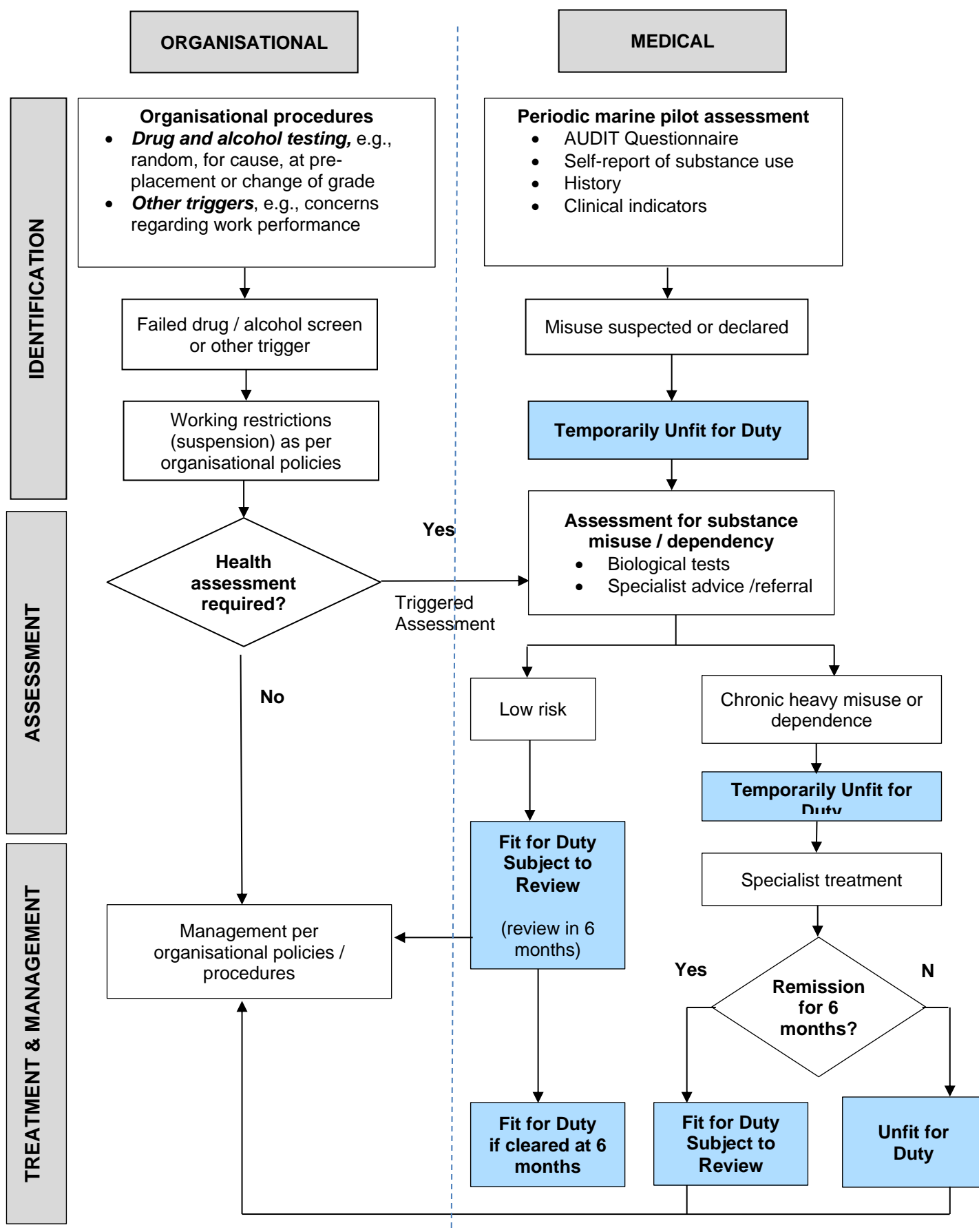
For all assessments conducted under the Standard, if a person is suspected of being intoxicated by alcohol or drugs at the time of an assessment, the Authorised Health Professional should assess them and enquire about possible reasons for their condition. Under these specific circumstances, the doctor may conduct a drug and alcohol test in accordance with the Marine Safety Act. If drug or alcohol intoxication is suspected or confirmed, the Authorised Health Professional should categorise the pilot as Temporarily Unfit for Duty and notify the Port Authority.

Working restrictions (i.e., suspension of pilotage duties) following a positive drug screen are imposed as determined by the Port Authority Alcohol and Drug Procedure. Medical fitness for duty may only be determined through a medical review process (refer to Figure 40).

¹⁷ New South Wales Marine Pilotage Code, 2022

¹⁸ Marine Safety Act 1998, as at 5 May 2021, http://www.austlii.edu.au/au/legis/nsw/consol_act/msa1998145/ [accessed 1 June 2022]

Figure 40. Organisational and medical management of drug and alcohol misuse / dependence in marine pilots



40.3 Relevance to pilotage

40.3.1 Acute and long-term effects of alcohol and other drugs

Both the acute and chronic effects of substance misuse are relevant to safe pilotage.

Alcohol

The acute effects of alcohol are well established; its use is incompatible with the conduct of pilotage work as reflected in Marine Safety Act and the NSW Marine Pilotage Code.

Chronic heavy alcohol use carries a risk of neurocognitive deficits (Wernicke–Korsakoff syndrome) and cerebellar ataxia which are relevant to safe working capability, including:

- short-term memory and learning impairments, which become more evident as the task difficulty increases;
- impaired perceptual-motor speed;
- impairment of visual search and scanning strategies;
- deficits in executive functions such as mental flexibility and problem-solving skills; difficulty in planning, organising and prioritising tasks; difficulty focusing attention, sustaining focus, shifting focus from one task to another, or filtering out distractions; difficulty monitoring and regulating self-action; or impulsivity; and
- impaired balance and coordination (Charlton et al 2021).

The effect on interpersonal skills and hence bridge resource management is a further consideration. Also, impaired balance and peripheral neuropathies experienced as numbness or paraesthesia of the hands or feet may occur and affect safety on the ladder. In the event of the above end-organ effects relevant to safe working, the appropriate requirements should be applied as set out elsewhere in this publication.

Alcohol-dependent people may experience a withdrawal syndrome (delirium tremens) on cessation or significant reduction of intake, which carries some risk of generalised seizure (refer to 'Acute symptomatic seizures', Table 15), confusional states and hallucinations.

Of relevance to the management of pilots with alcohol dependence is that individuals with alcohol dependence have approximately twice the risk of (motor vehicle) crash involvement as controls. In addition, (vehicle) drivers with alcohol dependency are more likely to drive while intoxicated.

Other substances

Substances (prescribed, over-the-counter and illicit drugs) can be misused for their intoxicating, sedative or euphoric effects. Pilots who are under the acute influence of these drugs, or craving for them or withdrawing from them, are more likely to behave in a manner incompatible with safe working.

This may involve, but is not limited to, risk taking, aggression, feelings of invulnerability, narrowed attention, altered arousal states and poor judgement.

The chronic effects of these substances vary and are not as well understood as those of alcohol. Some evidence suggests cognitive impairment is associated with chronic stimulant, opioid and benzodiazepine use. Those misusing these substances may be at risk of brain injury through hypoxic overdose, trauma or chronic illness.

Withdrawal symptoms can also vary and may include restlessness, insomnia, anxiety, aggression, anorexia, muscle tremor and autonomic effects. Withdrawal seizures may occur (refer to 'Acute symptomatic seizures', Table 15).

End-organ damage, including cardiac, neurological and hepatic damage, may be associated with some forms of illicit substance use, particularly injection drug use. Cocaine and other stimulant misuse have been linked with cardiovascular pathology. In the event of end-organ effects relevant to pilotage, the appropriate requirements should be applied as set out elsewhere in this publication.

Opioid analgesics for pain management

The long-term use of opioid analgesics is generally not accepted as an appropriate approach for chronic musculoskeletal pain management and therefore should be questioned. Pilots using these agents should be referred for assessment by an appropriate specialist such as an orthopaedic surgeon or rheumatologist or if appropriate an addiction medicine specialist or addiction psychiatrist.

40.3.2 Effects of alcohol or drugs on other diseases

People who are frequently intoxicated and who also suffer from certain other medical conditions are often unable to give their other medical problems the careful attention required, which has implications for safe working.

Epilepsy

Many people with epilepsy are quite likely to have a seizure if they miss their prescribed medication even for a day or two, particularly when this omission is combined with inadequate rest, emotional turmoil, irregular meals, and alcohol or other substances. Pilots under treatment for any kind of epilepsy are not fit for duty if they are frequently intoxicated.

Diabetes

People with insulin-dependent diabetes have a special problem if they are frequently intoxicated. Not only might they forget to inject their insulin at the proper time and in the proper quantity, but their food intake can also get out of balance with the insulin dosage. This may result in a hypoglycaemic reaction or the slow onset of diabetic coma. Such pilots would not be fit for duty.

40.4 General assessment and management guidelines

The key consideration is to ensure pilots with suspected or confirmed substance misuse problems do not present a risk to safety during pilotage, either from being acutely affected, or affected by the consequences of chronic use and/or withdrawal.

Figure 40 shows the steps of identification, assessment and treatment in the management of substance misuse and dependence, and the interface between organisational approaches and pilot health assessments.

40.4.1 Identification

Biological (urine or blood or saliva or breath) screening for drug or alcohol is not required as part of routine health assessments. However, in the course of the routine health assessment clinical

examination the AHP should be alert for indications in the history of substance misuse, such as psychological problems.

Screening tests may be useful for identifying substance misuse and dependence disorders. For example, the Alcohol Use Disorders Identification Test (AUDIT) is used to screen for risk of hazardous alcohol use, high risk or harmful alcohol use and alcohol dependence, and is included in the Health Questionnaire (Pink Form). Details of application and interpretation of the score are provided on page 189. The AUDIT relies on accurate responses to the questionnaire and should be interpreted in the context of a global assessment that includes other clinical evidence. If the person appears unduly familiar with the AUDIT, other validated questionnaires may be applied, and clinical judgement may be needed.

40.4.2 Assessment

Careful individual assessment must be made of pilots who misuse or are suspected of misusing alcohol or other substances (prescribed or illicit), even if drug use is occasional. Assessment will require consideration of the pilot's substance use history, work attendance and performance records, response to any previous treatment and their level of insight.

During clinical assessment, patients may understate or deny substance use for fear of consequences of disclosure. In addition, the acute and chronic cognitive effects of some substance use also contribute to difficulty in obtaining an accurate history and identification of substance use. Assessment should therefore incorporate a range of indicators of substance use in addition to self-reporting, examination for stigmata (for example needle tracks, spider angioma, enlarged liver) and tests, for example, carbohydrate deficient transferrin (CDT) and liver function tests (LFT) for alcohol misuse, or drug metabolites and hair analysis for drug misuse.

Examining health professionals should be mindful that misuse may not be confined to a single drug class, and people may use multiple substances in combination. In addition, people who misuse substances may change from one substance to another. They should also be alert to the complex course of substance misuse; periods of abstinence for a number of months are a feature of dependence and should not be interpreted as sustainable recovery or as evidence that ongoing professional help is not required. Both dependence and recovery are best viewed as fluid rather than fixed states, thus underscoring the need for sustained and assertive recovery management.

Pilots who are found to be misusing or are suspected of misusing alcohol or drugs should be classed as Temporarily Unfit for Duty while their condition is being investigated. As per privacy principles ([Section 12 Management of health information](#)) the diagnosis should not be disclosed to the Port Authority without consent.

Where dependence or chronic, heavy misuse is suspected by the Authorised Health Professional, the pilot should be referred to (or discussed with) a doctor experienced in managing substance misuse disorders, for example a psychiatrist specialised in alcohol and drug misuse or an addiction medicine specialist, to assist in determining the level of substance use and the level of safety risk. People with a combined substance misuse disorder and mental illness ('dual diagnosis') often have a level of complexity requiring specialist assessment.

40.4.3 Management and treatment

If the risk of further substance misuse has been assessed as low, a pilot should be categorised as Fit Subject to Review subject to further review in 6 months' time and ongoing monitoring as per

advice by an addiction medical specialist and the Port Authority's policy. They may be assessed as Fit for Duty at the 6-month review if there is no evidence of substance misuse.

Those assessed as having chronic or heavy substance misuse or dependence, should be categorised Temporarily Unfit for Duty until remission is achieved or otherwise. For the purposes of this document remission requires a strong response to treatment and well-documented abstinence which must be confirmed by biological monitoring (e.g., urine drug screening, LFT, CDT, hair analysis for drugs) over a period of at least 6 months. At the conclusion of any monitoring a pilot with remission may be certified Fit for Duty Subject to Review on a long-term basis by an addiction medical specialist.

Pilots with severe substance misuse problems or dependence who have had previous high rates of relapse and fluctuation in stabilisation would not be considered fit to return to pilotage.

40.5 Medical criteria

Requirements for fitness for duty are outlined in Table 22.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 22. Medical criteria for pilots – Substance misuse and dependence

Condition	Criteria
AUDIT Questionnaire	<p>If the pilot has an AUDIT score of ≥ 8, the pilot may be categorised as Fit for Duty Subject to Review or Temporarily Unfit for Duty while causes are being assessed and managed (refer to Box 6).</p> <ul style="list-style-type: none"> • Pilots with scores of 8–15 may be managed within the consultation by providing simple advice and information on the alcohol guidelines and risk factors. If the risk is assessed as being low, they should be categorised as Fit for Duty Subject to Review. • Pilots with scores of 16–19 should be managed by a combination of simple advice, brief counselling and continued monitoring. Follow-up and referral to the pilot's general practitioner is necessary. They should be categorised as Fit for Duty Subject to Review or Temporarily Unfit for Duty pending further assessment. • Pilots with scores of 20 or more should be referred to specialist services to consider withdrawal, pharmacotherapy and other more intensive treatments. They should be assessed as Temporarily Unfit for Duty pending further assessment.
Substance misuse	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • If there is evidence of substance misuse. <p>The pilot should be categorised Temporarily Unfit for Duty while being assessed and managed.</p> <p>Fit for Duty Subject to Review may be determined, with review in 6 months by an addiction medical specialist:</p> <ul style="list-style-type: none"> • if the risk of further substance misuse is assessed as being low. <p>Fit for Duty may be determined if there is no evidence of substance misuse at the 6-month review.</p> <p>In the case of chronic or heavy substance misuse or substance dependence, Fit for Duty Subject to Review may be determined, subject to at least annual review, taking into account the nature of the work and information provided by an appropriate specialist (such as an addiction medicine specialist or addiction psychiatrist) as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the pilot is involved in a treatment program and has been in remission* for at least 6 months as confirmed by biological monitoring; and • the pilot has the mental capacities (cognition, communication skills and ability to respond in emergency situations) required for safe working; and • there is absence of end-organ effects that impact on safe working (such as transfers as described elsewhere in this Standard); and • the risk of further substance misuse is assessed as being low. <p>* Remission is defined in the text (refer to Section 40.4.3 Management and treatment)</p>

Box 6. AUDIT Questionnaire

The Alcohol Use Disorders Identification Test (AUDIT) was developed by the World Health Organization (WHO) as a simple method of screening for excessive alcohol consumption. It provides a framework for intervention to help at-risk or high-risk drinkers to reduce or cease their alcohol consumption. It also helps to identify alcohol dependence.

The AUDIT is included in the Health Questionnaire to help identify patterns of alcohol use that may impact on their pilotage work. Identification of harmful alcohol consumption, as well as indicators of alcohol dependence, is therefore particularly important.

The periodic health assessment also provides an opportunity to counsel marine pilots about hazardous drinking patterns.

The AUDIT provides an accurate measure of risk across gender, age and cultures. Its validity, brevity and flexibility make it the most widely used screening instrument around the world.

The standard AUDIT has 10 questions to which there is a choice of up to 5 answers in a tick-a-box format.

The questions are designed to seek information in 3 domains as shown in Box 6.

AUDIT Questionnaire (continued)

AUDIT Questionnaire

Please tick the answer that is correct for you:

Scoring:

(0)	(1)	(2)	(3)	(4)
1. How often do you have a drink containing alcohol?				
<input type="checkbox"/> Never (skip to Q9)	<input type="checkbox"/> Monthly or less	<input type="checkbox"/> 2 to 4 times a month	<input type="checkbox"/> 2 to 3 times a week	<input type="checkbox"/> 4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?				
<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 3 or 4	<input type="checkbox"/> 5 or 6	<input type="checkbox"/> 7, 8 or 9	<input type="checkbox"/> 10 or more
3. How often do you have 6 or more drinks on one occasion?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
5. How often during the last year have you failed to do what was normally expected from you because of drinking?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?				
<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
9. Have you or someone else been injured as a result of your drinking?				
<input type="checkbox"/> No	<input type="checkbox"/> Yes, but not in the last year		<input type="checkbox"/> Yes, during the last year	
10. Has a relative or friend or a doctor or other health pilot been concerned about your drinking or suggested you cut down?				
<input type="checkbox"/> No	<input type="checkbox"/> Yes, but not in the last year		<input type="checkbox"/> Yes, during the last year	

Box 6. AUDIT Questionnaire (continued)

Domains and item content of the AUDIT

Domains	Question No.	Item content
Risky or hazardous alcohol use	1	Frequency of drinking
	2	Typical quantity
	3	Frequency of heavy drinking
Dependence symptoms	4	Impaired control over drinking
	5	Increased salience of drinking
	6	Morning drinking
High-risk or harmful alcohol use	7	Guilt after drinking
	8	Blackouts
	9	Alcohol-related injuries
	10	Others concerned about drinking

Definitions

Risky or hazardous alcohol use

Hazardous drinking is a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others, including the risk of accidents, injuries and social problems.

High-risk or harmful alcohol use

Harmful use refers to alcohol consumption that results in long-term consequences to physical and mental health (e.g. gastritis, liver damage or depression).

Alcohol dependence

Alcohol dependence is a cluster of behavioural, cognitive and physiological phenomena that may develop after repeated alcohol use. Typically, these include a strong desire to consume alcohol, impaired control over use, persistent drinking despite harmful consequences, a higher priority given to drinking than to other activities and obligations, increased alcohol tolerance and physical withdrawal reaction.

Use of the AUDIT for marine pilots

The purpose of applying the AUDIT to marine pilots is to ensure that individuals are not impaired at work, either by the direct effects of alcohol or the health and/or social problems associated with alcohol use.

The examining health professional is required to evaluate the responses to the questionnaire in conjunction with results of the clinical examination, and form a view as to whether they believe there is a significant current risk that the pilot might be impaired at work, either by the direct effects of alcohol, or by associated health or social problems.

Note that it is possible to accumulate 8 or more points as a result of binge drinking on days off, or highlight excessive drinking in the past, without necessarily being at risk of being impaired at work. The health assessment does, however, provide a valuable opportunity to provide brief advice about risky alcohol consumption.

Note also that through separate drug and alcohol policies and procedures, Marine pilots may be subject to random testing. Marine pilots are also liable for testing following incidents, and may be prosecuted by the police if alcohol is detected while working.

Administering the AUDIT

In the pilots' health assessment, the AUDIT Questionnaire is administered in a self-report format; however, it can also be administered by interview if necessary. The level of cooperation or defensiveness of the pilot should be considered in selecting the appropriate format.

Dishonest completion may be an issue, so review of the responses with the pilot is desirable. It may be helpful to reassure the pilot that all responses are confidential and are not forwarded to the operator.

Scoring the AUDIT and managing marine pilots

Each of the questions has a range of responses, and each response has a score ranging from 0 to 4. Questions are scored for the response from left to right. A total score of 40 is possible.

Higher scores indicate a greater likelihood of hazardous or harmful drinking and reflect a greater severity of alcohol problems and dependence, as well as a greater need for more intensive treatment.

AUDIT results are categorised into particular risk levels (or 'zones') to guide the appropriate intervention. Box 6.

AUDIT Questionnaire (continued)

illustrates the general guidelines for World Health Organisation (WHO) assignment of risk levels based upon AUDIT scores and describes the intervention appropriate to that level.

Box 6. AUDIT Questionnaire (continued)

AUDIT risk levels		
Risk level	Intervention	AUDIT score
Zone I	Alcohol education	0–7
Zone II	Simple advice	8–15
Zone III	Simple advice plus brief counselling and continued monitoring	16–19
Zone IV	Refer for diagnostic evaluation and treatment	20–40

Risk Zone I — AUDIT scores between 0 and 7

This score generally indicates low-risk drinking. Although no formal intervention is required, alcohol education is appropriate for the following reasons:

- it contributes to the general awareness of alcohol risks and the relevance to pilotage work
- it may be effective for pilots who have experienced alcohol problems but who have already reduced their drinking levels, or whose circumstances may change
- it could be effective for those pilots who have minimised the extent of their drinking on the AUDIT questions.

Risk Zone II — AUDIT scores between 8 and 15

Scores in this zone are likely to be recorded by a significant proportion of pilots. They indicate alcohol use in excess of the low-risk guidelines.

Risk Zone II — AUDIT scores between 8 and 15 (continued)

People in Zone II would generally be drinking at risky or hazardous levels, and would be at moderate risk of alcohol-related harm. This zone, however, may also include pilots experiencing actual harm and low levels of dependence. Generally, simple advice and information on the alcohol guidelines and risk factors, and the importance of attentiveness for pilotage work, would be an appropriate intervention.

The examining health professional may assess the pilot as Fit for Duty Subject to Review to flag the issue for attention at subsequent assessments. The period of review may be earlier than or in line with normal periodic frequencies, depending on the clinical assessment and other indicators.

Risk Zone III — AUDIT scores between 16 and 19

This zone indicates risky drinking and problems related to higher levels of consumption. This score indicates a pattern of consumption that is already causing harm to the drinker who may also have symptoms of dependence. Pilots in this zone should be managed by a combination of simple advice, brief counselling and continued monitoring. Follow-up and referral to the pilot's general practitioner is necessary.

The examining health professional should assess the pilot as Fit for Duty Subject to Review and should refer for external assessment via the pilot's general practitioner. They may also classify as Temporarily Unfit for Duty if there are immediate concerns for safe conduct of safety critical tasks.

Risk Zone IV — AUDIT scores in excess of 20, and where combined scores on questions 4, 5 and 6 are ≥ 4

Scores in this zone indicate that the person falls into the high-risk category of alcohol-related harm. Pilots in this zone are likely to be alcohol dependent and require more intensive intervention. Health professionals should note that dependence varies along a continuum of severity and might be clinically significant at lower AUDIT scores.

Pilots in this zone should be referred to specialist services to consider withdrawal, pharmacotherapy and other more intensive treatments. They should be assessed as Temporarily Unfit for Duty pending further assessment and referred in the first instance to their general practitioner.

Steps in identifying a drinking problem

If a person has a total score of ≥ 8 on the AUDIT Questionnaire, the following additional steps are recommended:

1. Check the accuracy of the high scoring questions with the pilot.
2. Ask some additional questions to help determine the person's potential for alcohol dependence. The following question may be helpful to confirm accuracy and obtain more information:
How many drinks did you have on your last drinking day—and on the previous occasion? (this is a good guide to the usual intake).

References and further reading

Australian and New Zealand College of Anaesthetists. Faculty of Pain Management: Statement regarding the use of opioid analgesics in patients with chronic noncancer pain. (2020).

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au

Austroads Inc. 2000, The Austroads report on drugs and driving in Australia, Austroads Inc., Sydney

Babor TF, Higgin-Biddle JC, Sanders JB & Monteiro MG. The Alcohol Use Disorder Identification Test—guidelines for use in primary care, 2nd edn, World Health Organization, Geneva. 2001

Barr AM, et al. The need for speed: an update on methamphetamine addiction. Journal of Psychiatry and Neuroscience. 2006;31(5):301–13

Brust, J. C. M. Neurologic complications of illicit drug abuse. CONTINUUM Lifelong Learning in Neurology vol. 20 642–656 (2014).

Broyd, S. J., van Hell, H. H., Beale, C., Yücel, M. & Solowij, N. Acute and chronic effects of cannabinoids on human cognition – A systematic review. Biological Psychiatry vol.79 557–567 (2016).

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre.

https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

Cooper GAA, Kronstrand R, Kintz P. Society of Hair Testing guidelines for drug testing in hair. Forensic Science International. 2012;218:20–24

Drummer O. Epidemiology and traffic safety, in: Drugs, driving and traffic safety, Versteer J, Pandi-Perumal J, et al. (eds), Birkhäuser Verlag, Basel. 2009

Frishman WH, Del Vecchio A, Sanal S & Ismail A. Cardiovascular manifestations of substance abuse: part 2, alcohol, amphetamines, heroin, cannabis and caffeine. Heart Disease. 2003;5(4):253–71

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf)

Ogden E et al. When should the driver with a history of substance misuse be allowed to return to the wheel? A review of the substance misuse section of the Australian national guidelines. Internal Medicine Journal 2018; 48; 908-915.

Panenka, W. J. et al. Methamphetamine use: A comprehensive review of molecular, preclinical and clinical findings. Drug and Alcohol Dependence vol. 129 167–179 (2013).

Royal Australian College of General Practitioners. Prescribing drugs of dependence in general practice, Part C1: Opioids . www.racgp.org.au (2017).

Royal Australian College of General Practitioners. Prescribing drugs of dependence in general practice, Part C2: The role of opioids in pain management. (Royal Australian College of General Practitioners, 2017).

Royal Australian College of General Practitioners. Prescribing drugs of dependence in general practice, Part A: Clinical governance framework. (Royal Australian College of General Practitioners, 2015).

Royal Australian College of Physicians. Prescription Opioid Policy – Improving management of chronic non-malignant pain and prevention of problems associated with prescription opioid use. (2009).

41. Vision and eye disorders

41.1 Relevance to marine pilots

Good vision is essential to pilotage. The pilot is required to accurately see objects at near, intermediate and far distances. They require a full field of vision for early detection of approaching ships and other potential hazards. Pilots work at night and may be subject to extremes of darkness and light around docks; therefore good dark adaptation is required.

Good colour vision is needed for maritime navigation which requires accurate recognition of red, green and other coloured lights on other ships and navigation lights on sea and land at night. Accurate recognition of a red or a green light on another vessel gives information regarding its course and the likelihood of a collision. Good acuity is required for good colour vision because poor visual acuity spreads the light on the retina making recognition of small or distant signal lights more difficult.

A significant defect in any of these aspects of a pilot's visual capacities may endanger the pilotage.

41.2 General assessment and management guidelines

There may be a degree of flexibility allowed at the optometrist's or ophthalmologist's discretion for individuals who barely meet visual criteria but who are otherwise alert and have normal reaction times.

The important aspects of vision in relation to marine piloting are visual acuity, visual fields and colour vision.

41.2.1 Visual acuity (near and far)

For the purposes of this Standard, visual acuity may simply be defined as the best obtainable vision with or without glasses or contact lenses. Visual acuity initially should be measured with one eye occluded and without correction. If correction is normally used when working, then vision should be retested with corrective lenses and the corresponding results recorded. Acuity should be tested using an appropriate visual acuity chart (Snellen Chart or equivalent).

Near vision is tested for both eyes without correction in the first place and then retested with correction if worn. Testing should be at N8 of a Times Roman chart placed at 40cm distance. The text should be read fluently.

Persons who require corrective spectacle lenses or contact lenses to perform duties should be classed as Fit for Duty Subject to Review and conditional on wearing corrective lenses and periodic review. If pilots meet the criteria with corrective lenses, they should be able to be passed by the Authorised Health Professional without reference to an ophthalmologist, optometrist or general practitioner. In appropriate circumstances a referral may be made.

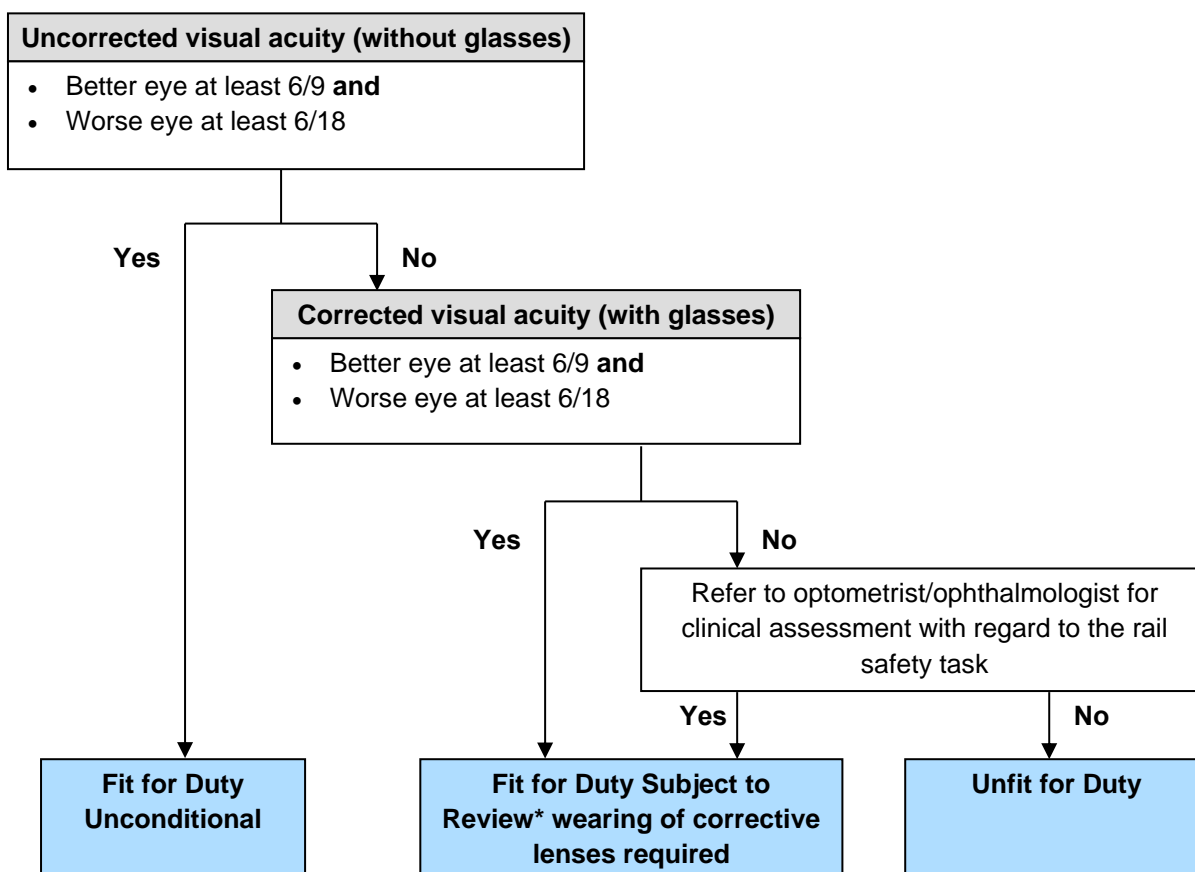
NOTE: It is not required that pilots with glasses carry spare sets of glasses at work. However, when glasses are worn, they should have a neckband to avoid loss. Persons who wear contact lenses must carry a spare set of lenses in case a foreign body enters the eye (so requiring removal of the lens).

Where glasses are prescribed the prescriber should take into account the need for vision at near, intermediate and far distances and consider multi-focal or bifocal lenses.

Photochromic Lenses, Polarised Lenses and Dark Adaptation

The Australian Maritime Safety Authority has issued a warning that photochromic and polarized lenses are unsuitable for duties at night (AMSA 2012). The examining doctor and the pilot will need to convey this information to the ophthalmologist or optometrist if a pilot is referred for assessment.

Figure 41. Visual acuity (far vision) requirements for marine pilots



* Specialist review is not required for stable ophthalmic conditions. Pilots may not require more frequent review, but their vision should be specifically reviewed at the next periodic assessment.

41.2.2 Visual fields

Adequate visual fields are important for marine piloting.

Visual field losses also occur in eye diseases such as retinitis pigmentosa, a not uncommon inherited degeneration of the retina that causes significant visual field loss by the age of 30. Conditions such as glaucoma, optic atrophy, retinal detachment and localised retinal or choroidal infection, and laser treatment of diabetic retinopathy can also reduce visual fields. Good rotation of the neck may also be necessary to ensure adequate overall fields of vision. (Refer to [Section 35 Musculoskeletal disorders](#)).

Visual fields may be initially screened by confrontation. Any person who has or is suspected of having a visual field defect should be referred for expert assessment by an optometrist or ophthalmologist.

Monocular automated static perimetry is the minimum baseline standard for visual field assessments. If monocular automated static perimetry shows no visual field defect, this information is sufficient to confirm that the standard is met.

Subjects with any significant field defect or a progressive eye condition require a binocular Esterman visual field for assessment. This is classically done on a Humphrey visual field analyser but any machine that can be shown to be equivalent is accepted. This must be performed with fixation monitoring. Alternative devices must have the ability to monitor fixation and to stimulate the same spots as the standard binocular Esterman. For an Esterman binocular chart to be considered reliable for fitness for duty, the false positive score must be no more than 20 per cent.

Horizontal extent of the visual field

A single cluster of up to three adjoining missed points, unattached to any other area of defect, lying on or across the horizontal meridian will be disregarded when assessing the horizontal extension of the visual field. A vertical defect of only a single point width but of any length, unattached to any other area of defect, which touches or cuts through the horizontal meridian may be disregarded. There should be no significant defect in the binocular field which encroaches within 20 degrees of fixation above or below the horizontal meridian. This means that homonymous or bitemporal defects that come close to fixation, whether hemianopic or quadrantanopic, are not normally accepted.

Central field loss

Scattered single missed points or a single cluster of up to three adjoining points is acceptable central field loss for a person to be fit for duty. A significant or unacceptable central field loss is defined as any of the following:

1. A cluster of four or more adjoining points that is either completely or partly within the central 20 degree area.
2. Loss consisting of both a single cluster of three adjoining missed points up to and including 20 degrees from fixation, and any additional separate missed point(s) within the central 20 degree area.
3. Any central loss that is an extension of a hemianopia or quadrantanopia of size greater than three missed points.

Binocular vision is required for all marine piloting.

41.2.3 Dark adaptation

Health professionals may wish to recommend restrictions on pilots who appear to meet the visual criteria in the clinical setting but may, in certain environments, have extreme difficulty. Certain disorders or diseases such as retinitis pigmentosa can cause poor night vision. Examples of such restrictions might be daylight piloting only. Specialist referral may be considered.

41.2.4 Progressive eye conditions

Pilots with a progressive eye condition such as cataract, glaucoma, diabetic retinopathy, optic neuropathy and retinitis pigmentosa should be counselled that their eye condition will or may progress to a stage where they are no longer able to work. They should be encouraged to consider making lifestyle changes in anticipation of not being able to work. Their vision should be monitored regularly (Fit Subject to Review). Because persons with cataract suffer loss of contrast sensitivity and greater sensitivity to glare, they may have more difficulty seeing when working than is indicated by their visual acuity.

41.2.5 Congenital and acquired nystagmus

The criteria for visual acuity must be met and any underlying condition fully assessed in relation to pilotage tasks.

41.2.6 Diplopia

Pilots suffering from all forms of diplopia generally are unsafe to pilot ships and climb ladders. Any person who reports or is suspected of experiencing diplopia should be referred for expert assessment by an optometrist or ophthalmologist. They should be classed as Temporarily Unfit for Duty pending review.

41.2.7 Colour vision

Colour vision defects may be inherited or acquired. Acquired colour vision defects are uncommon but may result from chronic eye conditions such as glaucoma, macular degeneration and retinitis pigmentosa, as well as from chronic illnesses such as Alzheimer's disease, diabetes mellitus, leukaemia, liver disease, chronic alcoholism, multiple sclerosis, Parkinson's disease, and sickle cell anaemia. Colour vision can also be affected by events such as stroke and eye trauma.

Colour vision should be first assessed with the Ishihara plates. No coloured lenses or sunglasses should be worn. A pass is no more than 3 errors in 12 screening plates of the 24 plate edition (Colour Vision Normal). In the event of a fail result, the person may be further assessed using the Holmes Wright Lantern Type B. These lanterns may be available at specialised clinics or at university departments of optometry. For details of Lantern test refer Box 7.

41.3 Medical criteria

Medical criteria for fitness for duty are outlined in Table 23.

It is important that health professionals familiarise themselves with both the general information above and the tabulated criteria before making an assessment of a person's fitness for duty.

Table 23. Medical criteria for marine pilots – Vision and eye disorders

Condition	Criteria
Acuity (far)	<p>Far visual acuity should be measured one eye at a time (monocularly), without correction. Acuity should be tested using a standard visual acuity chart (Snellen Chart or equivalent) that includes at least five letters on the 6/6 and 6/18 lines. More than two errors in reading the letters of any line is regarded as a failure to read the line.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot's visual acuity is worse than 6/9 in the better eye; or • if the pilot's visual acuity is worse than 6/18 in either eye. <p>Fit for Duty Subject to Review may be determined:</p> <ul style="list-style-type: none"> • if the standard is met with corrective lenses (fitness for duty is conditional upon wearing these lenses); and • after consideration of the stability of any underlying disorder. <p>Fit for Duty Subject to Review may be determined, taking into account the opinion of an ophthalmologist or optometrist:</p> <ul style="list-style-type: none"> • if the pilot's vision is worse than 6/18 in the worse eye, provided that the visual acuity in the better eye is 6/9 or better (with or without corrective lenses); and • after consideration of the nature of any underlying disorder. <p>In cases of latent nystagmus made manifest by the occlusion of one eye for the purpose of testing, a binocular visual acuity of 6/6 is acceptable if the visual acuity of the better eye is below 6/6 with occlusion of the fellow eye. The same minimum standard of vision in the worse eye applies.</p>
Acuity (near)	<p>Near vision should be measured without correction in the first place but using both eyes. The Times-Roman chart should be used at 40 cm. It should be read fluently to pass.</p> <p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot's near vision is worse than N8 at 40cm. <p>Fit for Duty Subject to Review may be determined;</p> <ul style="list-style-type: none"> • if the standard is met with corrective lenses; and • after consideration of the underlying disorder.
Diplopia	<p>A pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot experiences any diplopia (other than physiological diplopia) when fixating objects within 20 degrees from central fixation.
Night blindness (Dark adaptation)	<p>No specific criteria. Refer general management guidelines in text (Dark Adaptation).</p>

Condition	Criteria
Visual Fields	<p>Visual fields may be initially screened by confrontation. Any person who has or is suspected of having a visual field defect should be referred for expert assessment by an optometrist or ophthalmologist. (Refer to text for details of testing).</p> <p>The pilot is not Fit for Duty Unconditional:</p> <ul style="list-style-type: none"> • if the pilot has any visual field defect; or • if the pilot is monocular (see text). <p>Fit for Duty Subject to Review may be determined subject to at least annual review, taking into account the nature of the work and work performance reports, and information provided by the treating optometrist or ophthalmologist as to whether the following criteria are met:</p> <ul style="list-style-type: none"> • the binocular visual field has an extent of at least 140° within 10° above and below the horizontal midline; and • the pilot has no significant visual field loss (scotoma, hemianopia, quadrantanopia) that is likely to impede work performance; and • the visual field loss is static and unlikely to progress rapidly.
Colour vision	<p>Colour vision should be screened using Ishihara plates. Four or more errors in the 12 screening plates of the 24-plate edition is a fail. The person may be further assessed using Holmes Wright Lantern Type B (Refer Box 7).</p> <p>A pilot is not Fit for Duty:</p> <ul style="list-style-type: none"> • if the pilot is a significant protan or deutan as determined by the Holmes Wright Lantern test. <p>If colour vision is normal at Pre-employment, repeat testing at Periodic Health Assessments may not be required unless clinically indicated (refer text).</p>

Box 7. Test Procedure for the Holmes-Wright Lantern Type B

1. The examiner should have normal colour vision, and, prior to becoming a examiner using the Holmes-Wright Lantern Type B, have undergone a test using the Lantern as an observer.
2. The observer should wear his or her normal distance correction (glasses or contact lenses). This must be in untinted form.
3. The test is carried out in a dark room.
4. The observer is allowed 10 minutes to adapt to darkness.
5. The observer views the lantern at 6 metres, via a mirror if necessary.
6. Explain to the observer that in the first phase of the test he or she will be shown single lights which will be RED, WHITE or GREEN.
7. Set the selector switch on the back of the Lantern to large aperture. Move the selector slide on the side of the Lantern to show the following numerical codes in the window:
Code: 15 Say: '**This is RED**',
Code: 00 Say: '**This is WHITE**'
Code: 33 Say: '**This is GREEN**'.
8. With the selector switch on the back of the Lantern still set on large aperture, show the observer codes 50 through 17 for about 5 seconds each by moving the selector slider to the right (*ie clockwise*) and ask him or her to name the colours.
Record the responses.
9. Explain to the observer that in the second phase of the test he or she will be shown pairs of lights which will be any combination of RED, WHITE or GREEN. Say that he or she will be asked to name the colours of the pairs of lights, with the colour of the left light being given first and then the right light.
10. Set the selector switch on the back of the Lantern to small aperture. Move the selector slide on the side of the Lantern to show the following numerical codes in the window:
Code: 00 Say: '**This is WHITE, WHITE**'
Code: 33 Say: '**This is GREEN, GREEN**'
Code: 55 Say: '**This is RED, RED**',
Code: 50 Say: '**This is WHITE, RED**'
Code: 01 Say: '**This is GREEN, WHITE**'
Code: 15 Say: '**This is RED, GREEN**'.
11. With the selector switch on the back of the Lantern still set on small aperture, show the observer the following sequences of the possible 9 pairs in order, each for about 5 seconds;
Codes 50 through 17 moving the slide selector to the right (*ie clockwise*)
Codes 17 through 50 moving the slide selector to the left (*ie anticlockwise*)
Codes 50 through 17 (*i.e. clockwise*)
Codes 17 through 50 (*i.e. anticlockwise*)
Record the responses.
12. With the selector switch on the back of the Lantern still set on small aperture, show the observer the 9 pairs in random order, each for about 5 seconds. Record the responses.
13. If the observer misnames either or both colours in a pair, it is considered a single error.
14. Add the total number of errors on the 5 runs of 9 pairs of small aperture lights. (Disregard the errors on the large aperture lights.)
15. A total of 5 or less errors is considered a pass of the test.
16. Inform the observer of the result of the test, giving him or her the opportunity to repeat the whole test. 5 or less errors on the retest is considered a pass.

Box 7. Test Procedure for the Holmes-Wright Lantern Type B (continued)

Results Sheet - Holmes-Wright Lantern - Type B

Observer Examiner Date

W = White R = Red G = Green

Large aperture – DO NOT COUNT IN TOTAL SCORE

Code (C)	Correct Response (CR)	Response (R)
50	W	
15	R	
00	W	
33	G	
01	G	
55	R	
53	G	
11	G	
17	R	

Small aperture Run 1 Run 2 Run 3 Run 4 Run 5

Clockwise			Anti-clockwise			Clockwise			Anti-clockwise			Random		
C	CR	R	C	CR	R	C	CR	R	C	CR	R	C	CR	R
50	WR		50	WR		50	WR		50	WR		50	WR	
15	RG		15	RG		15	RG		15	RG		15	RG	
00	WW		00	WW		00	WW		00	WW		00	WW	
33	GG		33	GG		33	GG		33	GG		33	GG	
01	GW		01	GW		01	GW		01	GW		01	GW	
55	RR		55	RR		55	RR		55	RR		55	RR	
53	GR		53	GR		53	GR		53	GR		53	GR	
11	GG		11	GG		11	GG		11	GG		11	GG	
17	RG		17	RG		17	RG		17	RG		17	RG	

Total Errors on small aperture runs:

Run 1		+ Run 2		+ Run 3		+ Run 4		+ Run 5		=	
-------	--	---------	--	---------	--	---------	--	---------	--	---	--

Result: PASS/FAIL

(5 or less total errors in 5 runs is considered a pass.)

Examiner's signature:

References and further reading

General

Austroads Inc. & NTC (National Transport Commission) 2022, Assessing fitness to drive, commercial and private vehicle drivers: Medical standards for licensing and clinical management guidelines, Austroads Inc, and NTC, Sydney. www.austroads.com.au.

Charlton, J.L., Di Stefano, M., Dow, J., Rapoport, M.J., O'Neill, D., Odell, M., Darzins, P., & Koppel, S. 2021, Influence of chronic illness on crash involvement of motor vehicle drivers: 3rd edition. Monash University Accident Research Centre Reports 353. Melbourne, Australia: Monash University Accident Research Centre. Chapter 9
https://www.monash.edu/_data/assets/pdf_file/0008/2955617/Chronic-illness-and-MVC-risk_Report-MUARC-report-no-353_JUNE2022.pdf

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Sample, P. A. et al. Imaging and Perimetry Society standards and guidelines. Optometry and Vision Science 88, 4–7 (2011).

Colour Vision

Hovis JK, Oliphant D. A lantern colour vision test for the rail industry. American Journal of Industrial Medicine. 2000;38(6):681-96.

International Commission on Illumination CIE Technical Report: recommendations for colour vision requirements for transport. CIE 143-2001.

National Transport Commission 2017, National Standard for Health Assessment of Rail Safety Workers. [https://www.ntc.gov.au/Media/Reports/\(7B079897-1863-CA93-474F-AD96AD9C6C3F\).pdf](https://www.ntc.gov.au/Media/Reports/(7B079897-1863-CA93-474F-AD96AD9C6C3F).pdf).

Parkes J. Risk assessment of safety critical tasks for marine pilots involving colour vision. Report to NSW Maritime. Nov 2007.

Visual Fields

Australian Maritime Safety Authority, Photochromic Lenses, Polarised Lenses and Dark Adaptation. Canberra ACT, Australia, 2012.

Edwards MG, Schachat AP. Impact of enucleation for choroidal melanoma on the performance of vision dependent activities. Archives Ophthalmology. 1991;109:519-521.

Elkington AR, MacKean JM. Glaucoma and driving. British Medical Journal. 1982;285:777-778.

McKnight AJ, Shinar D, Hilburn B. The visual and driving performance of monocular and binocular heavy truck drivers. Accident Analysis & Prevention. 1991;23:225-237.

North RV. The relationship between the extent of visual field and driving performance – a review. Ophthalmic Physiological Optics. 1985;5:205-210.

Wood JM, Troutbeck R. Effect of restriction of binocular visual field on driving performance. Ophthalmology Physiological Optics. 1992;12:291-298.

APPENDICES

Appendix 1. Detailed description of inherent requirements

A. PILOTAGE

Overview of requirements and environment

Pilotage is a highly complex task which involves rapidly integrating extensive knowledge of a diverse range of ships and navigation in a highly variable environment. This requires considerable concentration, judgement, forethought and stamina. The pilotage task uniquely combines these high-level cognitive demands with the high physical demands of accessing and disembarking ships, usually by pilot ladder. The task of embarking/disembarking may be performed typically 1-2 jobs per shift, depending on the port and duration of each pilotage.

In most ports, pilots work shifts (fixed or belt rosters up to 7 days) to enable provision of services 24 hours, seven days a week. Shipping movements can be changed at short notice which leads to unpredictability in work and sleep times.

Wind, ship movement, heat, cold and rain can affect the boarding or disembarkation of pilots as well as the pilotage task itself. Climate change is contributing to more frequent severe weather events. There may be prolonged exposure to increasingly hot days on open wings when berthing.

Planning and trip preparation

At the outset of each pilotage task the details of the ship (draft, dimensions, type of cargo, propulsion arrangements etc.) and berth/destination are provided to the pilot so that the route to be navigated may be planned. Resources such as available tugs and other shipping movements are made known to the pilot. Winds and tides and events such as sailing regattas are noted.

Bridge resource management begins on arrival at the bridge when the proposed route and berthing plan, including the arrangement of tugs is discussed with the captain (refer Image 1 and 2). The manoeuvring characteristics of the ship are also discussed at this briefing. Due to the international nature of shipping, pilots are required to communicate with Masters of diverse nationalities and cultural backgrounds (refer Communication, page 205).



Image 1. Bridge resource management. The pilot is discussing the proposed route with the captain. Communication is an important task.



Image 2. Trip preparation with the pilot cutter crew

A. PILOTAGE

Navigating and ship manoeuvring

The Master has responsibility for the ship at all times. The marine pilot has responsibility for navigating the vessel safely in and out of the harbour which requires interpreting complex information from multiple sources e.g., navigation aids, radar, GPS, compass, charts, et cetera.

Using aids to navigation [including PPU – see below] and detailed knowledge of the port, the pilot continually uses a high level of judgement for giving advice on commencing turning and slowing of engines, depending on the mass and length of ship, steering characteristics, wind and tide conditions. In many situations, there is little room for error.

The Portable Pilotage Unit [PPU] integrates GPS and navigation software programs to assist the pilot in determining the position of the ship with great accuracy (refer Image 3). These programs can also display predicted movement of the vessel, rate of turn and safety margins. The PPU are particularly helpful during very fine manoeuvring while closing to the berth position (refer Image 4). This instant feedback of useful data is reassuring in all weathers and visibility and helps reduce stress but does not obviate the need for high level cognition.

The services of tugs to push or pull are integrated into manoeuvring the ship by the pilot using a handheld radio (refer Image 5).

When berthing, the services of line boats and linesmen are also integrated (by radio) for the 'controlled collision' of vessel and wharf (refer Image 6).

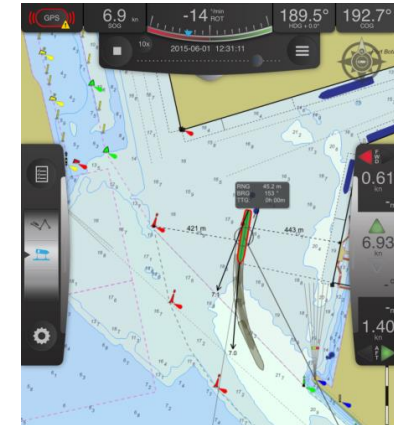


Image 3. Screen from PPU showing position of ship and predicted movement over the next five minutes in relation to navigation markers.

The screen also displays key data such as helm and speed of the ship.



Image 4. Berthing is a 'controlled collision' between vessel and wharf. Line boat and linesmen near stern.



Image 5. Tug manoeuvring the ship under radio-control from pilot



Image 6. Linesmen casting off under radio-control of pilot.

A. PILOTAGE

Navigating and ship manoeuvring (cont)

The pilot's aim is to berth but avoid damage to the ship and port facilities or injury to linesmen. The pilot may be required to walk from wing to wing of the bridge (quickly in an emergency) to observe clearances.

The pilot continually scans ahead for navigation aids and other vessels (refer Image 7). The aids are often coloured red or green and sometimes other colours; coloured lights need to be recognised at night. Navigation aids may be on land or buoys of various shapes according to maritime standards. Visibility may be reduced in rain or poor light at dawn or from the glare of port lights at night, etc.

On the bridge, the pilot is required to monitor various instruments at a distance of 1-5+m. The pilot checks these instruments as well as PPU to confirm his or her directions are being correctly implemented by the crew (particularly if there are language barriers) (refer Image 8-10).

At night the demands on visual function are high. The bridge is darkened with instruments softly back-lit and non-navigation ships lights are dimmed. This permits maximum dilation of the pupils of the pilot (and crew) to provide optimum 'night vision' for navigation such as for detecting channel lights or other ships. In contrast, when berthing at a wharf, such as a container wharf which has extensive flood lighting, there may be brilliant illumination of the wings of the bridge where the pilot is standing which causes constriction of the pilot's pupils. Rapid accommodation by the eyes may be required to change between such contrasting light perspectives.

In the daytime, sunlight can cause glare, which reduces vision, and the ultraviolet component can contribute to certain types of cataract formation.



Image 7. Navigation aids. Large orange coloured navigation aids in Newcastle Harbour.



Image 8. Bridge showing pilot scanning ahead and radar screens and instruments (above the pilot's head) which may need to be read. The master and helm, who are integral to Bridge Resource Management, are also shown.



Image 9. Pilot in ship bridge navigating through Sydney Harbour



Image 10. Pilot looking out from ship bridge

A. PILOTAGE

Communication

All orders (whether spoken directly or via radio) are given using 'closed loop communication' whereby an order is repeated back to the pilot confirming that the essence of the order is understood, for example, orders to the helmsman or to the engine room (refer Image 11). The noise levels on the bridge are moderate and ordinary conversation is possible (speech in quiet).

When manoeuvring the ship from an open bridge wing, wind and rain can interfere with communication and a sheltered place needs to be found. Radio contact is made on an open channel with harbour control and tugs thus sharing information.

Radar and Automated Identification Systems (AIS) are other forms of communication that assist with collision avoidance and vessel identification. The pilot has to communicate effectively with bridge teams, tug masters and linesmen who may be from different nationalities and cultures.



Image 11. Pilot using radio-communication on an open channel to ensure good communication between all parties.

Emergency situations

Emergency situations can arise from numerous causes including equipment failures such as loss of engine power, steering failure, tug line breaking, radio communication failure or high gusty winds. These situations require instant knowledge of the pilotage waters at the time in relation to the characteristics of the ship. Pilots are trained for such circumstances using full bridge simulations to reduce stress and impart muscle memory for required actions.

The pilot continually scans ahead for hazards including vessels, the movements of some of which could be unpredictable (refer Image 12). The pilot uses a detailed knowledge of the collision avoidance rules which are complex and are part of the pilot's knowledge base. Expert judgement is required about sounding the ship's horn, using radio communication or making avoidance manoeuvres.



Image 12. Yacht dead ahead. The pilot must make a rapid judgment regarding safety.

B. EMBARKING AND DISEMBARKING

Overview of requirements and environment

Boarding arrangements at sea vary between ports, with the majority occurring via pilot cutter while the ship is in motion.

They require getting onto/off a pilot rope ladder from/onto a cutter, climbing a vertical ladder (up to 9m), sometimes in adverse weather with the ship and cutter rolling at different rates, and at night with reduced visibility (refer Image 13).

The pilot is not roped to a safety harness.

The task may be performed typically 1-2 times in a 10-hour shift, depending on the port and duration of pilotage.

Sometimes the pilot ladder leads to a lowered accommodation ladder, which shortens the vertical climb on the pilot ladder.

In addition, some ships do not have lifts and the equivalent of up to seven storeys of steep stairs may need to be climbed to the bridge.

Alternative boarding arrangements via helicopter are outlined on page 209.

Pilots undertake training and must comply with port procedures in using pilot ladders. This includes checking the integrity of the ladder, its positioning in relation to the accommodation ladder, the positioning of the cutter, procedures for embarking and disembarking vessels and the role of the deckhand.

The pilot cutter and crew

A pilot cutter is specifically designed for the job with handrails and a non-slip deck (refer Image 14).

A secured deck hand has a critical role in assisting the pilot onto and off the ladder. They assist the pilot to ascend by holding ropes and lifting the pilot up to clear the cutter (refer Image 15). On descent the deckhand counts down the steps left in the ladder by voice (refer Image 16). This may require shouting against the noise of the cutter engine and bad weather requiring the pilot to hear speech in noise. The deckhand uses their arms to hold the pilot securely when boarding.¹⁹

The cutter master must continually manoeuvre the cutter to be against the ship and position the pilot and deck hand in relation to the ladder. If this is not done properly the pilot can fall, or be crushed, between cutter and ship.



Image 13. 9m pilot ladder being positioned near an accommodation ladder.



Image 14. Pilot cutter showing handrails, open non-slip surface and marked area for ladder work.

¹⁹ Port Authority of New South Wales. Pilot Vessel Procedures – Operations, Newcastle Port Services, January 2021

B. EMBARKING AND DISEMBARKING



Image 15. Deck hand assisting the pilot onto the ladder

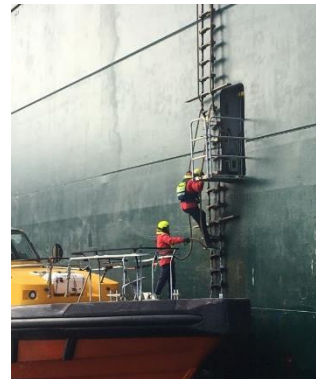


Image 16. Deck hand assisting the pilot coming down from the ladder



Image 17. Pilot ladder showing use of man-ropes (on land).

Ladder climbing technique

The technique of ladder ascending and descending varies greatly between pilots. The manropes are often used to gain a foothold. Some pilots use these for the entire ascent or descent (refer Image 17), but others use the side ropes on the ladder (refer Image 18).

Critical judgement is needed in a rough sea regarding timing for gaining/leaving the ladder from/to the cutter (refer Image 19). There is potential for the pilot's leg to be jammed between the cutter and the ship, or for the pilot to land violently on the deck or fall overboard. Ladder climbing is the major cause of injuries to pilots.

Ladders

Ladders are designed according to Regulation 17 of the *International Convention for the Safety of Life at Sea, 1974* and Australian Standard 2933 *Ship Building - Pilot Ladders* (1987, reproduced from ISO 799). The steps are spaced 30-38cm apart and are 40cm wide and 11.5cm deep. The doubled side ropes of the ladder have a diameter of 20mm each and the manropes are 28mm in diameter.

Ropes must be in good condition and strong enough to hold considerable weights. However, the quality of ladders and associated rigging varies greatly. If the ladder fails, the pilot may need to hold onto the man-ropes until able to gain the cutter.

The ergonomics and risks of use of ladders have been the subject of a report 'A risk assessment of pilot ladder transfers', by Fiona Weigall and Katrina Simpson, (Health and Safety Matters Pty Ltd, 2005). This report should be referred to for information regarding improved ladder design, safety clothing and work organisation, which are beyond the terms of reference of this document. The report is the property of Sydney Ports Corporation.



Image 18. Pilot ladder showing use of side-ropes on ladder (on land). (The manropes are being held to one side for illustration purposes.)

B. EMBARKING AND DISEMBARKING

Falls

A major risk in the pilot's work is falling into the sea at the time of boarding or leaving the cutter or from the collapse of a ladder.

For this reason, on descent, the deckhand also counts down the steps left in the ladder by voice. (This may require shouting against the noise of the cutter engine and bad weather requiring the pilot to hear speech in noise). The deckhand uses his arms to hold the pilot securely when boarding.

In addition, pilots wear lifejackets to remain afloat. The cutter crew also has extensive training in 'man overboard' rescue practices. The cutter master and crew move to emergency controls in the stern; a platform is lowered into the water; and a crewmember retrieves the pilot using a boat hook (refer Image 20).

The temperature of the water as well as injuries sustained in the fall will influence survival of the pilot. However, apart from general cardiovascular fitness there are no specific health attributes of the pilot which will contribute to survival.

Rescue procedures are detailed in a Pilot Safety Management System 'Man overboard' 17.3 or in pilotage procedure manual.

A further report by Daniel O'Neill, Ethos Health (2013) described the musculoskeletal tasks and risks.



Image 19. Pilot on ladder using manropes reaching accommodation ladder. Cutter below with crew man holding manrope.



Image 20. Man overboard training by cutter crew showing a dummy pilot being brought on board at stern.

B. EMBARKING AND DISEMBARKING

Boarding via helicopter

In Newcastle, helicopters are extensively used to ferry pilots to and from ships. This is partly due to the high number of coal carrying and similar types of ships, which can accommodate a helicopter landing site.

Helicopters eliminate the need to climb the pilot ladder and the risks associated with this. (Helipads must meet a standard prescribed in the safe helicopter guide). However there remains a need to climb 6 - 7 flights of stairs to the bridge (refer Image 21).

The noise risk associated with helicopters is managed as per WHS regulations (refer Image 22).

Another risk associated with flying in helicopters is crashing into the sea. Pilots undergo Helicopter Underwater Escape Training [HUET] involving simulated underwater escape.

Some ships visiting the Port of Newcastle require access via the conventional pilot ladder and cutter. Poor weather when helicopters are unable to fly also necessitates the use of pilot ladder and cutter to board/disembark all ships.

Therefore, while Newcastle marine pilots mainly use helicopters, the need to climb ladders remains an inherent requirement of their work.



Image 21. Helicopter landing on a helicopter pad on a ship. Short ladder to access pad shown in foreground.

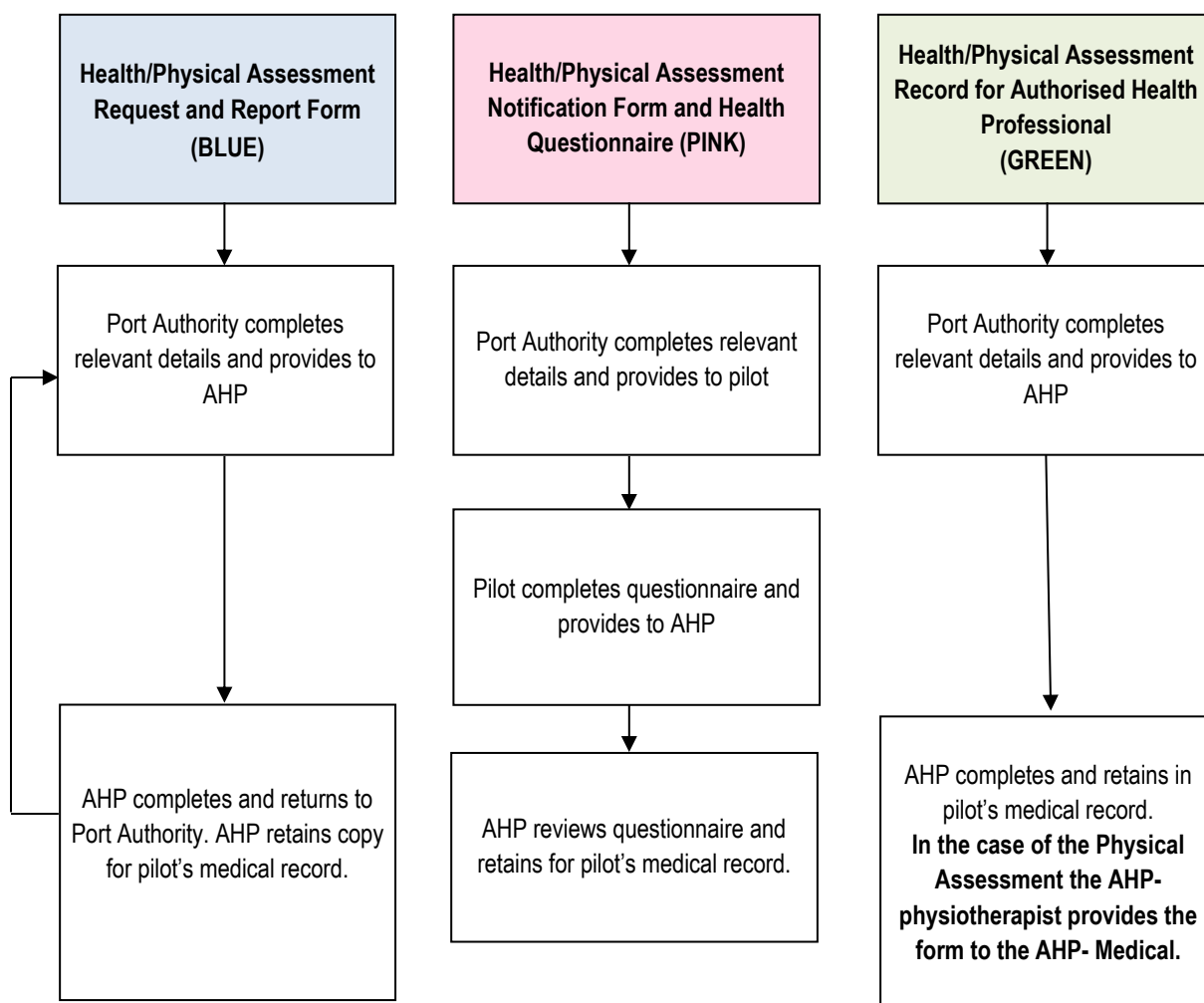


Image 22. Marine pilot standing by helicopter wearing helmet with built in hearing protection.

Appendix 2. Model forms

Model forms are provided to facilitate implementation of the health assessments for marine pilots. There are two sets of model forms – one for Health Assessments and one for Physical Assessments.

- The relevant forms are provided by the Port Authority as required to the pilot and the Authorised Health Professional.
- Forms should not be initiated by the Authorised Health Professional or the pilot.
- The forms contained in this section are examples only and must not be copied/duplicated.
- The forms may be sent electronically provided this can be done securely and ensure privacy is maintained.



1. Forms for conduct of Health Assessments

1.1 Request and report form (Blue Form)

The Request and Report form is the key means of communication between the Port Authority and the Authorised Health Professional (AHP-Medical).

The form is used as follows:

1. Part A: The Port Authority completes PART A, encloses copies of relevant supporting information (e.g., previous Health Assessment Report, sick leave summary (if applicable), relevant pilot's compensation reports or relevant incident reports) and the Health Professional Record (Green Form) for the assessment, and forwards them to the Authorised Health Professional.
2. Part B: Upon completion of the assessment, the health professional completes PART B of the form, retains a copy and returns the original form to the Port Authority.
3. Part C: The Port Authority completes PART C of the form to indicate the action taken as a result of the assessment. The Port Authority files the form in the pilot's personnel record.

Pilot name:

Marine Pilot Health Assessment

Request and Report Form

(BLUE FORM)

CONFIDENTIAL:

THE COMPLETED FORM SHOULD BE RETURNED TO THE PORT AUTHORITY
A COPY SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL

Instructions to the Authorised Health Professional

You are requested to conduct a health assessment to assess the marine pilot's fitness for duty according to the details provided in PART A of this form and according to the *Standard for Health Assessment of Marine Pilots (NSW)*.

FORMS & PRIVACY

- All forms required for the health assessment are provided only by the Port Authority.
- Complete PART B of this form with the assessment findings and return the whole form to the Port Authority within 7 days of the assessment. However, should the marine pilot be assessed Unfit for Duty (Temporarily or Permanently), please contact the Port Authority **immediately** by phone so that appropriate rostering changes may be made.
- Keep a copy of this form for your own records. The pilot is also entitled to receive a copy of the form.
- Details of the examination should be recorded on the Health Assessment Record provided (GREEN FORM). This record contains personal health information that is not required by the Port Authority to manage fitness for duty. It should be retained by you and not sent to the Port Authority.
- The assessment must be conducted in reference to findings and outcomes of previous health assessments (Periodic and Triggered assessments as appropriate). If you do not have access to this information (previous GREEN and BLUE forms), please contact the Port Authority and they will arrange for this information to be sent to you (directly) from the previous provider.
- You may need to contact the marine pilot's nominated doctor to discuss conditions that may affect their fitness for duty. Such contact should be made with the pilot's signed consent (see GREEN FORM).
- Detailed requirements in terms of privacy and management of pilots' health information is contained in the Health Assessment Standard (Section 12 Management of health information).

TESTS

- Marine pilots are required to present for non-fasting cholesterol (total and HDL), HbA1c and an ECG.
- The pilot will have attended a separate Physical Assessment prior to this Health Assessment, the results of which will be sent to you directly by the examining physiotherapist (AHP-Physiotherapist) (this includes predicted VO₂ max).
- Marine pilots are required to have audiometry for Initial Licensing and Periodic Health Assessments. This will be arranged separately if audiometry facilities are not available at your practice.

Pilot name:

PART A. Request for Health Assessment – Port Authority to complete

A health assessment is requested to assess fitness for marine piloting duties (refer Inherent Requirements, Part C, *Standard for Health Assessment of Marine Pilots (NSW)*).

Date requested:

1. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

Account and report to be sent to Supervisor at the following address (*please insert postal address or fax no.*)

2. Pilot / Applicant details

Family name:

First names:

Employee no.:

Date of birth:

Mobile phone number:

3. Health assessment appointment details

Doctor / practice:

Address:

Phone:

Appointment date:

Time:

Pilot name:

4. Supporting information provided by the Port Authority (tick information provided)

- ☐ Previous health assessment report(s). This is the Blue Form relating to the previous Health Assessment.
- ☐ Report of Physical Assessment. This is the Blue Form relating to the current Physical Assessment.
- ☐ Other (specify – for example relevant sick leave or accidents since last Periodic Assessment)

Please list any other information provided

IMPORTANT: The examining Authorised Health Professional should also have access to the full Health Assessment clinical report (Green Form) from the previous assessment (Periodic and/or Triggered) and the Physical Assessment, to ensure continuity of health management. If previous health assessments were not conducted by your practice, the Port Authority will arrange for the previous provider to send copies of these reports directly to your practice.

5. Assessment required (Port Authority to indicate)

- ☐ Initial licensing Health Assessment
- ☐ Periodic Health Assessment
- ☐ Triggered Health Assessment (provide details below)
- ☐ Other (provide details below)

Please provide details of reasons for Triggered Health Assessment and/or any other assessment requirements

6. Tests required (Port Authority to indicate)

The following tests are required for all Initial Licensing and Periodic Health Assessments.

They are not routinely required for Triggered Health Assessments.

- ☐ Cholesterol (total and HDL) (non-fasting)
- ☐ Plasma HbA1c
- ☐ Resting ECG
- ☐ Audiometry

Pilot name:

PART B. Health Assessment Report – Authorised Health Professional to complete

Date of assessment:

NOTE: If the assessment was unable to be completed, the Port Authority should be notified immediately. If the reason for non-assessment relates to lack of cooperation of the pilot or suspected drug or alcohol effects, the pilot should be categorised Temporarily Unfit for Duty on this form.

I certify that I have conducted a health assessment for the marine pilot named above in accordance with the Transport for NSW Standard for Health Assessment of Marine Pilots (NSW) and as requested by the Port Authority of New South Wales. My recommendations regarding fitness for duty and management are summarised below. (Note to AHP - Please select ONE of the main categories below (left column) and provide additional information in the right-hand column consistent with privacy requirements).

- ☐ I have sighted the marine pilot's photo ID (e.g., driver's licence, passport)
- ☐ I have sighted the previous health assessment clinical report (Green Form)

Licence number:

Dated:

This report is:

- ☐ An interim report pending further investigation
- ☐ A final report of the pilot's fitness for duty status

FITNESS FOR DUTY CATEGORISATION

☐ Fit for Duty Unconditional

- The pilot meets all criteria for Fit for Duty Unconditional (The pilot does not have a health condition or health risk that is likely to impact on their ability to undertake the inherent requirements of the pilotage task now or in the foreseeable future)
- They are not subject to any restrictions or conditions.
- They should be reviewed in line with the normal Periodic Health Assessment schedule.

☐ Fit for Duty Subject to Review

- The pilot does not meet all the criteria for Fit for Duty Unconditional. (The pilot has a health condition or health risk that may impact on their ability to perform the pilotage task, but they are presently well managed so as not to be a risk to the pilot or to the safe conduct of the pilotage task).
- For the medical condition/risk in question, they do meet the criteria for Fit Subject to Review and may continue to undertake normal duties if they continue to meet the criteria, including:
 - compliance with treatment, including wearing corrective lenses or hearing aids when on duty.
 - more frequent medical review (Triggered Assessment) based on the recommendation of the AHP.
 - being able to secure temporary job modification, which may also be recommended as part of the initial determination and reviewed at subsequent triggered review assessments.

RECOMMENDATIONS

Next Periodic Health Assessment

To be completed by:

Date:

Aids required for job fitness

- ☐ Corrective lenses
- ☐ Hearing aid
- ☐ Other (specify below)

Job Modification (refer Inherent Requirements)

In most cases job modification may not be practicable for marine pilots but alternative duties such as office work may be available (refer Temporarily Unfit for Duty below).

Modification:

Review

A review appointment should be scheduled within

days/weeks/months

Pilot name:

FITNESS FOR DUTY CATEGORISATION

☐ Temporarily Unfit for Duty

Please notify the Port Authority immediately if pilot assessed as unfit for duty

- The pilot has or is suspected of having a health condition or conditions that are likely to impact on their ability to perform the pilotage task in the short to medium term.
- For the relevant condition, the pilot does not currently meet the criteria for Fit for Duty Unconditional nor Fit Subject to Review or the diagnosis is uncertain, but the symptoms indicate the person is unfit for duty.
- During/following investigation/treatment, the pilot will be subject to repeat medical assessment (Triggered assessment) to establish fitness for duty and return to work.
- If the categorisation is an interim outcome, subsequent investigation and treatment may result in classification under any of the other categories.

NOTE: A new recruit may be judged Temporarily Unfit for Duty. The Port Authority may advise of the opportunity for a renewed application upon the medical issues being resolved.

Temporarily Unfit for Duty may also be applied in circumstances where the pilot has not cooperated in the conduct of the assessment, including if they appear drug or alcohol affected at the time of the assessment.

☐ Permanently Unfit (Unfit for duty >1yr)

Please notify the Port Authority immediately if pilot is assessed as permanently unfit for duty

- The pilot has a long-term health condition or conditions that renders them unfit to undertake pilotage duties in the foreseeable future.
- For the relevant condition, the pilot does not meet the criteria for Fit for Duty Unconditional or Fit Subject to Review and is unlikely to do so in the foreseeable future.

RECOMMENDATIONS

Time off duty

Estimated off time off duty (e.g., days/weeks etc)

Review

A review appointment should be scheduled within

days/weeks/months

Alternative duties:

Describe suitable alternative (non-piloting) duties

☐ Assessment not completed

The assessment was unable to be completed due to:

Advice and recommendations:

Health professional details (stamp acceptable)

Name:

Phone:

Fax:

Email:

Address:

Signature:

Pilot name:

PART C. Operator to complete on receipt of Assessment Report

☐ **Periodic Health Assessment** scheduled as per Standard

Date:

☐ **Job modification**

☐ **Alternative duties (unfit for piloting duties)**

☐ **Triggered review scheduled** (Fit Subject to Review, Temporarily Unfit for Duty)

Date:

Other actions:

1.2 Pilot Notification and Health Questionnaire (Pink Form)

This form contains the notification to the pilot and the Health Questionnaire.

The self-administered questionnaire is a screening tool to help identify conditions that might affect the performance of marine pilots. The questionnaire is not a diagnostic tool and no decision can be made regarding the pilot's fitness for duty until the full clinical examination is performed.

The form is used as follows:

1. **Part A:** The Port Authority completes PART A including appointment details and instructions to the pilot/applicant.
2. **Part B:** The pilot/applicant completes PART B and presents to the Authorised Health Professional. The pilot/applicant signs the declarations and consent and the health professional countersigns.
3. The Authorised Health Professional discusses the results with the pilot/applicant as appropriate. The form is retained by the health professional and filed in the pilot's medical record. A copy is not provided by the Port Authority. The pilot may request a copy for their records.

Model form only

Pilot name:

Marine Pilot Health Assessment

Pilot Notification and Health Questionnaire

(PINK FORM)

CONFIDENTIAL:

FOR PRIVACY REASONS THE COMPLETED FORM SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL AND NOT RETURNED TO THE PORT AUTHORITY

Instructions for the pilot / applicant

- You are required to attend a health assessment as part of your employment, to assess your fitness for marine piloting duties.
- The health assessment must be completed by (date) to ensure that you are able to carry out normal duties.
- Complete the enclosed questionnaire before attending the appointment and provide it to the examining health professional. **The last page of the questionnaire must be signed by you in the presence of the examining doctor.**
- Please take to the appointment:
 - glasses, hearing aid or any other aids required for conduct of your work;
 - all medication that you are currently taking or a list of such medications;
 - any management plans relevant to an existing health condition (e.g. diabetes management plan); and
 - photo identification
- You will be required to have a blood test as part of your assessment. Fasting is not required.

What happens if the examining doctor suspects there is a health problem?

If the examining doctor finds or suspects something is wrong with your health that you did not know about, they will ask your permission to inform your own doctor. The examining doctor will not treat any medical condition but will give you a letter to take to your own doctor.

If the doctor finds that you do not meet all relevant medical criteria, your supervisor at the Port Authority will discuss with you the appropriate actions to be taken. This may include modification of the duties that you undertake for the Port Authority; and/or scheduling of a further review, tests of specialist referral.

Management of your health information

The *Standard for Health Assessment of Marine Pilots (NSW)* explains how the health assessments are conducted to comply with legislated privacy requirements, including what information may be collected and disclosed and how information is stored to protect privacy. The Port Authority of NSW Privacy Management Plan also informs management of personal information.

Health information may only be collected and disclosed for the purpose of managing a marine pilot's fitness for duty. This means that details of your health assessment (i.e. test results, medical diagnoses, responses to health questionnaires etc) will remain confidential and will only be reported to your Port Authority in terms of your fitness for duty.

The examining doctor retains all detailed medical papers including your questionnaire responses, test results and the completed record of clinical findings. The examining doctor sends the completed 'Request and Report Form: Marine Pilot Health Assessment' directly to the Port Authority indicating your fitness or otherwise for duty.

Other than the above, no information will be disclosed to any other person or organisation without your written permission, except where:

- a notifiable disease is diagnosed which must, by law, be reported to the State authorities;
- a report is subpoenaed by a court of law; or
- Transport for NSW (or another state or federal agency) is required to conduct an inquiry into an accident or incident; or
- Transport for NSW appoints a doctor to conduct a medical audit or an auditor to conduct an administrative audit.

You have the right to access your health records including those held by the Authorised Health Professional and the reports held by the Port Authority.

Pilot name:

PART A – Port Authority to complete

Date of request:

1. Pilot / Applicant details

Family name:

First names:

Employee no:

Date of birth:

2. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

3. Health assessment appointment details

Doctor / practice:

Address:

Phone:

Appointment date:

Time:

Pilot name:

PART B – Marine Pilot Health Questionnaire – Pilot to complete

This questionnaire must be completed to help assess your fitness for marine piloting duties. Please answer the questions by ticking the appropriate box or circling the appropriate response, and providing further detail as requested. If you are not sure, leave the question blank and ask the examining health professional what it means. The health professional will ask you more questions during the assessment.

PART B1 – For existing employees only (Questions 1 to 4 are to be answered by existing employees only).

Doctor comments

1. Have you had trouble completing any tasks required for your piloting work (e.g., climbing pilot ladder, difficulty with decision-making, difficulty with interpersonal relationships)? ☐ No ☐ Yes
If yes, please describe.

2. Have experienced persistent symptoms such as feeling tired, drained or exhausted? ☐ No ☐ Yes
If yes, please describe.

3. Have you been involved in any accidents or near misses at work in the period since your last assessment? ☐ No ☐ Yes
If yes, please describe.

4. Have you tested positive for drugs or alcohol (at work or elsewhere e.g., driving) in the period since your last assessment? ☐ No ☐ Yes
If yes, please describe.

Pilot name:

PART B2 – The remaining questions should be answered by all those attending an assessment for fitness for duty.

		Doctor comments
5.	Are you currently attending a health professional for any illness or injury?	<input type="checkbox"/> No <input type="checkbox"/> Yes
6.	Do you have or have you ever had:	Doctor comments
	High blood pressure	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Heart disease	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Chest pain, angina	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Any condition requiring heart surgery	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Abnormal shortness of breath or chest disease	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Palpitations / irregular heartbeat	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Anaemia	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Head injury, spinal injury	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Seizures, fits, convulsions, epilepsy	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Blackouts or fainting	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Migraine	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Stroke	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Dizziness, vertigo, problems with balance	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Double vision, difficulty seeing, or difficulty adapting to changing light conditions	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Colour blindness	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Diabetes	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Neck, back or limb disorders	<input type="checkbox"/> No <input type="checkbox"/> Yes
	Hearing loss or deafness or had an ear operation or use a hearing aid	<input type="checkbox"/> No <input type="checkbox"/> Yes
	A psychiatric illness or nervous disorder	<input type="checkbox"/> No <input type="checkbox"/> Yes
		Doctor comments
7.	Have you ever had any other serious injury, illness, operation, or been in hospital for any reason?	<input type="checkbox"/> No <input type="checkbox"/> Yes

Pilot name: _____

8. Current medications

Please list all current prescription and non-prescription medication

9 Do you smoke or have you ever been a smoker?

☐ No

☐ Ex-smoker

Quit date: _____

☐ Yes

Number of cigarettes per day: _____

Doctor comments

10. Do you use illicit drugs?

☐ No ☐ Yes

Doctor comments

11. The following questions are about your sleeping patterns:

Doctor comments

Please use the following scale (Epworth Sleepiness Scale) to choose the most appropriate description for each situation. The questions refer to your usual way of life in recent times. Even if you haven't done some of these things recently try to work out how they would have affected you.

11.1	How likely are you to doze off or fall asleep (rather than just feeling tired) in the following situations:	would never doze off	slight chance of dozing	moderate chance of dozing	high chance of dozing
		(0)	(1)	(2)	(3)
	Sitting and reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Watching TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Sitting inactive in a public place (e.g. a theatre or a meeting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	As a passenger in a car for an hour without a break	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lying down to rest in the afternoon when circumstances permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Sitting and talking to someone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Sitting quietly after a lunch without alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	In a car, while stopped for a few minutes in the traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Doctor comments

Pilot name:

Doctor comments

11.2 Are you aware or have you been told that you snore loudly? ☐ No ☐ Yes

11.3 Have you ever been told by a doctor that you have a sleep disorder, sleep apnoea or narcolepsy? ☐ No ☐ Yes

11.4 Has anyone noticed that your breathing stops or is disrupted by episodes of choking during your sleep? ☐ No ☐ Yes

12. The following questions relate to your intake of alcohol. Please circle the answer that is correct for you:

(0) (1) (2) (3) (4)

12.1	How often do you have a drink containing alcohol?	Never (go to Q8)	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.2	How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 to 5	5 to 6	7 to 9	10 or more
12.3	How often do you have six or more drinks on one occasion?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.4	How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.5	How often during the last year have you failed to do what was normally expected from you because of drinking?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.6	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.7	How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.8	How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week
12.9	Have you or someone else been injured as a result of your drinking?	No		Yes, but not in the last year		Yes, during the last year
12.10	Has a relative or friend, or a doctor or other health pilot been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year

Doctor comments

Pilot name:

PART C – Pilot's declarations

1) Pilot's declaration – My health information

I,

(print name)

certify that I have read and understood the statement concerning the purpose of the assessment and that my health information is collected and disclosed for that purpose according to privacy principles.

Signature:

Date:

2) Pilot's declaration – Information provided

(To be completed by the pilot in the presence of the health professional after completing the questionnaire)

I,

(print name)

certify that to the best of my knowledge the information provided by me is true and correct.

Signature of pilot:

Signature of examiner:

Date:

3) Consent to contact treating health professionals

(If required to consult with general practitioner or other treating doctor)

I,

(print name)

☐ give ☐ do not give (please indicate)

permission for the examining health professional to contact my treating doctor(s) to discuss or clarify information relating to my current health status.

Signature:

(1) Name of doctor:

(2) Name of doctor:

Phone:

Phone:

1.3 Clinical Record for Authorised Health Professional (Green Form)

The Health Assessment Record for Health Professionals is a tool that guides the health assessment process. It provides a standard format for recording the results of the assessment, which should then be filed by the Authorised Health Professional in the pilot's medical history. The form refers to the relevant sections of the Standard for detailed information about the assessment process.

The form should be used as follows:

1. **Part A:** The Port Authority completes PART A and includes the form with the Request and Report Form (Blue Form) and forwards to the Authorised Health Professional.
2. **Part B:** The health professional records the results of the clinical examination in PART B and retains the form in the pilot's medical record.
3. The completed Health Assessment Record is not to be forwarded to the Port Authority for reasons of privacy. The Authorised Health Professional should summarise the results in terms of fitness for duty on the Request and Report Form (Blue Form).

Model form only

Pilot name:

Marine Pilot Health Assessment

Record for Health Professional

(GREEN FORM)

CONFIDENTIAL:

FOR PRIVACY REASONS THE COMPLETED FORM SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL AND NOT RETURNED TO THE PORT AUTHORITY

Instructions to the Authorised Health Professional

The Health Assessment Record for Health Professionals is a tool that guides the health assessment process. It provides a standard format for recording the results of the assessment, which should then be filed by the Authorised Health Professional in the pilot's medical history. The form refers to the relevant sections of the Standard for detailed information about the assessment process.

PART A – Request for assessment – to be completed by Port Authority

Date of request:

1. Pilot / Applicant details

Family name:

First names:

Employee no:

Date of birth:

2. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

3. Health assessment appointment details

Doctor / practice:

Address:

Phone:

Appointment date:

Time:

Pilot name:

PART B – Examination record – Authorised Health Professional to complete

1. Physical Assessment (refer page 115 of Standard)		Medical comments														
1.1	Physical Assessment report (Green Form) received from AHP-Physiotherapist <input type="checkbox"/> Yes <input type="checkbox"/> No <i>The Pre-employment / Periodic Health Assessment should not proceed without the relevant Physical Assessment report.</i>	<i>Including comments regarding management of existing musculoskeletal and fitness problems, and BMI</i>														
1.2	Physical Assessment outcome <input type="checkbox"/> Pass <input type="checkbox"/> Fail															
2. Medication (refer page 63 of Standard)		Medical comments														
Record details of all medications (prescribed and over the counter) from the Health Questionnaire or general history		<i>Including advice provided regarding impact on random drug screening</i>														
3. Hearing (refer page 111 of Standard)		Medical comments														
3.1	Hearing issues identified on Health Questionnaire or general history? <input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Including comments regarding management of existing hearing problems</i>														
3.2	Hearing aids worn? <input type="checkbox"/> Yes <input type="checkbox"/> No															
3.3	Audiometry results (Date:)															
	<table border="1"><thead><tr><th></th><th>0.5 kHz</th><th>1.0 kHz</th><th>2.0 kHz</th><th>3.0 kHz</th></tr></thead><tbody><tr><td>Right</td><td></td><td></td><td></td><td></td></tr><tr><td>Left</td><td></td><td></td><td></td><td></td></tr></tbody></table>			0.5 kHz	1.0 kHz	2.0 kHz	3.0 kHz	Right					Left			
	0.5 kHz	1.0 kHz	2.0 kHz	3.0 kHz												
Right																
Left																
Acceptable Better than 40 dBA at 0.5, 1.0, 2.0 and 3.0 KHz (not averaged)																
4. Vision (refer page 193 of Standard)		Medical comments														
4.1	Vision issues identified on Health Questionnaire or general history? <input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Including comments regarding management of existing vision problems</i>														
4.2	Glasses worn? <input type="checkbox"/> Yes <input type="checkbox"/> No															
4.3	Contact lenses worn? <input type="checkbox"/> Yes <input type="checkbox"/> No															
4.4	Far visual acuity test															
	<table border="1"><thead><tr><th colspan="2">Uncorrected</th><th colspan="2">Corrected</th></tr><tr><th>R</th><th>L</th><th>R</th><th>L</th></tr></thead><tbody><tr><td>6 /</td><td>6 /</td><td>6 /</td><td>6 /</td></tr></tbody></table>		Uncorrected		Corrected		R	L	R	L	6 /	6 /	6 /	6 /		
Uncorrected		Corrected														
R	L	R	L													
6 /	6 /	6 /	6 /													
Acceptable Better eye 6/9 Worse eye 6/18																
4.5	Near visual acuity test <i>Near vision is tested for both eyes without correction in the first place and then retested with correction if worn. Testing should be at N8 of a Times Roman chart placed at 40cm distance. The text should be read fluently.</i>															
	<table border="1"><thead><tr><th colspan="2">Uncorrected</th><th colspan="2">Corrected</th></tr></thead><tbody><tr><td><input type="checkbox"/> Pass</td><td><input type="checkbox"/> Fail</td><td><input type="checkbox"/> Pass</td><td><input type="checkbox"/> Fail</td></tr></tbody></table>	Uncorrected		Corrected		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail							
Uncorrected		Corrected														
<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail													

Pilot name:

4. Vision (continued)

Medical comments

4.6 Visual fields (*Confrontation to each eye*) ☐ Normal ☐ Abnormal

4.7 Colour vision (*Ishihara ≥ 3 errors / 12 screening plates is a fail*) ☐ Pass ☐ Fail

5. Cardiovascular system (refer page 70 of Standard)

Medical comments

Note the predicted VO_2 max result will be reported on the Physical Assessment Report (Green Form) provided by the AHP-Physiotherapist for Pre-employment and Periodic assessments.

5.1 Cardiovascular issues identified in Health Questionnaire or general history? ☐ Yes ☐ No

Medical comments:

Including existing cardiovascular conditions

5.2 Blood pressure Repeated (if necessary) Acceptable*

Systolic Systolic < 170 mmHg

Diastolic Diastolic < 100 mmHg

5.3 Pulse rate bpm ☐ Regular ☐ Irregular

5.4 Heart sounds ☐ Normal ☐ Abnormal

5.5 Peripheral pulses ☐ Normal ☐ Abnormal

5.6 Calculation of Cardiac Risk Level www.cvdcheck.org.au (refer Cardiovascular conditions chapter for scoring – Figure 17, page 74)

Medical comments

Including other considerations e.g. physical activity, diet, symptoms, family history and past history, comorbidities, work conditions.

Risk data:

Data

Age (years)

.....

Gender

.....

Smoker: Y / N

☐ Yes ☐ No

Blood pressure (systolic) (mmHg)

.....

ECG (left ventricular hypertrophy) Y / N

.....

Non- fasting cholesterol (mmol/L)

- TOTAL

.....

- HDL

.....

Diabetic (HbA1c >7.0%) Y / N

.....

(Repeat HbA1c (if required)

.....

Absolute risk (%)

Further investigations if required

Does risk level warrant further investigation (Stress EchoCG or CAC score?) ☐ Yes ☐ No

Pilot name:

6. Diabetes (refer page 101 of the Standard)

Medical comments

6.1 Diabetes screen

- Diabetes based on HbA1c (above) ☐ Yes ☐ No
- Diabetes based on self-report ☐ Yes ☐ No

6.2 Existing diabetes

- Satisfactory control? ☐ Yes ☐ No
- Clarke Questionnaire – Less than 4'R' responses ☐ Yes ☐ No

Including comments/ evidence of control of existing diabetes

7. Neurological system (refer page of the Standard)

Medical comments

- 7.1** Neurological issues identified in Health Questionnaire, general history or Physical Assessment Report? ☐ Yes ☐ No
- 7.2** Examination ☐ Normal ☐ Abnormal

Including comments regarding management of existing neurological conditions and observations from Physical Assessment

8. Psychological health (refer page 157 of Standard)

Medical comments

- 8.1** Psychological issue identified on Health Questionnaire or general history? ☐ Yes ☐ No

Including comments regarding management of existing psychiatric conditions

8.2 K10 Questionnaire (to be verbally administered in a conversational style)

In the past 4 weeks about how often did you:

	None of the time (1)	A little of the time (2)	Some of the time (3)	Most of the time (4)	All of the time (5)
Feel tired out for no good reason?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel nervous?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel so nervous that nothing could calm you down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel hopeless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel restless or fidgety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel so restless you could not sit still?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel depressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel that everything was an effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel so sad that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feel worthless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

K10 Questionnaire Score

- ☐ Zone I (10-18)
- ☐ Zone II (19-24)
- ☐ Zone III (25-29) – Refer to GP and/or counselling
- ☐ Zone IV (35-50) – Refer for assessment

- ☐ Fit for Duty
- ☐ Fit for Duty
- ☐ Fit subject to review
- ☐ Temporarily unfit
- ☐ Temporarily unfit

Pilot name:

8.	Psychological health <i>(continued)</i>	Medical comments
8.3	Is attitude, speech and behaviour appropriate regarding cognition and inter-personal skills? <input type="checkbox"/> Yes <input type="checkbox"/> No 	

9.	Respiratory health <i>(refer page 168 of Standard)</i>	Medical comments
<i>Note: Predicted V_{O2} max result will be found on the Physical Assessment Report (Green Form) provided by the AHP-Physiotherapist for Pre-employment and Periodic assessments.</i>		
9.1	Respiratory issues identified in Health Questionnaire, general history or Physical Assessment? <input type="checkbox"/> Yes <input type="checkbox"/> No 	
9.2	Examination <input type="checkbox"/> Normal <input type="checkbox"/> Abnormal	

10.	Sleep <i>(refer page 170 of Standard)</i>	Medical comments
<i>Note the pilot's BMI will be reported on the Physical Assessment Green Form provided by the AHP-Physiotherapist for Pre-employment and Periodic assessments</i>		<i>Including comments about existing sleep disorders:</i>
10.1	Sleep issue, existing sleep disorder or fatigue identified on the Health Questionnaire or general history? <input type="checkbox"/> Yes <input type="checkbox"/> No 	
10.2	ESS score <div style="border: 1px solid black; width: 200px; height: 20px; margin: 5px 0;"></div> <i>(11.1 of the Health Questionnaire) and interpret in light of other clinical findings</i>	
<input type="checkbox"/> ESS Score 0-10		
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> No other symptoms/ risk factors/incidents <input type="checkbox"/> Plus other symptoms /risk factors/incidents </div> <div> <input type="checkbox"/> Fit for Duty <input type="checkbox"/> Fit subject to review <input type="checkbox"/> Temporarily unfit </div> </div>		
<input type="checkbox"/> ESS Score 11-15		
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> No other symptoms / risk factors / incidents <input type="checkbox"/> Plus other symptoms /risk factors/incidents </div> <div> <input type="checkbox"/> Fit for Duty <input type="checkbox"/> Fit subject to review <input type="checkbox"/> Temporarily unfit </div> </div>		
<input type="checkbox"/> ESS Score ≥ 16		
<div style="display: flex; justify-content: space-between;"> <div></div> <div> <input type="checkbox"/> Temporarily unfit </div> </div>		

Pilot name:

11.	Substance misuse (refer page 180 of Standard)	Medical comments
11.1	Substance misuse issue identified on Health Questionnaire or general history? <div style="float: right;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>	<i>Including comments regarding management of existing substance misuse issues</i>
11.2	Positive drug screen since last assessment? <div style="float: right;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>	
11.3	AUDIT Questionnaire score <div style="border: 1px solid black; width: 200px; height: 20px; margin: 5px 0;"></div> <p><i>(Record results from Q12 of the Health Questionnaire)</i></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Zone I (0-7) </div> <div style="width: 45%;"> <input type="checkbox"/> Fit for Duty </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Zone II (8-15) </div> <div style="width: 45%;"> <input type="checkbox"/> Fit for Duty </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Zone III (16-19) – Brief counselling </div> <div style="width: 45%;"> <input type="checkbox"/> Fit subject to review <input type="checkbox"/> Temporarily unfit </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Zone IV (20-40) – Diagnostic evaluation and treatment </div> <div style="width: 45%;"> <input type="checkbox"/> Temporarily unfit </div> </div>	

Model only

Pilot name:

PART C – Relevant clinical findings and action

Note comments on any relevant findings detected in the questionnaire or examination, making reference to the requirements of the Standard.

1. Were there any significant findings? ☐ Yes ☐ No
If yes, please describe.
2. Were the criteria for the Standard met? ☐ Yes ☐ No
If not, please describe.
3. Are any further investigations / referral required? If yes, please describe. ☐ Yes ☐ No

Comments

4. How has the pilot been categorised:
- ☐ Fit for Duty
- ☐ Fit for Duty Subject to Review (describe the reasons and nominate date for review, provide recommendations for Job Modification if required, acknowledging that options are limited)
- ☐ Temporarily Unfit for Duty Subject to Review (describe reasons, contact the Port Authority immediately, provide recommendations regarding alternative (non- piloting) duties as appropriate)
- ☐ Permanently Unfit for Duty (describe the reasons)

Comments

5. Consent

- Was the pilot's GP contacted (with their consent – Refer Pink Form) ☐ Yes ☐ No
- If yes, please provide brief notes regarding discussion with the GP.

Comments

6. Other clinical notes

Name of Doctor

Signature of Doctor

Date

2. Forms for conduct of the Physical Assessments

2.1 Request and report form (Blue Form)

The Request and Report form is the key means of communication between the Port Authority and the Authorised Health Professional (AHP-Physiotherapist).

The form is used as follows:

1. **Part A:** The Port Authority completes PART A, encloses copies of relevant supporting information (e.g., previous Health Assessment Report, sick leave summary (if applicable), relevant pilot's workers compensation claims or relevant incident reports) and the Health Professional Record (Green Form) for the assessment, and forwards them to the Authorised Health Professional.
2. **Part B:** Upon completion of the assessment, the health professional completes PART B of the form, retains a copy and returns the original form to the Port Authority.
3. **Part C:** The Port Authority completes PART C of the form to indicate the action taken as a result of the assessment. The Port Authority files the form in the pilot's personnel record.

Model form only

Pilot name:

Marine Pilot Physical Assessment

Request and Report Form

(BLUE FORM)

CONFIDENTIAL:

THE COMPLETED FORM SHOULD BE RETURNED TO THE PORT AUTHORITY
A COPY SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL

Instructions to the Authorised Health Professional

You are requested to conduct a **Physical Assessment** to assess the marine pilot's fitness for duty according to the details provided in PART A of this form and according to the *Standard for Health Assessment of Marine Pilots (NSW)*.

FORMS & PRIVACY

- All forms required for the **Physical Assessment** are provided by the Port Authority.
- Complete PART B of this form with the assessment findings and return the whole form to the Port Authority within 2 days of the assessment, OR should the marine pilot be assessed Unfit for Duty (Temporarily or Permanently), please contact the Port Authority immediately by phone so that appropriate rostering changes may be made.
- Keep a copy of this form for your own records. The pilot is also entitled to receive a copy of the form.
- Details of the examination should be recorded on the Physical Assessment Record provided (GREEN Form). This record contains personal health information that is not required by the Port Authority to manage fitness for duty. It should be retained by you and not sent to the Port Authority.
- The assessment must be conducted in reference to findings and outcomes of previous health and/or physical assessments (Periodic and Triggered assessments as appropriate). If you do not have access to this information (previous GREEN and BLUE forms), please contact the Port Authority and they will arrange for this information to be sent to you (directly) from the previous provider.
- You may need to contact the marine pilot's nominated doctor to discuss conditions that may affect their fitness for duty. Such contact should be made in writing and with the pilot's signed consent (see GREEN FORM).
- Detailed requirements in terms of privacy and management of pilots' health information is contained in the Health Assessment Standard (Section 12 – Management of health Information).

Pilot name:

PART A. Request for Physical Assessment – Port Authority to complete

A Physical Assessment is requested to assess fitness for marine piloting duties (refer Inherent Requirements, Part C, *Standard for Health Assessment of Marine Pilots (NSW)*).

Date requested:

1. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

Account and report to be sent to Supervisor at the following address (*please insert postal address or fax no.*)

2. Pilot / Applicant details

Family name:

First names:

Employee no.:

Date of birth:

Mobile phone number :

3. Physical Assessment appointment details

Assessor / practice:

Address:

Phone:

Appointment date:

Time:

4. Contact details AHP-Medical

Assessor / practice:

Address:

Phone:

Pilot name:

5. Supporting information provided by the Port Authority *(tick information provided)*

- ☐ Previous Physical Assessment report(s). This is the Blue Form relating to the previous assessment.
- ☐ Other *(specify – for example relevant sick leave or accidents since last periodic assessment)*

Please specify materials provided

IMPORTANT: The examining Authorised Health Professional should also have access to the full health assessment clinical report (Green Form) from the previous Physical Assessment, to ensure continuity of health management. If previous Physical Assessments were not conducted by your practice, the Port Authority will arrange for the previous provider to send copies of these reports directly to your practice.

6. Reason for Physical Assessment (Port Authority to indicate)

- ☐ Initial licensing Physical Assessment
- ☐ Periodic Physical Assessment
- ☐ Triggered Physical Assessment *(provide details below)*

Please provide details of reasons for Triggered Assessment and/or any other assessment requirements

Pilot name:

PART B. Physical Assessment Report – Authorised Health Professional to complete

Date of assessment:

NOTE: If the assessment was unable to be completed, the Port Authority should be notified immediately. If the reason for non-assessment relates to lack of cooperation of the pilot or the suspected drug or alcohol effects, the pilot should be categorised Temporarily Unfit for Duty on this form.

I certify that I have conducted a Physical Assessment for the marine pilot named above in accordance with the *Transport for NSW Standard for Health Assessment of Marine Pilots (NSW)* and as requested by the Port Authority of NSW. My recommendations regarding fitness for duty and management are summarised below. (Note to AHP - Please select ONE of the main categories below (left column) and provide additional information in the right-hand column consistent with privacy requirements).

- ☐ I have sighted the marine pilot's photo ID (e.g., driver's licence, passport)
- ☐ I have sighted the previous Physical Assessment clinical report (as appropriate) (Green Form)

Number:

Dated:

This report is:

- ☐ An interim report pending further investigation
- ☐ A final report of the pilot's fitness for duty status

FITNESS FOR DUTY CATEGORISATION

☐ **Fit for Duty Unconditional**

- The pilot meets all criteria for Fit for Duty Unconditional (The pilot passes all Physical Assessment tests as prescribed)
- They are not subject to any restrictions or conditions.
- They should be reviewed in line with the normal Periodic Physical Assessment schedule.

☐ **Fit for Duty Subject to Review**

- The pilot does not meet all the criteria for Fit for Duty Unconditional. There is evidence of trends in pilot's physical capacity which should be addressed to ensure ongoing fitness for duty.

RECOMMENDATIONS

Next Periodic Physical Assessment

To be completed by:

Date:

☐ **Review by AHP-Physiotherapy required**

A review appointment should be scheduled at this practice before the following date

☐ **Review by AHP-Medical required:**

A review appointment should be scheduled with the AHP-Medical named in this report as soon as reasonably practicable.

(Continued overleaf)

Pilot name:

PART B. Physical Assessment Report – Authorised Health Professional to complete (continued)

FITNESS FOR DUTY CATEGORISATION

☐ Temporarily Unfit for Duty

Please notify the Port Authority immediately if pilot assessed as unfit for duty

- The pilot has not passed the screening assessment and has not been able to participate in the functional assessment. Their assessment may be deferred or they may be referred to the AHP-Medical.
- OR
- The pilot has not met all the Physical Assessment criteria and requires assessment by the AHP-Medical before returning to pilot duties.

NOTE: A new recruit may be judged Temporarily Unfit for Duty. The Port Authority may advise of the opportunity for a renewed application upon the medical issues being resolved.

RECOMMENDATIONS

☐ Assessment not completed

The assessment was unable to be completed. Instructions for rescheduling or referral to AHP-Medical are detailed below.

Time off duty

Estimated off time off duty (e.g., days/weeks etc)

Review by AHP-Medical

A review appointment (Triggered Assessment) should be scheduled as soon as possible with the AHP-Medical named in this report

Health professional details (stamp acceptable)

Name:

Phone:

Fax:

Email:

Address:

Signature:

PART C. Operator to complete on receipt of Assessment Report

☐ Periodic Physical Assessment scheduled as per Standard

Date:

☐ Triggered review by AHP-Physiotherapist scheduled (Fit Subject to Review, Temporarily Unfit for Duty)

Date:

☐ Triggered review by AHP-Medical scheduled (Fit Subject to Review, Temporarily Unfit for Duty)

Date:

Other actions:

2.2 Pilot notification and health screen (Pink Form)

This form contains the notification to the pilot and the Questionnaire for the Physical Assessment.

The self-administered questionnaire is a screening tool to help identify conditions that might affect the performance of marine pilots and specifically any conditions that might pose a risk to the pilot when undertaking the Physical Assessment tests. It forms part of the initial screening assessment for conducting the Physical Assessment as described in Chapter 12 Musculoskeletal Conditions.

Pilots are required to sign the form in two places – the first, to declare their understanding of how their health information will be recorded, disseminated, and stored in line with privacy requirements, and the second to attest to the accuracy of the information they have provided. Both areas should be signed in the presence of the examining health professional. The health professional should countersign the declaration regarding the correctness of health information provided.

The form is used as follows:

4. **Part A:** The Port Authority completes PART A including appointment details and instructions to the pilot/applicant.
5. **Part B:** The pilot/applicant completes PART B and presents to the Authorised Health Professional. The pilot/applicant signs the declarations and consent and the health professional countersigns.
6. The Authorised Health Professional discusses the results with the pilot/applicant as appropriate. The form is retained by the health professional and filed in the pilot's health record.

Pilot name:

Marine Pilot Physical Assessment

Pilot Notification and Questionnaire

(PINK FORM)

CONFIDENTIAL:

FOR PRIVACY REASONS THE COMPLETED FORM SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL AND NOT RETURNED TO THE PORT AUTHORITY

Instructions for the pilot / applicant

- You are required to attend a Physical Assessment as part of your employment to assess your fitness for marine piloting duties.
- The assessment must be completed by (date) to ensure that you are able to carry out normal duties.
- Complete the enclosed questionnaire before attending the appointment and provide it to the examining health professional. **The last page of the questionnaire must be signed by you in the presence of the examining health professional.**
- Please take photo identification to the appointment:

What happens if the examining physiotherapist or doctor suspects there is a health problem?

If the examining health professional finds or suspects something is wrong with your health that you did not know about, they will ask your permission to inform your own doctor. The examining health professional will not treat any medical condition but will give you a letter to take to your own doctor.

If the examining health professional finds that you do not meet all relevant physical criteria, your supervisor at the Port Authority will discuss with you the appropriate actions to be taken. This may include a review assessment with the medical Authorised Health professional.

Management of your health information

The *Standard for Health Assessment of Marine Pilots (NSW)* explains how the health assessments are conducted to comply with legislated privacy requirements, including what information may be collected and disclosed and how information is stored to protect privacy. The Port Authority of NSW Privacy Management Plan also informs management of personal information.

Health information may only be collected and disclosed for the purpose of managing a marine pilot's fitness for duty. This means that details of your health assessment (i.e. test results, medical diagnoses, responses to health questionnaires etc) will remain confidential and will only be reported to your Port Authority in terms of your fitness for duty.

The examining doctor retains all detailed medical papers including your questionnaire responses, test results and the completed record of clinical findings. The examining doctor sends the completed 'Request and Report Form: Marine Pilot Health Assessment' directly to the Port Authority indicating your fitness or otherwise for duty.

Other than the above, no information will be disclosed to any other person or organisation without your written permission, except where:

- a notifiable disease is diagnosed which must, by law, be reported to the State authorities;
- a report is subpoenaed by a court of law; or
- Transport for NSW (or another state or federal agency) is required to conduct an inquiry into an accident or incident; or
- Transport for NSW appoints a doctor to conduct a medical audit or an auditor to conduct an administrative audit.

You have the right to access your health records including those held by the Authorised Health Professional and the reports held by the Port Authority.

Pilot name:

PART A – Port Authority to complete

Date of request:

1. Pilot / Applicant details

Family name:

First names:

Employee no:

Date of birth:

2. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

3. Health assessment appointment details

Doctor / practice:

Address:

Phone:

Appointment date:

Time:

PART B – Marine Pilot Questionnaire – Pilot to complete

Please complete this questionnaire prior to your Periodic Physical Assessment. These questions relate to aspects of your health history and current health status to ensure the assessment can be conducted safely. Please answer the questions by ticking the appropriate box or circling the appropriate response. If you are not sure, leave the question blank and ask the examining health professional what it means.

1. Do you suffer from or have you ever suffered from:	Examiner comments
High blood pressure	<input type="checkbox"/> No <input type="checkbox"/> Yes
Heart disease	<input type="checkbox"/> No <input type="checkbox"/> Yes
Stroke	<input type="checkbox"/> No <input type="checkbox"/> Yes
Chest pain, angina	<input type="checkbox"/> No <input type="checkbox"/> Yes
Any condition requiring heart surgery	<input type="checkbox"/> No <input type="checkbox"/> Yes
Abnormal shortness of breath or chest disease	<input type="checkbox"/> No <input type="checkbox"/> Yes
Palpitations / irregular heartbeat	<input type="checkbox"/> No <input type="checkbox"/> Yes
Head or spinal injury	<input type="checkbox"/> No <input type="checkbox"/> Yes
Neck, back or limb disorders or injuries, including surgeries for any joint, bone, muscle, tendon or ligament injury	<input type="checkbox"/> No <input type="checkbox"/> Yes

1. Do you suffer from or have you ever suffered from:	Examiner comments
Dizziness, vertigo, problems with balance <input type="checkbox"/> No <input type="checkbox"/> Yes	
Pilot name:	
Examiner comments	
2. In the last 5 years, have you had any <u>serious</u> injury, illness, operation, or been in hospital for any reason that may affect your ability to undertake the Physical Assessment? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes please describe:	
3. Other than conditions already identified in Q1 and 2, are you currently attending a health professional for any illness or injury that may affect your ability to undertake the Physical Assessment? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes please describe:	
4. Since your last assessment, have you experienced difficulty completing any tasks required for your piloting work (e.g. ascending or descending pilot ladder)? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes please describe:	
5. Do you smoke or have you ever been a smoker? <input type="checkbox"/> Never smoked <input type="checkbox"/> Ex-smoker Quit date: <input type="checkbox"/> Current smoker Number of cigarettes per day:	
Examiner comments	

Pilot name:

6. Do you engage in any regular physical activity or exercise, outside of work? Please provide details below including the type of exercise.

☐ No ☐ Yes

Type	Intensity (e.g light, moderate, vigorous)	Duration	Frequency
<i>E.g. Walking</i>	<i>Moderate</i>	<i>30mins</i>	<i>4 days per week</i>

PART D – Pilot’s declarations

1) Pilot’s declaration – My health information

I, (print name)

certify that I have read and understood the statement concerning the purpose of the assessment and that my health information is collected and disclosed for that purpose according to privacy principles.

Signature:

Date:

2) Pilot’s declaration – Information provided

(To be completed by the pilot in the presence of the health professional after completing the questionnaire)

I, (print name)

certify that to the best of my knowledge the information provided by me is true and correct.

Signature of pilot:

Signature of examiner:

Date:

3) Consent to contact treating health professionals

(If required to consult with general practitioner or other treating doctor)

I, (print name) ☐ give ☐ do not give (please indicate)

permission for the examining health professional to contact my treating doctor(s) to discuss or clarify information relating to my current health status.

Signature:

(1) Name of doctor:

Phone:

(2) Name of doctor:

Phone:

2.3 Clinical Record for Authorised Health Professional (Green Form)

The Physical Assessment Record for Health Professionals is a tool that guides the assessment process. It provides a standard format for recording the results of the assessment, which should then be filed by the Authorised Health Professional in the pilot's clinical history.

The form should be used as follows:

1. **Part A:** The Port Authority completes PART A and includes the form with the Request and Report Form (Blue Form) and forwards to the Authorised Health Professional (Physiotherapist).
2. **Part B:** The health professional records the results of the Physical Assessment in PART B and retains the form in the pilot's clinical record.
3. The completed Physical Assessment Record should be forwarded to the AHP-Medical identified on the form. This should be done routinely, whether the pilot passes or fails the Physical Assessment. The form is not to be forwarded to the Port Authority for reasons of privacy. The Authorised Health Professional should summarise the results in terms of fitness for duty on the Request and Report Form (Blue Form)

Model form only

Pilot name:

Marine Pilot Physical Assessment

Record for Health Professional

(GREEN FORM)

CONFIDENTIAL:

FOR PRIVACY REASONS THE COMPLETED FORM SHOULD BE RETAINED BY THE AUTHORISED HEALTH PROFESSIONAL AND NOT RETURNED TO THE PORT AUTHORITY

PART A – Request for assessment – to be completed by Port Authority

Date of request:

1. Pilot / Applicant details

Family name:

First names:

Employee no:

Date of birth:

2. Port Authority details

Supervisor / contact:

Phone:

Facsimile:

Email:

3. Health assessment appointment details

Doctor / practice:

Address:

Phone:

Appointment date:

Time:

Pilot name:

PART B – Examination record – Authorised Health Professional to complete

SCREENING ASSESSMENT (refer page 119 of Standard)

1. Review Pink Form

- 1.1 Cardiovascular, musculoskeletal, or other health issues identified in Questionnaire that preclude some or all of the assessment? ☐ Yes ☐ No

If there are any contraindications the assessment should not proceed. The pilot should be referred to the AHP-Medical as appropriate, or the assessment deferred.

Examiner comments

2. Cardiovascular screen

Examiner comments

2.1 Blood pressure	(Repeat if necessary)	Requirement
Systolic	Systolic	< 170 mmHg
Diastolic	Diastolic	< 100 mmHg
Resting heart rate		

If the blood pressure is above 170/100 the assessment should not proceed and the pilot should be referred to the AHP-Medical.

3. Musculoskeletal screen (refer page 119)

No concerns

Issues identified

Examiner comments

- 3.1 Observation (scars, abnormalities or deformities) ☐ ☐
- 3.2 **LUMBAR** – Flexion, extension, lateral flexion, rotation ☐ ☐
- 3.3 **NECK** – Flexion, extension, lateral flexion, rotation (min 45° bilateral rotation) ☐ ☐
- 3.4 **SHOULDERS** – ROM: flexion, abduction, hand behind head / back ☐ ☐
- Strength / impingement tests: resisted ER, Speeds, Full can, Empty can, Hawkins Kennedy ☐ ☐
- 3.5 **ELBOW, WRIST AND HAND** – ROM: Elbow flex/ext, pro/sup, wrist flex/ext, finger flexion and extension ☐ ☐
- Strength / myotomes: resisted elbow flex/ext, thumb IP extension, finger adduction in MCP flexion ☐ ☐

(Continued overleaf)

Pilot name:

3. Musculoskeletal screen (continued)	No concerns	Issues identified	Examiner comments
3.6 HIPS, KNEES, ANKLES – Squat x3 (Depth, L/R symmetry, crepitus, strength to rise unaided)	<input type="checkbox"/>	<input type="checkbox"/>	
Inline lunge x 2 per side (Depth, L/R symmetry, crepitus, strength to rise unaided)	<input type="checkbox"/>	<input type="checkbox"/>	
Walk 5m tiptoe and on heels (strength and myotomes)	<input type="checkbox"/>	<input type="checkbox"/>	
Hip ROM (supine): flexion, internal and external rotation	<input type="checkbox"/>	<input type="checkbox"/>	
Knee ROM (supine): flexion, extension	<input type="checkbox"/>	<input type="checkbox"/>	
Knee special tests (supine): Lachmans, MCL, LCL, McMurrays	<input type="checkbox"/>	<input type="checkbox"/>	
Ankle (supine): DF, PF, inv, ev, lateral lig	<input type="checkbox"/>	<input type="checkbox"/>	
3.7 Were any musculoskeletal issues or injuries identified during screening that preclude proceeding with the assessment?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

If there are any contraindications the assessment should not proceed and the pilot should be referred to the AHP-Medical or the assessment deferred.

4. Body composition (refer page 119)	Examiner comments
4.1 Previous issues with weight management? <input type="checkbox"/> Yes <input type="checkbox"/> No	
4.2 Calculate BMI	
Weight <input type="text"/> kg	
Height <input type="text"/> m	
BMI <input type="text"/> kg/m ²	
Cut-offs	
<input type="checkbox"/> < 30	
<input type="checkbox"/> 30-35 but waist circumference <94cm (M) / 80cm (F)	
<input type="checkbox"/> 30-35 but waist circumference >94cm (M) / 80cm (F)	
<input type="checkbox"/> > 35	
Fit for Duty	
Fit for Duty	
Fit Subject to review	
Fit Subject to review	
Note all BMI>35 requires a referral for sleep disorders, regardless of ropes test performance	
4.3 If BMI > 30.0, assess waist circumference <input type="text"/> cm	
Targets	
Male <94cm	
Female <80cm	

Pilot name:

FUNCTIONAL TESTS (refer page 121 of Standard)

5. Grip strength (Dynamometer position 2) (refer page 121 of the Standard)

Examiner comments

	Attempt 1	Attempt 2	Attempt 3	Average
Right				
Left				

≥ 50th percentile in each hand?
(per page 121 of the Standard)

☐ Yes
(Pass)

☐ No
(Fail)

6. Balance (refer page 122)

Examiner comments

6.1 Were balance issues identified on the questionnaire?

☐ Yes

☐ No

6.2 Romberg Test

(Maintain balance for 30secs while standing with shoes off, feet together side by side, eyes closed, arms by side)

Was the pilot able to hold their balance for 30 seconds?

☐ Yes
(Pass)

☐ No
(Fail)

7. Predicted VO₂max - Aerobic fitness test (refer page 123) (Chester, Queens College or equivalent)

Examiner comments

Pred VO₂ max

ml / kg / min

Rating (circle one)

☐ Excellent

☐ Average

☐ Good

☐ Below Average

☐ Above Average

☐ Poor

Vs norms (see Figure 19, page 77 of the Standard)

☐ Average or better:

Fit for Duty

☐ Below Average or worse:

Temporarily Unfit (refer to AHP-Medical)

8. Trunk lift (refer page 125)

Examiner comments

Instruct the pilot to lie prone on the floor or an exam table with chin on hands and palms facing down. Instruct them to arch backwards, lifting their palms and forearms as far as they comfortably can. Hold for 15 seconds.

Was the pilot able to hold the position for 15 seconds?

☐ Yes
(Pass)

☐ No
(Fail)

Pilot name:

9. Hover test (refer page 125)	Examiner comments
<p><i>Instruct the pilot to take up the hover position, resting on their forearms, supporting their weight on their toes and holding their back straight. Hold for 60 seconds.</i></p> <p>Was the pilot able to hold the position for 60 seconds?</p> <p><input type="checkbox"/> Yes (Pass) <input type="checkbox"/> No (Fail)</p>	
10. Ropes test (refer page 126)	Examiner comments
<p><i>Instruct the pilot to stand on a set of scales with man ropes extended vertically above as per page 126 of the Standard.</i></p> <p><i>Record their weight at this starting position. Calculate the 40% value and record here.</i></p> <p>40% of weight (Kg): <input type="text"/></p> <p><i>Instruct them to grip the ropes (bare-handed or with gloves as per their usual practice) and pull down while maintaining contact with the scales, taking as much of their weight as possible through the man ropes without losing contact with the scales. Instruct them to hold this weight for six (6) seconds.</i></p> <p>Is the pilot able to take at least 60% of their own body weight through the manropes and hold for 6 seconds?</p> <p><input type="checkbox"/> Yes (Pass) <input type="checkbox"/> No (Fail)</p>	
11. High step up and jump down (refer page 127)	Examiner comments
<p><i>Use a 3-in-1 wooden plyometric box with 50cm, 60cm and 75cm sides, OR a medium workhab box 60cm high. Position the box under the ropes (in place of the scales used for the ropes test), using weights or other items to stop the box from tipping sideways.</i></p> <p>Step up (500mm)</p> <p><i>Ask the pilot to grasp the ropes and step up onto the box, leading <u>twice</u> with each leg.</i></p> <p>Was the pilot able to perform the test leading with either leg?</p> <p><input type="checkbox"/> Yes (Pass) <input type="checkbox"/> No (Fail)</p> <p>Jump down (600mm)</p> <p><i>Ask the pilot to jump or 'skip' down from the box. Their second foot must leave the box before their lead leg contacts the floor. The pilot may 'slide' down the ropes for support until their second foot has touched the floor. The pilot must land without taking more than two stabilising steps, falling, or putting a hand to the ground to stabilise themselves. The pilot can jump down leading with either leg, or both legs at once.</i></p> <p>Was the pilot able to perform the test?</p> <p><input type="checkbox"/> Yes (Pass) <input type="checkbox"/> No (Fail)</p>	

Pilot name:

12. Relevant clinical findings and action

Examiner comments

Note comments on any relevant findings detected in the questionnaire or examination, making reference to the requirements of the Standard

12.1 Were there any significant findings or health trends identified?
If yes, please describe. ☐ Yes ☐ No

12.2 Were there any findings that compromise fitness for duty?
If yes, please describe. ☐ Yes ☐ No

12.3 Was any health improvement advice provided?
If yes, please describe. ☐ Yes ☐ No

12.4 Are any further investigations, documentation or referrals required?
If yes, please describe. ☐ Yes ☐ No

13. Categorisation (refer flow chart page 118)

Examiner comments

How has the pilot been categorised?

- ☐ Fit for Duty Unconditional
- ☐ Fit Subject to Review by AHP-Physiotherapist (e.g. BMI/weight)
- ☐ Fit Subject to Review by AHP-Medical (BMI>35)
- ☐ Temporarily Unfit for Duty Subject to AHP-Medical Review
(Describe reasons, contact the Port Authority immediately)

14. Consent

Examiner comments

Was the pilot's GP contacted (with their consent – Refer Pink Form) ☐ Yes ☐ No

If yes, please provide brief notes regarding discussion with the GP.

15. Other clinical notes

Name of Examiner

Signature of Examiner

Date

Appendix 3. Procedures for the appointment and management of Authorised Health Professionals

Model form only

Procedure for appointment and management of Authorised Health Professionals

*under the Standard for Health Assessment of
Marine Pilots (NSW)*

Model form

Contents

2.RESPONSIBILITIES.....	256
3.CRITERIA FOR INITIAL AUTHORISATION	257
4.PROCEDURE FOR INITIAL AUTHORISATION	259
5.MAINTAINING CURRENCY	261
6.QUALITY ASSURANCE.....	262
7.WITHDRAWAL OF AHP STATUS	263
APPENDIX 1 - AUTHORISED HEALTH PROFESSIONAL APPLICATION FORM (PORT AUTHORITY OF NSW).....	264

Model form only

1. Purpose

In order to ensure appropriate quality and consistency of health assessments conducted under the *Standard for Health Assessment of Marine Pilots (NSW)*, the Standard requires that health professionals be individually authorised to conduct the health assessments. This includes those conducting the general health assessments (medical practitioners) as well as those conducting the physical aptitude assessments (physiotherapists), subsequently referred to jointly as Authorised Health Practitioners (AHPs).

This procedure outlines the process for authorising and managing health professionals to conduct health assessments. It relates to the initial appointment of AHPs and to the requirements for maintaining authorisation.

The procedure is determined by Transport for NSW in consultation with the Port Authority of New South Wales (the Port Authority) and aligns with the requirements under the Standard as well as the *Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers, ILO/WHO/D.2013* <https://www.samgongustofa.is/media/siglingar/ahafnir/WHO-Guidelines-on-Medical-Examinations-of-Seafarers.pdf.pdf>

Model form only

2. Responsibilities

Port Authority of NSW

The Port Authority holds the contracts with health professionals to conduct the health assessments for marine pilots under the Standard. The Port Authority is responsible for

- initial authorisation of health professionals and ongoing management of health professionals to ensure delivery of the assessments in line with the Standard;
- delivering/facilitating appropriate training to health professionals so that they meet the criteria for authorisation (including site visits); and
- facilitating ongoing maintenance of knowledge and skills through regular contact/briefings in relation to changes in policies and procedures and issues arising in delivery.

Transport for NSW

Transport for NSW supports the Port Authority in providing educational resources for AHP training. Transport for NSW is responsible for auditing the processes and outcomes for AHP authorisation and management to ensure alignment with the Standard. Transport for NSW may seek input from their Chief Health Officer in relation to auditing and oversight of AHPs.

Contracted providers

Organisations that contract services to the Port Authority must ensure all health professionals are individually authorised through the processes described in this procedure. Health professionals who are not individually authorised cannot deliver health assessment services.

Where aspects of the health assessments are conducted by non-authorised personnel (e.g., nurses) the contracted provider must ensure appropriate oversight by an AHP. They must also ensure that AHPs are able to devote sufficient time in the assessment process to engage meaningfully with the pilot, conduct the necessary clinical assessment and interpret/cross check information provided by the pilot.

Providers have a responsibility to participate in audits as initiated by the Port Authority or Transport for NSW for quality assurance purposes.

Individual health professionals

Individual health professionals share the responsibility of devoting such time and skill to the assessment of marine pilots as is necessary to elicit a careful history and to conduct a full and thorough examination as outlined under the Standard. Individual health professionals also share the responsibility of ensuring they are authorised to conduct health assessments under the Standard and continue to maintain their knowledge and skills in relation to conducting the assessments. They have a responsibility to participate in audits as initiated by the Port Authority or Transport for NSW for quality assurance purposes.

3. Criteria for initial authorisation

Health assessments for marine pilots should only be conducted by health professionals who have been judged by the Port Authority to meet the criteria outlined in the *Standard for Health Assessment of Marine Pilots (NSW)* and shown below (Table 1).

Once appointed, AHPs must maintain their knowledge and skills and participate in quality control/assurance activities as requested by the Port Authority and Transport for NSW (refer [Section 6](#)).

Authorisation applies to an individual health professional, not a practice. All individual health professionals conducting health assessments for marine pilots under the Standard should be individually authorised by the Port Authority.

Table 1. Criteria applied by the Port Authority of NSW for appointing Authorised Health Professionals

CRITERIA for appointing Authorised Health Professionals (including medical practitioners and physiotherapists)
<p>Qualifications and experience:</p> <ul style="list-style-type: none">• The health professional must be appropriately registered to practice in Australia (i.e. medicine or physiotherapy as appropriate).• Medical practitioners should have a qualification or experience in occupational medicine.• It is desirable that the health professional have experience in assessing safety critical workers such as in the rail industry, fire and rescue, ambulance, airline industry etc.
<p>Participation in training</p> <ul style="list-style-type: none">• The health professional must have participated in training approved by Transport for NSW and conducted independently of the contracted organisation.• If the health professional has already participated in training to become an AHP under the National Standard for Health Assessment of Rail Safety Workers or for other safety critical worker assessments, this will be treated as a training credit under this program and training requirements may cover the aspects specific to marine pilots (e.g., inherent requirements of pilotage, policies and procedures for the Port Authority, assessments specific to pilots such as the physical assessment etc).• Preferably, induction should include onsite experience of pilotage tasks including use of the pilot ladder and bridge duties. <p>Training and induction should aim to achieve:</p> <p>Marine industry knowledge:</p> <ul style="list-style-type: none">• The health professional should be able to demonstrate a working knowledge of the pilotage environment including work performed and risks involved.

CRITERIA for appointing Authorised Health Professionals (including medical practitioners and physiotherapists)

Knowledge of the Standard:

The health professional should be able to demonstrate familiarity with the *Standard for Health Assessment of Marine Pilots (NSW)*, including:

- appreciation of the role of health assessments in ensuring marine safety;
- specific knowledge of the Inherent Requirements of the marine pilot's job and the rationale for health assessments applied;
- knowledge of and ability to perform the marine pilot health assessment or physical aptitude assessment as appropriate;
- understanding of the interface between the health assessment and the physical aptitude assessment and their role in managing the interface;
- understanding of requirements and reporting options for fitness for duty;
- knowledge of the administrative requirements, including form completion and record keeping;
- understanding of ethical and legal obligations (including privacy) and the ability to conduct assessments accordingly, including appropriate communication with the pilot and the Port Authority in line with privacy requirements; and
- understanding of ethical issues in relationships with the treating doctor/general practitioner.

Knowledge of interfacing policies and programs:

- The health professional should be able to demonstrate awareness of legislation, policies or programs that might interface with or affect the performance of the health assessment, for example, WHS policy, drug and alcohol policy, psychometric testing, anti-discrimination legislation and privacy legislation.

4. Procedure for initial authorisation

Medical practitioners and physiotherapists may be appointed as AHPs for a period of up to five years, with authorisation renewable after that period, and with ongoing authorisation dependent on meeting the requirements as outlined in this procedure.

Applications for AHP status will generally be made as part of the contractual process for providers. This is because the pool of AHPs required is small and providers will be unable to maintain skills if not actively involved in providing health/physical assessments for marine pilots.

Where additional AHPs are required to be approved during a contract period due to staffing turnover, these applications will be processed separately but consistent with the contractual arrangements.

Applications for AHP status should be made in writing to the Port Authority using the application form (Appendix 1). The candidate must provide evidence of meeting the criteria specified in Section 3, including attendance at relevant training. On approving the application, the Port Authority will publish the AHP names on the Port Authority intranet site to facilitate internal management processes within the ports. The Port Authority will also send a list of AHPs to Transport for NSW once a year and whenever there is a change in the list.

Evidence of qualifications and experience

Medical practitioners seeking authorisation to conduct health assessments for marine pilots should provide evidence of qualifications and experience including CV, certificates and references showing:

- AHPRA registration as a registered medical practitioner in Australia, including evidence that no issues may impact registration; and
- Post graduate qualifications in occupational medicine via the RACP, or
 - Other post graduate qualifications in occupational medicine, or
 - Employment in a dedicated occupational health practice, or
 - Evidence that a substantial part of their practice is related to occupational health; and
- Evidence of their involvement in conducting health assessments for safety critical workers (e.g., rail safety workers, fire and rescue personnel, ambulance paramedics, airline pilots etc).

Physiotherapists seeking authorisation to conduct physical aptitude assessments for marine pilots should provide evidence of qualifications and experience including CV, certificates and references showing:

- AHPRA registration as a registered physiotherapist in Australia, including evidence that no issues may impact registration; and
- Post graduate qualifications relevant to the conduct of the assessments, or
 - Evidence that a substantial part of their practice is related to occupational health; and
- Evidence of their involvement in conducting assessments for safety critical workers (e.g., rail safety workers, fire and rescue personnel, ambulance paramedics, airline pilots etc).

Participation in training

To gain appropriate knowledge and skills in relation to the Standard and the marine industry, a health professional must undergo training and be mentored by an experienced AHP. The mentoring AHP may support the application by providing evidence of the education process and outcomes to the Port

Authority. This may include evidence of face-to-face meetings, telephonic/video conference and supervised health assessments.

There are a number of resources available to support health professionals in attaining the required knowledge to support their application to become an AHP, including a training package developed by Transport for NSW. This covers the general requirements of the Standard and may be delivered by an independent trainer or a lead AHP within a provider practice approved by the Port Authority.

To gain an understanding of the inherent requirements of pilots' job, it is highly recommended that AHPs:

- visit the pilot ladder set-up available at Newcastle and Brookvale TAFE;
- go out on a pilot vessel to observe embarkation and disembarkation from a vessel using a pilot ladder;
- visit the bridge of a vessel while the vessel is berthed alongside or while under pilotage.

Model form only

5. Maintaining currency

Authorised Health Professionals are required to undertake a formal re-authorisation process every five years.

They must also maintain currency of their knowledge and skills in relation to the Standard and the marine environment, including Port Authority policies and procedures. This is shared responsibility of health professionals, provider organisations and the Port Authority, and opportunities for knowledge sharing and discussion of health assessment implementation outcomes and issues should be mutually arranged as part of the contracting and general management process. This may take the form of an annual meeting with AHPs, provider contract managers and the Port Authority.

Evidence of these processes will be sought in audits by Transport for NSW (refer Section 6).

Model form only

6. Quality assurance

Quality assurance of the health assessment program is a shared responsibility between the Transport for NSW, the Port Authority, service providers and individual AHPs.

Systems and processes should be established as per this procedure to ensure that AHPs are suitably qualified and equipped to conduct their role effectively and that outputs are in line with the Standard requirements. These requirements should be reflected in the service provider contracts.

Transport for NSW will conduct audits to establish evidence of effective implementation of the AHP authorisations systems and processes. This may include audits of:

- Initial application processes and documentation
- Provider contracts
- Training delivery
- General management including feedback from providers, the Port Authority staff, pilots and the Australian Marine Officers Union, as appropriate.

In addition, and as described in the Standard, audits of health assessment quality will be undertaken including independent audits of:

- health assessment processes
- health assessment outcomes
- appropriate use of forms
- compliance with privacy requirements.

7. Withdrawal of AHP status

Authorised Health Professionals who are found by the Port Authority or Transport for NSW to no longer meet the requirements for authorisation (for example, as a result of a complaint, audit process, loss or restriction of medical registration or other reasons) may have their authorisation to conduct pilot health assessments withdrawn.

Model form only

Appendix 1 - Authorised Health Professional Application Form (Port Authority of NSW)

Please complete the following application form and attach additional information / documentation as required. Submit the form and supporting documentation to:

Authorisation being sought:

- ☐ Medical practitioner to conduct the general health assessment for marine pilots
- ☐ Physiotherapist to conduct the physical assessment for marine pilots

Applicant's details

1. Full name
Dr ☐ Mr ☐ Mrs ☐ Miss ☐ Ms ☐ Other _____
Family name _____
First given name _____
2. Postal address

Suburb _____ State _____ Postcode _____
3. Daytime phone number _____ Mobile _____
4. Email _____

Current medical practitioner/physiotherapist registration details

5. AHPRA registration number _____
Registration expiry date ____ / ____ / ____

Undergraduate medical/physiotherapy qualification

6. Qualification _____
Institution _____
Country _____ Year attained _____

(Attach additional undergraduate medical qualification information as required)

Postgraduate medical/health qualifications

7. Qualification 1 _____
Institution _____
Country _____ Year attained _____
8. Qualification 2 _____
Institution _____
Country _____ Year attained _____

9. Qualification 3 _____
Institution _____
Country _____ Year attained _____

(Attach additional qualification information as required)

Current employment

10. Company name _____

11. Current position title/role _____

12. Years in this role _____

13. Current areas of practice

- | | |
|--|--|
| <input type="checkbox"/> Fitness for work assessment | <input type="checkbox"/> Musculoskeletal health / ergonomics |
| <input type="checkbox"/> Pre placement and exit health assessments | <input type="checkbox"/> Environmental health / safety management systems / risk assessments |
| <input type="checkbox"/> Prescribed fitness for duty health assessments (rail, commercial vehicle drivers, marine pilots, firefighters, etc) | <input type="checkbox"/> Biological monitoring / chemical exposure |
| <input type="checkbox"/> Independent medical examination/ medico-legal | <input type="checkbox"/> Alcohol and other drugs / medical review officer |
| <input type="checkbox"/> Task analysis / dictionary of job requirements | <input type="checkbox"/> Health promotion / wellness programs |
| <input type="checkbox"/> Early intervention programs | <input type="checkbox"/> Health surveillance |
| <input type="checkbox"/> Injury management/ workplace rehabilitation | <input type="checkbox"/> Other (please specify) _____ |
| <input type="checkbox"/> Employee Assistance Program | _____ |
| <input type="checkbox"/> Workers compensation, claims management and financial risks | _____ |

Authorisation and conduct of safety critical health assessments

14. Please indicate if you currently hold any of the following authorisations:
- ☐ Authorised Health Professional under the National Standard for Health Assessment of Rail Safety Workers
 - ☐ Designated Aviation Medical Examiner under the Civil Aviation Safety Regulations
 - ☐ Authorised Health Professional under the Health Assessment Standard for Firefighters – Fire and Rescue
 - ☐ Authorised Health Professional under the Health Assessment Standard for Ambulance Paramedics (Ambulance NSW)
 - ☐ Medical Examiner for Australian Maritime Safety Authority
15. Please estimated number of **safety critical worker health assessments** that you have conducted in the last 12 months
-

Model form

Marine industry knowledge and experience

16. Please estimate the number of **marine pilot health assessments** (including AMSA medicals) that you have conducted in the last 12 months

17. Please indicate your experience with the following:

Visited a pilot ladder set-up? Yes ☐ No ☐ Date _____

Observed or used a pilot ladder? Yes ☐ No ☐ Date _____

Visited the bridge of a vessel? Yes ☐ No ☐ Date _____

18. Please confirm the date of completion of Transport for NSW AHP training

Date _____

Additional information

19. Provide below any additional information to support this application or attach additional information / documentation as required. This may include referee or mentor reports.

Declaration

I declare that the information I have provided in this application is complete and correct.

Full name _____

Signature _____

Date ____ / ____ / ____

