



SUB-COMMITTEE ON STANDARDS OF
TRAINING AND WATCHKEEPING
31st session
Agenda item 10

STW 31/10/2
5 November 1999
Original: ENGLISH

MEDICAL STANDARDS FOR SEAFARERS

Proposal for physical abilities for seafarers

Submitted by Finland

SUMMARY

<i>Executive summary:</i>	This document contains a proposal by Finland on physical abilities for seafarers applying to entry-level seafarers as well as experienced level seafarers to be included in section B-I/9 of the STCW Code. The proposal includes possible models on how to verify the seafarer's capacity to perform the shipboard tasks concerned.
<i>Action to be taken:</i>	Paragraph 11
<i>Related documents:</i>	STW 30/9, STW 30/13, STW 31/10

1 The Sub-Committee, at its twenty-ninth session (12 to 16 January 1998), noted that it was necessary to establish "physical standards of entry-level seafarers" with physical requirements to be based on an analysis of shipboard tasks, and invited the Maritime Safety Committee to include an item on medical standards for seafarers on the Sub-Committee's work programme with a target completion date of 2000. The Committee agreed to this request and recognized it to be a high priority item.

2 Finland considers this to be a very important item. Finland, however, sees that work and safety tasks cannot be divided into two categories depending on the years served at sea, i.e. entry-level and experienced seafarers categories. On the contrary, all seafarers should be able to take care both of their normal duties and their safety tasks. STCW 95 stresses that all seafarers must be familiarized with their everyday duties as well as with their safety tasks and functions. Thus "practical learning, e.g. years of work at sea" cannot be the determining factor where work and safety are concerned.

3 In November 1997, ILO and WHO agreed on "Guidelines for Conducting Pre-Sea and Periodic Medical Examinations for Seafarers". The Guidelines provide a brief description of seafaring life and work relevant to the medical examinations of seafarers. They also provide minimum in-service eyesight standards, minimum in-service hearing standards and a list of medical conditions which should be considered when deciding whether to issue medical certificates of fitness to seafarers. However, higher entry-level standards were recommended to take into account normal ageing processes and changes in health caused by ageing.

4 The working group agreed that it is impossible to develop a comprehensive list of medical contra-indications but the list presented in the Guidelines may provide some guidance.

5 When determining fitness for sea service in the case of persons with medical problems, the medical examiner should consider and evaluate the following points mentioned in the Guidelines:

- (a) the critical time needed for treatment/access to appropriate land-based care;
- (b) the extent of the threat and danger caused by the medical problem to the patient, other persons on board and to the safety of the vessel or the environment; and
- (c) the current risk of occurrence of the medical condition.

6 The medical conditions mentioned in the Guidelines are examples which might justify restrictions on time period, position, trade area and type of ship.

7 The ILO/WHO Guidelines, as stated above, provide medical examiners with instructions on why and how to carry out medical examinations and how to determine the fitness of seafarers for service at sea. The Guidelines do not, however, give minimum health or fitness standards for healthy entry-level or experienced seafarers nor for seafarers without any diagnosed illness. These guidelines for fitness criteria should be developed further in a way that they apply to seafarers carrying out all on-board duties in normal as well as in exceptional situations.

8 Clinical tests measure the functional capacity only; in most cases they can merely predict the working capacity in real on-board situations. The level of training and skill affects the working capacity as much as functional capacity does. Furthermore, emergency training on board ship can be said to serve as a measure of fitness evaluation in real on-board situations.

9 Medical examiners are only able to carry out a limited number of tests routinely. After the basic screening, the medical examiner should, if any doubt arises, refer the seafarer to more comprehensive tests. To do every possible test to every seafarer each time he/she needs a medical certificate is a waste of resources.

10 At the Sub-Committee's thirtieth session (25 to 29 January 1999), the United States presented a proposal (STW 30/9) for physical abilities for entry-level seafarers. The proposal, in tabular format, broadly described typical shipboard tasks, functions, events and conditions and linked each one to a corresponding physical ability considered necessary for the safety of the seafarer on board ship at sea. The following comments are presented by Finland on the contents of the table.

- (a) The sense of balance is based on:
 - (i) on the sensory nerves in soles, muscles and tendons in the body;
 - (ii) on eye-sight; and

(iii) on the balance organ in the inner ear.

To keep one's balance in the dark is more difficult than in daylight. To study the balance apparatus as a whole, the candidate should walk in place with his eyes closed, lifting his knees up and down and swinging his arms in time with his steps.

- (b) Climbing vertical ladders requires strength and functional capacity but, above all, exercise. To carry out the recommended test, a space of more than 5 m in height with ladders is needed. In practice, this is not so simple. The safety risks of this test are moderate. In practice, walking up and down stairs could replace this test.
- (c) It is important to be able to manipulate mechanical devices. How can a medical examiner be sure that a candidate can open watertight doors, etc. as the demands on strength and dexterity vary from ship to ship? If the range of motion is less than 90 degrees, the defect can usually be compensated for by moving other parts of the limb.
- (d) The capacity to move in an agile way is important. Small persons are generally more agile than taller ones. Taller persons can, however, very often move faster than smaller ones. The ability to don a lifejacket in 2 minutes or an immersion suit in 3 minutes can save a person's life in certain conditions. One can, however, ask whether these tests measure the agility of the person or the size and design of the lifejacket or immersion suit.
- (e) Getting through a 60 cm x 60 cm size opening is necessary for using means of escape on board ship. However, the ability to move through this size of an opening mainly indicates something about the size of the person's waist not about his capacity to work in confined spaces. Claustrophobia constitutes a hindrance for working at sea. This condition must be noted when charting the candidate's previous history. No objective tests with respect to practical work are available.
- (f) Lifting objects of various weights can be easily measured. Not only the weight but also the size and the form of the object lifted must be standardized. Why are the weights used precisely 25 kg and 10 kg? In general, women are able to lift less than men; should this also be taken into account?
- (g) The medical examiner rarely has time to assess whether the candidate is able to walk or stand for a period of four hours. Asking about this should be enough.
- (h) The sense of smell may be important, not only for detection of smoke and hazardous odours but also for tasting food. Some persons are very skilful at "smell" tests while others are not. There are no limits or graded values for smell. To measure a person's capacity to distinguish odours is possible, but there is no way of arguing that he/she is fit for work at sea while another person is not. What should be done when the candidate has rhinitis?
- (i) A similar situation occurs when trying to create objective limits/screening levels for speech and clear articulation. If a person is used to the way his colleague speaks, he learns to understand him excellently, while another person, hearing the same person speak for the first time, can barely understand what he is saying. Common sense is the only way of evaluating speech and its intelligibility.

Action requested of the Sub-Committee

11 Finland proposes that Table B-I/9-1 developed by the United States on physical abilities for entry-level seafarers should also apply to experienced level seafarers as presented below. It lists the minimum tasks that seafarers must be capable of carrying out on board. The second column, "related physical ability", correlates with the tasks mentioned. The third and perhaps the most important column gives possible models on how to verify the seafarer's capacity to perform the tasks concerned. If in doubt, the medical examiner should clarify the defect by means of objective tests, whenever appropriate tests are available, or by referring the candidate to further medical examinations.

PROPOSED PHYSICAL ABILITIES FOR SEAFARERS

Physical demands are dependent on the task of each seafarer.

SHIPBOARD TASK, FUNCTION, EVENT OR CONDITION	RELATED PHYSICAL ABILITY	The MEDICAL EXAMINER* must confirm that the candidate
Rolling seas (+/- 10°); Slippery and uneven surfaces; risk of injury	Maintain balance (equilibrium)	has a normal sense of balance
Routine access between levels; emergency response procedures	Climb up and down vertical ladders	is able without assistance, to climb up and down a vertical ladder with rungs spaced not more than 30 cm apart, for a distance of 5 m, within 1 minute
Routine access between levels; emergency procedures	Walk up and down stairs (or inclined ladders)	is able without assistance, to walk up and down a stairway for a distance of 5 m with a vertical rise of treads not exceeding 30 cm apart, within 1 minute
Routine movement between spaces and compartments; emergency response procedures	Step over coamings (e.g., to 60 cm in height)	is able without assistance, to step over a 60 cm high door sill (coaming).
Open and close watertight doors; hand cranking systems, open and close valve wheels; handle lines, use hand tools (i.e., spanners, fire axes, valve wrenches, hammers, screwdriver, pliers)	Manipulate mechanical devices (manual and digital dexterity, and strength)	is able to grasp, lift and manipulate various common shipboard tools; move hands/arms to open and close valve wheels in vertical and horizontal directions; rotate wrists to turn handles.
Access throughout ship; use tools and equipment; emergency response procedures must be followed promptly, including donning of life jacket or exposure suit	Move with agility	does not have any defect or disease in his/her musculo-skeletal system, which could prevent his/her normal movement and physical activities
Handle ship's stores; use tools and equipment; handle lines; follow emergency response procedures	Lift, pull, push and carry a load; squat and bend at knees	does not have any defect or disease in his/her musculo-skeletal system, which could prevent his/her normal movement and physical activities
Overhead storage; opening and closing valves	Reach above shoulder height	does not have any defect or disease in his/her musculo-skeletal system, which could prevent his/her normal movement and physical activities

*** If in doubt, the medical examiner should clarify the defect by means of objective tests, whenever appropriate tests are available, or by referring the candidate to further medical examinations.**

SHIPBOARD TASK, FUNCTION, EVENT OR CONDITION	RELATED PHYSICAL ABILITY	The MEDICAL EXAMINER* must confirm that the candidate
General ship's maintenance; emergency response procedures, including damage control	Crouch (lowering height by bending knees) Kneel (placing knees on ground) Stoop (lowering height by bending at the waist).	does not have any defect or disease in his/her musculo-skeletal system, which could prevent his/her normal movement and physical activities
Emergency response procedures, including escape from smoke-filled spaces	Crawl (the ability to move the body with hands and knees). Feel (the ability to handle or touch to examine or determine differences in temperature)	does not have any defect or disease in his/her musculo-skeletal system, which could prevent his/her normal movement and physical activities
Making rounds; contributing to watchkeeping arrangements	Stand and walk for extended periods	is able to stand and walk for a period of not less than 4 hours.
Access between spaces; follow emergency response procedures	Work in and move through constricted spaces	does not have claustrophobia or other phobias. The candidate must be able to go through an opening of 60 cm x 60 cm.
React to visual alarms, warnings, and instructions; emergency response procedures	Distinguish an object or shape at a certain distance	fulfills the eye-sight standards specified by the competent authority.
React to audible alarms and instructions; emergency response procedures	Hear a specified dB sound at a specified frequency,	fulfills the hearing capacity standards specified by the competent authority.
Make verbal reports or call attention to suspicious or emergency conditions	Describe immediate surroundings and activities, and pronounce words clearly	is capable of normal conversation

*** If in doubt, the medical examiner should clarify the defect by means of objective tests, whenever appropriate tests are available, or by referring the candidate to further medical examinations.**