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NVIC 02 04

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 02 04

Subj: GUIDELINES FOR ASSESSING MERCHANT MARINERS THROUGH DEMONSTRATIONS OF PROFICIENCY FOR PERSONS IN CHARGE OF MEDICAL CARE

Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulation VI/4 paragraph 2 and Section A-VI/4-2 of STCW Code, incorporated into regulations at 46 CFR 10.102(b)
(b) Federal Register dated December 18, 2001, Docket No. USCG-2001-11149, Guidelines for Assessing Merchant Mariners Through Demonstrations of Proficiency for Persons in Charge of Medical Care
(c) Comments on Table A-VI/4-2, Assessment Guidelines, Specification of minimum standard of competence for Persons in Charge of Medical Care, Docket No. USCG-2001-11149-2, Available at: http://dms.dot.gov

1. PURPOSE. This Circular provides the national guidelines for assessing merchant mariners through demonstrations of proficiency for persons in charge of medical care. These guidelines are for use in training programs approved or accepted by the Coast Guard as meeting reference (a) and by designated examiners (DEs) when carrying out their assessments unless alternatives are used as discussed in paragraph 5.c.

2. ACTION. Officers in Charge, Marine Inspection (OCMIs), should use this Circular when establishing that candidates are entitled to hold STCW-95 certificates attesting proficiency as persons in charge of medical care as stipulated in 46 CFR 10.205(p). OCMIs should also bring this Circular to the attention of the appropriate people in the maritime industry within their zones. This Circular is available on the World Wide Web at http://www.uscg.mil/hq/g-m/nvic/. The Coast Guard will distribute it by electronic means only.

DISTRIBUTION – SDL No. 140

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NON-STANDARD DISTRIBUTION: See Page 3

3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

   a. The guidance from the International Maritime Organization (IMO) on shipboard assessments of proficiency, MSC/Circular 853, suggests that administrations should develop standards and measures of performance for practical tests as part of a program of training and assessment of mariners. These standards and measures ensure the uniform assessment of mariners without regard to individuality of the DEs and will result in standardization, fairness, and consistency. Enclosure (1) provides an overview of the Coast Guard's policy on assessments of mariners as required by the STCW.

   b. The Coast Guard tasked the Merchant Marine Personnel Advisory Committee (MERPAC) to recommend national assessment criteria for certification attesting proficiency as a person in charge of medical care. The National Maritime Center (NMC) then used MERPAC's recommendations to develop proposed national guidelines, which we published for public comment in reference (b). Reference (c) contains the public's responses to the request for public comment. Out of this process came the final version of the national assessment guidelines contained in enclosure (2).

5. DISCUSSION.

   a. All mariners who commence training or sea service required by the STCW on or after August 1, 1998, or all mariners applying for STCW certification attesting proficiency as persons in charge of medical care on or after February 1, 2002, must present documentation demonstrating competence in those skills specified in the table of enclosure (2). The practical demonstrations of skills are required by 46 CFR 10.205(p) to be completed in the presence of, and certified by, a DE. Unless a mariner demonstrates proficiency in the skills required for competence as a person in charge of medical care in enclosure (2), the OCMI will not issue the STCW certification as stipulated in 46 CFR 10.205(p).

   b. A person assessing mariners for STCW certification attesting proficiency as persons in charge of medical care should use either the guidelines in enclosure (2) or an alternative as discussed in paragraph 5. c when assessing practical demonstrations of proficiency.

   c. 46 CFR 10.302 gives the Coast Guard authority to approve courses that satisfy regulatory requirements or that substitute for a Coast Guard examination or a portion of a sea-service requirement. Those who assess the proficiency of mariners may refine these published guidelines and develop innovative alternatives; however, before they use any deviations from these guidelines, they must submit them to the NMC for approval by the Coast Guard. A training institution submitting a course that leads to certification attesting proficiency as a person in charge of medical care should either state that the guidelines in enclosure (2) will apply or otherwise identify the guidelines to be used.

   d. Merchant mariners required to demonstrate proficiency through demonstrations of skills for certification as persons in charge of medical care should use these guidelines for self-

study and self-assessment.

e. STCW Regulation VI/4 paragraph 2 requires those persons designated to take charge of medical care on board ships to meet these standards of competence for demonstrations of skills to meet the proficiency in Table A-VI/4, paragraphs 4, 5, and 6 of the STCW Code. The STCW is not a manning document; it establishes standards for a mariner's professional qualifications. United States' manning laws or regulations do not require that a vessel have someone specifically designated as a person responsible to take charge of extended medical care unless required by the vessel's Certificate of Inspection. It is not the intent of this NVIC to formalize or impose new manning requirements. It merely provides guidance for review of medical training courses that may meet the STCW's requirements and acceptance of the qualifications of mariners. It therefore provides shipping companies an avenue for proving that the person designated to take charge of medical care meets the requirements of STCW.

6. DISCLAIMER.

a. While the guidance contained in this document may assist the industry, the public, the Coast Guard, and other Federal and State regulators in applying statutory and regulatory requirements, the guidance is not a substitute for applicable legal requirements; nor is it itself a rule. Thus, it is not intended to nor does it impose legally-binding requirements on any party, including the Coast Guard, other Federal agencies, the States, or the regulated community.

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Encl: (1) Assessments of mariners
(2) Table A-VI/4-2, Assessment Guidelines, Specification of minimum standard of competence for Persons in Charge of Medical Care

Non-Standard Distribution:

B:a G-M(1); G-MS(1); G-MSO (4)

D:l CG Liaison Officer MILSEALIFTCOMD (Code N-7CG) (1); CG Liaison Officer MARAD (MAR-720.2) (1).

ASSESSMENTS OF MARINERS

1. ASSESSMENT OF SKILLS.

   a. Traditionally, in the United States, the Coast Guard has measured mariners' competency through assessments of knowledge. Knowledge-based components of this competency usually involve the recalling of facts or concepts, and written examinations are normally valid and reliable instruments for assessing such components. Historically, the Coast Guard has issued licenses and documents based predominantly on written essay and multiple-choice examinations. Currently, the Coast Guard employs a bank of over 25,000 multiple-choice questions to examine mariners.

   b. Assessment of understanding is more complex than assessment of knowledge. Understanding involves specific principles and information processes necessary to analyze alternatives, make conclusions, make choices and decisions, or affect outcomes. Because it is a covert characteristic, understanding must be ascertained through assessment of an overt behavior that demonstrates understanding. Ascertainment can employ a variety of mechanisms, ranging from written problems involving calculations or analysis of facts to practical demonstrations requiring diagnostic or analytical reasoning. Many of the Coast Guard's 25,000 written questions for multiple-choice examinations involve problems that assess an understanding; but, in many instances, complete understanding is best measured through actual assessment of a mariner's performance.

   c. Guidance provided by the IMO on certain assessments of proficiency requires development of standards and measures of performance for practical tests as part of seafarers' training programs. This is a new requirement for many flag-state administrations and their maritime industries. Performance assessment is part of a larger, well-established body of knowledge called instructional system design (ISD). Within this body, assessment methodologies range from the simple and straightforward to the complex and difficult. For the purposes of STCW, the Coast Guard believes the simplest and most straightforward approach works best and has decided to develop a set of national guidelines. In these, a performance standard has three components: the conditions, the behavior, and the criteria. The first establishes the conditions under which the candidate demonstrates the knowledge, understanding, or proficiency. The second specifies the precise set of knowledge, understandings, or skills (the 'behaviors') that is recalled, demonstrated, or performed. The third are the particular standards against which we measure an applicant's behavior to determine whether the performance is minimally competent.

   d. The third component is normally expressed in terms of "measures" or combinations of "measures," such as a time limit or requirement, a specific sequence, a number or a percentage, a tolerance, or a degree of conformance or accuracy required. For highly critical skills, the criteria may require precise answers, require exact sequences of actions, or have very small tolerances of

errors or degrees of conformance. For instance, missing just one step of a sequence may constitute failure because that step was critical to achieving the final outcome. In less-critical skills, wider tolerances or degrees of conformance may pass; however, in every case the applicant must demonstrate the minimal level of competence set forth in the criteria.

2. DEVELOPMENT OF STANDARDS.

a. While the STCW Code gives broad guidance on the standards of performance and methods of assessment, the responsibility for the development of specific performance standards for each competency lies with the training provider. Development of valid and reliable performance standards is a resource-intensive effort. To minimize cost to the industry, promote uniformity, expedite the development process, and provide valid examples of these new performance standards, the Coast Guard asked that the Merchant Marine Personnel Advisory Committee (MERPAC) develop recommendations for a set of these standards.

b. MERPAC developed the core elements of a set of these standards and forwarded them to the Coast Guard. We reviewed the initial recommendations and compared them to the requirements of the STCW. We incorporated the final products into the proposed national assessment guidelines and published them in the Federal Register for public comments. After considering the comments, we have made them the standards for identifying minimum levels of competence during demonstrations of a mariner's proficiency.

c. We encourage companies and maritime training institutions to use the national guidelines for assessment of STCW proficiencies in training programs submitted for our approval or for acceptance by a recognized quality-standards system. They should use them during STCW proficiency assessments conducted by their DEs. They may develop alternative assessment standards; however, they may not use these in accepted or approved training programs until the National Maritime Center of the Coast Guard has reviewed and approved them.

3. WRITTEN EXAMINATIONS.

a. Written examinations used in training programs under the STCW deserve particular emphasis. Companies and maritime training institutions should review their written instruments for assessing each knowledge-based and understanding-based competency from the STCW to ensure they include at least one question for each competency in the appropriate table from Part A of the STCW Code.

b. Companies and maritime training institutions should also have multiple questions for addressing each knowledge-based and understanding-based competency from the STCW to afford candidates a fair opportunity to demonstrate minimum ability. If only one question assessed a required knowledge or understanding, an incorrect answer would constitute a failure to have demonstrated the knowledge or understanding and would leave the candidate ineligible to have that

competency certified by the DE, unless the DE used an alternative method. Accordingly, it would be preferable for the assessment to contain several questions. For example, in a written multiple-choice examination, if four questions concerned the same critical knowledge and if the performance standard were a score of 70%, three correct answers and one incorrect answer would meet the requirements for minimum competency. In this case the mariner would qualify as competent for that knowledge.

TABLE A-VI/4-2 Assessment Guidelines
Specification of minimum standard of competence for Persons in Charge of Medical Care

Each candidate for an STCW endorsement as a Person in Charge of Medical Care must meet the standards of competence set out in STCW Code Table A-VI/4-2 (46 CFR 10.203(j)). To accomplish this, he or she must:

- Complete approved training and meet all the competencies in the table;
- Pass a written examination for the portion of the competencies on knowledge and understanding; and
- Successfully accomplish a practical demonstration of skill for selected competencies.

The United States Coast Guard requires each mariner seeking proficiency as Person in Charge of Medical Care aboard ship to attend a course approved by the National Maritime Center. For this reason, these guidelines contain the assessment criteria for both requirements, knowledge (listed in the paragraph below) and skill, Table A-VI/4-2.

Written assessments

The knowledge-based or understanding-based portion of the following competencies may be assessed through a written multiple-choice examination. Written examination in these areas of assessment will satisfy applicable parts of 46 CFR 10.901 if these national guidelines are used in lieu of an alternative set discussed in paragraph 5.c: Signs and symptoms of bleeding; signs and symptoms of burns, scalds and frostbite; types of wounds and their treatment; signs of infection; procedures to manage systemic pain; procedures to manage pain before cleaning; uses of lidocaine with and without epinephrine; suturing a wound and removing sutures; identifying wounds that may be sutured and criteria for removing sutures; signs, symptoms, and emergency treatment for acute abdominal conditions; steps involved in minor surgical procedures; steps for treating an abdominal evisceration; bandaging a sucking chest wound; identifying general principles of nursing care; inserting or simulating inserting a urinary drainage catheter (male and female); inserting a naso-gastric tube; injecting medicine by intramuscular and subcutaneous route; signs, symptoms and treatments for hyperglycemia, anaphylaxis, dehydration, gonorrhea, syphilis, genital herpes, systemic infections, malaria, and hepatitis A and B; signs of alcoholism and drug abuse; signs of and treatment for toothache and other dental problems; signs, symptoms, and treatments for gynecological conditions, pregnancy and childbirth; methods to determine cause of death and how to prepare a body for storage at

sea; personal hygiene; preventing disease aboard ship; preventing disease through vaccination; preparing a patient for evacuation; and methods of cooperation with health authorities in port.

Demonstrations of Skill

In addition to passing a written examination, the competency entitled "Provide medical care to the sick and injured while they remain on board" requires a practical demonstration of skill to assess proficiency. These assessment guidelines establish the conditions under which the assessment will occur, the performance or behavior the candidate is to accomplish, and the standards against which to measure the performance. The examiner can use a checklist in conducting assessments of practical demonstrations of skill. Checklists allow a training institution or designated examiner to avoid overlooking critical tasks when evaluating a candidate's practical demonstration. Training institutions and designated examiners can develop their own checklists for use in conducting the assessments in a complete and structured manner.

TABLE A-VI/4-2 Guidelines for Assessment
Specification of minimum standard of competence
for Persons in Charge of Medical Care

** Indicates a proficiency from Table A-VI/4-2*

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
Provide medical care to the sick and injured while they remain on board.	***Care of the casualty involving** head and spinal injuries**	In a graded practical exercise, given a patient simulating a head injury,	the candidate will demonstrate the techniques for conducting a neurological assessment.	The candidate correctly demonstrates the following assessment techniques and states the significance of each finding: 1. pupillary reaction; 2. level of consciousness; 3. verbal communication; and 4. sensory motor status.
	*Care of the casualty involving injuries to ear, nose, throat and eye**	In a graded practical exercise, given a patient simulating a bleed from the ear,	the candidate will use external bandages to control bleeding from the ear.	The candidate correctly: 1. demonstrates the proper procedures for self-protection against the transmission of blood-borne pathogens; 2. applies an external bandage to stem bleeding of the ear; and 3. does not pack the ear.
		In a graded practical exercise, given a patient simulating a nose bleed,	the candidate will demonstrate the proper techniques to stop bleeding from the nose.	The candidate: 1. demonstrates the proper procedures for self-protection against the transmission of blood-borne pathogens;

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 2. positions the patient sitting upright with the head tilted forward; 3. pinches the bridge of the nose; and places ice on the back of the neck or the forehead.
		In a graded practical exercise, given a patient simulating an object impaled in the eye,	the candidate will demonstrate the proper method of bandaging an eye impaled by a foreign object.	The candidate: 1. immobilizes the object impaled in eye; and 2. bandages both the affected and unaffected eyes.
		In a graded practical exercise, given a patient simulating a foreign liquid or solid substance in the eye,	the candidate will demonstrate the proper method of treating a foreign liquid or solid substance in the eye.	The candidate flushes the affected eye with copious amount of water (saline, if immediately available) to wash away chemicals or solid particles.
		In a graded practical exercise, given a patient simulating a soft-tissue injury to the throat,	the candidate will demonstrate the proper method of treating a soft-tissue injury to the throat.	The candidate: 1. anticipates a compromised airway; and 2. maintains airway management techniques.
	Care of the casualty involving external and internal	In a graded practical exercise, given a patient simulating a	the candidate will demonstrate application of pressure	The candidate correctly demonstrates the: 1. proper procedures for self-

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	*(cont'd) bleeding**	(cont'd) bleeding wound,	(cont'd) dressing and location of pressure points.	(cont'd) protection against the transmission of blood-borne pathogens; 2. location of the brachial and femoral pressure points; and 3. application of a pressure dressing at the wound site.
		In a graded practical exercise, given a patient simulating an arterial bleed of an extremity,	the candidate will state when to use a tourniquet.	The candidate correctly states that a tourniquet will only be applied when: 1. all other methods of controlling bleeding have failed; and 2. continued bleeding is life-threatening. NOTE: The candidate shall demonstrate the proper procedures for self-protection against the transmission of blood-borne pathogens.
	IV therapy	In a graded practical exercise, given a simulated patient or simulated arm designed for training in intravenous (IV) infusion and the	the candidate will demonstrate the proper technique for initiating, maintaining, and calculating the rate of flow for the IV infusion set being used	The candidate correctly: 1. demonstrates the technique for calculating rate of flow; 2. selects infusion equipment while maintaining sterility; 3. demonstrates the use of body substance isolation precautions

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) necessary materials to initiate an IV infusion,	(cont'd) such as macro/micro drip unit.	(cont'd) throughout the procedure; 4. assembles infusion equipment while maintaining sterility, including: a. infusion fluid (inspects for type of fluid, expiration date, and presence of precipitates in solution; b. infusion tubing for damage; c. IV catheter; d. constriction band; e. tape; and f. insertion site dressing; 5. spikes infusion tubing into IV fluid container and primes tubing to remove air; 6. selects vein in upper extremity suitable for intravenous catheter insertion; 7. cleanses the insertion site with alcohol or povidone (ask about allergy to povidone); 8. applies constriction band; 9. locates vein and inserts an over-the-needle type catheter into the vein; 10. advances the catheter into the vein when blood enters the flash

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) chamber; 11. removes the constriction band when the catheter is fully advanced; 12. attaches infusion tubing and secures infusion device to the patient using tape; 13. applies a sterile dressing to the insertion site and tapes the infusion tubing into a tension loop; and 14. demonstrates the method to open infusion of fluid by releasing the tubing roller clamp
	*Care of the casualty involving fractures, dislocations and muscular injuries**	In a graded practical exercise, given a patient simulating a fracture of the ankle and a dislocated shoulder, and materials for splinting,	the candidate will demonstrate the splinting of an ankle fracture and immobilization of a dislocated shoulder,	The candidate correctly applies a pillow splint to an ankle fracture, following these procedures: 1. manually stabilizes the fractured ankle or leg; 2. assesses distal neuro-vascular function; 3. applies pillow to the ankle and lower leg, wrapping it around the ankle and leg and keeping the foot exposed; 4. secures pillow using cravats or other device to tie ends together; and

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 5. re-assesses distal neuro-vascular function. The candidate correctly immobilizes a dislocated shoulder using the following procedures: 1. assesses distal neuro-vascular function; 2. applies sling using triangular bandage or commercial-type sling (knot of sling should not be pressing on neck); 3. using a cravat or other binding, applies a swath over sling and around body; and re-assesses distal neuro-vascular functions.
	*Care of the casualty involving techniques of sewing and clamping**	In a graded practical exercise, given a simulated wound, suturing needle, thread, clamps, steri-strips, and suture removal scissors,	the candidate will utilize all of the equipment to demonstrate the proper technique to suture the wound, including application of steri-strips.	The candidate correctly demonstrates a standard instrument tie to include the following: 1. ties all knots to one side of the wound; 2. begins sutures at center of wound and proceeds outward; and 3. uses strategic sutures to match up obvious points in irregular wounds.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) The candidate correctly demonstrates application of steri-strips to a laceration which does not require sutures. The candidate correctly demonstrates suture removal to include the following: 1. lifts suture with forceps; 2. cuts suture near skin surface; and 3. pulls suture out holding the knotted end of the suture. NOTE: The candidate shall demonstrate the proper procedures for self-protection against the transmission of blood-borne pathogens.
		In a graded practical evaluation, given a simulated chest wound, occlusive dressing materials, and tape,	the candidate will bandage a sucking chest wound.	The candidate correctly demonstrates the following: 1. the proper procedures for self-protection against the transmission of blood-borne pathogens; 2. surveys and determines the entrance (and exit) wound(s);

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 3. covers wound(s) with occlusive dressing; 4. tapes three sides of the dressing over the wound; and 5. monitors respiratory effort of victim.
	*Nursing care**	In a graded practical evaluation, given a real patient or urinary-catheterization simulator, and supplies for urinary-catheter insertion,	the candidate will insert or simulate inserting a urinary-drainage catheter (male and female).	The candidate correctly demonstrates the following: 1. maintenance of correct sterile techniques; 2. cleansing of the meatus ; 3. lubrication of the catheter; 4. insertion of the catheter into urethra until urine drains; and 5. opening of the roller clamp of the tubing.
		In a graded practical evaluation, given a mannequin and supplies for naso-gastric tube insertion,	the candidate will insert a naso-gastric tube.	The candidate correctly demonstrates the following: 1. utilizes proper precautions for isolating bodily substances; 2. measures length of tube to insert; 3. lubricates tube; 4. positions patient; 5. inserts tube through nose; 6. demonstrates one test to confirm placement; and 7. secures tube to nose with tape.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		In a graded practical evaluation, given a real or simulated patient, and supplies for injections of medicine,	the candidate will administer medication injection by intramuscular route.	The candidate: 1. confirms the medicine order, calculates proper dosage, identifies correct medicine and confirmed expiration date; 2. draws up correct dosage from medicine vial using sterile technique, checking medicine to medicine order at least three times and using correct needle and syringe for injection based on location of injection and amount of medicine; 3. demonstrates the proper procedures for self-protection against the transmission of blood-borne pathogens; 4. locates the injection site (deltoid, glutens, or vastus lateralis); 5. cleanses the injection site with alcohol pad using circular motion; 6. inserts the needle into muscle at 90° angle; 7. aspirates the syringe, and, if no blood, injects the medication; and 8. displays the proper handling and

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) disposal of the needle.
		In a graded practical evaluation, given a real or simulated patient, and supplies for injections of medicine,	the candidate will inject medicine by subcutaneous route and intra-muscular (IM) route.	The candidate: 1. confirms the medicine order, calculates proper dosage, identifies correct medicine, and confirms expiration date; 2. draws up the correct dosage from medicine vial using sterile technique, checking medicine to medicine order at least three times and using correct needle and syringe for injection based on location of injection and amount of medicine; 3. demonstrates the proper procedures for self-protection against the transmission of blood-borne pathogens; 4. locates the injection site; 5. cleanses the injection site with alcohol pad using circular motion; 6. inserts the needle: a. into subcutaneous tissue at 45° angle; or b. into intra-muscular tissue at 90° angle; 7. aspirates the syringe, and, if no

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) blood, injects the medicine; and 8. displays the proper handling and disposal of the needle.

* *Indicates a proficiency from Table A-VI/4-2*