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# Need for training of seafarers in first aid and medical matters

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**Abstract.** The opportunity for providing first aid in emergency cases is frequently an important part of the seafarers' skills and everything possible must be done for encouraging the tradition of health and medical care in the sea. In order to guarantee health and medical service on-board, every sailor needs to know the techniques of first aid. It's quite obvious that it cannot be expected by sailors to be doctors, but sometimes there are life-threatening situations, in which they should react fast and effectively. The ship captains attend a first-aid refreshing course, every five years. This period seems too long to guarantee adequate medical treatment by seafarers on-board.

**Keywords:** first aid; training of sailors; safety at sea; medical care; marine medical cases.

## 1. Introduction

All around the world today, the 24-hour medical service on land is taken for granted. But it's not the same in open sea, where, with some exceptions, there's no physician or nurse onboard the ships, but just a certified member of the crew, who renders first medical aid.

From decades on, the International Maritime Organization to OUN (IMO) in London, develops modern and effective rules, having to do with navigation safety. This normative toolbox is perfected and updated annually. Bulgaria and most of the other countries are sides of the international conventions for commercial navigation, which are universal and concern the whole World Ocean.

In Bulgaria, multiple courses for ship officers and other persons, rendering first medical aid to the seafarers onboard the ship, are being organized. The trainings are consistent with the international conventions and requirements for this preparation. Marine Administration gives a certificate Proficiency in Medical first aid to those, who have passed the written and final practical test. The ones who have successfully graduated, increase and consolidate their skills and knowledge of rendering first medical aid, whenever there's a mishap or a disease onboard the ship, until a team of qualified medical aid, arrives.

## 2. Exposition

The training of the marine personnel throughout the world is based on the main requirements of seamen's preparation for providing safety when at sea. The International Maritime Organization to OUN in London, had accepted a whole pack of fundamental documents, which outline the frames of the new educational doctrine, and are compulsory for all sea countries [1]. The main International standards and regulations with the formal requirements and recommendations to the ship's medical service [2]:

<b>International Labour Organization Conventions</b>
C55 Ship owners' Liability (Sick and Injured Seamen) Convention, 1936
C 56 Sickness Insurance (Sea) Convention 1936
C92 Accommodation of Crews Convention (Revised), 1949 Article 14, related to the hospital accommodation.
C126 Accommodation of Crews (Fishermen) Convention, 1966 Article 13, related to the sick bay and medical chest
C133 Accommodation of crew
C134 Prevention of Accidents (Seafarers) Convention, 1970
C164 Health Protection and Medical Care (Seafarers) Convention, 1987
<b>International Labour Organization Recommendations</b>
R105 Ships' Medicine Chests Recommendation, 1958
R 106 Medical Advice at Sea Recommendation, 1958
R142: Prevention of Accidents (Seafarers) Recommendation, 1970 Convention C126 requires that the R105 shall be followed
<b>EU Directives</b>
Council Directive 92/29/EEC of 31 March 1992 on the minimum safety and health requirements for improved medical treatment on board vessels
Regulation (EC) No 336/2006 of the European Parliament and of the Council of 15 February 2006 on the implementation of the International Safety Management Code within the Community and repealing Council Regulation (EC) No 3051/95 Text with EEA relevance
<b>International Maritime Organization Conventions</b>
International Convention for the Safety of Life at Sea (SOLAS), 1974, Section III
International Life-Saving Appliance (LSA) Code – Resolution MSC.48(66)
International Safety Management (ISM) Code 2002
International Convention on Maritime Search and Rescue, 1979, SAR
<b>International Maritime Organization Recommendations</b>
ISBN: 1589636295: The Ship's Medicine Chest and Medical Aid at Sea, U.S. Public Health services.

The seafarers have the right to receive timely and adequate medical aid onboard. The ship's personnel is responsible for the medical care onboard. According to the order for the crew SchBesV [3]:

- ✓ The ships that travel more than 3 days and carry 100 or more seafarers onboard, must have a ship physician onboard.
- ✓ Ships with more than 800 persons onboard, needs to have a second physician.
- ✓ Ships who have a physician, need to have a nurse, too.

With only a few exceptions, like for example cruise ships, the marine ships have no physician onboard. Medical care is in the hands of the captain, or a selected officer for this. So, the medical equipment onboard must be suitable for medical treatment of ill or wounded people by non-professionals, who have passed basic medical training.

The medical equipment onboard marine ships under the German flag, corresponds to the needs in an optimal way. The equipment varies, depending on the region of transportation and the number of people onboard. The four-week medical training of deck officers in the marine colleges, is updated with refreshing courses every five years. The medical equipment onboard includes: medicaments, medical ware and other helpful resources, a register of the controlled medicaments, register of patients, medicament forms and medical handbook "German medical handbook for ships" [4]. The German

medical handbook for ships is a textbook for medical training of officers on ships, and at the same time the manual for medical service onboard ships without no doctor. The handbook can be found in English, too. From its publishing to date, it gets high degree of international recognition, and is used on ships which are not under a German flag.

All the people onboard need to be trained to apply elementary medicaments, for example when dealing with gastrointestinal disorders and dehydration of the organism. Under international guidance there are three levels of first aid training for seafarers. Before starting work at sea, all seafarers are required to undertake elementary first aid training, which is a short course designed to provide a basic knowledge of what to do, when faced with an accident or medical emergency. Ships' officers are required to complete proficiency in medical first aid training, covering the provision of immediate first aid in the event of an accident or illness on board. The provision of medical care on board a ship shall be carried out by the master or designated crew member who has undergone medical training. Each of the courses covers the use of the medical stores, which are required to be carried on board [5].

Every five years the captains and officers of ships, which are loaded to deliver medical care, must update their basic knowledge, by attending refreshing courses. Depending on the trading region, an officer or ship captain must attend either a long, or a brief seminar [6]:

- The long seminar (40 hours) is useful for: unlimited voyages, European voyages, fishing ships and marine fishing;

- The brief seminar (16 hours) is required for any other trading areas – mainly national commerce.

According to Directive 92/29/EEC of the Council of minimal requirements for safety and health in improving the medical service onboard vessels [7]:

- each vessel with a crew of 15 or more workers onboard, and floats for a period of over 3 days, needs to have an infirmary, which provides medical services with satisfactory hygienic and material conditions;

- each vessel whose crew is 100 or more workers, and floats internationally for over 3 days, needs to have a physician onboard, responsible for the workers' medical service.

The World Health Organization emits international health rules in the form of conventions, which deal with the prevention, immunity against and control of the international diffusion of diseases. The basic and most important document is the International Convention of human life safety by the sea [8].

International requirements stipulate that merchant ship officers who carry out medical treatment on board the ship should be involved every 5 years in refresher courses. According to a study of the physicians in a refreshing medical course at the Institute of Occupational and Marine Medicine in Hamburg, Germany, the most serious incidents on board are most often associated with traumas or cardiovascular diseases. Taking into account the acquired medical knowledge, there seems to be a need to train deck officers within these fields, more intensively. Examination of the medical knowledge of seafarers before the refresher course recognizes that the five-year period is too long to guarantee adequate medical treatment if needed. [9].

A conducted study among students from a marine faculty in Turkey, shows that the general perception of risk for most of the health problems, particularly of contagious diseases, is very low for all them. The conclusions show that most of the students in marine law, get information of their health and illness from Internet sources. The seafarers need to be trained and educated. In case of emergency, concerning the crew's health, the first responsible person onboard is the assigned ship officer. Sometimes those officers aren't just a responsible person, but the only possible option. The methods of training need to be improved [10].

The study of data from five big ship companies, made in the US in 2016, shows interesting facts. The study showed that the number of confirmed cardiovascular cases on board, was very low. In most cases, chest pain are determined incorrectly as cordial. The exact description of the clinical condition is crucial for the correct diagnosis. [11]

The data for medical emergencies of a 3-year period on the route Oslo-Kiel-Oslo are studied, which lead to an evacuation with a helicopter or other urgent transfer from the two ferries, to the facilities on

coast. Unlike most ocean-going vessels, they are not required to carry a doctor, but a hospital helper who handles emergencies. A total of 169 are transferred from the ferries to ground facilities, as a helicopter was used for 85 (n) of them. The narrow co-operation between the medical auxiliary on the ferry and the tele-medical physician on land, allows a short-time transportation to ground facilities for severely ill patients [12].

The annual number of external aid calls made by ships to the Norwegian authorities show that the need for medical assistance is the most common cause. In 2014, 39% of the calls are for medical assistance. Help for medical evacuation is the cause of a significant portion of calls to Tele-medical Assistance Services (TMAS) [13].

The training of the seafarers on merchant ships is regulated by the Convention Standards of training, Certification and Watchkeeping, known in the trade as STCW, which is found in 1978. The convention which is being altered for the last time in 2010, gives rules of certification of marine specialists' competence, requirements to their training and methodology. Regular participation of crew members in refresher courses ensures that their skills are maintained at a satisfactory level. Each ship must have plans for the use of medical equipment and medical devices for staff training. The psychological know-hows of adapting young seafarers to the ship's working environment, is of paramount significance for the crew's health. Occupational stress works long and leads to consequences that may occur in time. Specific stress factors in the work environment vary from one profession to another, but stress strategies can be used in all spheres [14].

Although there's an international regime for training seamen who work in all sorts of vessels, the regulations are largely imposed in a national level. The IMO itself has quite limited competences to impose following those standards. One of the main parts of the convention – Division “V” – suggests instructions on helping people engaged in education, training or evaluation of the seafarers' competence, but it's not obligatory within the international legislation.

### 3. Conclusion

Ship owners and seafarers must do their best to prevent any unwanted or fatal consequences of accidents and diseases by complying with the conventions and rules ratified by the flag of the state. Obviously, seafarers are not expected to be physicians, but sometimes there is a life-threatening situation in that need to respond quickly and effectively. To guarantee health and medicine on board, every seafarer must know first aid technique. A well-equipped staff, competent in the medical matter, will effectively treat most injuries aboard, and thus reduce the number of costly and inconvenient helicopter evacuations, ship diversions, port referrals and medical disembarkations.

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