

## **MARITIME MEDICAL PROTECTION AND SEAMEN'S SAFETY**

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Split, July 2007

### **ABSTRACT**

According to the *Convention about Safety of Life at Sea – SOLAS*, ships can be classified in two categories:

- Convention ships, and
- Non-Convention ships.

The recommendations of the SOLAS Convention apply to Convention ships. Such ships have been specified in Chapter 1, Rule II of the SOLAS Convention, and include all passenger ships and ships above 500 GT. The ships to which the Convention applies are also called Convention ships.

Non-Convention ships are also called Non-SOLAS ships. They are, for instance, cargo ships under 500 GT, military ships, simply constructed wooden ships, ships for recreation, fishing ships and yachts.

Various countries have various government bodies competent for maritime affairs. They adopt or implement into their legal system various laws and ordinances in conformity with international regulations and corresponding recommendations.

In this paper training programmes for first aid and medical assistance on ships are analysed.

In order to improve safety of human life on ships from the aspect of first aid and medical care with both categories of ships, the deficiencies are presented and further development is proposed.

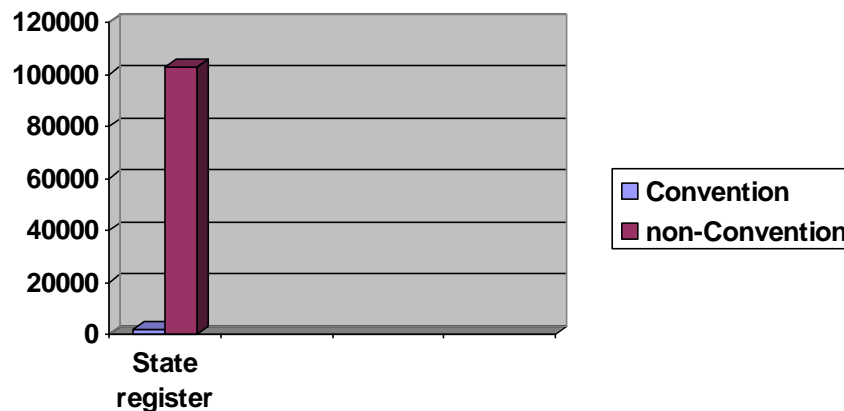
## 1. INTRODUCTION

Non-Convention ships mostly operate at sea, but also at rivers and lakes. In the development of the safety system, besides sea-going ships, ships at rivers and lakes have to be taken into consideration.

The whole group participates in potential safety risks. When estimating risks the starting point may be the basic information about comparing the number of non-Convention ships in countries with strong nautical tourism with the number of Convention ships of the same country (Table 1).

Table 1 Comparison of the number of Convention and non-Convention ships in the Croatian Register of Shipping in 2006

Source: [www.mppv.hr](http://www.mppv.hr), Public debate about measures for improving the status of Croatian mariners, Mali Lošinj, 1<sup>st</sup> March 2006



It is assumed that in most cases the number of non-Convention ships in relation to Convention ships is higher or increasing. The risks are various and predictable. Some of the risks are:

- Terrorist attack,
- Environment pollution,
- Biological pollution,
- Human trafficking,
- Illegal trade, and
- Medical safety [], etc.

In the research of various diseases at the Convention ships, conducted, for instance, by *Holland America Line* [1] in 2000, the results presented in Table 2 were obtained.

Table 2 Type of injury, disease or condition at SOLAS passenger ships  
Source: Business Briefing, Global Cruise 2004

<b>Type of injury, disease or condition</b>	<b>Number of injuries, diseases or condition</b>	<b>Percentage of injuries, diseases or condition</b>
Cardiovascular	175	29.17%
Musculoskeletal	112	18.67%
Other	87	14.5%
Gastrointestinal	84	14.0%
Central nervous system	51	8.5%
Respiratory	46	7.67%
Genital/urinary	22	3.67%
Infectious disease	11	1.83%
Endocrine	7	1.17%
Obstetric/ gynaecology	5	0.83%
<b>Σ</b>	<b>600</b>	<b>100%</b>

It may be therefore assumed that at non-Convention ships the situation relating to diseases and injuries is similar.

It may also be assumed that there are relatively a lot of various diseases at both categories of ships. Further in the paper the level of qualification of mariners for medical protection at both categories of ships is presented.

## **2. SOLAS AND NON-SOLAS SHIPS, REGULATIONS AND MEDICINE**

Seamen's obligations relating to:

- First medical aid and
- Medical care

are regulated by national administrations in compliance with recommendations of IMO and other organisations.

Relevant ordinances, in compliance with recommendations of IMO and other organisations, enforced by national administrations, regulate seamen's obligations relating to:

*The Certificate on competence for giving first-aid treatment* pursuant to the Standards for Training and Watchkeeping Certificate - STCW VI/4, will be issued to a seaman who completes a special course and passes the exam. In order to achieve competence for giving first-aid treatment it is planned to master the programme consisting of various topics, each including a specified number of lectures and practice (Table 3).

Table 3 Programme of the first aid at ship

	<b>Topic</b>	<b>Number of hours</b>	
		<b>Lectures</b>	<b>Practice</b>
1.	Immediate actions	1.0	1.0
2.	Instruments for first aid	0.25	0.5
3.	Body structure and functions	2.0	0.5
4.	Risk of poisoning on the ship	1.0	0.5
5.	Examining the patient	1.0	0.5
6.	Spine injuries	1.0	1.0
7.	Burns, steam injuries, consequences of excessive cold and heat	1.0	1.0
8.	Fractures and sprains, muscle injuries	1.0	1.0
9.	Medical care of the rescued, including distress, hypothermia and freezing	1.0	
10.	Medical advice through radio	1.0	
11.	Pharmacology	0.5	0.5
12.	Sterilisation	0.5	1.0
13.	Heart attack, drowning and suffocation	1.0	1.25
	<b>TOTAL</b>	<b>12.25</b>	<b>8.75</b>
	<b>TOTAL (LECTURES + PRACTICE)</b>	<b>21.0</b>	

During the course *Competence of giving first-aid treatment* the following equipment will be used:

- Ship's dispensary without medication,
- stretchers,
- resuscitator,
- dummy for practising resuscitating procedure,
- bandages,
- splints, and
- immobilisation devices.

*The Certificate on competence for giving medical care on the ship (STCW VI/4)* will be issued to a seaman who completes a special course and passes the exam. In order to achieve competence for giving medical care on the ship it is planned to master the programme consisting of various topics, each including a specified number of lectures and practice (Table 4).

Table 4 Programme for medical care on the ship

	<b>Topic</b>	<b>Hours</b>	
		<b>Lectures</b>	<b>Practice</b>
1.	First aid	3.0	2.0
2.	Care about the wrecked persons	4.0	3.0
3.	Nursing care	1.5	0.5
4.	Diseases	3.0	1.0
5.	Alcohol and drug abuse	2.0	
6.	Dental care	1.0	1.0
7.	Gynaecology, obstetrics, pregnancy and delivery	2.0	
8.	Medical care of rescued people, including disaster, hypothermia and exposure to cold	2.0	

9.	Death at sea	1.0	
10.	Help given by a third party	2.0	
11.	Control of the ship	1.0	1.0
12.	Prevention of diseases	2.0	
13.	Regulations and keeping records	2.0	
14.	Medicines and medical equipment	1.0	1.0
15.	Surgery equipment, instruments and accessories	2.0	1.0
	<b>TOTAL</b>	<b>29.5</b>	<b>10.5</b>
	<b>TOTAL (LECTURES + PRACTICE)</b>	<b>40.0</b>	

During the course *Certificate on competence for giving medical care on the ship* the following will be used:

- Ship's dispensary without medication,
- Stretchers,
- Resuscitator,
- Dummy for practising resuscitating procedure,
- Bandages,
- Splints,
- Immobilisation devices,
- Laboratory equipment for clinical testing,
- Equipment for eye injuries treatment, and
- Reference video material.

It is obvious that during their training for first giving first-aid treatment aid and medical care, seamen are trained for a relatively wide range of competence in the field of medical profession. It is reasonable to expect that after acquiring the authorisation for giving a first-aid treatment and medical care the seamen will be fully trained for such operations on the ship, in compliance with knowledge and available standards with minimum medical instruments. It may be unquestionably stated that seamen with such

authorisation on Convention ships, in order to apply timely, accurate and functional medical diagnostics lack international standardised, comprehensive and quality medical and diagnostic instruments.

There are no legal regulations referring to non-SOLAS ships relating to compulsiveness and uniformity of training for first aid and medical care. In the world there are various certificates and qualification levels for important maritime elements. It is evident (Table 1) that a relatively large group of non-Convention ships is in the area for which there is no suited form of medical care rules. Therefore the appropriate medical care rules for non-Convention ships have to be developed.

### **3. FINAL REMARKS**

In order to increase the level of protection of seamen with both categories of ships [2] it is proposed to use all satellite and terrestrial communication forms defined by the *Global Maritime Distress and Safety System-GMDSS* [3] and other systems.

At Convention ships, medical intervention and the period after it is supervised by authorised ship officers. They are also engaged in other primary tasks on the ship. It is therefore proposed to automate potential procedures in medical diagnosing and treatment [4]. Automation includes relevant medical and other equipment essential for basic diagnostics, which refers to extensive use of computers and especially designed programmes. Additional medical training of seamen is also proposed, including modern technological solutions, e.g. telemedicine, for which a special course is proposed.

In order to achieve the optimal level of medical protection and safety of seamen and passengers in the category of non-Convention vessels, it is proposed to develop a series of measures relating to:

- standardising training requests,
- identifying the areas of dense traffic of non-Convention ships, and
- organising a service for providing first-aid treatment and medical care.



Standardising training requests has to be implemented at international level and supported by a relevant international organisation, for instance, the United Nations Organisation (UN) or International Maritime Organization (IMO) [5], and new compulsory courses have to be introduced.

All the areas and density of traffic of non-Convention ships need to be identified in order to recognise potential increased risks for a collision or a typical disease or injury.

When organising a service for providing first medical aid and care it is proposed to organise a network of fast vessels equipped with medical personnel and equipment. Also, at peak times of navigation of that category of ships it is proposed to increase the number of corresponding land resources for providing first-aid treatments and medical care.

## **REFERENCES**

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- 4) [www.iho.org](http://www.iho.org),
- 5) [www.imo.org](http://www.imo.org)