



NORWEGIAN CENTRE FOR
MARITIME MEDICINE

Recommendations for

Ship Medical Facilities

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Preface

The design and construction of adequate medical facilities is complex, as they have to comply with regulations from a number of different authorities. However, experience shows that these regulations are not always followed, and that even compliance with existing regulations does not always give an optimal result.

The Norwegian Maritime Medical Centre considers it appropriate to publish these recommendations which are based upon existing regulations, experience and best medical practice.

The construction of an optimal medical facility does not necessarily increase costs. On the contrary, it can have economic benefits.

Substantial contributions to these recommendations have been provided by representatives from a number of institutions:

iMed Norwegian Telemedicine AS (Aase Tveito), Medi 3 (Lars Per Brandal), Norwegian Maritime Directorate (Sigmund Breivik), Norwegian Directorate for Health and Social Affairs (Ole Bjørn Herland), Norwegian National Hospital (Eilif Dahl), Royal Norwegian Navy (Jan Sommerfelt-Pettersen), Radio Medico Norway (Aksel Schreiner). Representatives from different shipowners and other institutions have also contributed.

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Acronyms and abbreviations

EMSA	European Maritime Safety Agency
ERRVA	Emergency Response & Rescue Vessel Management Guidelines
ILO	International Labour Organisation
IMO	International Maritime Organisation
LSA	Life Saving Appliances
SAR	Search and Rescue
SOLAS	Safety Of Life at Sea
STCW	Standards of Training Certification and Watchkeeping
UKOOA	UK Offshore Operators` Association Limited

1 Introduction

The building of modern ships requires substantial engineering capabilities as well as advanced technology. The result is ships with thoroughly evaluated design and construction solutions for maritime use. A ship must withstand the loads which it is designed to carry and at the same time be functional and aesthetic.

A ship is an enclosed society containing all essential functions for both crew and passengers for a period of time. This includes sleeping accommodation, washrooms, rest areas, galley and mess rooms as well as working areas. In addition, modern ships have gyms, television, computers with satellite connections and other facilities allowing the crew approximately the same levels of comfort and recreation as on-shore.

Any properly functioning society has a 24-hour medical service.

The conventions and regulations ratified by the flag state must be followed, and responsible ship owners and sailors must do their utmost to prevent any undesirable or fatal outcomes of accidents and illnesses. This manual comprises relevant information on ships' health facilities, medicines and equipment. The aim is to provide help and guidance for

- Ship constructors and designers
- Ship builders
- Ship owners
- Maritime organisations
- Authorities
- Inspectors
- Crew

The majority of the recommendations in this document are derived from conventions and directives ratified by the Norwegian state. They refer to the requirements applicable for the construction and operation of ships flying the Norwegian flag or from another ratifying state. For the merchant fleet, Norwegian ship owners follow international conventions and regulations.

In this document we also recommend solutions that are not formally required. These recommendations are seldom cost drivers, but are recommended ways of complying with the specification with the best possible result. Such items are specified with a "should" instead of a "shall".

1.1 *Relevant documents and standards*

This chapter refers to the International standards and regulations with the formal requirements and recommendations to the ship's medical service. Excerpts from the standards with the relevant points are included at the end of the document.

1.1.1 ILO conventions

The following ILO conventions are relevant to the ship's medical service:

- C55 Ship owners' Liability (Sick and Injured Seamen) Convention, 1936¹
- C 56 Sickness Insurance (Sea) Convention 1936²
- C92 Accommodation of Crews Convention (Revised), 1949
Article 14, related to the hospital accommodation.

¹ Not ratified by Norway

² Not directly relevant to the medical facilities on ships. Revised in C165, 1987

- 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

1.1.2 ILO Recommendations

- 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.

1.1.3 EU Directives

- 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.

1.1.4 IMO Conventions

- 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

1.1.5 IMO Recommendations

ISBN: 1589636295: The Ship's Medicine Chest and Medical Aid at Sea, U.S. Public Health services.

1.1.6 Norwegian Legislation

General

- Regulation of 9 March 2001 No. 439 concerning medical supplies on ships (Ship medical regulation)
- Regulation of 1 January 2005 No. 8 concerning the working environment, health and safety of workers on board ship.
- Regulation of 17 December 2004 No. 1855 concerning life-saving appliances on cargo ships.
- Regulation of 15 September 1992 No. 693 concerning the Form and Keeping of Log Books for Ships and Mobile Offshore Units
- Act of 9 June 1903 No. 7 relating to Public Control of the Seaworthiness of Ships, etc. (the Seaworthiness Act).
- Regulation of 22 November 1957 No. 9173 concerning cabins etc. for crew on board fishing vessels (not available in English).
- Regulation of 15 October 1991 No. 713 concerning the location etc. for accommodation and concerning the catering service for crew on fishing vessels (not available in English).
-

All these are regulated by the Norwegian Maritime Directorate, except for the ships' medical regulation, which is under the Norwegian Directorate for Health and Social Affairs.

For the petroleum sector

- FOR 1991-10-16 nr 853: Forskrift om beredskapsfartøy.
- FOR 1986-12-17 nr 2318: Forskrift om konstruksjon og utrustning av boligkvarteret på flyttbare innretninger, § 16 Helsekontor
- FOR-2001-09-03-1100: Forskrift om utforming og utrusting av innretninger med mer i petroleumsvirksomheten (Innretningsforskriften, del av NORSOK)

1.1.7 Research reports etc. regarding maritime health

- M@ritim – Norwegian Centre for Telemedicine, 2000
- SFH 80 A053050 - Meisiner ombord i fiskefartøy- Innhentede brukererfaringer-fase 1 Åpen utgave, Turid Myhre and Halvard Åsjord, Sintef Fiskeri og Havbruk AS, October 2005 (Norwegian only)

1.2 Scope and structure

Chapters 2 and 3 describe the current requirements for the ship's medical facilities. The points listed under each section all originate from one or more requirements in the regulations listed above. In some cases we include recommendations that are not required by the regulations, and these are described using the verb "should" instead of "shall". The relevant articles of the regulations are tabulated in chapter 7, with the corresponding section of this document referenced.

We have provided checklists for reviewing the design, furnishing and operation of the medical facilities. These are included in chapter 4.

Chapter 5 lists the medication and equipment that is mandatory according to ILO recommendation R105.

We strongly recommend that a number of different "what if" scenarios are addressed when planning or reviewing the ship medical facilities and procedures. This is an effective way of detecting potential problems, and can be life saving as well as cost saving. Some scenarios are described in chapter 6, though the list is not intended to be exhaustive.

This document is continuously evolving and will eventually be divided into several volumes, serving several types of ships. The present issue focuses of vessels that are covered by Ships medical regulations as referred to in section 1.1.6. Stand-by vessels in the petroleum sector have additional requirements for stand-by operation which are not covered by these recommendations.

1.3 Terms and definitions

Term	Definition	Ref.
Dangerous goods	Cargo described as dangerous in the International Maritime Dangerous Goods (IMDG) list by IMO	IMDG code
Emergency Hospital	A separate facility which could be used as hospital if the regular hospital on board is damaged by fire or for other reasons cannot be reached.	Section 2.6
Evacuation area	Area where injured or ill persons may be evacuated by helicopter. Helipad or open deck area.	
First aid station	An area with first aid equipment for treating burns, eye flushing, controlling bleeding or other first aid tasks. Should preferably be located in areas with highest risk of such accidents.	
Hospital	Treatment room for ill and injured personnel, passengers, rescued or other persons on board the ship. The hospital shall contain medicines and equipment according to ILO 92. art 14 in addition to specific regulations for ship type and flag state (e.g. OLF, UKOOA, NORSOK)	ILO 92, NORSOK, UKOOA, OLF
Isolation ward	Used to isolate patients with contagious diseases. See section 2.5.	
Life-saving appliances	Any lifeboat, rescue boat, life raft or workboat Life vest and survival suit and floating ring, etc are also appliances	
Medical Facilities	A common term for all rooms and equipment on board a ship that are used to treat ill and injured people. This includes hospitals, doctor's office, laboratory, first aid stations, room for medical examination and treatment, sick bay and emergency hospital. First Aid kits in life rafts, galley and engine room are also included.	
Medical responsible	One or more specified persons in charge of medical care and the administering of medicines as part of their regular duties. This is the captain of the ship or the person(s) to whom the captain delegates this authority.	ILO 164, art., 9
Medicine chest	Medicines and medical equipment according to regulations laid down by the national authorities (flag state)	92/29/EEC
Narcotics	Drugs referred to in the list of narcotic drugs	
Rescue zone	Area for bringing on board injured people in a rescue operation.	
Shall / should	Where the word shall is used in a statement, this means that there is a convention, regulation or other external authority that is mandatory. When the word should is used, this means that we strongly recommend the solution, though it is not mandatory (SEE COMMENTS SF)	
Sick Bay	A cabin used for longer term care of sick and injured people.	ILO 92

1.4 Ship classes

In the scope of this document, the following ship classes are used:

Group A – Ocean-going vessel, including vessels engaged in fishing on the high seas with no trade area restrictions and ocean-going vessels not falling within the scope of category B

Group B – Ocean-going vessels including vessels engaged in fishing on the high seas in waters less than 150 nautical miles from the nearest port offering medical assistance by qualified personnel or 175 nautical miles from the nearest port offering medical assistance by qualified personnel if the vessel continuously stays within the reach of the helicopter service.

Group C – Vessels operating in harbours and vessels which either stay within 20 nautical miles of the Base Line or have no cabin facilities other than the wheelhouse.

Stand-by – Ships that are used as stand-by ships for emergency situations, and subject to the FOR 1991-10-16 No 853

Moveable rigs: They are defined as ships, but will operate under specific rules for each flag state.

1.5 Ship's medical facilities

On a ship, the medical facilities consist of:

- A medical unit with medicines and medical equipment
- A treatment room and sick bay for ill and injured persons. These rooms must be furnished and equipped for the purpose.
- One or more medical responsible persons who, in cooperation with the doctor on-shore, will be responsible for the medical first aid and medical treatment. (This is comparable to the relationship between ambulance paramedics and medical doctors on-shore.)
- Modern communication equipment for exchanging patient information and treatment advice.
- A set of regulations, recommendations and procedures guiding the construction, operation and maintenance of the hospital / sick bay. This should include inventories of medical equipment and medicines and specifications of the competence required from the medical responsible.
- The procedures should be detailed for each ship, with positions of responsible persons, detailed instructions relevant for the ship in case of emergencies, training procedures and logs. The risk analysis on-board a ship should be described and the procedures relate to this. (likely accident sites, necessary equipment, logistics etc.)
- A log of all cases and the treatment given

This document is primarily treating the physical part of the medical facilities on board the ship.

1.6 Target group

The document has three major user groups:

- 1) Ship designers and builders. For them, sections 2, 3 and 7 are the most relevant, together with Annex A, B and D
- 2) Ship owners. For them, all sections are relevant
- 3) Captains and Chief mates.

2 The physical design

2.1 Who needs dedicated medical facilities?

The ILO convention 92 states that all ships with a crew of 15 or more and engaged in voyages of three days or more must have dedicated medical facilities. For fishing vessels the ILO convention C126 states that all ships of more than 500 tons (or 150 ft) are required to have a sick bay.

The medical facilities cannot be used for any other purpose. As the medical facilities are used only occasionally, this is often conceived as a waste of valuable space on board. With good planning, however, it is possible to provide a ship's hospital that is functional and allows first class patient care and good working conditions for the medical officer without taking up too much room.

2.2 Initial considerations

One cost-effective safety measure on a ship is to discuss "what if" scenarios for the use of the facilities in the early design phase. Consideration of such scenarios is particularly recommended to optimise design, as well as a walk-through of drawings with the check-lists provided in chapter 4. Using experience from similar ship types and layout may also be useful. Logistics related to injured and ill persons can be complex, and careful considerations in the layout may mitigate or avoid serious problems later.

Demanding a Declaration of Conformity to relevant specifications in the contract document is recommended.

The scenarios used to optimise the ship design are also useful when the ship has been completed, and they should be described in a safety or a training manual. Regular exercises on board should pay particular attention to these scenarios. A non-comprehensive set of such scenarios is included in Chapter 4. These are not part of this recommendation, but serve as guidance in the planning process.

2.3 Location, what to consider

The following elements should be considered when locating the ship hospital:

- 1) The ability to carry an injured person on a stretcher from the most likely places of injury to the hospital. Note in particular:
 - a. Angles between corridors and doors. Can all the different stretchers on board the ship be carried to/from the cabin while in a horizontal position?

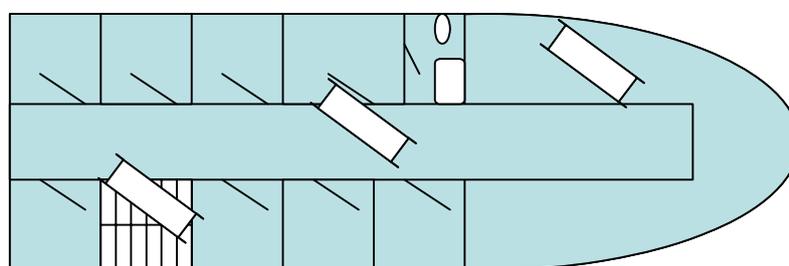


Figure 1 Schematic layout of ship.

- b. Transport distance between the most likely places for injuries and the hospital
- 2) The ability to evacuate patients by helicopter
 - a. Stairs/ladders should be avoided between the hospital and the helicopter pad, or between the hospital and the launch-point for helicopter evacuation.

- b. Transport distance from hospital to launch-pad. Is there a lift which can carry a stretcher in the horizontal position, to the helipad?
 - c. If there are several flights of stairs and no lift, is it preferable to hoist the patient from deck directly into the helicopter? Where should that happen, and under what conditions will it be too dangerous?
- 3) The sick bay shall have a separate water closet, preferably accessible from both sides, for exclusive use by those confined to the sick bay. Access from both sides prevents back injuries to those helping the patient. There must also be proper washing facilities. For fishing vessels, the requirement is an adjoining bath room with a bath tub. If there is a drain in the treatment room floor, it is recommended that the shower in the bathroom can reach the treatment bench. For many types of injuries (fire, chemical spills etc.) the use of running water is an important part of the treatment. (See section 2.4)
- 4) It must be possible to regulate the temperature, and ensure that it is never too high or too low.
- 5) There should be a cabin nearby to accommodate patients during long term care. This cabin can serve as sleeping accommodation until an emergency occurs.
- 6) It should be possible to turn the nearby sleeping room into an isolation ward facility. See section 2.4 below for details.
- 7) The hospital shall have a minimum of two outlets for emergency power. The power supply shall be sufficient to operate all the medical equipment including the operating lights.

2.4 Size and shape of hospital

- 1) Sufficient space to create a good working environment is mandatory:
 - a. Size and shape of room: is there sufficient working space for the medical officer? 6 sqm is minimum floor space. This may be inadequate if the layout of the room is not optimal.
- 2) Is there space for everything that should be within reach from the bedside? The medical officer should not need to walk more than two steps to reach:
 - a. The patient head
 - b. The medicines
 - c. The necessary medical equipment
 - d. The telephone / intercom
 - e. The light switch
 - f. The PC containing logistics and medical treatment advice and telemedical systems

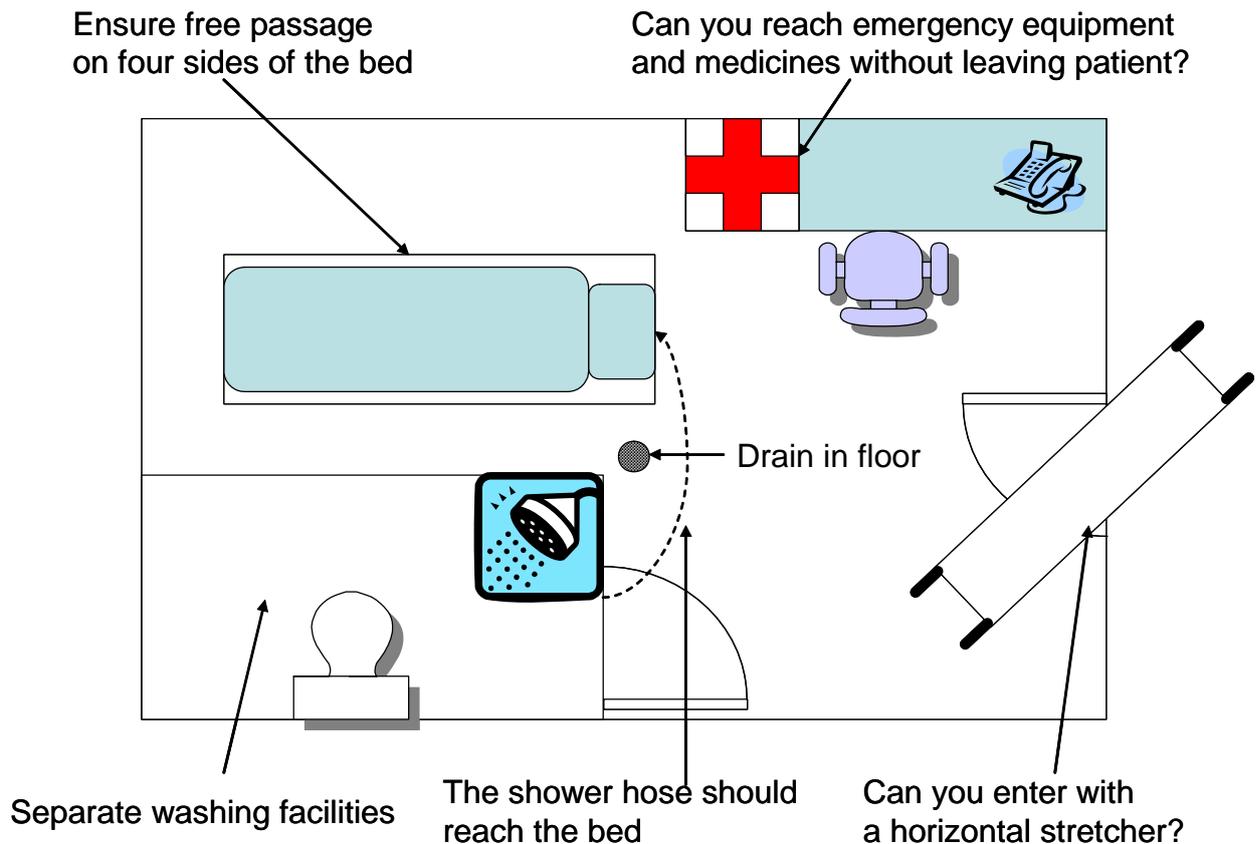


Figure 2 An example of a hospital cabin layout.

- 3) If there is a sick-bay, it should be adjacent to the hospital cabin
- 4) The light above the treatment coach must have at least 750 lux, and the office desk at least 300. It is advisable to have an operating light with a lens.
- 5) In the case of burns and chemical spills, it is necessary from a medical point of view (although it is not mandatory according to current regulations) to be able to rinse the patient with running water while on the treatment coach. This requires floor covering that withstands water and a drain in the floor. If the treatment coach is located near the bathroom, the shower outlet may be used for this purpose.

2.5 Furnishing the hospital and sick bay

The hospital requires furnishing appropriate for conditions at sea. The following issues shall be considered:

- 1) The cabinets for storing medication and equipment should have a secured edge (fiddle rail) to prevent the contents from sliding around in rough waters. It is feasible to use drawers instead of shelf storage for medicines, as this is more clearly set out and a more effective use of space. This also simplifies control and refill.
- 2) The hospital shall contain:
 - a. A bed of hospital type with wheels and brakes.
 - b. Cupboards or slide-proof drawers suitable for containing medication on board ship
 - c. Office desk

- d. Chair
 - e. Bedside table
 - f. Treatment table with wheels that can be secured and with a mechanism to fit it to the bed.
 - g. Work table to locate medication and equipment while working with the patient
 - h. Book shelf for medical literature
 - i. Wardrobe locker for bed clothes, towels, medical clothing etc.
 - j. Loudspeaker telephone or headset (same call number as the reserve medical facility)
 - k. Wireless communication
- 3) It should be possible to organize and label medications in groups to facilitate easy retrieval.
- 4) There must be sufficient space around all four sides of the bed for the medical responsible to work.
- 5) An oxygen bottle must be stored near the bed, for rapid access. The oxygen must be mounted and ready to use with all tubes and suction devices suitably adapted to the patient site. The spare bottle shall be clearly visible and ready for use. Installation of an oxygen concentration unit is an alternative to be considered
- 6) The door to the hospital shall be clearly labelled.
- 7) It should be possible in the sick bay to isolate patients that are suffering from contagious diseases. Isolation requirements are:
- a. Even if there is no permanent isolation ward, there shall be a written plan for where it will be located in case of need.
 - b. The room shall be clearly labelled while in use as isolation ward.
 - c. When entering the room, there must be an anteroom for putting on/removing sterile clothing on entry/exit, to avoid bringing contagious agents into the rest of the ship.
 - d. The cabin must have direct access to a separate bathroom including toilet, shower and wash basin.
 - e. The size of the cabin and the connecting sanitary facilities must be appropriate. The facility shall be related to the size of the crew, according to the regulations. It is important to notice the obvious fact, that patients are of the same size, independent of ship and crew size. Consequently the size of the facilities will depend on how many patients that will be receiving treatment at the same time, bearing in mind that each patient gets sufficient space.
 - f. It must be easy to clean the facilities and to keep them clean. Metal walls or other easily cleanable surfaces are recommended.
 - g. The floor covering must be easy to keep clean but not slippery.
 - h. Separate cutlery, plates and dishes shall be provided. They shall also be washed separately from the other dishes. It may be feasible to use disposable cutlery.
 - i. Separate bed linen and towels for isolated patients shall be provided

Instead of reserving one cabin for isolation purposes, the plan can detail the necessary actions to convert one or more of the standard sleeping cabins to an isolation unit. In this case, the above requirements must be accounted for in all identified cabins. The most critical issues are the ventilation and the possibility to make an in-between zone.

- 8) The furniture and fittings shall be such that the requirements for the specific type ship can be complied with. See sections 3.1 for details.

2.6 Reserve emergency medical facility

The possibility that the ship's usual medical facilities could be damaged, or be inaccessible due to fire or other reasons, must be addressed at the design stage. There must be an emergency medical facility (secondary medical facility) in a separate location, preferably in a separate fire protected zone. This facility may also be used when the capacity of the ordinary medical facility is exhausted.

A room normally used for other purposes should be designed to facilitate conversion into an emergency medical facility. The following factors should be considered:

- Sufficient floor area
- Short distance to elevator and hoisting site/helicopter deck
- Sufficient space for transportation of patient lying on a horizontal stretcher
- Sufficient emergency lighting, emergency power suitable and sufficient for medical equipment and rechargeable torches
- Sink for hand washing and water supply
- Loudspeaker telephone or headset (same call number as the ordinary medical facility)
- Wireless communication
- All equipment intended for use must be stored in a safe manner, easily accessible and suitable for transport

2.7 Ships without dedicated medical facilities

In ships with less than 15 persons on board and less than 500 tons, there are no requirements for dedicated medical facilities. It is, however, necessary to be able to accommodate and treat injured and sick people. At least one cabin should comply with the following requirements:

- 1) It must be possible to transport a person on a stretcher from likely sites of injury into the cabin and the berth. This must be possible for people with head, neck and back injuries without risking further damage to the patient.
- 2) There must be a connected bathroom with shower or bath. This should not be shared by other people during the period of illness.

This cabin should be identified in the medical procedures. If an accident occurs, a change of cabins must be effected to accommodate the injured person in the designated cabin.

3 Medical equipment and medicines

Medical equipment and medicines that shall be carried on board must be stored properly. This chapter contains relevant issues that should be considered in the design phase.

3.1 Equipment

The equipment may be divided in the following groups:

- Group 1: Resuscitation equipment
- Group 2: Dressing and suturing equipment
- Group 3: Instruments
- Group 4: Examination and monitoring equipment

Group 5: Equipment for injection, perfusion, puncture and catheterisation

Group 6: General medical equipment

Group 7: Equipment for immobilization of fractures

Group 8: Disinfections, disinsectization and prophylaxis

Group 9: Literature, including ship's medical guide.

Group 10: Miscellaneous

3.1.1 Organising the equipment

Equipment must be stored and installed properly to comply with the following:

1. Lifesaving equipment shall be mounted and ready to use. This includes oxygen.
2. The spare oxygen bottle (s) should be ready to use and stored openly. It is important that bottles are secured to withstand high seas.
3. Equipment for specific procedures should be packed in separate units ready for use. See Annex B, chapter 6.1 for details.
4. The units must be replenished immediately after use.

3.1.2 System for maintenance and control

The ship should have a systematic and complete listing of the on-board equipment, its location and use in accordance with the following requirements:

1. Equipment with an expiry date must be logged, and ready monitoring of replacement dates must be possible.
2. Equipment usage shall be described, and the user manual must be readily available.
3. An accompanying image of the equipment should be provided for equipment that is rarely used or difficult to recognise.
4. This should be accompanied by literature or multimedia instructions for training purposes.
5. The system may be paper based or electronic, but must be flexible and easy to use. An example of an electronic overview of medical equipment is shown in Figure 3.

ID	Equipment group	Rec. equipment	Rec. unit quantity	Supplies	Shortage	Exp. date
1 Resuscitation equipment						
1A	Oxygen treatment unit w/flowmeter and manometer	Oksygenbehandlingsenhet m/ 3l O2 kolbe	1	1	0	2006.07.20
		Resuscitator, adult size	1	1	0	---
				1	0	---
				1	0	---
1B	Spare oxygen equipment			1	0	2007.07.20
1C	Mechanical aspirator			1	0	---
				3	0	2008.02.17
1D	Throat tubes			1	0	---
1E	Pocket masks			1	0	---
2 Dressing and suturing e						
2A	Suture stapeler			3	0	---
				3	0	2006.11.10
2B	Adhesive elastic bandage	Adhesive elastic bandage 2.5 cm	0	4	0	---
		Adhesive elastic bandage 5 cm	0	3	0	---
		Elastic bandage 6 cm	2	2	0	---
		Elastic bandage 12 cm	1	1	0	---
2C	Elastic dressing	Elastic gauze 6 cm	2	8	0	---
		Elastic gauze 10 cm	2	9	0	---
2D	Tubular bandage	Tubular gauze for finger w/applicator	1	1	0	---
2E	Sterile gauze compress	Sterile gauze compress 10 x 10 cm	20	43	0	---
2F	Sterile absorbant compress	Sterile absorbent compress 20 x 40 cm, At	0	4	0	2013.05.10
		Self-adhesive compress 5 x 7.5 cm	5	5	0	2013.09.17
		Self-adhesive compress 8 x 15 cm	5	9	0	---
		Sterile absorbent compress 10 x 20 cm	5	6	0	---
2G	Sterile gauze strips	Sterile gauze swabs	8	15	0	2011.09.10
2H	Cotton	Cotton wool	1	2	0	---
2I	Wound dressing for fire wounds	Burn-dressings, multi-pack	0	1	0	2009.12.17

Figure 3 Electronic listing of equipment with specific information on each item

- There shall be written procedures for the maintenance and control of the medical equipment.
- There should be check lists for control of the equipment

3.2 Medicine storage

The medicine supply should comply with the ILO Recommendation R105. In addition, the following must be considered:

- Some medicines shall be kept cool in a refrigerator, such as, dexamethazone eye drops, Adrenaline/epinephrine for injection, Chloramfenicol eye drops, Tetanus vaccines, metoclopramid suppositories, other suppositories and all kinds of ointment.

There are others, depending on the area of travel, but they should all be clearly labelled by the pharmacy.

- Prescription group A (narcotics) and group B (tranquilizers, barbiturates etc.) shall according to Norwegian legislation be kept in a separate locked cupboard, preferably within the locked cupboard for medicines. A notification should be posted stating the content and the procedure for legal access. Be aware that legal drug classification and prescribing legislation differs between countries.



Figure 4 Example of cupboard for storing medical supplies. Note the internal cupboard for Class A and B medication with separate lock

- 3) The remaining medicines should be sorted into clearly labelled groups as follows:
 - Group 1: Cardiovascular medicines
 - Group 2: Medicines used for gastric and duodenal disorders
 - Group 3: Analgesics and antispasmodics
 - Group 4: Medicines used for central nervous system disorders
 - Group 5: Anti-allergics and anti-anaphylactics
 - Group 6: Medicines used for respiratory system conditions
 - Group 7: Anti-infections medicines
 - Group 8: Compounds promoting rehydration, caloric intake and plasma expansion
 - Group 9: Medicines for external use
- 4) There shall be a systematic registration of the usage of medication including: time, patient name, name of physician, inventory before and after the ordination, and signatures from responsible parties.
- 5) There shall be a control system to facilitate the organisation and control of the medical chest. In particular, the transfer from one medical officer to the next shall be thoroughly documented for the class A and B medicines, including count-up.

ID	Medicine group	Rec. unit	supplies	Shortage	Exp. date
1	1 Cardiovascular me		100	0	2006.08.10
1A	1A Cardio-circulatory analeptics		3	2	2006.11.10
1B	1B Anti-angina preparations		10	0	2007.02.17
1C	1C Diuretics		80	0	2007.02.20
1D	1D Anti-haemorrhagics		100	0	2007.03.10
1E	1E Anti-hypertensives		60	0	2007.04.17
1F	1F Means to prevent thrombosis		28	0	2006.09.17
2	2 Medicines used fo		50	0	2007.12.10
2A1	2A1 Histamine H2 receptor anti-u		24	0	2006.10.17
2A2	2A2 Anti-acid medication		30	0	2009.04.17
2B	2B Anti- emetics		72	0	2006.05.10
2C	2C Lubricant laxatives		250	0	2008.01.17
			20	0	2007.03.17
			120	0	2007.04.10
			250	0	2007.03.17
			0	4	2007.08.10
2D	2D Anti-diarrhoeals		200	200	2007.01.10
			42	110	2006.08.20
			53	300	2007.03.10
2F	2F Haemorrhoid preparations		2	3	2007.04.10
			4	12	2008.01.17
3	3 Analgesics and anti-spasmodics				
3A	3A Analgesics, anti-pyretics and anti-inflammatory preparations		0	2	2008.09.10
			21	40	2008.09.17
			0	40	2007.05.10
			66	140	2006.12.20

Figure 5 Example of a tool to control the ship medicine chest with information on each item, and a log for reporting use of the medication

- 6) All treatment of patients with medication shall be logged in the patient journal.

3.3 Maintenance and control

Both equipment and medication shall be subject to regular maintenance and control procedures. The written procedures shall be part of the HSE-system, and check lists for maintenance and control shall be part of the procedures.

4 Scenarios to consider in the design phase

All ships should be subject to risk analysis both in the design phase and with any major changes in the purpose and operation of the ship. Such analysis will be individual to each ship, but the following scenarios give an indication of what to look for.

We have asked a number of ships' officers to identify the scenarios they fear the most, and what is likely to happen. Based on this, we have made some recommendations for the ship's hospital and medical facilities.

4.1 Fire

If the ship has a serious fire, the following may occur:

- Many people may be seriously wounded at the same time
- If the fire spreads to the hospital itself, medication and equipment necessary for treatment may be ruined

A plan should be made to manage these eventualities. The plan should detail the following:

1. Who is responsible for treating the wounded after a fire? Note that these persons should not have central roles in extinguishing the fire.
2. Where will wounded people be brought for treatment? Several alternatives should be identified depending on the possible and likely sources of fire.
3. What are the methods of treatment and what medication is required? Where is it located? At least one place in the ship other than the hospital should have emergency medication for the treatment of fire victims in case the fire affects the hospital.
4. The emergency medication should include:
 - Oxygen suitcase
 - Cooling burn dressing
 - Pain relief (Ketobemidon (Ketogan®) or Codein phosphate/Paracetamole combination like Paralgin forte®)
 - Adrenaline/epinephrine
 - Antihistamines
 - Injectable (i.v. or i.m.) hydrocortisone (Solu Cortef®)
 - Anti inflammatory medication
 - Anti sea sickness medication
 - Some small surgical tools (scissors, scalpel, needles disinfectant)

This may be part of the standard medication inventory, but should be located at a different site from the hospital, to ensure that it is available even if there is a fire in the hospital area.

4.2 Falls

In a ship, there are a number of locations where a person can fall several metres into places that are hard to reach, i.e. the engine room. Plans should be made to handle such accidents and should include the following:

1. Who is responsible for the rescue operation?
2. Who should help the wounded?
3. What should they bring to the accident site?

- (a) Stretcher
 - (b) Pain relief
 - (c) Equipment and medication to stop bleeding
 - (d) Oxygen
4. What should be done on site before moving the patient?
 5. What are the routes to transport the patient? Where can you move with a man on stretcher? Are there signs showing the way?
 6. If the man has fallen inside a tank, he may suffer from lack of oxygen. Rescuers may also need oxygen.

4.3 Crush accidents

On a ship in heavy seas, persons on deck run the risk of being crushed between heavy moving objects. Internal bleedings and crushed joints following such accidents may be fatal, and releasing the pressure on the injured person may increase the bleedings and be life threatening. Thus for this type of accidents, the following must be considered:

1. Who shall treat the patient?
2. Who shall assist
3. What shall they bring? To mitigate the risk of fatal bleeding, they should bring equipment for stopping the bleeding by compressing the bleeding site.
4. How to assess the damage and request assistance?

4.4 Falls in tanks with a low level of oxygen

Lack of oxygen inside a tank may result in a fatal outcome if the oxygen supply fails. Routinely, when work is being carried out in tanks, there will be one person on watch outside the tank. If the person working inside falls and lies lifeless, the first reaction of the person on watch may be to run for assistance, the result being a double accident. The risk can be reduced by using oxygen sensors and by increasing awareness of the potential hazard.

4.5 Contagious disease outbreak

During an outbreak of contagious disease in the ship, isolation is mandatory.. A plan should be made for the isolation of contagious patients. See section 2.5 for detailed requirements for the isolation ward.

In cases of food poisoning, identifying the source as soon as possible is important. A written procedure explaining the handling of suspected food poisoning is advisable.

4.5.1 Isolation

The spread of communicable diseases on board can be prevented – or at least reduced – by isolating the patients.

The purpose of isolation is to block the different modes of transmission:

- Direct contact (Example: wound infections)
- Droplet spread (Example: Influenza)
- Faecal-oral spread (Example typhoid fever, infectious diarrhoea)

It is practical to define two types of isolation

- Strict isolation
- Standard isolation

4.5.1.1 Strict isolation

Strict isolation will be used mainly for diseases spreading via the faecal-oral route.

The patient must be confined to the ship's hospital or to a dedicated cabin.

The cabin should be located in a quiet corner of the ship and be stripped of all unnecessary furnishing, carpets and upholstery to facilitate cleaning and disinfection.

The patient should preferably be nursed by only one person, or a maximum of two. These persons must be well acquainted with nursing procedures. Visits by other personnel are not permitted.

It is advantageous to use disposable plates and cutlery. If these are not available, the utensils must be boiled (20 minutes) after use.

Bed-linen and towels must be boiled or disinfected.

Faeces and urine should be put into bedpans or bottles and disposed of in a dedicated flushing toilet. In ports, the local authorities will give instructions for disposal.

Needles and other sharp items that may be infected must be placed in needle containers.

Hand washing by the patient and the nurse is by far the most effective procedure to prevent spreading via the faecal-oral route

4.5.1.2 Standard isolation

The patient is isolated in a dedicated cabin, or in the ship's hospital. In the case of droplet transmission (influenza, other communicable respiratory infections) it is recommended that the patient wears a face mask during nursing and visits (if permitted).

The strict rules for utensils do not apply.

4.6 Transfer of sick or injured person in the ship

A sick and injured person may need to be transferred on a stretcher from the site of accident to the ship's medical facility, and further to the deck for evacuation. It is important when designing the ship to include sufficient space for this procedure.

4.7 Training and exercise

The international convention on Standards for Training, Certification and Watchkeeping for seafarers, 1978, revised 1995 (STCW-95 convention), states the minimum requirements for first aid and medical training for the crew.

To ensure that skills are kept on a satisfactory level, it is advisable that crew members undergo refresher courses at regular intervals. Likewise, every ship should have plans for drilling personnel in how to use medical equipment and medical facilities in order care for sick and injured people.

The exercises should include:

- Life saving procedures and first aid.
- The transfer of patient on a stretcher from site of accident to ship medical facility and further to the deck for evacuation.
- The procedures for medical examination and treatment
- The communication procedures for seeking radio medical advice
- The use of medication
- The use of medical equipment

- Evacuation of patient by helicopter or by other means
- Man overboard recovery including hypothermia treatment

4.8 Documentation

Familiarity with handling procedures in critical situations accounts for the difference between success and failure. Written procedures may sometimes seem unnecessary, but they are fully justified in acute and critical situations. The written procedures should include:

- 1) How to use the hospital, where things are located, what shall be logged where and who shall receive the reports. With a change of crew, all responsible personnel should be familiarized with the procedures to ensure a common understanding.
- 2) Who to contact on shore and how. The method and address information should be updated and checked regularly. Radio frequencies, telephone numbers and e-mail addresses should be checked at regular intervals to ensure they are still correct.
- 3) The ship's contact information, so that this can be passed on to the doctor on-shore without delay
- 4) Policies for reporting the use of medication and treatment
- 5) Patient journal forms
- 6) Procedures for evacuation, including the notification of recipients and what shall be reported in each case
- 7) Procedures for contacting a medical doctor on-shore / family doctor as appropriate.
- 8) Procedures for the treatment of patients with contagious diseases or infections
- 9) Procedures for the documentation of accidents, medical treatment and deaths, including procedures for storing, backing up and deleting the medical information.

The procedures should include checklists to ensure proper action. There is no need to separate the procedures into individual documents, but all the items listed above should be included.

4.9 Evacuation

Every ship should have an area suitable for landing a helicopter or at least the hoisting of patient. This area should be easily accessible from the ship's medical facility and from the reserve medical facility.

5 Annex A: Checklists

5.1 Checklist for drawings of new hospitals

Item	Yes	No	Remark
Is the hospital reachable with a person lying on stretchers from all likely accident sites?			
Is the evacuation point near and easy to reach?			
Is the size according to standards? (At least 6 sqm floor space after furnishing)			
Can the patient be reached from both sides of the treatment bench?			
Is the connected bathroom properly equipped?			
Bathtub			
Hot and cold water			
Toilet with access from both sides			
Is there an Internet connection?			
Is there a phone line?			
Are there sufficient power outlets for all necessary equipment, including PC, refrigerator and lights?			
Is there a suitable room nearby for isolation of contagious patients?			
Ventilation			
Bathroom facilities			
Sluicing possibilities			
Washable walls and interior			
Is the door 730 mm wide or more?			
Is there power outlets connected to the ship's emergency power?			
Are the light switches and lights well placed?			

5.2 Checklist for furnishing

Item	Yes	No	Remark
Are the cupboards for medication within reach from the hospital bed?			
Is the bed of hospital type with adjustable foot and head height?			
Is there a treatment table in metal with stoppable wheels?			
Is there a system for labelling medicine and equipment, or is it possible to implement such a system with the available furnishing?			
Is there a desk with a chair for writing patient journals			
Can the medication be sorted into appropriate groups?			
Is there a lockable cupboard with space for narcotics?			
Will medicines stay in order in rough weather?			
Can you bring the entire group of medicines to the patient directly from the cupboard?			
Is there a refrigerator for medication that needs refrigeration?			
Is the lighting above the surgical table sufficient (750 lux)			
Is the oxygen, medical equipment and medication within reach from the bedside and are the bottles (main and spare) sufficiently secured against heavy movement?			
Is the door properly labelled?			
Is there a table with securable wheels that can be used for necessary equipment while treating the patient?			
Can it be secured to the bedside?			

5.3 Checklist for medical procedures

This is a checklist that details the medical procedures that should be in place on board a ship. It includes medical training as well as handling of accidents and illnesses. The detailed contents of the procedures will be individual to each ship, though large parts may be reused from other ships. The process of working out the procedures for the individual ship is valuable, as it is part of establishing a safety culture on board. For this reasons, the procedures should be discussed and reviewed regularly as part of debriefing after training and any real-life medical situations.

Procedure	Yes	No	Remark
Patient logistics relative to the hospital including:			
Bringing in the patient from anywhere on the ship			
Evacuation to helicopter			
Evacuation to other ship			
Multiple patients			
Handling illnesses including			
Contagious diseases			
Food poisoning			
Cardiac illnesses			
Death			
Handling injuries			
Scenarios including			
Fire (including the hospital)			
Falling accidents			
Man over board			
Resuscitation			
Medication treatment			
Information flow in case of accidents			
Information flow in case of illness			
Information flow in case of death			
Documentation			
Debriefing, evaluation			

6 Annex B: Medical Kits

6.1 Kits

Many common procedures in the hospital require several different items of equipment and medication. Even if the medical supplies are well organised, looking for each individual item can waste time, and there is a risk that the procedure is interrupted because one or more items are missing. As an alternative, kits for common procedures could be assembled in advance, and replenished immediately after use, so they are always ready.

This does not increase the total amount of equipment and medication, as the items are included in the general inventory.

We recommend the following kits:

6.1.1 Venous access/Infusion

- Disinfectant
- Tissue for washing
- Intravenous catheter (Venflon)
- 10 ml syringe for flushing through valve
- Vial with physiological saline solution
- Needle (yellow) for aspirating saline solution
- Strong tape
- Container with infusion fluid (Physiological saline or Ringer's solution)
- Tube set with drip chamber

6.1.2 Wound closure

- Disinfectant
- Tissue for washing
- Sterile tissue for coverage
- Anaesthetic (Ex.:Xylocain, Lidocain)
- Needle (blue) for anaesthetising
- Needle (yellow) for aspirating anaesthetic
- Syringe 10 ml
- Needle with attached thread
- Needle holder
- Stapler
- Surgical tweezers
- Scissors
- Gauze for dressing
- Tape
- Staple remover

6.1.3 Care of wounds

- Disinfectant
- Tissue for washing
- Surgical tweezers (toothed surgical forceps)
- Haemostat forceps (Pean)

- Scissors
- Scalpel
- Kidney bowl
- Sterile cloth
- Gauze sponges (tupfere)
- Rubber gloves

6.1.4 Assisted ventilation

- Guedel tube airway
- Ventilation bag with face mask and oxygen connection
- Oxygen

6.1.5 Bladder catheterisation

- Sterile cloth
- Rubber gloves
- Sterile compresses
- Catheter
- Anaesthetic gel
- Special gel syringe
- Plastic tweezers
- Kidney bowl or urine bag

7 Excerpts from standards

Below we have included excerpts from the relevant standards in the order they are listed in section 2.4. The standards are available in entirety on the Internet, in this table only includes the applicable articles and chapters. A list of relevant pages is provided at the end of the document. The right hand column refers to the chapter or section in this document that treats this particular point.

Ref	Text	Doc ref.
ILO C55	<p>C55 Ship owners' Liability (Sick and Injured Seamen) Convention, 1936</p> <p>Article 2</p> <p>1. The shipowner shall be liable in respect of--</p> <p>(a) sickness and injury occurring between the date specified in the articles of agreement for reporting for duty and the termination of the engagement;</p> <p>(b) death resulting from such sickness or injury.</p>	All
	<p>Article 3</p> <p>For the purpose of this Convention, medical care and maintenance at the expense of the shipowner comprises--</p> <p>(a) medical treatment and the supply of proper and sufficient medicines and therapeutical appliances; and</p> <p>(b) board and lodging.</p>	All
C92	<p>C92 Accommodation of Crews Convention (Revised), 1949</p> <p>Article 14</p> <p>1. In any ship carrying a crew of fifteen or more and engaged in a voyage of more than three days' duration, separate hospital accommodation shall be provided. The competent authority may relax this requirement in respect of vessels engaged in coastal trade.</p>	Section 2.1
	<p>2. The hospital accommodation shall be suitably situated, so that it is easy of access and so that the occupants may be comfortably housed and may receive proper attention in all weathers.</p>	Section 2.3
	<p>3. The arrangement of the entrance, berths, lighting, ventilation, heating and water supply shall be designed to ensure the comfort and facilitate the treatment of the occupants.</p>	Section 2.5
	<p>4. The number of hospital berths required shall be prescribed by the competent authority.</p>	Section 2.5

Ref	Text	Doc ref.
	5. Water closet accommodation shall be provided for the exclusive use of the occupants of the hospital accommodation, either as part of the accommodation or in close proximity thereto.	Section 2.3
	6. Hospital accommodation shall not be used for other than medical purposes.	Section 2.1
	7. An approved medicine chest with readily understandable instructions shall be carried in every ship which does not carry a doctor.	Section 3.1
ILO C126	C126 Accommodation of Crews (Fishermen) Convention, 1966 Article 13 1. Wherever possible, an isolated cabin shall be provided for a member of the crew who suffers from illness or injury. On vessels of 500 tons or over there shall be a sick bay. Where the competent authority decides, as provided for in Article 1, paragraph 4, of this Convention, that length shall be the parameter for this Convention, there shall be a sick bay on vessels of 150 ft (45.7 metres) in length or over.	Section 2.1
	2. An approved medicine chest with readily understandable instructions shall be carried in every vessel which does not carry a doctor. In this connection the competent authority shall give consideration to the Ships' Medicine Chests Recommendation, 1958, and the Medical Advice at Sea Recommendation, 1958.	Section 3.1
ILO C133	C 133 Accommodation of crew Article 9 9. Space occupied by berths and lockers, chests of drawers and seats shall be included in the measurement of the floor area. Small or irregularly shaped spaces which do not add effectively to the space available for free movement and cannot be used for installing furniture shall be excluded.	Section 2.4
	2. Generally, any obligation on the shipowner to provide protective equipment or other accident prevention safeguards shall be accompanied by provision for the use of such equipment and safeguards by seafarers and a requirement that they comply with the relevant accident prevention measures.	Section 3.1 ????????

Ref	Text	Doc ref.
C 164	<p>C164 Health Protection and Medical Care (Seafarers) Convention, 1987</p> <p>Article 4</p> <p>Each Member shall ensure that measures providing for health protection and medical care for seafarers on board ship are adopted which-</p> <p>(a) ensure the application to seafarers of any general provisions on occupational health protection and medical care relevant to the seafaring profession, as well as of special provisions peculiar to work on board;</p>	All
	<p>(b) aim at providing seafarers with health protection and medical care as comparable as possible to that which is generally available to workers ashore;</p>	All
	<p>(e) are not limited to treatment of sick or injured seafarers but include measures of a preventive character, and devote particular attention to the development of health</p>	All
	<p>Article 5</p> <p>1. Every ship to which this Convention applies shall be required to carry a medicine chest.</p>	Section 3.1
	<p>2. The contents of the medicine chest and the medical equipment carried on board shall be prescribed by the competent authority taking into account such factors as the type of ship, the number of persons on board and the nature, destination and duration of voyages.</p>	Section 3.2
	<p>4. The medicine chest and its contents as well as the medical equipment carried on board shall be properly maintained and inspected at regular intervals, not exceeding 12 months, by responsible persons designated by the competent authority, who shall ensure that the expiry dates and conditions of storage of all medicines are checked.</p>	Section 3.3
	<p>5. The competent authority shall ensure that the contents of the medicine chest are listed and labelled with generic names in addition to any brand names used, expiry dates and conditions of storage, and that they conform to the medical guide used nationally.</p>	

Ref	Text	Doc ref.
	<p>6. The competent authority shall ensure that where a cargo which is classified dangerous has not been included in the most recent edition of the Medical First Aid Guide for Use in Accidents involving Dangerous Goods published by the International Maritime Organization, the necessary information on the nature of the substances, the risks involved, the necessary personal protective devices, the relevant medical procedures and specific antidotes is made available to the master, seafarers and other interested persons. Such specific antidotes and personal protective devices shall be on board whenever dangerous goods are carried.</p>	
	<p>Article 6 1. Every ship to which this Convention applies shall be required to carry a ship's medical guide adopted by the competent authority.</p>	Section 3.1.1
	<p>2. The medical guide shall explain how the contents of the medicine chest are to be used and shall be designed to enable persons other than a doctor to care for the sick or injured on board both with and without medical advice by radio or satellite communication.</p>	Section 3.1.1
	<p>Article 11 1. In any ship of 500 or more gross tonnage, carrying 15 or more seafarers and engaged in a voyage of more than three days' duration, separate hospital accommodation shall be provided. The competent authority may relax this requirement in respect of ships engaged in coastal trade.</p>	Section 2.1
	<p>2. In any ship of between 200 and 500 gross tonnage and in tugs this Article shall be applied where reasonable and practicable.</p>	Section 2.1
	<p>3. This Article does not apply to ships primarily propelled by sail.</p>	Section 2.1
	<p>4. The hospital accommodation shall be suitably situated, so that it is easy of access and so that the occupants may be comfortably housed and may receive proper attention in all weathers.</p>	Section 2.3
	<p>5. The hospital accommodation shall be so designed as to facilitate consultation and the giving of medical first aid.</p>	Section 2.4
	<p>6. The arrangement of the entrance, berths, lighting, ventilation, heating and water supply shall be designed to ensure the comfort and facilitate the treatment of the occupants.</p>	Section 2.4
	<p>7. The number of hospital berths required shall be prescribed by the competent authority.</p>	Section 2.5

Ref	Text	Doc ref.
	8. Water closet accommodation shall be provided for the exclusive use of the occupants of the hospital accommodation, either as part of the accommodation or in close proximity thereto.	Section 2.3
	9. Hospital accommodation shall not be used for other than medical purposes.	Section 2.1
ILO R105	<p>R105 Ships' Medicine Chests Recommendation, 1958 This convention details the contents of the medical chest. C 126 requires that the R 105 is followed.</p> <p>1.</p> <p>(1) Every vessel engaged in maritime navigation should be required to carry a medicine chest, the contents of which should be prescribed by the competent authority, taking into account such factors as the number of persons on board, and the nature and the duration of the voyage. Special provision should be made for the custody, by the master or other responsible officer, of medicaments the use of which is restricted.</p>	Section 3.1
	<p>(2) The rules and regulations concerning the minimum contents of the medicine chests should apply whether there is a ship's doctor on board or not.</p>	Section 3.2
	<p>2.</p> <p>(1) In establishing or reviewing rules or regulations concerning the contents of the various types of medicine chests, the competent authority should take into consideration the list of minimum contents appended to this Recommendation.</p>	Section 3.2
	<p>(2) Such rules or regulations should be subject to periodical revision in the light of new medical discoveries, advances and approval methods of treatment, in accordance with any proposals for such revision which may be adopted in a manner agreed between the International Labour Organisation and the World Health Organisation.</p>	Section 3.2
	<p>3. All medicine chests should contain a medical guide approved by the competent authority, which explains fully how the contents of the medicine chest are to be used. The guide should be sufficiently detailed to enable persons other than a ship's doctor to administer to the needs of sick or injured persons on board both with and without supplementary medical advice by radio.</p>	Section 3.1.1

Ref	Text	Doc ref.
	4. The rules and regulations should provide for the proper maintenance and care of medicine chests and their contents and their regular inspection at intervals not normally exceeding 12 months by persons authorised by the competent authority.	Section 3.3
ILO R 106	Members should ensure by a pre-arranged system that (d) an up-to-date and complete list of radio stations from which medical advice can be obtained is carried on each ship equipped with radio installations, and kept in the custody of the radio officer or, in the case of smaller vessels, of the person responsible for radio duties.	
CD 92/29/EEC	Council Directive 92/29/EEC of 31 March 1992 on the minimum safety and health requirements for improved medical treatment on board vessels Article 2 Medicines and medical equipment - Sick-bay - Doctor Each Member State shall take the measures necessary to ensure that:	Chapter 3
	1. (a) every vessel flying its flag or registered under its plenary jurisdiction always carries on board medical supplies which meet at least, in terms of quality, the specifications of Annex II sections I and II for the category of vessel to which it belongs;	
	(b) the quantities of medicinal products and medical equipment to be carried depend on the nature of the voyage - in particular ports of call, destination, duration - the type or types of work to be carried out during the voyage, the nature of the cargo and the number of workers;	
	(c) the content of the medicines and medical equipment included in the medical supplies shall be detailed on a checklist corresponding at least to the general framework laid down in Annex IV, sections A, B and C II 1 and II 2;	
	2. (a) for each of its life-rafts and life-boats, every vessel flying its flag or registered under its plenary jurisdiction carries a watertight medicine chest at least containing the medical supplies specified in Annex II, sections I and II, for category C vessels;	
	(b) the content of these chests is also detailed on the checklist referred to in paragraph 1 (c);	
	3. every vessel flying its flag or registered under its plenary jurisdiction, of more than 500 gross registered tonnes, with a crew of 15 or more workers and engaged on a voyage of more than three days, has a sick-bay in which medical treatment can be administered under satisfactory material and hygienic conditions;	Section 2.1

Ref	Text	Doc ref.
	4. every vessel flying its flag or registered under its plenary jurisdiction, with a crew of 100 or more workers and engaged on an international voyage of more than three days, has a doctor responsible for the medical care of the workers on board.	Section 2.1
Regulation of 9 th March 2001 No. 439	<p>§ 14 <i>Sick-room</i> Ships shall have a sick-room where necessary on grounds of size of crew, number of passengers, duration of voyage, and actual trade area.</p> <p>This regulation is mainly concerning the supply and control of medicines.</p>	Section 2.1
Act of 9 th June 1903 relating to Public Control of the Seaworthiness of ships, etc. (The Seaworthiness Act)	<p>§ 45¹ With due regard to the size of the crew and to the type and trade of the ship, a special sickroom shall be provided on board. <small>¹ Amended by Act of 20 August 1915.</small></p> <p>§ 46¹ The King² shall decide to what extent ships shall be provided with the rooms mentioned in §§ 43 and 45, and shall issue more detailed regulations concerning the placing, size, fittings, equipment and cleaning of the rooms. <small>¹ Amended by Act of 20 August 1915. ² The Norwegian Maritime Directorate pursuant to Royal Decree of 5 April 1963.</small></p>	

Ref	Text	Doc ref.
<p>FOR-1957-11-22-9173</p> <p><i>(There is no authorized English version)</i></p>	<p>§ 19. Sykerom.¹ (Fiske og fangstfartøyer bygget før 1991)</p> <ol style="list-style-type: none"> 1. På fartøyer på 500 tonn og derover skal det være et særskilt rom for syke, innredet og utstyrt som bestemt i punktene 2-8 i denne paragraf. Jfr. for øvrig punkt 9. 2. Sykerommet skal ha minst samme gulvflate som bestemt for soverom. 3. Sykerommet skal ved siden av den alminnelige elektriske belysning være forsynt med kontakt for en transportabel elektrisk lampe. 4. I sykerommet skal det være køyplass til minst 1 mann når besetningen er 20 mann eller færre, og minst 2 mann når besetningen er 21 og derover. 5. Ved hver køy skal det være ringeledning med trykkknapp så hjelp kan tilkalles. 6. I forbindelse med eller i umiddelbar nærhet av sykerommet bør om mulig være innrettet et klosett. Finnes det syke som antas å lide av smittsom sykdom, må et klosett som brukes av de syke, ikke brukes av andre. Sykerommet kan brukes til annet formål når fartøyet ikke brukes til havfiske eller selfangst. 7. Sykerom skal være utstyrt med klesskap. Om dettes innredning og størrelse gjelder det samme som er bestemt i § 13, punkt 1, for klesskap til mannskapet. I sykerommet eller klosettrommet som hører til sykerommet, skal være anbrakt minst en vaskekum eller et vaskestell med såpeholder og et vaskefat pr. seng. Det må finnes et skap som et bekken kan settes i. 8. Over døren til sykerommet skal være tydelig merket «Sykerom». Merkingen skjer ved innhogging eller på annen varig måte (ikke ved maling alene). 9. Fartøyer mellom 100 og 500 tonn skal, dersom plassen tillater det, ha en lugar hvor syke om nødvendig kan anbringes. Denne lugar kan brukes til et annet formål når det ikke er syke. 	

Ref	Text	Doc ref.
<p>FOR-1991-10-15-713</p> <p><i>(There is no authorized English version)</i></p>	<p>§ 19. Sykerom (For fiske og fangsfartøyer bygget etter 1991)</p> <ol style="list-style-type: none"> 1. På fartøy med en besetning på 15 personer og mer, skal det være sykerom. 2. Til sykerom skal det være eget sanitærrom inneholdende badekar/sittebadekar, håndvask og vannklosett. 3. Sykerom skal være anbrakt hvor det er lite støy og vibrasjoner og slik at atkomst for båttransport er god. Fortrinnsvis skal sykerom plasseres på hoveddekk med lett atkomst til fritt dekk. 4. Sykerom skal ha minst 6 m² gulvflate og skal være utstyrt med frittstående seng av normal sykehustype med nedfellbare sengehester og hevbart hode- og fotstykke. Videre skal det være nattbord og stol. 5. Dersom det ikke er anordnet spesielt behandlingsrom i tilknytning til sykerom, skal sykerom være utstyrt med behandlingsbenk, instrumentbord, lite skrivebord, lite kjøleskap, medisinskap og skap for annen medisinsk rekvisita, plass til båre og håndvask med kaldt og varmt drikkevann. 6. Dører til sykerom skal ha en bredde på minst 730 mm. 7. Behandlingsrom eller kombinert sykerom/behandlingsrom skal ha kunstig belysning på minst 300 lux. over instrument- og skrivebord. Ved behandlingsbenk minst 750 lux. For øvrig skal belysningen i sykerom være som bestemt for soverom. Det skal være installert nødbelysning og stikkontakt for el.uttak tilknyttet fartøyets nødstrømkilde. 8. Rom i henhold til nr. 7 skal være tilkopleet fartøyets intercom-anlegg. På fartøy som ikke har slike anlegg, skal det være direkte telefonforbindelse med bro. I sykerom skal det ved sengen plasseres ringeledning og trykknapp med forbindelse til bro og messe e.l. der personer oppholder seg når fartøyet ligger ved land. 9. Døren til sykerom skal være merket <i>Sykerom</i>. 	