



Competences related to ship design

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A.6 Competencies of Professional Staff

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A.4.1 INTRODUCTION

DESPENA ANDRIOTI BYGVRAA

A wide range of professional staff have parts to play in protecting the health of crewmembers and passengers on board vessels. This ranges from those that treat illness and injury when necessary to those that ensure, in many ways, that ill health and disability do not adversely affect maritime safety. For some groups, such as those who design ships, the whole of their professional training, qualifications and experience is within the maritime sector. Others, for example, clinical staff, develop the competencies needed by the maritime sector only after gaining their qualifications, practical training and experience as part of an onshore profession.

No single group of professionals has the full range of in depth competence to handle all aspects of maritime health. Each needs to be fully competent within their own field and have insight into their own limitations, as well as a good awareness of the skills of other groups and when to utilise them. In most of their dealings with the maritime sector, maritime health professionals act as advisers to those with management or administrative responsibilities. Hence they also need the ability to advise effectively and fairly, coupled with a clear understanding of the industry and their ethical duties to both individuals at risk and to those who they are advising.

- A.7 Shipowner liability for illness and injury
- A.8 Naval Medicine
- A.9 Passenger Health
- A.10 Cruise ship medicine
- B) Maritime Industry
- C) Working and Living at Sea
- D) Medical care at sea and beyond
- E) Health risks to seafarers
- F) Human Element

While most professionals work within the framework of competence set by their professional body, the additional competencies needed to advise on maritime health are rarely included in such frameworks. These differ for each of the professions that contribute to maritime health but they can all be considered in terms of the high level purposes that each seeks to achieve, the specific tasks that they perform to meet these aims and the skills needed to do such tasks. The sections that follow look at the goals, tasks and skills of each of the main professional groups, with the aim of presenting an overview of the professional competencies required to secure maritime health.

A.4.2 MEDICAL PROFESSIONALS AND MARITIME HEALTH COMPETENCE

DESPENA ANDRIOTI BYGVRAA

Undergraduate and specialist training requirements that aim to produce competent medical practitioners are specified in national law and practice and are relatively consistent internationally. However the competency requirements for medical work in maritime health do not form part of any specialist training. They are diverse and may require skills from primary care, emergency medicine, occupational medicine, travel and infectious disease medicine and many others.

There are a few training courses, for instance at the University of Cadiz in Spain and the University of Brest in France, that provide comprehensive training in the subject. Some flag state administrations provide courses for the doctors they approve to perform statutory seafarer medical examinations. Otherwise most training is informal and depends on the individual or their employer to ensure that competence is founded on a secure base of knowledge and experience. Where there are medical re-accreditation requirements the dialogue between the person being accredited and their assessor also provides an opportunity to review professional development needs that relate to the person's actual job requirements.

There has been little investigation into the training needs and competencies of doctors working in maritime health. One recent study from Denmark, with a representative sample of maritime doctors providing statutory medical examinations for seafarers, showed that length of experience and the number of seafarer contacts are important predictors of valid decision-taking^[1] ^[2]. Most participants were keen to have regular training opportunities.

In other maritime health settings, such as work in a Tele Medical Advisory Service, emergency medicine skills will predominate but an understanding of the maritime sector is vital. The medical aspects of working and living conditions on board, by contrast, fall within the defined competencies of occupational physicians, and they are also likely to have to gain specific knowledge of the maritime environment and the constraints it places on risk management.

[1] Andrioti D, Faurby M, Videbæk Le J, Jensen OC. Do Danish Maritime Doctors Value Continuous Education Initiatives? Health Econ Outcome Res Open Access. 2017;3(3). 137. <https://doi.org/10.4172/2471-268X/1000137>

A.4.3 ON BOARD HEALTHCARE PROFESSIONALS

LUISA CANALS

Introduction

Medical practitioners work on ships including:

- Cruise or passengers ships¹
- Civil, naval or humanitarian hospital ships
- Larger naval ships and those on specific missions like disaster relief, and suppression of piracy
- Support ships accompanying fishing fleets, offshore races etc.

Other health care staff, usually those with nursing qualifications may also work on board vessels with large numbers of passengers and crew. Health care professionals, often nurses or paramedics may also be employed on some longer ferry crossings.

Purpose and tasks

- To provide effective medical care in the event of injuries or illness
- To reduce the risks of harm to health by ensuring appropriate preventive measures, including participation in the Vessel Sanitation Programme²
- To manage the on board medical facilities, medicines and medical equipment and record keeping
- To communicate on health issues with patients, ship's officers, onshore medical and port health services

Skills and competency

Medical staff

- **General medical training**, with professional registration in a jurisdiction accepted by the flag state of the vessel.
- **Postgraduate training** in a relevant medical specialty is desirable. These may vary depending on the role to be performed. Skills in Public and Occupation Health are needed, as is an understanding of the maritime environment and its regulatory, managerial and ethical aspects. A postgraduate training in maritime health such as a Master, University Specialist, Expert Diploma, Continuing Education or a Nationally recognized accredited Speciality in 3 years, can be one way to acquire essential skills. Courses are also available to prepare doctors for work in the cruise industry, offshore oil and gas industry, conducting pre employment medical examinations, occupational risk prevention, ships inspections, research and many more.
- **Resuscitation skills** in resuscitation and the management of serious illness and injury. Qualification in Advanced Life Support (ALS) is essential and other resuscitation courses should be considered, for example, Advanced Trauma Life

Support (ATLS) and Advanced Paediatric Life Support (APLS) or their equivalents in different countries. Given the need to often assess an illness or injury and offer immediate treatment outside of the ship's medical centre, courses focusing on pre hospital care may also be relevant.

- **Communication skills.** These include competence in the working language of the vessel and normally also in English as this is the common language for most maritime international conversations. It is also the language used by the telemedical advisory services that may need to be contacted for additional medical advice or to arrange evacuation and onshore treatment of casualties. Crew and passengers may come from diverse backgrounds and it is important to understand the diversity of health beliefs. Good communication with other officers on board is also essential.
- **Management skills** to manage other onboard healthcare staff and medical facilities. Medical staff may have line management responsibilities of other staff and have the responsibility for ordering of stock, managing rotas and hours worked and maintenance of equipment. Such skills are also important to aid understanding of the status and priorities of senior officers and ship managers when recommending the evacuation of casualties who need urgent shore based care and implementing health care policies such as public health measures.

Other healthcare staff

These may include staff with nursing or paramedic qualifications. Where there is a ship's doctor, other staff will usually be working under their management but they may be independent practitioners. They require the competencies to carry out their duties and these are likely to be obtained through a mix of general training ashore, relevant shore side experience, formal training courses e.g. ALS and by in service experience. Other healthcare staff may well have responsibility for specific tasks on behalf of the doctor, for example, ordering of medicines, rotas etc.

Where there is no ship's doctor, other healthcare staff will be required to have demonstrable relevant competencies as required for that particular setting. In addition to relevant training and qualifications ashore such staff have often gained appropriate experience while working in related sectors such as offshore energy or the military.

References

1. The American College of Emergency Physicians. Cruise Ship Medicine section (in ACEPT available from <https://www.acep.org/how-we-serve/sections/cruise-ship-medicine/cruise-ship-medicine-section---cruise-line-directory/#sm.000rhhrrst1e2pdu1qyu1fvhw2whhy> (Cited January 2019).
2. Centers for Disease Control and Prevention (CDC) The Vessel Sanitation Program (VSP) <https://www.cdc.gov/nceh/vsp/pub/pub.htm> (Cited Jan. 7, 2019).

[2] Shah B, Andrioti D, Jensen OC. Training needs among maritime professionals: a cross sectional study. *Int Marit Health*. 2018;69(2):129–36.

A.4.4 PRE EMPLOYMENT MEDICAL EXAMINATION (PEME) STAFF

ILLONA DENISENKO

Introduction

- Pre employment medical examinations of seafarers are usually performed in clinics ashore, either in the seafarer's home country or in the port in which they are embarking.
- The Maritime Labour Convention 2006 (MLC) and STCW Convention, 1978, as amended include an international requirement that seafarers have a medical certificate of fitness and instructions as how the medical examinations are conducted. These conventions are the basis for national regulations enacted by maritime states.
- Some employers or insurers (P&I Clubs) require a more detailed examination of their seafarers and additional laboratory and radiological investigations.
- Doctors and/or clinics are approved by national authorities or by employers/insurers to perform PEMEs.
- Further, detailed information on the PEME is available in Ch 4.8

Purpose and tasks

- The aim of the PEME is to ensure that seafarers are medically fit to perform their routine and emergency duties at sea and are not suffering from any medical condition likely to be aggravated by service at sea, to render him or her unfit for service or to endanger the health of other persons on board^[1]. Employers and insurers may also expect the examination to reduce operational costs or to help the seafarer live a healthy life.
- The tasks involved include:
 - checking the identity of the seafarer
 - biometric measurements: height, weight, vision, hearing etc.
 - clinical history taking
 - physical examination
 - additional tests: biochemistry, imaging etc.
 - assessment of fitness to work at sea and of any health related limitations. This may require judgements about the probability and severity of future illness, impairment or any increased risk of a health-related safety-critical incident.
 - issue of a medical certificate of fitness, stating fitness using classifications approved by the relevant authorities
 - maintaining records of examination and ensuring that they are confidential.

In a small clinic all of these tasks may be performed by the medical examiner, but in a large one they are likely to be undertaken by a range of health professionals or other staff.

Skills and competency

There are international recommendations on the criteria for medical competence to perform PEMEs^[2]. These include a general medical qualification and training in or experience of maritime issues and knowledge of the duties and ethical position of the examiner under national law.

A few countries provide specific training for their approved doctors, for example Norway, UK, Germany and the Netherlands. Others have a cadre of employed doctors who work using common approaches, for example France and Spain. Employers and insurers do not provide training but will usually employ doctors who have approval from one or more flag states.

Fitness criteria that are specified in detail using clinical terms may require little specific training for their effective application. Where complex risk-assessments are needed then consistent application will only occur if medical examiners have structured and supervised experience in their use.

There are no criteria specific to PEMEs for other health professionals who assist. Assessment of the competence and training of such staff is normally confirmed by the approved doctor and staff will be working under direction from them.

Quality assurance measures based on the audit of doctors and clinics have been adopted by some maritime administrations. Employers and insurers may also conduct audits. However there was resistance to the introduction of a professionally based quality improvement system when this was proposed a few years ago. This was in part because of costs and in part because of resistance from employers and insurers who wished to be autonomous when deciding on which clinics to use^[3].

^[1] https://www.ilo.org/sector/Resources/codes-of-practice-and-guidelines/WCMS_174794/lang--en/index.htm

^[2] https://www.ilo.org/sector/Resources/codes-of-practice-and-guidelines/WCMS_174794/lang--en/index.htm

^[3] Carter T, Bell S, Horneland AM, Idnani S. Standards for quality assurance of pre-employment medical examinations of seafarers: the IMHA Quality experience. *International Maritime Health* 2017;68(2):99-101

A.4.5 TELEMEDICAL ASSISTANCE SERVICE DOCTORS

KIMMO HERTTUA

Introduction

- Telemedical Maritime Assistance Services (TMAS) operate as radio medical advice centres for ships worldwide.
- TMAS need to be available at any hour of the day or night, free of charge, with an optimum use of facilities available.
- All ships shall carry a complete and up-to-date list of radio stations and coast earth stations through which medical advice can be obtained.

- In case of a disease or injury on board, the Master or a delegate is advised to contact
- Different countries have solved their TMAS obligations in various ways. Some have specific centres with dedicated personnel whereas others have their service connected to a hospital department.
- Commercial telemedical providers may be responsible for providing more extensive services to passenger ships, research ships and those working in very remote locations. These often include real time monitoring or imaging support

The International Maritime Organization (IMO) states that the TMAS provision guarantees competence and quality of service¹

Further information on TMAS can be found in Ch 5.7

Purpose and tasks

TMAS medical staff give advice to assist seafarers in managing medical incidents so that morbidity and mortality is minimized.

To do so they need to obtain and analyse:

- Information on the incident, the condition of the patient(s), the skills and facilities/medications available on board.
- Location of the vessel and its passage plan
- Availability of air and sea rescue services and their ability to access the vessel
- Appropriate and accessible requisite healthcare facilities and how they can be accessed.

They then need to decide on:

- Initial recommendations for management of the patient(s)
- The need for medical evacuation or ship diversion
- Requirements for longer term care and monitoring if the patient is to remain on board

These tasks often need to be done in co-operation with national or international rescue and coastguard services, while ensuring that medical care is not compromised by the disclosure of medically confidential information or by the economics of ship operations.

The doctor-patient contact is complex. TMAS does not usually have access to the medical history of the patient, except what they can glean from the seafarer themselves. They need to make decisions without medical investigations or laboratory results. They may be communicating with seafarers with limited skills in English or other languages familiar to the advisers and who may well be extremely anxious if the patient's life is endangered. Further information on the ethics in maritime health is available in Ch 2.9.

Skills and competency

TMAS doctors need to be competent clinicians who have additional knowledge of:

- the training, qualifications and experience of the person delivering medical care on board

- ship board conditions and the limitations these create.
- ship types
- risks from dangerous cargoes,
- medical facilities along the shipping lanes of the world,
- the variations in the content of medicine chests, ship hospitals, joint rescue centres and Search and Rescue (SAR) services.
- communication skills in relevant languages and the ability to tease out key clinical features where there are limited language capabilities on board or anxiety and agitation because of a major incident.
- knowledge of maritime IT capabilities and skills in optimizing their use.
- clinical skills that meet the needs of the service being provided.

It is often stated that emergency doctors are best suited for the advisory and leadership role, as they have the expertise to assess medical problems rapidly. Furthermore, they are familiar with management from a distance, which is similar to the on-line and off-line medical control in an emergency medical services system². However, if the service is also providing primary care support, in addition to advising on major emergencies then skills in this area are essential.

Most TMAS work with teams of doctors, and in service training and advice on complex cases is the main way in which competencies in all but the basic clinical skills are developed.

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2. Mahdi SS, Amenta F. Eighty years of CIRM. A journey of commitment and dedication in providing maritime medical assistance. *Int Marit Health* 2016; 67: 187-195.
3. International Labour Organization. Maritime Labour Convention, 2006.

A.4.6 FIRST AIDERS AND OFFICERS RESPONSIBLE FOR MEDICAL CARE ON BOARD

HARIS APOSTOLATOS, & VIVIAN ANDRIA

Introduction

Medical emergencies on board may be challenging situations for maritime personnel. Seafarers must be able to deal with potentially life-threatening conditions despite their lack of medical experience. Equally, seafarers may present to the officer responsible for medical care with less acute and severe illness or injury. These too have to be assessed, treated and reviewed to ensure that the seafarer remains healthy and able to fulfill his routine and emergency duties. Further information on the management of cases on board can be found in Chapters 5.

Purpose and tasks

To ensure that morbidity and mortality from injury and illness on board is minimized by providing:

- appropriate assessment and management of minor illness and injuries
- assessment and immediate first aid to injured seafarers and for medical emergencies
- appropriate short-term care and treatment, taking account of any specific risks present and the facilities available on board
- communication of all valid information on the incident, the present condition of the casualty and their vital signs to a TMAS centre.
- ongoing care as instructed by the TMAS doctor and recommended in the ship medical guide until the casualty has recovered or can be transferred to onshore medical facilities
- safe management of the medical evacuation of a casualty
- adequate record keeping about casualties and their care and treatment in line with the requirements of medical confidentiality
- ongoing and secure maintenance of the medications and medical equipment on board.

Skills and competency

STCW 1995 as amended, requires that seafarers must be provided with basic safety training, elementary first aid, personal safety, and survival techniques to ensure that they can respond appropriately in emergency situations.

Similar regulations have been established through other Conventions such as the Maritime Labour Convention 2006 (MLC) regulating medical care on board and ashore, safety rules and the responsibility of countries and ship owners.

The specification of the contents of statutory training courses in these conventions is in need of updating and there are major international variations in the quality of training provided.

These requirements define the competencies required but the most important element remains the training, experience and decisiveness of the officer responsible for medical care on board. This individual is the eyes and hands of the TMAS provider and is responsible for providing the objective information the provider requires to assess the situation and respond adequately, whether to a minor injury or a life-threatening condition. The officer must be able to cooperate with the remote TMAS, keep calm and be willing to make decisions and assume actions and strategies to manage a challenging situation¹. Further information on the training of seafarers in medical care is available in Ch 5.3.

References

1. Westlund K, Attvall S, Nilsson R, Jensen OC. Telemedical Maritime Assistance Service (TMAS) to Swedish merchant and passenger ships 1997-2012. *Int Marit Health* 2016; 67: 24-30.

A.4.7 MARITIME OCCUPATIONAL HEALTH (OH) PRACTITIONERS

OLAF JENSEN

Introduction

- Seafarers often operate under stressful working conditions, long-work hours, lack of good sleep, healthy diet and physical exercises, that contribute to fatigue, impaired well-being, mental ill-health, stress and chronic diseases^{1,2}.
- There are known health risks associated with various aspects of ship operations, dangerous cargoes and port visits.
- Practitioners include physicians, occupational hygienists and toxicologists.
- Some roles on board are 'safety critical'. Incapacity or erratic performance can put other seafarers or the ship in danger.

Purpose and tasks

- Perform employment medical examinations for the seafarers'. Further information on PEME medical examiners can be found in Chapter 4.8.
- Advise individuals, ship operators, maritime trade unions, authorities and charities on how to reduce occupational health risks related to the working conditions.
- Advise ship operators and regulatory authorities on how to assess and control the risks associated with ship operations and dangerous cargoes.
- Undertake health surveillance for early diagnosis of mental ill-health, stress, diabetes 2 (by using Hb1Ac) and other chronic diseases.
- Report new cases of occupational diseases to the regulatory authorities
- Advise on how to minimize risks particularly in safety critical roles, often by modifications to fitness criteria or by changes to work practices.

Skills and competency

The competencies for performing seafarer medicals are specified in the Guidelines on the medical examinations of seafarers and fishermen.^{3,5}

Competency for many of the tasks form part of the training of specialists in occupational medicine. Other disciplines relevant to occupational health will have more in depth competencies in particular aspects of risk management. An essential additional component is knowledge of the living and working conditions on board ships, job demands and the hazardous conditions and exposures that are related to health.

There is an unfulfilled need to train all doctors who are in contact with seafarers on how to raise awareness of and support seafarers in the identification and prevention of risks from hazardous working and living conditions and to notify occupational

diseases. A recent study has identified that such doctors recognize the benefits from such training and are keen to participate.⁴

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3. Guidelines on the medical examinations of seafarers [Internet]. [cited 2018 Nov 24]. Available from: https://www.ilo.org/sector/Resources/codes-of-practice-and-guidelines/WCMS_174794/lang--en/index.htm
4. Shah B, Andrioti D, Jensen OC. Training needs among maritime professionals: a cross sectional study. *Int Marit Health*. 2018;69(2):129–36.
5. https://www.etf-europe.org/wp-content/uploads/2021/05/210230_ETF_Fisheries-medical-guidelines-ok.pdf

A.4.8 COMPETENCES RELATED TO SHIP DESIGN

GEORGE PANAGAKOS

Introduction

The safety of people and cargo onboard is a key functionality of a commercial ship.

The health and well-being of seafarers and passengers is protected through an extensive set of technical specifications, standards and norms that govern the design and commissioning of all vessels.

They differ by ship type and size, while the specific services to be provided and the specific geographic regions to be served also play an important role in this respect.

The requirements are of national and international character and vary also with the classification society that will commission the ship. Thus in a broader sense, all competences related to ship design are related one way or another to maritime health.

Much of the design of ships is overseen by a naval architect or marine engineer. It is rare to have the involvement of a medical professional except in the cruise industry.

Purpose and tasks

To ensure that the design of a ship includes the requirements to protect the health and well being of seafarers. More specifically, to identify areas of intervention that go beyond the usual engineering curricula where, nonetheless, the safety dimension is embedded through international standardization.

Skills and competency

National competency frameworks, for example Akademiet for de Tekniske Videnskaber – ATV (2011) in Denmark, look into the necessary competences and provide a set of guidelines on training in the field of maritime engineering. In addition to the usual skills in mathematics, physics, chemistry and statistics, a naval architect and marine engineer should be competent in:

- hydrostatics and seakeeping,
- ship strength and construction,
- hydrodynamics,
- energy technology,
- machinery,
- internal combustion engines,
- material technology (composites, light metal etc.),
- electrical control systems and automation,
- alternative fuels,
- dynamic analysis and
- acoustics, among others.

However, public health concepts and occupational health issues related to ship design including crew welfare are missing, while the topics of noise and vibration should be given more attention.¹

The same 2011 document proposes the so-called T-shaped competence profile for all those involved in ship design. In this profile, the vertical bar of the T represents the depth of related skills in maritime engineering. The horizontal bar, however, is the ability to collaborate across disciplines with experts in other fields and to apply knowledge in areas of expertise other than one's own. ²

The recent widespread digitalization along with rapid developments in automation, robotics and artificial intelligence are already transforming the digital ship of today into the intelligent ship of tomorrow. The future need to collaborate not only with other experts but also with machines places more emphasis on the horizontal part of the profile, calling for communication, collaboration, entrepreneurial and certainly digital skills.

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A.4.9 PUBLIC HEALTH INSPECTORS

DESPENA ANDRIOTI BYGVRAA & BARBARA MOUCHTOURI

Introduction

The World Health Organization (WHO) International Health Regulations 2005 (IHR), points out that State parties should have in place systems and services to ensure that vessels calling in their ports are free from infection or contamination [1].

A contagious free ship does not pose any threat related to infectious diseases to the land-based population.

The master of the vessel has to inform the competent authority at the next port of call on the sanitary situation onboard, by completing the Maritime Declaration of Health or by other means.

Port state authorities are responsible for inspection of the ship at authorised ports and issuance of Ship Sanitation Certificates. This is usually done by trained personnel known as port health inspectors. IHR (2005) Annex 1 B lists trained inspectors as a core capacity at designated points of entry[1]. The IHR (2005) Annex 3 identifies areas, systems and services to be inspected on a conveyance.

Further information on Port Health and Infectious Diseases is available in Ch 5.10 and Ch 8.

Purpose and tasks

- To inspect the ship for compliance with the sanitation principles in line with international and national standards [2-4]
- Issue a Ship Sanitation Certificate (SSC) with a six months validity and/or other inspection reports and check compliance with the relevant regulations [4]
- Record relevant information on inspections in a database, if applicable at a national or at an international level (e.g. EU SHIPSAN ACT Information System (EUSIS), US CDC Vessel Sanitation Program [5, 6]
- Perform risk assessment in response to public health events on ships or at ports and implement or supervise implementation of control measures [7]

Skills and competency

There are frameworks for skills and competencies for public health inspectors of ships worldwide. The following paragraphs provide an overview of the WHO and European competency frameworks and training programmes.

The World Health Organization provides an eLearning course aiming at introducing the key competencies, with a focus on knowledge and skills, required by inspectors to perform Ship Sanitation Inspections. It is a 10 to 20 hour long self-paced course and a prerequisite to participate in the F2F component (duration of the course may vary according to educational backgrounds

and previous experiences of learners): <https://extranet.who.int/hslp/training/pluginfile.php/3019/course/section/277/SSC-learning-program.pdf>.

The EU-SHIPSAN ACT Joint Action has developed a competency framework for port health officers conducting inspections against the standards of the European Manual for Hygiene Standards and Communicable Disease Surveillance on passengers ships sailing in European ports. In addition a framework for training was developed including training materials, a pool of trainers based on competency criteria and training courses for port health officers and seafarers including cruise line officers. SHIPSAN European Scientific Association for Health and Hygiene in Maritime Transport (<https://shipsanassociation.shipsan.eu/>) continues the activities of the EU-SHIPSAN Joint Action by organising and providing relevant training to public health inspectors and supporting competent authorities in EUMS in the development of an annual inspection plan at EU level and in the conduct of inspections: <https://www.healthygateways.eu/European-Inspection-Program-for-ships>. In order to perform these duties, inspecting officers should demonstrate competency in the following areas:

- Assessment of public health risks;
- Communication with authorities, crew and travelers;
- Knowledge of the disease status
- Application of personal protective techniques and related equipment.
- An understanding of the ways in which public health risks from microbiological, chemical and radiological agents affect human health and can be transmitted to individuals via humans, food, air, water, waste, and environmental vectors
- Application of operational procedures for notification, assessment and response,
- Knowledge of environmental requirements relating to the size and type of conveyance
- Knowledge of relevant guidelines issued by the international bodies including WHO, International Labour Organization [ILO], and International Maritime Organization [IMO]).

The US CDC Vessel Sanitation program offers training of cruise ship supervisory employees. This includes a 2.5-day training course to teach cruise ship supervisors the public health practices specified in the current VSP Operations Manual:

<https://www.cdc.gov/nceh/vsp/training/training.htm>.

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A.4.10 MARITIME PHARMACISTS

ILLONA DENISENKO & NICKOLAOS IOANNIDES

Introduction

Maritime pharmacies are the source of the medications and much of the medical equipment and supplies that ships are required to carry. This includes many medicines that would be prescription only on shore and some, such as morphine, that are subject to detailed controls of supply and use. They also accept and safely dispose of unused but expired medications when ships are in port.

The Maritime Labour Convention, 2006, (MLC) includes a requirement for ships to carry a medicine chest. Section 4.1 states that 'all ships shall carry a medicine chest, medical equipment and a medical guide, the specifics of which shall be prescribed and subject to regular inspection by the competent authority; the national requirements shall take into account the type of ship, the number of persons on board and the nature, destination and duration of voyages and relevant national and international recommended medical standards;'

A maritime pharmacist is a registered pharmacist, usually the owner or an employee in a pharmacy that specializes in the procurement of medicines, medical supplies and equipment to ships. The main difference from a 'normal' pharmacist is that he/she does not dispense medicines to sick patients but to potential ones.

In some countries, pharmacists also have a statutory responsibility for the inspection of the ship's medicine chest to confirm that it is adequately stocked against flag state requirements and to ensure that medical equipment is in good order and no expired

products at the time of inspection.

Purpose and tasks

- To advise the ship's managing company about their fleet's medicine chest requirements and compile a regulation compliant medicine chest inventory list or software to be used across the fleet for the management of the medicine chest on board each vessel.
- To arrange the inspection of medicine chests at regular intervals, either by physically visiting the ships or by the deployment of tele-pharmacy inspections.
- To issue an annual Medicine Chest Certificate following a satisfactory inspection of the vessel's medicine chest
- To liaise with port state control authorities if a ship is found to be non-compliant with her medicine chest requirements and helping to resolve cases of regulation misinterpretation.
- In the case of an emergency, to advise TeleMedical Assistance Service (TMAS) or the shipping company on what items are available and where they are located on board
- To advise on the use and supply of medicines, equipment and supplies when new public health threats emerge, for example the COVID-19 pandemic.
- To train the crew in the
 - Safe dispensing of medicines and use of the medical supplies and equipment available on board.
 - Proper storage of medicines, especially those requiring special storage conditions, for exampleg. items requiring refrigeration, or are considered controlled substances, for example morphine, and require special documentation.
 - Disposal of expired items in a way compliant with regulations, especially in the case of controlled medicines that require special handling.
 - Optimal location mapping of medicines, medical supplies and equipment in designated areas to facilitate prompt item retrieval in case of an emergency.

Skills and Competency

Pharmacists working in maritime pharmacies need to have the appropriate national qualifications to obtain and dispense medications. These will vary between countries. In addition, they need to be familiar with each flag state's list of required medical stores.

When supplying medications, pharmacists need to check the credentials of the person requisitioning for medications and to meet the accountability requirements for the supply of controlled substances. They should be able to advise on the acceptability of entering ports with controlled substances on board, as some substances are prohibited in certain countries. This also means that some medication may not be available in some countries. One of their more challenging tasks is to decide when alternative medications to those requested by the ships master, but not available locally, can be safely supplied.

There has been a recent growth in pharmacies providing on line services to the maritime industry, although the training and knowledge of their staff, the services they provide and the quality of those services is variable.

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A.4.11 PORT PRACTITIONERS

DESPENA ANDRIOTI BYGVRAA

Introduction

Physicians in ports come from a range of specialties including general practice, anesthesiology, internal medicine and emergency care. They offer medical advice, health protection and promotion services including dental care, travel medicine and infectious diseases information. They may also offer pre employment medical examinations for seafarers.

Relatively few ports have dedicated medical or dental practices that specialize in the care of seafarers. In many cases, the port shipping agent has to source medical advice and options for medical care. This may sometimes lead to referrals based on the personal contacts of the agent rather than the use of the most competent available services.

Research shows that trauma and occupational injuries are the most common reason for seeking advice in port, followed by urology, upper gastrointestinal, minor surgery, oncology and cardiology incidents (3).

Purpose and tasks

The range of services may include, but is not limited to:

- outpatient treatment for sickness and injury; vaccination and immunization.
- Diagnostic tests including laboratory and radiology
- Referral to hospital for specialist assessment or admission for treatment

- Dental care and emergency dental care
- Health counseling
- Rehabilitation services
- Pre employment medical examinations

Skills and competency

Medical practitioners working within a port health clinic must have appropriate qualifications and training as outlined by national authorities. Postgraduate specialist training should cover those tasks outlined above and the majority have experience in primary care and/or occupational health.

Port practitioners should have excellent assessment competencies, knowledge of different treatment protocols, knowledge in public health and cross-cultural understanding, especially as they operate with rather limited clinical diagnostic support and need to be able to give rapid advice, during the time when a ship is in port.

It is difficult to provide integrated care for seafarers. The port physician has to be able to provide suitable care in the absence of the seafarer's full medical history and has to adapt to the problems of being able to communicate any treatments given to doctors in the seafarer's home country.

Port practitioners should also have a clear understanding of working and living conditions on board. In particular, they should be aware of the limited medical care available at sea and the impact of having a sick or injured seafarer on board. Port practitioners also need to have knowledge of how best to ensure that medical information remains confidential, while at the same time giving the ship's master advice on any continuing treatment needs, danger signs of recurrence of the condition and recommendations on fitness for duties at sea.

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A.4.12 PORT CLINIC MEDICAL ASSISTANT

Introduction

Medical assistants may assist a port physician with operational and medical tasks as appropriate.

Purpose and tasks

Tasks may include:

- Administration:
 - patient reception
 - reports,
 - certificates,
 - transport,
 - invoicing,
 - accounting,
 - follow up.
- Reception:
 - Reception of incoming information:
 - Telephone,
 - smart phone, social media
 - internet,
 - regular mail,
 - incoming medical results.
 - Communication
 - Languages
 - Interpreter
- Medical assistance:
 - Stock:
 - Medical materials
 - Vaccinations
 - Instruments:
 - Hygiene,
 - Sterilisation
 - Preliminary examination:
 - Biometry,
 - hearing,
 - vision,
 - ECG,
 - spirometry,
 - x-ray,
 - blood tests,
 - drug and alcohol tests,

- urine test.
- Nursing:
 - Injections,
 - wound treatment,
 - bandages,
 - instrumentation

Skills and competency

The port clinic medical assistant must be trained according to national standards and requirements to perform the tasks required. In addition they must be good at communication, ideally in English as well as their native language, and be well organised in order to ensure a quality and efficient service.

A.4.13 POLICY ADVISORS TO THE INDUSTRY

ILLONA DENISENKO

Introduction

Policies on maritime health may be developed at international, regional, national or corporate levels. Some will have legal status, others may be governmental recommendations or they may be mandatory or voluntary policies agreed by sectors of the industry or by seafarer organisations.

Purpose and tasks

Those with competencies in maritime health usually act as expert advisers to others who determine policies within the relevant forum. Their contribution will be based on knowledge about the nature and scale of health risks, the effectiveness of interventions to reduce risks and an understanding of the natural history of illness.

Individuals may be asked to advise, or alternatively professional associations or institutes may be asked to give their collective advice, often based on the report of a working group.

Advice may be given orally in the course of a meeting of a policy making forum, for instance in the International Labour Organisation (ILO) or International Maritime Organisation (IMO). It may also be given as a written report or as a draft policy document for modification and endorsement at the forum.

Skills and competency

A wide range of competencies, usually defined by the professional training and experience of the adviser may be called on, for example:

- clinical, when advising on disease risks and the effectiveness of treatments
- ergonomic, when setting criteria for health and performance related aspects of ship design
- psychological, to help determine optimum working and living conditions
- toxicological and occupational hygiene, when considering the safe handling of chemical cargoes and agents used on board
- T. when optimizing telemedical advisory service provision
- training, for the design of model training courses for ship crew on health matters.

Whatever the professional discipline, the policy adviser needs to understand the policy making process and any potential sensitivities of the interest groups involved.

As most policy outcomes are written, the adviser needs to be fluent in the working language of the forum and to have the skills needed to both draft and scrutinize official documents in order to contribute effectively.

Because of the power of interest groups advisers need to have a clear understanding of their ethical position on matters such as any compromises reached between the costs and quality of intervention, on the requirement to maintain confidentiality of personal information and, above all, on the need to adopt best current practice to secure health.

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