

# Infectious diseases and medical guides for seafarers

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## INTRODUCTION

For seafarers it is essential that a medical guide leads them through the steps from being presented with a medical problem on board to the appropriate handling of the situation in a clear and straightforward way.

Several medical guides are on the market. The best known one is the WHO publication – the International Medical Guide for ships, which was published in its third edition in 2007 [1]. In addition there are several national medical guides for seafarers, such as books from UK [2], Germany [3], Denmark [4], Finland [5], and Norway [6].

They are written in the traditional form of textbooks, following the framework that is characteristic of books for medical students, in that they follow a format which presumes prior medical knowledge. You have to know which condition you want to read about before you can find information about diagnosis and treatment. This is clearly seen in the index of the books, where the format follows a traditional classification of clinical or pathological entities [7]. The books are more suitable for browsing and training but are not as useful in emergency situations.

## INFECTIOUS DISEASES ON BOARD

Infectious diseases at sea are one of the commonest health problems and account for a high proportion of calls to the telemedical advisory service (TMAS). The clinical picture, from the presenting symptom(s) through the whole period of the infection, often varies in its combination, severity, and sequence.

Thus the situation often seems confusing to a seafarer with limited training and little or no personal experience of infectious diseases and their symptoms. It may be difficult for them to know under which diagnosis they should look for more detailed infor-

mation to help decide on the actions needed to manage an infection in a fellow crewmember.

These difficulties can become apparent when an officer (normally a responsibility of the 1<sup>st</sup> officer) contacts a TMAS for advice. There are often shortcomings in the information on symptoms and medical examination findings, and the TMAS doctor has to request that they obtain additional information before valid advice can be given. It can reasonably be assumed that, in the absence of TMAS advice, the officer will use the medical guide on board to help them decide on the actions needed and that their use of this guide will be limited by their failure to have the information needed to use it in a way that will ensure that the optimum treatment is given. While TMAS is usually available and it may be that the more complex and puzzling cases are the ones on which advice is sought, these observations suggest that the ways in which advice is presented on board and the training provided in medical first aid at sea need to be reconsidered. The Danish approach is very much modelled on information gathering and TMAS use. As maritime telemedicine is further developed this should probably be emphasized even more, and medical guides should be more focused on how to record a patient's medical history, carry out a proper medical examination, and how to carry out medical treatment procedures under supervision from on-shore.

Where TMAS advice is not sought and when it is not available (breakdown of radio/telephone communication, shipwreck, etc.), it seems that the existing medical guides in their current format may be of limited use. Thus there is a shortcoming in this part of the maritime safety system that should be mitigated if we are to reach the level of medical care described in the Maritime Labour Convention 2006 (MLC) [8].

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## SUGGESTED SOLUTION

Information for seafarers on infectious diseases (and other types of disease and injury) needs to meet several differing requirements.

1. A teaching text for the basic training courses of officers in charge of medical care on board. This may also be a useful resource on board for refresher training and for consulting as a source of general medical information.
2. A practical manual to cover the situations that seafarers experience on board. It is obvious that a 40-hour course in medical care will only provide very limited knowledge of medical diagnosis and treatment. With an average number of seafarers on board of 20–30 who are a selected and generally fit group, partly as a result of their (pre-sea) medical examination which aims to exclude seafarers who are likely to become ill at sea, the experience of the average 1st officer is not abundant. This means that detailed guidance is needed which does not assume any prior knowledge about symptoms, medical findings, or the names of illnesses.

Not only is the training and experience of responsible officers limited but, as noted, access to TMAS is not always available, the medications and facilities for diagnosis and treatment on board are limited and it is only possible to arrange rapid access to medical care when a ship is near to a populated shore. This means that all these resources must be mobilised in the optimum way and that they must all be compatible with each other. These needs are not well understood by health professionals working on shore, who may not recognise that a change in their mind-set is needed to ensure that those responsible at sea can deliver the best possible care to crew members who become ill.

3. Detailed guidance on how to design, build, maintain, administer, and organize ship medical facilities and the ship medicine chest. The medications and medical equipment must be relevant to the needs on board and cover the most common conditions, the conditions specific to seafaring, and the conditions which imply special challenges when on board a ship. A new need is to specify which of the recently developed tests that will help diagnose infectious diseases should be included. These tests and the medications carried must be compatible with the recommendations in medical guides. TMAS need to be aware of them so that they can give appropriate advice on their use.

4. Guidance on how to prevent disease (and injury) on board. This needs to cover not only how to respond to events such as cases or outbreaks of disease but how to ensure that they are prevented by attention to the vessel, its equipment, and the organisation of routines for working and living on board. In conclusion, these aspects form an important part of health promotion. Other aspects of health promotion should also be included.

All these four facets need to be compatible with one another. Whether they can be covered in a single publication is an open question at this stage, and there could well be advantages in selecting the best format for each. The priority is to re-define the functions and content of the practical manual for managing illness and injury on board.

The manual should be based on *algorithms* and *decision trees* that lead the officer in charge of medical care stepwise, from how to gather relevant information on symptoms and on the person's previous medical problems as well as medical examination procedures and possibly supplemental laboratory tests, to a clear decision about *what to do*.

The outcome of the decision tree should be recommendations for the practical handling of the situation, rather than a formal medical diagnosis.

Doctors' advice is usually based on diagnoses and knowledge about the way to handle the conditions. Doctors are so used to thinking along these lines that they have difficulty using different approaches. By contrast, lay people have concerns which are not so closely related to the diagnostic process of medical doctors. Their knowledge about medical conditions is limited, making it very difficult for them to follow the traditional diagnostic way of thinking. They are concerned with questions like:

- What to ask, examine, and test and how to follow-up the patient with a rash?
- What to do with a feverish patient?
- How to deal with diarrhoea?
- What about vomiting?
- When shall I call TMAS?
- How to handle the situation when a doctor's advice cannot be reached?
- What is dangerous and what is not?
- Should the patient be evacuated?
- Should we divert?
- Is he/she contagious? Should he/she be isolated?
- What does isolation mean?
- What about food and water hygiene?

- What shall I do before I call the TMAS doctor?

These examples relate to infectious diseases, but similar questions also arise for other diseases and even for injuries.

### FORMAT

Online publication of books has been demonstrated to reach a wide audience, be easy to use, and be a very cost-effective and practical way of distributing knowledge [9]. Electronic versions also make the use of decision trees more easily, with the ability to include functions that would not be possible in printed books [10].

The advantages are:

- easily accessible – wherever an internet connection can be accessed;
- easily searchable – electronic searching is far better than manual;
- linking to possible databases possible;
- decision tree functionality is better;
- links to TMAS service, to procedures for treatment and export to or linkage with medical records may be possible;
- easy to organise updates and new editions – customers do not need to buy new paper copies each time;
- never out of print;
- translation to other languages easy;
- may be downloaded, to make offline work possible;
- instruction videos can be incorporated;

The disadvantages and how they may be overcome are;

- Lack of a paper copy to consult or study in the absence of internet access. Easily remedied by downloading parts needed for instant access.
- Less transportable, for instance to hard to reach parts of a vessel when emergency treatment is needed there. Use of palm top p.d.a. or similar can enable this.
- Costs of satellite links for access. Small bandwidth compared with other maritime communications.

### CONCLUSIONS

A new paradigm is proposed to improve the way in which medical guides for use at sea are produced and presented. This could cover training texts, practical manuals, advice regarding medical facilities and medicine chest, as well as guidance on health promotion and preventive medicine on board.

Web-based publication and on-line guides should replace printed matter in the future. These should include decision trees that start with situations or symptoms and conclude with practical advice on treatment. They should not focus too much on medical diagnoses but could link to databases describing different medical conditions in detail.

Integration with medical advice from TMAS on-shore should be considered.

As shipping is a global industry, initiatives such as these need to be developed internationally and have the support of a wide range of groups such as seafarers' and ship operators' organisations, maritime administrations, and those providing search and rescue services. Those with maritime health expertise will need to make a good case for changes to be adopted and also overcome the inherent conservatism of seafarers, trainers, and maritime authorities.

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