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# Maritime Doctors and General Practitioners Service Profiles: A Research Protocol

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## Abstract

**Background:** Maritime employees are a hard to reach population group. The mandatory medical examinations of seafarers, fishermen and offshore workers are performed by GPs with training in maritime medicine. However, they might as well consult their regular general practitioner for other health concerns. So far very little is known about the breadth of services and follow up practices offered to them by GPs as well as maritime doctors. The final goal is to determine GPs and maritime doctors' perceived training needs so that relevant continuing medical education could be developed.

**Methods:** This research project will involve 200 doctors (100 maritime doctors and 100 general practitioners) from all over Denmark using an electronic and anonymous questionnaire. This is based on international standards, adapted and validated. The scoping review helped in enriching the questions. The analysis of the results will give insight on the service profiles and draw conclusions regarding doctors' attitudes and their perceived training needs. The gap analysis can show potential areas for in depth guidance.

**Discussion:** The study is expected to identify areas of knowledge that may need to be updated so that doctors optimize their services to their seagoing populations. The results may be used as guidelines for continuing professional development of these medical specialties and contribute to informed decisions making.

**Keywords:** Maritime doctors, GAP analysis, integrated care, perceived training needs, seafarers.

## Introduction

Seafarers travel across the globe and very often they have difficulty to seek timely health services. In this sense they are a "hard to reach" population group [1]. Good health is a prerequisite for seafarers to serve with high quality at sea (MLC 2006). This makes the pre-employment health examinations so important in order for seafarers to obtain their work fitness certificates and complete their work tasks excellently over many months at sea [2]. These health examinations take place every second year and are performed usually by a maritime doctor who should be familiar with the working environment in ships. In addition seagoing employees may consult their regular general practitioner for other health concerns (ILO 2006).

The International Labour Organisation in the Maritime Labour Convention 2006 (MLC 2006) which enter into force in 2013, highlighted that countries should have in place specific guidelines with regards to these examinations and that general practitioners may need more detailed guidance than maritime doctors.

The International Maritime Health Association (IMHA) tried some years ago to establish a global programme with quality teams for the maritime health clinics, but this was never realised. MLC 2006 came into force in Denmark and internationally August 20, 2013 and the current Executive Order on the medical examination of seafarers and fishermen issued August 12, 2013 no. 999 [3]. The notice takes into account the MLC 2006 requirements as well as the requirements of the Standards of Training Certification and Wachekeeping (STCW) Convention.

The maritime doctors are designated to provide the mandatory medical examinations of seafarers, fishermen and offshore workers. In Denmark they are general practitioners (GPs) with a special training in maritime medicine. Usually such training is undertaken in other neighbouring countries. In addition, seagoing professionals might as well consult their

regular GP for other health concerns. These specialists should also get training in occupational issues related to the seagoing groups of employees (ILO/IMO 2011).

Maritime doctors and GPs play an important role in health outcomes of the seagoing personnel but due to the complexity of their role and the scientific advancements there is a need for continuous training so that they stay current and better respond to this population group specific needs and expectations (ILO 2013). In comparison with the other neighbour countries and particularly Norway, Spain and the Netherlands, Denmark lacks a specific training programme in maritime medicine for medical doctors. The Danish Maritime Authority expressed their intention to introduce such quality aspects in Denmark. The project idea is to gain insights of the breadth and kind of services that maritime doctors and general practitioners offer and the respective quality of these services, so that the respective training can be introduced [4]. In line of this, the education and training of health professionals is an essential factor in the development of health systems [5]. Education and training contribute to better responsiveness and performance of the health professionals and lead to optimization of the services [6,7].

In Denmark, the policy on patient-centred care is in place for some years now. It requires a different approach in doctor-patient relation and builds on the principal that the patients are equipped to make informed decisions about their health. Health systems should give attention to the needs of marginalized groups [8]. Seafarers are a hard to reach population group far from hospitals and with a great range of health needs due to their specific working environment and long working hours [9]. Research findings showed that their perceived health is very poor with limited access to health information [10,11]. They face difficulties in communications with health professionals who should be trained to understand and respond to their needs [12].

Effective care should be organised in an integrated way and this applies particularly to the seagoing employees [13].

More specifically with regards to the maritime doctors, they have a fundamental role to play including the performance of health examinations, communication with authorities and the follow-up practices [14,15]. Furthermore, they should empower their patients in self-disease management through their engagement in necessary behavioural changes and promote patient satisfaction [16].

However, so far very little is known about the volume and breadth of services offered and the characteristics of these services. The aim of this study is to a) gain insight in competencies and practices of maritime doctors b) present attributes with regards to early diagnosis of emerging diseases, start of treatment and prevention services and c) gain insight in their perceived training needs. Furthermore through a GAP analysis the need for further education of maritime doctors will be compared with this of the general practitioners. The survey tries to answer the following questions

What are the maritime doctors and general practitioners service characteristics?

What are the maritime experiences of the maritime doctors?

Are they familiar with seafarers' working conditions and service demands?

How competent do they feel about disease management and occupational diseases notification?

How do they follow-up with prevention and control of seafarers with emerging chronic diseases (hypertension, obesity, diabetes)?

Analyse the differences in needs between the maritime doctors and the general practitioners.

## Method

A total of 200 doctors will be invited to participate in the survey (100 maritime doctors and 100 general practitioners). The survey will be done electronically and anonymously via a questionnaire. This is created based on the international experience [17] adapted to the Danish standards. It will be distributed to all the maritime doctors (about 100) who are designated to provide the mandatory medical examinations of seafarers, fishermen and offshore workers by the Danish Maritime Authority (DMA). Therefore, the sample takes stock of all of them. However, seafarers might as well consult their regular GP for other health concerns. To ensure a national representative sample of GPs the survey is using the simple random sampling method, according to the formula:

$$p_1 = p_2 = p_3 = \dots = p_r = \frac{1}{r} = \frac{1}{\left(\frac{N}{v}\right)}$$

(p=probability to be included in the sample, N=objects in the total population, v=objects in the sample)

The investigators will exclude from the sample GPs whose patient population is mainly seafarers. It is known based on research findings that medical doctors (MDs) show low response rates. The respective Danish authorities support this survey and therefore the expected participation rate is of at least 50%. The team is planning to send out two reminders if needed. The team created a digital instrument and using email addresses will send an invitation letter to the sample explaining the scope of the survey. The survey instrument will be self-administered with questions around three aspects of maritime medicine performance a) attributes of physicians in seafarers pre-service practice (fit-for-work certificate) b) continuity of care with questions on disease management, prevention, follow up practices and notifications of occupational diseases c) competencies and training needs. Completion time of the questions is expected to be around 10-15 minutes and this is within accepted survey time standards. To facilitate quick responses the team will use drop down menus in the construction of the questionnaire, while there will be also some yes/no questions with minimum time requirements. The team is planning to send out reminders if needed in due time after the initial request. The advantage of a digitalised survey is the low cost and user friendliness in collecting, collating the answers of physicians and processing

the data. These will be processed using the appropriate methodology including descriptive statistical methods. The regression analysis will show possible influences among doctors' personal characteristics such as years of experience and parameters of their practice such as breadth of services offered. The analysis of the results will give insight on the issues and draw conclusions regarding doctors' attitudes and their perceived training needs. The inclusion of general practitioners in the design and execution of the survey gives the opportunity for comparisons between the two samples. More specifically a GAP analysis can be made comparing the need for further education between maritime medical doctors and general practitioners. The intention of the research team is to contribute with statistics the respective Authorities in their efforts to formulate relevant policies in the maritime sector.

More specifically the project is designed in 4 phases:

### **Phase 1: Collection of material on doctors' skills and competencies**

The relevant material was collected as a scoping review. It helped enrich the questions on skills, competencies, service characteristics, follow-up practices and perceived training of the medical doctors. The survey questionnaire was developed based on international standards.

### **Phase 2: Questionnaire design**

In close cooperation with the Danish Maritime Authority (DMA) and the Research Unit for General Practice, University of Southern Denmark, it was pilot-tested in a small sample of maritime doctors and general practitioners to see if the questions are fully understood. Appropriate changes were incorporated and the validation of the questionnaire using the standard technic followed. The final version was sent electronically to the sample together with an invitation for participation. Two reminders may follow if necessary.

### **Phase 3: Data analysis and report**

The analysis of the questionnaires will allow drawing results about medical doctors' professional skills in respect of continuity of care, prevention education as well as notification of occupational diseases. It will further highlight training topics for updating their knowledge.

### **Phase 4: Dissemination**

The intention of the team is to communicate the results through participation in scientific national and international conferences, workshops, and symposia and via publications in scientific journals. Furthermore, lay language communications will be published in relevant maritime newsletters.

The project is approved by the respective national authority.

## **Discussion**

In 2003 WHO proposed the introduction of training and quality teams to help improve the quality in all the medical specialities. The on-going Danish debate of the quality of the national health programmes is based on these international initiatives (Ugeskr.Laeg 15/9/2016). The national quality programmes emphasize the needs for greater visibility in terms of quality in order to create focus on quality health care outcomes [18].

The study is expected to identify areas of knowledge that may need to be updated so that doctors optimize their services to their seagoing populations [19]. The results may be used as guidelines for continuing professional development of these medical specialties

Disease management is a cost effective approach because it allows identifying individuals who are at risk and the early onset of the disease. Maritime doctors could then exercise better management of the disease in relation to the continuation of care (Jensen et al. 2010).

"Blue Denmark" will benefit from decreasing the cost of unexpected provision of health services to seafarers by identifying those clients who may develop a chronic disease.

The seagoing personnel will enjoy better quality of health services in terms of follow-up of employees with chronic diseases or those at risk while they will be able to make informed decisions about their health. The provision of prevention and health education services will increase seafarers' competencies to keep up with good health conditions and well-being on board [20].

Better services to seafarers, helps decreasing costs and claims, and secures lower personnel shortages and higher retention rates [21]. These contribute to good reputation of the industry.

Better health for seafarers, besides the obvious job satisfaction, could be seen as achieving longer working lives and higher income for longer periods of time. Furthermore the research will provide the opportunity to benchmark the situation in Denmark and allow for comparisons with similar research on doctors' service profiles and follow up of patients in other countries.

As a further step this survey may support the planning of targeted training to maritime doctors and general practitioners. Well-trained professionals provide quality services that meet the expectations and demands of the population and contribute to patient safety (WHO 2013). Continuing education programmes enable physicians to improve patient centred care also by educating them on health prevention related to the chronic diseases, like hypertension, diabetes and cardio-vascular diseases [22]. In addition, the doctors strengthen their skills to provide the patients with guidelines for modification of their behavioural choices and the self-management of their illness [23-26]. This will further strengthen the implementation of integrated care. The National Health System in Denmark will benefit from lower

hospitalization and evacuation costs by offering higher quality of services with reduced cost.

## Study Limitations

It is known based on research findings that medical doctors (MDs) show low response rates. Highlighted possible reasons may be that they receive too many requests for research participation and/or have very limited time to participate in various studies. In line of this the expected response rate is around 50%. In addition with regards to GPs recruitment and participation, it may be challenging to get easy access to their emails currently, influencing the representation of the sample. However in any case, the study can show an overview of the trends, their service characteristics and perceived training needs.

## Funding

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## Competing Interests

None

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