

## **International Maritime Health Association (IMHA)**

### **The Management of Medical Emergencies at Sea**

#### **Report from the workshop held in London, February 2 - 3**

#### **Background**

The Maritime Labour Convention (MLC) 2006 Standard A.4.1 (b) (see Appendix 3) states that:

*'seafarers are given health protection and medical care as comparable as possible to that which is generally available to workers ashore, including prompt access to the necessary medicines, medical equipment and facilities for diagnosis and treatment and to medical information and expertise'*

On ships without a doctor the management of medical emergencies and other immediate medical care requirements depends on a number of provisions which include:

- Training of the ship's crew in first aid and medical care on board.
- The medical equipment and medication on board
- The literature available to ships officers on board i.e. The International Medical Guide for Ships (3rd Edition) (IMGS) or national equivalent
- The availability of remote telemedical assistance services (TMAS)

These provisions are specified in a number of international conventions agreed at the International Labour Organisation (ILO) or the International Maritime Organisation (IMO), see Appendix 3, but the responsibility for implementing each of them lies with national authorities, and it is for ship operators to ensure that they meet the requirements of the state where the ship is flagged. Concerns have been raised among those who provide TMAS services, in port clinics and hospitals who give follow up treatment, and from seafarers and ship operators regarding the quality and consistency of care provided to seafarers on board ship in case of a medical emergency. However the multiplicity of conventions and recommendations and the fact that the provisions for medical emergency management form only a small part of each, mean that the scope for coherent change is severely limited. It has been suggested that one approach could be the development of treatment pathways such as those used in the military, pre hospital care and in developing countries<sup>1</sup>.

With the support and funding of the ITF Seafarer's Trust a workshop was convened by the International Maritime Health Association (IMHA). The aim of the workshop was to discuss the current status of medical care at sea on ships without medical practitioners on board and to ascertain support for the development an approach based on treatment pathways, including the identification of the resource requirements for carrying such a programme of work forward. This workshop followed on from the work done at an earlier IMHA workshop on one aspect of medical care: the provision of TMAS services<sup>2</sup>.

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<sup>1</sup> Carter T, Stannard SL. Healthcare at sea: are regulations a guarantee of minimum standards or a barrier to improved practice: International Maritime Health: 2014; 65, 4: 1–4

<sup>2</sup> <http://www.imha.net/images/stories/2013-02WS-MALTA-TELE-consensus-paper.pdf>

## **Programme**

The workshop ran over two days and included a number of presentations and sessions of small group work, see Appendix 2. The presentations gave background information and different subject areas were then explored in more detail within the small groups.

### The presentations

Presentations were given by

Tim Carter (Norwegian Centre of Maritime Medicine)

Rudi Stiltz (Shell International)

Jim Ferguson (Aberdeen Royal Infirmary and Scottish Centre for Telehealth and Telecare)

Spike Briggs (Poole Hospital and Medical Support Offshore Limited)

Marie Hamming (Danish Radiomedical Services)

Connie Gehrt (Seahealth Denmark)

**Dr Carter** looked at the current status of medical care at sea and the different conventions covering this area of life at sea as outlined in Appendix 3.

These conventions came after national practices had already been established in major maritime nations and hence existing practices in these states were adjusted to them. This has led to a lack of international consistency and many flag and coastal states do not in practice meet the convention requirements e.g. with regards to TMAS and Search and Rescue (SAR) services. The problems of incompatibility between training, guides and medications/equipment are exacerbated when officers serve on ships flagged in a different country from the one in which they have trained and then possibly treat crew of a third nationality who may have different health beliefs and expectations.

Uncertainties about the accuracy of information relayed to them and concerns about the quality of care on board often make TMAS adopt precautionary approaches. This may lead to costly diversions, medivacs and repatriations that are potentially avoidable.

**Dr Stiltz** presented a case series demonstrating that the earlier involvement of TMAS and the availability of/ increased use of point of care diagnostics may have prevented costly disembarkations amongst the crews of a single ship operator. The case series also that on average a ship experiences one serious medical incident every two years, so each seafarer trained in medical care can only expect to see such a case every four years.

Figures presented by **Dr Ferguson** showed that over recent years there has been a change in the type of cases Scottish Centre for Telehealth and Telecare are assisting with. Trauma has decreased, medical cases and particularly issues related to chronic disease have increased and the average age of seafarers requiring disembarkation has also increased. He also stressed that experience is key to the management of medical incidents, alongside training and knowledge. This is not only the case for the seafarer providing care but also for the TMAS Doctor, who must be aware of the medical capability on board a vessel, the limitations of care and the options for further care. Whilst additional equipment and different types of medication e.g. thrombolysis may improve treatment and outcome there is a cost associated with this.

**Dr Briggs** spoke about the use and development of treatment pathways. They have been shown to have many advantages and are used successfully within maritime and other remote healthcare environments. They provide a guide to medical decision making and treatment which can be used to standardise and improve the application of treatments, reducing uncertainty. However they are NOT a replacement for education, clinical knowledge, physician judgement or common sense. They are also not protocols but a set of guidelines within which to think. Treatment pathways can be presented in various formats to suit the user requirement including:

- Hard paper based copy
- Apps for tablets, smart phones etc.
- Computer programmes
- Voice controlled applications
- Telemedicine vehicles

They can also be searchable by voice or content list and can contain hyperlinks to additional useful information.

**Dr Hamming** provided an overview of the case load handled by the services of Radio Medico Denmark. Her presentation emphasised the importance of training for ships' officers and the benefits of using scenarios that also incorporated links with TMAS providers. **Ms. Gehrt** built on this with a presentation of the current Danish project to rewrite their national version of the International Ships Medical Guide, incorporating training, the use of TMAS and, in some cases, treatment pathways.

#### Small group work

The presentations were complemented by small group sessions to review specific facets of medical care at sea. During each session the four groups each considered one particular topic in more detail. To encourage a multidisciplinary approach each group included individuals with different areas of expertise. Each group in turn fed back to the whole workshop and further discussion followed where required. However it should be noted that there was almost always universal agreement on the key points raised and suggestions made by the individual groups.

#### ***First group session: Current status, strengths, weaknesses and means of/barriers to improvement of:***

- Training in medical care and medical first aid

It is recognized that there are differences in the expectations and quality of training, ranging from very low with simple attendance guaranteed to receive the correct certificate, to a very high level with good practical involvement of the seafarers on the course. Whilst the minimum requirements are outlined in the Standards of Training, Certification and Watchkeeping (STCW) convention, these are not always enforced by the individual nations and there remains a large gap between these minimum requirements and the extensive guidelines used by a number of nations. Whilst some countries have a small number of training providers, often associated with the maritime regulators, others have a large number of individual providers and this can make it difficult to ensure appropriate quality assurance of the organisations and the courses they are running. Equally the content of the courses often varies and this can cause practical difficulties when the seafarer then sails on a ship flagged to a different nation. Standardisation of the courses and particularly their content, accompanied by audit of the providers and courses by people with a background in maritime medicine, would be beneficial in ensuring good quality and appropriate training.

It was also felt that the standardisation of training with the use of common words and agreed actions to be taken on the presentation and recognition of specific signs and symptoms would be beneficial. The use of preprinted questions to be used for some symptoms would aid the responsible ship's officer in making an appropriate assessment of the patient and being able to provide the relevant information to the TMAS Doctor.

It was also accepted by all that the level of recall of knowledge is poor when a seafarer returns for refresher training in first aid or medical care at sea. More frequent training would be beneficial to ensure the retention of knowledge and the maintenance of skills. However there is a cost associated with additional training and this must be taken into consideration. E-Learning modules and/or the use of drills on board, perhaps even coordinated with a TMAS provider, may help in this area.

- Medical stores, equipment and facilities on board, including 'doctor's bag' on ferries<sup>3 4 5</sup>.

It was agreed that one of the main issues in this area is the fact that the guidelines for the contents of the medical chest have been produced by the World Health Organisation (WHO) but unfortunately these are not in line with current best practice and often do not accord with the practical needs of crewmembers or with those of TMAS when advising ships. Discussions between all interested parties, including the three UN agencies, flag state authorities, ship operators, TMAS providers and marine pharmacists would be of benefit and help to ensure consistency between nations and therefore allow consistency in the content of the training courses. Again, whilst there is a minimum requirement set out, compliance to this is variable between flag states, ship owners etc. and enforcement of these standards differs between states. There are also significant shortcomings in the quality of medications supplied to ships in some countries and this may lead to ineffective or dangerous products being present on board. Cost is of course an issue, but a simple list of required medication and equipment and advice on the need to obtain supplies from quality assured pharmacies would assist in improving the level of medical care received by seafarers at sea.

- National and international medical guides, including advice on dangerous cargoes<sup>6 7 8</sup>

Again, all agreed that there is a 'system' in the form of the IMGS, a WHO publication, now in its third edition. In many cases individual nations have developed their own publication(s) as an equivalent to the international guide. There are weaknesses with the original guide that include

- issues with accessing the contents quickly and easily
- the original document is only available in a limited number of languages
- it is not aligned with the training syllabuses produced by IMO
- it is not clear and concise in its guidance on the management of medical emergencies
- it does not include guidance on the use of point of care diagnostics.

The limitations in the list of recommended contents for the ships medical chest that is included in an addendum to the IMGS 3rd edition are covered above. Again the publication and use of national equivalents to the international guide does not aid consistency in training or the delivery of medical care at sea by officers of one nationality, trained in one country but sailing on a ship under a different flag and treating seafarers of a third nationality.

Ideally the IMGS should now be revised and rewritten in a simple to use format, based on agreed international best practice. The principles of medical practice are largely shared between states and many of the practical aspects can be learnt from the experience available within the industry itself. The same guide should be accepted by all states. It will require time, money and appropriate legislation to make this a reality but first the need for such an approach must be recognized and agreed by all relevant interest groups.

- Telemedical advice and medevac arrangements.

There is an international framework and this is specified in several of the conventions mentioned above. However the level of training for staff is often low and is very variable and there is often miscommunication due to language issues. This may be reduced by the use of pictures and written instructions. Other issues include

- miscommunication due to language issues
- training differences between countries
- cultural barriers
- the use of trade names for medicines

<sup>3</sup> [http://whqlibdoc.who.int/publications/2010/9789241547994\\_eng.pdf](http://whqlibdoc.who.int/publications/2010/9789241547994_eng.pdf)

<sup>4</sup> International Maritime Organisation MSC/Circ.1172

<sup>5</sup> International Maritime Organisation MSC/Circ.1042

<sup>6</sup> International Medical Guide for Ships 3rd addition. <http://apps.who.int/iris/handle/10665/43814>. ISBN 978-92-801-15444.

<sup>7</sup> International Maritime Dangerous Goods Code supplement. ISBN 978-92-801-1598-7.

<sup>8</sup> <http://hazardous.uasc.net/imdg10/82.aspx>

With the improvements in satellite technology there is scope for improving the service offered by TMAS providers to seafarers and this was the subject of an IMHA workshop held in February 2013<sup>9</sup>.

***Second group session: Would an approach based on treatment pathways aid the management of medical incidents at sea?***

Each group looked at a different set of medical conditions that may arise at sea and considered the use of treatment pathways in the management of these situations.

- Major injuries – threatening life, limb or sense organs

The management of these situations relies on good first aid and basic airway management with the control of bleeding it was agreed that pathways would be useful to focus on initial care. Whilst shore based equivalents have been shown to have benefit if the patient can reach advanced medical care within 6 – 8 hours this may not be possible in all cases of a major injury at sea. However, pathways would be appropriate for cases at sea up to and including the first recommended point of contact with a TMAS provider. They would have to continue past this point in case such contact was not possible, but it should be recognized that after this point the many variables in a particular situation may mean that the pathway will become too complicated to be of use. The pathways should be symptom based and assist in improving training, not just increase the requirement for more pieces of equipment. They should also be generic where ever possible to reduce confusion. They may also be particularly useful in training drills and role play scenarios.

- Acute life threatening illness

Again it was agreed that pathways could be beneficial in the management of these cases. They should be symptom based in a similar way to those used by the British Association of Immediate Care and must include indications on when to call for help. However the use of pathways in this and any other situation must be accompanied by appropriate training and they must not be seen as an obstacle to independent thinking. Neither should they be considered a substitute for effective training and the regular practice of skills in basic resuscitation. Training should help to ensure that the correct pathway is followed and that care is delivered quickly in a structured and effective way. The use of pathways needs to be implemented in parallel with changes to the training modules and alongside review of the contents of the medical chest to ensure that all are integrated. Integration with the training of TMAS Doctors may also help to improve communication at this stage.

- Minor injuries – temporarily disabling

There are many examples of situations where the use of pathways in these situations has been shown to work well e.g. 'walk in centres' for primary care in the United Kingdom. The pathways may require some adaptation to reflect the very different environment of the seafarer but the approach could easily be replicated. Here the aim is to get people back to work and the initial care could be supplemented by pathways that include appropriate follow on care e.g. exercises, wound dressing etc. perhaps with video clips to demonstrate these. Again the group stressed that pathways must not become a reason not to think and that there must be integration with training and the contents of the medical chest. It was also pointed out that documentation showing that a particular pathway was followed appropriately by the officer responsible for medical care may be of benefit to the ship owner and P&I club with regards to ongoing treatment and any need for repatriation, retraining or compensation.

- Less severe and immediate illness, including health concerns, physical and mental.

These are often pre-existing conditions and it is a commonly held opinion that such conditions now form the majority of medical conditions that require care at sea. Although there may not be similar pathways in use on shore it was again felt that treatment based on pathways would be beneficial to understand the priorities and objectives of care and to assist in effective communication with TMAS providers.

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<sup>9</sup> <http://www.imha.net/images/stories/2013-02WS-MALTA-TELE-consensus-paper.pdf>

In the general discussion that followed a number of key points were raised and reiterated:

- The use of pathways would be useful in all situations where medical care is delivered at sea.
- Seafarers are used to using checklists and they work in this way all the time. Hence pathways will be a familiar way of thinking.
- All pathways need to be simple, in a number of languages and fully integrated with training, the contents of the medical chest and the expectations and requirements of TMAS providers
- Language and ease of communication is always a barrier and TMAS doctors, trainers etc. must use the same pathways. Not only is it essential to train the seafarers in the use of pathways but also the instructors and TMAS Doctors
- The structure of the training will have to change slightly but this shouldn't mean additional time or money.
- The use of clinical cases to train seafarers in the use of pathways would be beneficial and effective.
- Pathways must be generic where possible rather than producing too many specific pathways and they should contain checkpoints to help the officer responsible for medical care and TMAS Doctor to ensure that the correct one is being followed.

***Third group session: The development of a programme for maritime health care pathways.***

- Formats and styles.

It was agreed that a paper manual/handbook of some description is probably necessary to ensure that all seafarers, whatever vessel they are serving on, will have access to the relevant information. However all of the information should also be available on a computer based system as these are much easier to keep up to date and more cost effective to develop and maintain. A computer system would also enable the use of videos that could form part of a revised training course. Any system of presentation should be symptom based and have easy and obvious links to the more detailed medical guidance.

- Priority topics for development work

It is difficult to see how one area can be prioritised over another. All efforts should be aligned to ensure consistency and the introduction of pathways must be integrated with changes in training (of the seafarer, trainer and TMAS Doctor) and with review of the contents of the medical chest. All changes should have the support of TMAS Doctors as they are the shore based staff who interact most often with seafarers involved in the management of medical emergencies at sea. Hence they are in a unique position to advise on what is required. Ideally this would be supported by relevant research.

- Interactions with current provisions for medical care at sea

How do we develop from where we are now towards a future based on improved systems for medical care at sea? The aim should be to raise the baseline and ensure consistency in all areas. This can only be done with a holistic and integrated approach involving all interested parties and providers, state and commercial. Whilst it is accepted that the proposed change in approach may take a number of years to implement there are small changes that could be made quickly to bring some areas of care at sea in line with recognized best practice on shore e.g. the inclusion of Tranexamic Acid in the medical chest for use in major haemorrhage. Adopting the practice of some of the best providers of training, reviewing the contents of the medical chest, revising medical guides to use treatment pathways and improving TMAS support would all be good starting points. There is no need to be revolutionary, but rather to encourage evolution and adoption of the best in current practices.

- How to gain acceptance for the care pathway approach from the maritime sector and how to incorporate it within the relevant international conventions.

Once a selection of pathways specific to the maritime environment have been developed it will be necessary to obtain the support of all of the key organisations within the maritime industry. These include the United Nations agencies, ship owners, representative bodies for seafarers, the training providers, TMAS providers, marine pharmacists and of course the governments of individual states. The benefits of such an approach will primarily be improved care at sea, hopefully with a secondary reduction in the frequency that shore based advisers recommend evacuation or diversion, and hence reduced

costs for evacuations, repatriations and the associated tasks of replacing staff and potential interruption to the ship's schedule and function. Whilst there will be costs associated with the development of the system it is expected that over a number of years these will be more than offset by the advantages outlined.

### Conclusions and the next steps

- There is currently a system underpinning provisions for the delivery of medical care at sea but the provisions are included in many conventions. The standards required are low and these are often not adequately enforced.
- We need research to demonstrate the frequency and type of medical situation encountered by seafarers. This will enable us to prioritize the development of pathways, the need for training etc. Moving forward we would ideally establish a common medical reporting form to be used on all ships and shared on a regular basis to allow ongoing monitoring of the cases managed at sea.
- The management of a medical incident at sea should be a seamless process from the presentation of the crewmember with a medical complaint to the officer with medical responsibilities, to contact with TMAS services and appropriate management. All components should be integrated to ensure that medical incident management is optimal.
- The management of a medical incident is itself part of the whole medical system which may include medical selection of seafarers, health and safety at sea, health promotion, medical incident management, TMAS support, evacuation if required, shore based care, repatriation and rehabilitation.
- Seafarers are international. Regardless of the flag of the ship, the nationality of the owner etc. the target group for improved care is international and any change must be international to address this. Hence guidelines must be international.
- With reference to the MLC statement, health care on board a ship is most comparable to that received in a pre-hospital setting on shore. The adoption of treatment pathways for use at sea could help make this a reality.
- The development of a system based on treatment pathways would be suitable in all types of medical and trauma cases seen on board ship.
- The starting point in the development of a new system should be the development of symptom based pathways relevant to the maritime environment and the likely case mix, based on the results of research.
- The introduction of treatment pathways needs to be integrated and form the basis of change to training, review and revision of the contents of the medical chest, review and revision of the international medical guide available to seafarers and the approach of TMAS providers in a 'one package' approach,
- All users of the new system will need training in its aims, priorities and use. This includes seafarers, the trainers themselves and the TMAS Doctors to ensure familiarity of the system to all involved.
- This itself will need harmonization of training between different countries and different organisations within each country. It should be recognized from the outset that each of the 175 members of the IMO will have their own priorities and that to move forward with change will require new legislation and one common framework acceptable to all of the United Nations agencies concerned.
- The new system itself will require regular review, quality assurance and modification as necessary. Again the whole system will need to be integrated so that a change in one area is reflected and incorporated into all of the other components.
- There will be barriers to change and these will include economic, cultural and regulatory issues. Full engagement with all interested parties will be necessary to ensure the success of any new system.
- The development and introduction of a system based on treatment pathways will require financial support and a working group of interested, experienced persons to take the initiative forward. Any programme development will need to work to a pre-defined timeline with milestones and key performance indicators. A reference group made up of representatives from the maritime authorities and social partners should be established to oversee the working group.
- Although this is a large task it has precedent. The revision of the IMO/ILO medical guidelines for seafarers started as an IMHA initiative and over time has become accepted and adopted internationally. We have a starting point and shore based experience on which to build. The enthusiasm present during the workshop indicates that change is required and is feasible and that this is a good time to begin the process.

The discussions and conclusions were summarized in a consensus statement that was agreed by all participants at the end of the meeting. This is included as Appendix 1.



## **Appendix 1 - Consensus statement**

### **Background**

The ILO/IMO Maritime Labour Convention 2006 states that:

The requirements for on board health protection and medical care set out in the Code include standards for measures aimed at providing seafarers with health protection and medical care as comparable as possible to that which is generally available to workers ashore.

IMHA convened a workshop to address concerns raised in the management of medical incidents at sea. Current management includes the following aspects that are not always integrated in their delivery:

- Training in medical care and medical first aid at sea
- Medical stores, equipment and facilities on board, including 'doctors bag' on ferries
- National and International medical guides
- Telemedical advice and medevac arrangements

In consequence of this health care for seafarers is far from optimal and there are considerable difficulties in ensuring international consistency.

There is a common regulatory framework although this involves a number of conventions and recommendations. These are then redrafted as national regulations and guidance. As medical care at sea is a small part of a number of conventions change will not be easy.

### **Current experience**

A case series of medical incidents at sea presented at the workshop demonstrates that earlier involvement of TMAS and the availability of/ increased use of point of care diagnostics will increase diagnostic certainty and may potentially reduce over triage and costly disembarkations.

It is estimated that on average a ship experiences one serious medical incident every two years so each seafarer trained in medical care can only expect to see such a case every four years.

Trends reported verbally from TMAS vary but tend to indicate a reduction in trauma cases and an increase in medical cases, particularly issues related to chronic disease. The average age of seafarers requiring disembarkation has also increased.

Experience, training and knowledge are key to the management of medical incidents. This is not only true for the trained officer but also for the TMAS Doctor.

Treatment pathways are used successfully in a number of remote care environments. However they are NOT a replacement for education, clinical knowledge, physician judgment or common sense. They are also not protocols but a set of guidelines within which to work.

### **Issues identified**

There is a system and the strength in that is that it does give minimum standards. However these are low and they are not always enforced by the relevant authorities.

Most incidents involve dealing with common problems although most of the training is concerned with the management of emergencies. There is little research to demonstrate the number and types of incidents that are handled on board.

There are language and cultural barriers between officers and crew of different nationalities and with Doctors of yet another nationality.



There are sometimes barriers to joint initiatives between the UN agencies.

#### **Training:**

There is huge variability in the training given, both the content and the method of training. Currently there is audit of trainers in some countries but not by people with a background in maritime medicine.

The standard of knowledge and skills of seafarers when they attend for refresher training after 5 years is often poor and alternative models for maintaining, and potentially improving, knowledge and skill levels should be considered.

#### **Medical chest and equipment:**

There is variation in the requirements for the contents of the medical chest internationally. These are also often not consistent with current best practice. This leads to significant difficulties in providing appropriate training and in communication with TMAS services. Many officers are not familiar with the contents of the medical chest and the use of proprietary names for medication may lead to additional confusion. In addition there are major concerns about the standard of medication and the means of transportation and storage.

#### **Medical guide:**

The current edition of the International Medical Guide for Ships is out dated with regards to many recognized best practice guidelines. National equivalents vary in style, content and quality.

#### **TMAS:**

Language is frequently an issue. Although English is the recognized language of the maritime industry the English capability of many seafarers does not include medical terms.

There are inconsistencies in the quality of information that seafarers are able to provide to TMAS.

#### **The way forward**

The management of a medical incident at sea should be a seamless process from the presentation of the crew member with a medical complaint to the medical officer, to contact with TMAS services and appropriate management. All components should be integrated to ensure that medical incident management is optimal.

The management of a medical incident is itself part of the whole medical system which may include medical selection of seafarers, health and safety at sea, health promotion, medical incident management, TMAS support, evacuation if required, shore based care, repatriation and rehabilitation.

Seafarers are international. Regardless of the flag of the ship, the nationality of the owner etc the target group for improved care are international and any change must be international to address this. Hence guidelines must be international.

#### **Treatment pathways**

The introduction of treatment pathways must be part of an integrated approach to the management of medical incidents at sea and must have international agreement.

They could be used in all areas of medical incidents at sea – trauma, acute life threatening illness, minor injuries and less severe and immediate illness. It may be possible to adapt treatment pathways that are currently available for use in other settings e.g. walk in centres, the military and pre hospital care. However it would need to take into consideration the training and skill level of a seafarer and the logistics of a ship at sea.

These should be simple and relevant to what the seafarer encounters. They should be available in different languages. Provision should be made for standardized collection and documentation of information for transmission to TMAS. Pathways may be particularly useful to guide care up to the point of contact with TMAS and in alerting seafarers to 'red

flags' (conditions or presentations of illness or injury which may be life or limb threatening) and when to seek further assistance. They will need to extend past the first recommended point of TMAS contact in case this is not possible.

Should be symptom based and aimed at practical case handling rather than diagnosis.

### **Training**

Training needs to be based around the treatment pathways and there is a need to train the trainer in their use as well as the seafarer and the TMAS staff. More regular and in depth training is required anyway and the introduction of treatment pathways should not have a huge impact on this. Training should be supported by e-learning and practical drills to ensure the maintenance of skills and knowledge. Clinical cases and scenario training should be incorporated into the training.

Training is an essential component and implementation of pathways should start there.

### **Medical chest and equipment**

The contents of medical chests must be reviewed, their contents and presence on board regulated and standardized. Any review should be guided by the treatment pathways but also by input from TMAS providers.

### **Medical guide**

The pathways must be supported by additional information in the form of a manual.

The medical guide should be an international publication based on best practice. There should be one international guide only. There are many lessons that can be learned from publications already available within the medical field.

The use of IT systems should be maximised in the delivery of information but we still need a hard copy.

### **TMAS**

The increased use of written emails, pictures and video consultations where appropriate would help to reduce misunderstanding in communication particularly now satellite communication has been improved.

### **Potential challenges to overcome**

Note: It is essential to engage all interested parties at an early stage.

### **Economic**

It will be necessary to demonstrate financial benefits to the interested parties. This system should decrease the current harmful and wasteful variation in practice eg a reduced number of evacuations and diversions, improved health care outcomes for seafarers with reduced insurance claims and safer ships.

The sale of a medical guide is revenue generating for maritime nations, this needs to be addressed should the guide be produced internationally.

### **Cultural and political**

Nations would need to sacrifice a certain amount of autonomy in order to adopt an international system.

### **Regulatory**

A change to the regulations resulting from cooperation and collaboration of the international agencies is essential. Other sectors of the industry also need to recognize the importance of this area and that change is needed.

**The next steps**

This consensus statement is to be agreed by all those present. A full report will be compiled, agreed by all and published within two months.

After wider discussion a working group will need to be established with clear guidelines and timelines. A reference group will also need to be established with representatives from the relevant international agencies, social partners and national maritime authorities in an appropriate timeline.

Research is necessary to establish the numbers and types of cases that the seafarer encounters. This can guide the priorities for pathway development and for training.

Any new system of medical incident handling must be reviewed on a regular basis with appropriate audit, feedback and research. Quality assurance and enforcement is key to the success of any system.

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**Appendix 2 – Workshop programme****Sunday, February 1st**

1900 Buffet meal at Royal Foundation of St Katherine

**Day 1: Monday, February 2nd**

0900-0910 Introduction and overview of workshop objectives: Tim Carter/ Sue Stannard

0910-0930 Presentation: Tim Carter

*The current arrangements for the management of medical emergencies at sea on merchant ships not carrying a doctor: The requirements for an integrated and international approach.*

0930-0950 Presentation: Rudi Stilz, Shell International

*Case series of medical emergencies at sea*

0950-1045 Group work:

*Current status, strengths, weaknesses and means of/barriers to improvement of:*

- Training in medical care and medical first aid.
- Medical stores, equipment and facilities on board, including 'doctor's bag' on ferries.
- National and international medical guides, including advice on dangerous cargoes
- Telemedical advice and medevac arrangements.

1045-1100 Coffee break

1100-1130 Group feedback.

1130-1215 Presentation: Jim Ferguson, Aberdeen Royal Infirmary

*The integration of the various elements in remote medical care in maritime, offshore and similar settings*

1215-1315 Lunch

1315-1345 Presentation: Spike Briggs, Poole Hospital/Medical Support Offshore Limited

*The use of decision trees for emergency medical manuals, in particular the strengths and weaknesses of this approach and how well it works in different media*

1345-1445 Group work:

*Would an approach based on health care pathways aid the management of medical incidents at sea?*

- Major injuries –threatening life, limb or sense organs
- Acute life threatening illness
- Minor injuries – disabling
- Less severe and immediate illness, including health concerns, physical and mental.

1445-1515 Tea

1515-1600 Group feedback.

1600-1630 Summary of day one and schedule for day two.

**Day 2: Tuesday, February 3rd**

**0830–0900** Presentation: Marie Hamming, Danish Radiomedical Service

*How best to integrate TMAS into the management of medical incidents at sea*

**0900-1015** Group work:

*Development of a programme for maritime health care pathways.*

- Formats and styles.
- Priority topics for development work
- Interactions with current provisions for medical care at sea
- How to gain acceptance for care pathway approach from maritime sector and incorporate it within the relevant international conventions.

**1015-1100** Group feedback

**1100-1130** Coffee

**1130-1200** Presentation: Connie Gehrt, Seahealth Denmark

*Development of a modern medical guide for ships*

**1200-1215** Rapporteur presents initial overview of workshop consensus

**1215-1300** Plenary discussion. Chair: Tim Carter

**1300-1330** Lunch

**1330-1400** Agreement on action list based on workshop discussions

**1400-1430** Rapporteur produces revised overview and framework for workshop report including timescale for its preparation and for responses to draft.

**1430 onwards** Concluding discussion.

### Appendix 3 – Relevant conventions

#### Maritime Labour Convention 2006<sup>10</sup>

##### TITLE 4. HEALTH PROTECTION, MEDICAL CARE, WELFARE AND SOCIAL SECURITY PROTECTION

#### **Regulation 4.1 – Medical care on board ship and ashore**

Purpose: To protect the health of seafarers and ensure their prompt access to medical care on board ship and ashore

1. Each Member shall ensure that all seafarers on ships that fly its flag are covered by adequate measures for the protection of their health and that they have access to prompt and adequate medical care whilst working on board.
2. The protection and care under paragraph 1 of this Regulation shall, in principle, be provided at no cost to the seafarers.
3. Each Member shall ensure that seafarers on board ships in its territory who are in need of immediate medical care are given access to the Member's medical facilities on shore.
4. The requirements for on-board health protection and medical care set out in the Code include standards for measures aimed at providing seafarers with health protection and medical care as comparable as possible to that which is generally available to workers ashore

#### **Standard A4.1 – Medical care on board ship and ashore**

1. Each Member shall ensure that measures providing for health protection and medical care, including essential dental care, for seafarers working on board a ship that flies its flag are adopted which: (a) ensure the application to seafarers of any general provisions on occupational health protection and medical care relevant to their duties, as well as of special provisions specific to work on board ship;  
(b) ensure that seafarers are given health protection and medical care as comparable as possible to that which is generally available to workers ashore, including prompt access to the necessary medicines, medical equipment and facilities for diagnosis and treatment and to medical information and expertise;  
(c) give seafarers the right to visit a qualified medical doctor or dentist without delay in ports of call, where practicable;  
(d) ensure that, to the extent consistent with the Member's national law and practice, medical care and health protection services while a seafarer is on board ship or landed in a foreign port are provided free of charge to seafarers; and  
(e) are not limited to treatment of sick or injured seafarers but include measures of a preventive character such as health promotion and health education programmes.
2. The competent authority shall adopt a standard medical report form for use by the ships' masters and relevant onshore and on-board medical personnel. The form, when completed and its contents shall be kept confidential and shall only be used to facilitate the treatment of seafarers.
3. Each Member shall adopt laws and regulations establishing requirements for on-board hospital and medical care facilities and equipment and training on ships that fly its flag.
4. National laws and regulations shall as a minimum provide for the following requirements: (a) 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;  
(b) ships carrying 100 or more persons and ordinarily engaged on international voyages of more than three days' duration shall carry a qualified medical doctor who is responsible for providing medical care; national laws or regulations shall also

<sup>10</sup> [http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:91:0::NO::P91\\_SECTION:MLC\\_A4](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:91:0::NO::P91_SECTION:MLC_A4)

specify which other ships shall be required to carry a medical doctor, taking into account, inter alia, such factors as the duration, nature and conditions of the voyage and the number of seafarers on board;

(c) ships which do not carry a medical doctor shall be required to have either at least one seafarer on board who is in charge of medical care and administering medicine as part of their regular duties or at least one seafarer on board competent to provide medical first aid; persons in charge of medical care on board who are not medical doctors shall have satisfactorily completed training in medical care that meets the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (“STCW”); seafarers designated to provide medical first aid shall have satisfactorily completed training in medical first aid that meets the requirements of STCW; national laws or regulations shall specify the level of approved training required taking into account, inter alia, such factors as the duration, nature and conditions of the voyage and the number of seafarers on board; and

(d) the competent authority shall ensure by a prearranged system that medical advice by radio or satellite communication to ships at sea, including specialist advice, is available 24 hours a day; medical advice, including the onward transmission of medical messages by radio or satellite communication between a ship and those ashore giving the advice, shall be available free of charge to all ships irrespective of the flag that they fly.

#### **Guideline B4.1 – Medical care on board ship and ashore**

##### **Guideline B4.1.1 – Provision of medical care**

1. When determining the level of medical training to be provided on board ships that are not required to carry a medical doctor, the competent authority should require that: (a) ships which ordinarily are capable of reaching qualified medical care and medical facilities within eight hours should have at least one designated seafarer with the approved medical first-aid training required by STCW which will enable such persons to take immediate, effective action in case of accidents or illnesses likely to occur on board a ship and to make use of medical advice by radio or satellite communication; and

(b) all other ships should have at least one designated seafarer with approved training in medical care required by STCW, including practical training and training in life-saving techniques such as intravenous therapy, which will enable the persons concerned to participate effectively in coordinated schemes for medical assistance to ships at sea, and to provide the sick or injured with a satisfactory standard of medical care during the period they are likely to remain on board.

2. The training referred to in paragraph 1 of this Guideline should be based on the contents of the most recent editions of the International Medical Guide for Ships, the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods, the Document for Guidance – An International Maritime Training Guide, and the medical section of the International Code of Signals as well as similar national guides.

3. Persons referred to in paragraph 1 of this Guideline and such other seafarers as may be required by the competent authority should undergo, at approximately five-year intervals, refresher courses to enable them to maintain and increase their knowledge and skills and to keep up-to-date with new developments.

4. The medicine chest and its contents, as well as the medical equipment and medical guide carried on board, should be properly maintained and inspected at regular intervals, not exceeding 12 months, by responsible persons designated by the competent authority, who should ensure that the labelling, expiry dates and conditions of storage of all medicines and directions for their use are checked and all equipment functioning as required. In adopting or reviewing the ship’s medical guide used nationally, and in determining the contents of the medicine chest and medical equipment, the competent authority should take into account international recommendations in this field, including the latest edition of the International Medical Guide for Ships, and other guides mentioned in paragraph 2 of this Guideline.

5. 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, the necessary information on the nature of the substances, the risks involved, the necessary personal protective devices, the relevant medical procedures and specific antidotes should be made available to the seafarers. Such specific antidotes and personal protective devices should be on board whenever dangerous goods are carried. This information should be integrated with the ship’s policies and programmes on occupational safety and health described in Regulation 4.3 and related Code provisions.



6. All ships should carry a complete and up-to-date list of radio stations through which medical advice can be obtained; and, if equipped with a system of satellite communication, carry an up-to-date and complete list of coast earth stations through which medical advice can be obtained. Seafarers with responsibility for medical care or medical first aid on board should be instructed in the use of the ship's medical guide and the medical section of the most recent edition of the International Code of Signals so as to enable them to understand the type of information needed by the advising doctor as well as the advice received.

Guideline B4.1.2 – Medical report form

1. The standard medical report form for seafarers required under Part A of this Code should be designed to facilitate the exchange of medical and related information concerning individual seafarers between ship and shore in cases of illness or injury.

**International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended ("STCW")**<sup>11 12</sup>

**Chapter VI: Emergency, occupational safety, medical care and survival functions**

**International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS)**<sup>13</sup>

**Directive 92/29/EEC - medical treatment on board vessels**<sup>14</sup>

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<sup>11</sup> [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Standards-of-Training-Certification-and-Watchkeeping-for-Seafarers-\(STCW\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Standards-of-Training-Certification-and-Watchkeeping-for-Seafarers-(STCW).aspx)

<sup>12</sup> International Maritime Organisation; International Convention on Standards of Training, Certification and Watchkeeping for Seafarers Including 2010 Manila Amendments. ISBN: 978-92-801-1528-4

<sup>13</sup> [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-\(SOLAS\)-1974.aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS)-1974.aspx). ISBN 978-92-801-15949 (English)

<sup>14</sup> <https://osha.europa.eu/en/legislation/directives/sector-specific-and-worker-related-provisions/osh-directives/17>

**Appendix 4 – List of attendees at the workshop**

Dr Joseph Abesamis - IMHA Board

Prof Francesco Amenta - Fondazione Centro Internazionale Radio Medico (CIRM), Rome, Italy; University of Camerino, Camerino, Italy

Dr Sally Bell - Chief Medical Advisor, Maritime and Coastguard Agency, UK

Johnny N Berentzen - Teacher/lecturer, Stord/Haugesund University College

Dr Michael Braida – Medical Director, Offshore and Maritime, International SOS

Dr Spike Briggs - Consultant in Intensive Care Medicine and Anaesthesia, Poole Hospital, Dorset; Director of Medical Support Offshore Ltd (MSOS Ltd), Southampton, UK

Dr Tim Carter - Organizer, Norwegian Centre of Maritime Medicine

Dr Ryan Copeland - Regional Medical Director – Assistance, International SOS

Dr Ilona Denisenko - IMHA Board

Dr David Dungan - IMHA Board

Mr. Jim Ferguson - Professor of Remote Medicine and Consultant Surgeon in Emergency Medicine, NHS Grampian

Mette Gabriel MD - Medical Director, Danish Shipowners' Association

Connie Gehrt - Managing Director, Seahealth Denmark

Dr Marie Bohn Hamming - Senior consultant, leader of Radio Medical Danmark, Sydvestjysk Sygehus, FAM

Dr Katharine Hartington - Consultant in Emergency Medicine, Medical Referee for maritime and Coastguard agency UK, Emergency Department, Queen Alexandra Hospital, Portsmouth

John Klarens Holvik - Teacher/Nurse, Høyskolen Stord, Haugesund

Dr Alf Magne Horneland - IMHA Board

Dr Suresh Idnani - IMHA Board

Corinne Idnani - IMHA Board

Dr Hege Sofie Imsen - Medical Director RMN/Chief Consultant NCMM,

Nicholas Ioannidis - Maritime Pharmacist

Dr Peter Janna - Senior Marine Medical Officer of Canada, Transport Canada; IMHA Board

Dr Jens Kohfahl - Cuxhaven, Germany

Caroline Livingstone - Medical Administration Manager, Maritime and Coastguard Agency, UK

Dr James Mackie - Medical Adviser, BP Shipping, Sunbury, UK

Sandra Roberts - Senior Lecturer, Warsash Maritime Academy, Southampton Solent University

Karavatchev Rossen - Senior Section Assistant, ITF Seafarers Section, International Transport Workers Federation (ITF)



IMHA

Dr Bernd-Fred Schepers - German Maritime Health Association

Dr Stuart Scott - Medical Director, Energy Medical Services, Capita Health & Wellbeing

Dr Klaus H. Seidenstuecker – Chairman, German Maritime Health Association

Dr Sue Stannard – Organizer, Norwegian Centre of Maritime Medicine

Dr Rudi Stilz - Shell Health

Agnar Tveten - Director, Radio Medico Norway, Norwegian Centre of Maritime Medicine

Dr Robert Verbist - Port Physician, Mediport, Antwerp

Karin Westlund R.N. - RadioMedical coordinator, RadioMedical Centre, Sahlgrenska University Hospital, Sweden

Dr Eva-Maria Wichtmann - Malteser-Apotheke

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