Occupational accidents among seafarers resulting in personal injuries, damage to their general health and fatalities
CONTENTS

INTRODUCTION .................................................................................................................. 1

CHAPTER I. THE INCIDENCE OF ACCIDENTS AMONG SEAFARERS ...................... 3

CHAPTER II. ACCIDENT PREVENTION ................................................................. 16

CHAPTER III. PROVISIONS FOR THE TREATMENT OF INJURED AND SICK SEAFARERS .................................................................................................................. 21

CHAPTER IV. CONCLUDING REMARKS AND SUGGESTED POINTS FOR DISCUSSION .... 26
INTRODUCTION

At its 253rd Session (May–June 1992), the Governing Body of the International Labour Office decided to place on the agenda of the Seventh Session of the Joint ILO/WHO Committee on the Health of Seafarers an item entitled "Occupational accidents among seafarers resulting in personal injuries, damage to their general health and fatalities".

This working paper has been prepared to provide the Joint Committee with a basis for the discussion of this item on its agenda.

Chapter I assesses the incidence of accidents among seafarers. It identifies the factors which contribute to the occurrence of accidents, describes current practice in the collection of statistical information and also summarises some of the consequences of accidents.

Chapter II describes the measures which are currently taken by the maritime industry to prevent accidents.

Chapter III gives an overview of the provisions which are available for the treatment of injured and sick seafarers.

While the preceding chapters all contain some suggestions for improving the situation as concerns accident prevention and treatment of injuries and sickness, Chapter IV highlights some of the salient issues and draws the attention of the Joint Committee to a number of suggested points for discussion.
CHAPTER I
THE INCIDENCE OF ACCIDENTS AMONG SEAFARERS

Statistics on accidents among seafarers, and sometimes on near-accidents, critical incidents and errors, are indicators of the degree of safety of work at sea. In order that preventive measures may be taken, it is therefore essential to know the number and seriousness of accidents, the classes of seafarers and equipment involved in them, and the circumstances in which they occur.

As recommended by the Tenth International Conference of Labour Statisticians convened in 1962 by the ILO, many countries have classified industrial accidents, including those occurring aboard ship, according to the type of accident, the agency, the nature of the injury and the bodily location of the injury. However, statistics are rarely compiled on the human factor in accident causation; for example, the role of hours of work and fatigue, the relation with the watch-keeping cycle, and the influence of experience and age, not least because of the difficulties of identifying objective indicators for such factors as "knowledge of the work environment" and "ability to recognise hazards".

To ensure the comparability of statistics on accidents, it is necessary to take into account the number of workers employed. For shore workers, the accident frequency rate is expressed by the following formula in which F represents the frequency rate:

\[
F = \frac{\text{number of injuries} \times 1,000,000}{\text{total work-hours of exposure}}
\]

Since seafarers work and also live on board ships during their long voyages, it is difficult to separate accidents which occurred during working hours and off duty, or ashore while in port. The shipping industry could use a rate based on the number of working days on ships rather than work-hours of exposure when preparing statistical data. Another useful index is the standard mortality ratio (SMR); it is calculated as \((\text{observed deaths/expected deaths}) \times 100\) where the figures used are age-specific, usually using death rates over a certain period of time. It can be compared with proportional mortality ratio (PMR), which compares deaths due to a particular cause in an occupation with those which would be expected on the basis of the distribution of deaths in some standard population.

Serious and minor accidents, and near-accidents

Ideally, every accident should be investigated. For many years in many countries only accidents causing serious injuries were investigated, while minor ones were largely ignored. It is estimated that one accident involving major injury happens for about every 30 accidents resulting in minor injuries, and for every 300 accidents which do not cause injury (i.e. "near-accidents"). For every major accident, many dangerous incidents occur which do not actually cause injuries but could have done so. Sufficient attention should therefore be paid to accidents in which no injuries occurred and the accumulated knowledge should be used to devise safety programmes with the aim of decreasing the number of accidents, including those resulting in injuries. Special attention should also be paid to minor accidents or
near-accidents on ships, because often the seriousness of an accident is not
an indication of the frequency with which it happens, nor does the fact that
an accident did not cause any injury on one occasion constitute an assurance
that under similar circumstances a serious injury will not occur in the
future. Unfortunately, near-accidents, or accidents not causing loss of
work-time or sick-leave, are seldom reported from ships.

The human factor in accident causation

A ship is geographically mobile and is operating in changing climatic
conditions. In rough weather, she is an unstable platform and the risk of an
accident, whether in the engine-room, on deck, or in the pantry, increases.
In ports, mooring, loading and unloading operations also increase the risks.
When they go ashore, seafarers have to go through dangerous port areas.
Therefore, a higher incidence of injuries may be expected among seafarers both
in ports and aboard ship. There is no doubt that the age and experience of
the seafarer are also key factors in accident causation, but it must be
remembered that age does not automatically equal experience.

An accident is very seldom due solely to unsafe behaviour. Whereas
collisions and shipwreck frequently occur as a result of carelessness,
negligence and absent-mindedness, the human element is an important
contributing factor in many accidents.

Statistics concerning accidents and
casualties among seafarers

Although several countries collect quite comprehensive statistics on
accidents on board ship, there is a lack of complete comparable statistical
information at both the national and international levels regarding injuries,
diseases and fatalities among seafarers.

A survey conducted by the ILO revealed that out of 50 countries, 38
kept statistical information on occupational fatalities among merchant
seafarers, but only ten kept that information separately from statistics of
fatalities resulting from occupational accidents and illnesses not involving
casualties on board ships. The information received from maritime countries
provided some statistical data on loss of life among seafarers, but
occupational fatalities were not always clearly identified. Nevertheless,
over 36 per cent of approximately 1,600 fatalities reported by 30 countries
over a 12-month period could be classified as occupational, whether on board
ship or ashore. Fifty-eight per cent of deaths, some of which were probably
also occupational, resulted from illness and a variety of miscellaneous
incidents ranging from accidental drowning to physical violence and traffic
accidents. Of the fatal incidents reported by a few countries, at least 57
per cent and probably many more occurred on board ship, and well over
two-thirds of these while at sea.

According to official statistics, deck and engine-room crews on board
ships registered in the Nordic countries had the highest, and ship's officers
and pilots one of the highest standardised mortality ratios (SMR).²

The standardised mortality ratio due to accidents among seafarers in
these countries, in comparison with other causes, in 1971-80 was as follows:
<table>
<thead>
<tr>
<th>Groups of diseases, injuries</th>
<th>Ship's officers and pilots (SMR)</th>
<th>Deck and engine-room crew (SMR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant neoplasms</td>
<td>121</td>
<td>128</td>
</tr>
<tr>
<td>Diseases of circulatory system</td>
<td>106</td>
<td>119</td>
</tr>
<tr>
<td>Diseases of respiratory system</td>
<td>85</td>
<td>209</td>
</tr>
<tr>
<td>Other diseases</td>
<td>107</td>
<td>209</td>
</tr>
<tr>
<td>Transport accidents and late effects</td>
<td>78</td>
<td>177</td>
</tr>
<tr>
<td>Suicide</td>
<td>83</td>
<td>131</td>
</tr>
<tr>
<td>Other accidents</td>
<td>205</td>
<td>395</td>
</tr>
<tr>
<td>Total SMR</td>
<td>118</td>
<td>167</td>
</tr>
<tr>
<td>Total number of deaths</td>
<td>2,505</td>
<td>2,193</td>
</tr>
</tbody>
</table>

Deaths due to accidents (as a percentage of all deaths) for ship's officers and ratings in different age groups in Sweden in 1971-80 were as follows:

<table>
<thead>
<tr>
<th>Birth date</th>
<th>Ship's officers and pilots</th>
<th>Deck and engine-room crew</th>
</tr>
</thead>
<tbody>
<tr>
<td>1926-45</td>
<td>51%</td>
<td>58%</td>
</tr>
<tr>
<td>1906-25</td>
<td>22%</td>
<td>22%</td>
</tr>
</tbody>
</table>

In Finland, the accident rate (number of accidents multiplied by 1,000 and divided by the number of employees) in 1986 among seafarers was 42.3, and was lower than in the construction industry (122.3), agriculture and forestry (79.8), and manufacturing (83.2); it was higher than in the restaurant and hotel trade (32.2), and in community and social services (19.8). The average rate for men employed in all activities of that country's economy was 49.4 in 1986.

In Poland, reports of doctors employed on national merchant ships indicated that in the years 1962-64 the proportion of injuries in crew members as compared to diseases was 24 to 76. Seafarers were much more frequently treated for diseases than for injuries. Data were collected by ship's doctors during 85 voyages of ocean-going merchant vessels in 1986-88 over 343,688 workdays showed that the number of reported accidents and injuries per 1,000 seafarers per year was 681 (all cases were recorded, including minor cuts, abrasions, etc. treated on board for which no sick-leave was taken), and the number of days of diseases per 1,000 seafarers per year was 3,469. Injuries ranked second in frequency of occurrence, and the number of sick-days connected with injuries was high (1,075 days per 1,000 seafarers per year).

In 1990, among 4,895 seafarers employed by Polish Ocean Lines, 49 work-related accidents and injuries were reported which caused disability (3,102 days of sick-leave), and 146 such accidents not related to work (8,426 days of sick-leave taken).

In the United Kingdom, accidents resulting in injury at the place of work must be reported, but not all are recorded, and there is no easily accessible centralised reporting system. However, illnesses of seafarers need not be reported unless the disease is one of a list of notifiable diseases. During a
A ten-year period, the SMR and PMR in men aged 16-74 employed in maritime occupations were as follows:

<table>
<thead>
<tr>
<th>Category of seafarer and type of accident</th>
<th>SMR</th>
<th>PMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck, engine-room hands, bargemen, lightermen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- External cause of injury and poisoning</td>
<td>202</td>
<td>172</td>
</tr>
<tr>
<td>- Accidental suffocation (drowning)</td>
<td>771</td>
<td>263</td>
</tr>
<tr>
<td>Deck, engineering and radio officers, and pilots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- External cause of injury and poisoning</td>
<td>200</td>
<td>125</td>
</tr>
<tr>
<td>- Accidental suffocation (drowning)</td>
<td>1608</td>
<td>647</td>
</tr>
</tbody>
</table>


Data from one large shipping company in the United States showed that during a ten-year period (1980-90) the frequency of injuries per 200,000 work-hours worked by seafarers was 13.1 (the second highest incidence recorded). Most were related to poor judgement and/or work practice. They included head injuries, falls into holds, injuries associated with chronic impairments, and alcohol-related problems. Most of the injuries were relatively easily treated on board and consisted of contusions, lacerations, sprains, and foreign bodies in eyes. The number of injuries which occurred at sea and in ports were as follows:

<table>
<thead>
<tr>
<th>Injuries</th>
<th>All treatments</th>
<th>At sea</th>
<th>On shore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contusion</td>
<td>2102</td>
<td>972</td>
<td>1130</td>
</tr>
<tr>
<td>Laceration</td>
<td>1446</td>
<td>976</td>
<td>470</td>
</tr>
<tr>
<td>Sprain</td>
<td>865</td>
<td>312</td>
<td>553</td>
</tr>
<tr>
<td>Foreign body, eye</td>
<td>770</td>
<td>555</td>
<td>215</td>
</tr>
<tr>
<td>Burn</td>
<td>736</td>
<td>518</td>
<td>218</td>
</tr>
<tr>
<td>Other</td>
<td>1980</td>
<td>1042</td>
<td>939</td>
</tr>
<tr>
<td><strong>Total number</strong></td>
<td><strong>7899</strong></td>
<td><strong>4375</strong></td>
<td><strong>3525</strong></td>
</tr>
</tbody>
</table>


In one international comparison occupational accidents topped the list of morbidity rates in seafarers. Reports from different countries showed accident rates from about 10 to 30 per cent; and in some maritime countries accidents reached 50 per cent of all diagnoses among seafarers. Mortality 20240/v.8
among injured seafarers was five to seven times higher than that in workers ashore. The age of seafarers, as well as the type, size and age of vessels, seemed to be significant. Accidents occurred more frequently among young seafarers beginning their service at sea on small and older vessels. A large number of accidents were caused by the handling of ropes, hoists, cargo-lifting equipment, work in the engine-room, and handling tools and engine parts during rough weather. Environmental factors such as noise, vibration, insufficient illumination and dust were additional risk factors. About 43 per cent of accidents occurred on deck, about 41 per cent in the engine-room, and 16 per cent in the working area of the catering staff. Nearly 80 per cent of the injured seafarers were doing heavy physical work. More accidents occurred on cargo ships than on tankers. The main type of lesions were contusions (34 per cent), wounds (22 per cent), fractures (19 per cent), and strains (17 per cent). These figures were similar to data concerning workers employed on shore.

In the United Kingdom, figures quoted in the Department of Transport: Ship Safety. Report by the Comptroller and Auditor-General, 1992, show that the accident rate per 1,000 employees was 22.8 for merchant seafarers as against 61.3 for coal extraction workers but only 19.7 for construction workers and 18.8 for forestry workers. The average for manufacturing industry was 12.9. Even if accidents among seafarers are under-reported, the rate is three times higher than the average for all industries.

Types of accident

Statistics from the United States for 1984 relating to 13,770 seafaring jobs, indicated that American seafarers were involved in the following types of accident:

<table>
<thead>
<tr>
<th>Type of accident</th>
<th>Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Striking against</td>
<td>119</td>
<td>14.0</td>
</tr>
<tr>
<td>Struck by</td>
<td>136</td>
<td>16.0</td>
</tr>
<tr>
<td>Caught in, or between</td>
<td>58</td>
<td>6.8</td>
</tr>
<tr>
<td>Fall on same level</td>
<td>128</td>
<td>15.1</td>
</tr>
<tr>
<td>Fall to different level</td>
<td>43</td>
<td>5.1</td>
</tr>
<tr>
<td>Slip or overexertion</td>
<td>140</td>
<td>16.5</td>
</tr>
<tr>
<td>Fire</td>
<td>31</td>
<td>3.6</td>
</tr>
<tr>
<td>Explosion</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Exposure to temperature extremes</td>
<td>130</td>
<td>15.3</td>
</tr>
<tr>
<td>Inhalation, absorption, swallowing</td>
<td>19</td>
<td>2.2</td>
</tr>
<tr>
<td>Equipment failure</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Intoxication</td>
<td>9</td>
<td>1.1</td>
</tr>
<tr>
<td>Assault - altercation</td>
<td>35</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>850</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### Agency of accidents

Statistics from Germany on accidents among national seafarers reported in 1990 indicate the following agencies:

<table>
<thead>
<tr>
<th>Agency</th>
<th>No. of accidents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents connected with the movement of ship, stairs, doors, objects</td>
<td>58</td>
<td>9.8</td>
</tr>
<tr>
<td>Mooring, anchoring operations, spills, etc.</td>
<td>66</td>
<td>11.2</td>
</tr>
<tr>
<td>Holds, loading equipment, containers, winches, etc.</td>
<td>73</td>
<td>12.4</td>
</tr>
<tr>
<td>Bridges, decks, floors, slippery surface (ice, water, etc.)</td>
<td>102</td>
<td>17.3</td>
</tr>
<tr>
<td>Engine-room, stairs, gangways, etc.</td>
<td>133</td>
<td>22.6</td>
</tr>
<tr>
<td>Engines, compressors, pumps, electrical equipment</td>
<td>24</td>
<td>4.1</td>
</tr>
<tr>
<td>Welding equipment, drilling tools, other tools</td>
<td>47</td>
<td>8.0</td>
</tr>
<tr>
<td>Fishing equipment</td>
<td>5</td>
<td>0.9</td>
</tr>
<tr>
<td>Various equipment, chemical agents, gases, air-conditioning, kitchen equipment, objects in cabins, etc.</td>
<td>81</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>589</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Source:** Seeberufsgenossenschaft, courtesy Dr. Schepers, Medical Director.

### Nature of injuries

In 1984 3,446 injuries were reported among American seafarers, involving, for instance, the back (15 per cent), the hands and feet (12 per cent), the neck and shoulders (6 1/2 per cent), the abdomen and the groin (6 per cent), the eyes (6 per cent) and the chest (3 per cent).

In the European Community countries, the parts of the body most frequently injured among seafarers were the hands (31 per cent), the trunk (18 per cent), the legs (17 per cent), the arms (13 per cent), the feet (5 per cent) and the head (10 per cent).

In Finland, injuries to seafarers during the year 1986 affected the hands (28 per cent), the trunk (20 per cent), the pelvis (20 per cent), the knees and ankles (13 per cent), the shoulders and wrists (8 per cent), the feet (9 per cent), the internal organs (6 per cent) and the eyes, head and neck (3.5 per cent).
Accidents and the type of work on board ship

Statistics from the United States for the year 1984 provide the following information regarding seafarers injured in the course of their employment:

<table>
<thead>
<tr>
<th>Type of seafarer</th>
<th>No. of injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed</td>
<td></td>
</tr>
<tr>
<td>Deck</td>
<td>227</td>
</tr>
<tr>
<td>Engine</td>
<td>425</td>
</tr>
<tr>
<td>Purser, radio, others</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>677</td>
</tr>
<tr>
<td>Unlicensed</td>
<td></td>
</tr>
<tr>
<td>Deck</td>
<td>1421</td>
</tr>
<tr>
<td>Engine</td>
<td>714</td>
</tr>
<tr>
<td>Steward</td>
<td>591</td>
</tr>
<tr>
<td>No rating</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>2769</td>
</tr>
<tr>
<td>Grand total (licensed and unlicensed seafarers)</td>
<td>3446</td>
</tr>
</tbody>
</table>


Accidents and the age of seafarers

According to the results of investigations conducted in Belgium, Denmark, Germany, France, Italy and the United Kingdom on 6,908 accidents among seafarers reported in the years 1977-80, the percentage of accidents which occurred in various age groups was as follows:

- Up to 18 years: 4.7 per cent
- 19-30 years: 29.5 per cent
- 31-40 years: 27.1 per cent
- 41-50 years: 22.7 per cent
- 51 years and older: 15.8 per cent

Seafarers most often involved in accidents (57 per cent of cases recorded) were 19-40 years old, but the majority of seafarers are in this age group.

Statistics from the United States relating to 3,446 accidents recorded among American seafarers in 1984 indicated that 1,043 accidents (including four fatal) occurred among men aged under 40 years, 1,596 accidents occurred among seafarers over 40 years of age (19 fatalities), and in 429 cases of injuries no age was mentioned (one fatal case).
Size, age, type of ship, and accidents among seafarers

A statistical study on accidents among European seafarers\(^5\) indicated that the following factors were significant in accident occurrence: size of the ship – the larger the ship the fewer the accidents among her crew; age of the ship – the older a ship the more the accidents among her crew in comparison with new ships; type of ship – most accidents occurred on fishing vessels, passenger ships came next (excluding passengers on board), then cargo ships, while the accident rate on tankers was relatively low.

Fatal accidents

The rate of fatal accidents among seafarers and fishermen at sea is higher than among workers ashore. The casualty rates among deck and engine-room personnel are nearly equal.

Death by drowning ranks first (56 per cent of cases) in the order of frequency, followed by death caused by fractures, predominantly of the skull. Those two causes account for about 70 per cent of all deaths.

Data for the years 1980–89 from one large American shipping company\(^6\) indicated that during this period 102 deaths were reported in seafarers (the frequency was 0.17 cases per 200,000 work-hours worked). Most were caused by diseases, including 56 cases of myocardial infarction, and 20 were cases of injuries: due to falls – four, fracture – one, head injuries – five, suicide – four, stab wound – one. Of three falls in the holds with massive injuries, one involved the use of narcotics. The large number of cases of myocardial infarction may be explained by the high average age of seafarers on United States vessels.

In one study\(^7\) data on mortality among seafarers from the United States and four European countries were compiled and analysed. In these five countries, in 1965–84, the total number of active seafarers was, on average, about 183,000 per year. The total number of deaths reported due to diseases was 5,313, and due to accidents was 4,349. The mortality from accidents and injuries among seafarers was 1.1 per thousand, and the mortality from diseases was 2.1 per thousand. Due to variations in the methodology of data collection the data from various countries differ considerably.

Lloyds Register indicated that, for the six-year period 1983–88, from 525 to 3,841 accidental deaths of seafarers were reported from all countries of the world, on average 1,248 deaths per year. During the same period, the number of accidental injuries among seafarers in the world was estimated at about 556,000 per year.\(^8\)

Causes of accidents

Accidents are caused by a number of factors separately or in conjunction. These causes can be grouped into four main categories: (1) technical failure; (2) operational failure; (3) human factors; (4) bad weather and other unforeseen or unknown factors.\(^9\)

An international comparison\(^10\) has indicated that the most important cause of accidents on ships is the human factor: e.g. over-fatigue, unfitness, inadequate training, inexperience, carelessness, panic, alcohol use and abuse, and other factors related to the personality of the injured seafarers.
About 20 per cent of work-related accidents are caused by engine parts. A further 20 per cent may be associated with bad work organisation, and climatic factors, including the microclimate of the engine-room. Often severe accidents are caused by heavy objects moving as a consequence of rough weather. During mooring operations, accidents are caused by ropes, chains and wires, capstans and winches.

In Finland, the causes of accidents to seafarers reported in 1986 were as follows: working and walking on deck - 29.9 per cent of the total; other working environment - 23.0 per cent; physical strain - 14.8 per cent; tools and utensils - 6.7 per cent; machines - 6.1 per cent; transport and lifting devices - 5.8 per cent; other causes - 13.7 per cent.

**Noise and vibration as a contributory factor in accidents**

Noise and vibration also contribute to the incidence of accidents, injuries and work-related diseases among seafarers, particularly those working in the engine-room. Noise levels in the engine-room may exceed 100 dB, and in some cases the noise level in the living quarters is continuously around 60 dB. Seafarers are exposed to various degrees of noise and vibration for 24 hours per day, for many months.

Noise masks sound signals and makes communication by speech difficult, thus reducing the effectiveness of intercom systems, phones and radio. Noise affects not only hearing but also efficiency at work and behaviour, through the nervous system. It causes a general stress reaction and a higher level of alertness and tension. Long-frequency noise and infrasound can cause other psychological effects which may reduce man's ability to carry out monotonous work demanding a high level of vigilance; their effect on the health of seafarers is combined. Vibration is closely linked to noise. It can become painful at high amplitudes. Very low frequency vibration at high amplitude causes movements of the body and increased sweating and salivation, headache and nausea. It increases the possibility of an accident.

Some maritime countries have issued guidelines on permissible noise levels on ships based on the IMO Code on Noise Levels on Board Ship (resolution A.468(xii), 1981). Lowering the levels of noise and vibration on ships could have a positive effect on the health of seafarers, and may also reduce the incidence of accidents and injuries.

**Dangerous goods and accidents on ships**

Many substances which are capable of producing harmful effects on the human body, and which can lead to poisoning, illnesses, burns or injuries are carried aboard ships. Information on such dangerous substances can be found in many publications such as the International Maritime Dangerous Goods Code published by the IMO.

Poisonous chemicals and other dangerous substances are not only carried as cargo. Some are also used in the engine-room (solvents, acids, etc.) or in other parts of ships (paints, freezing gases, substances used in fumigation); they may also be emitted from materials used in the construction of the ship. They can cause poisoning among crew members, e.g. during the cleaning of tanks. In addition, long-lasting exposure to such substances can also cause certain occupational diseases. Some substances also act selectively on some organs and systems of the human body (the nervous system particularly), and can have a mutagenic effect (by radiation).
Research on the consequences of long-term exposure to chemical or hydrocarbon vapours aboard tankers has shown that work with organic solvents is related to certain negative effects on the nervous system. Exposure to high levels of concentration of vapours during loading, unloading or tank cleaning may have acute effects on seafarers, while long-term exposure can be linked with the development of cancer. Therefore, all work with the handling or storage of dangerous goods should be supervised by a competent person and in accordance with the provisions of the relevant national and international guidelines. It is advisable for persons working with volatile chemicals and other dangerous substances to undergo periodic medical examinations. In a case of poisoning while at sea it is necessary to get immediate specialist medical advice.

Attacks on crews of ships

Attacks on the crews of ships continue. Piracy causes loss of life and injury among seafarers, particularly in some areas of Africa and Asia. Merchant seafarers are also casualties in regional wars.

Alcohol abuse and accidents on ships

The consumption of alcohol may be a contributory factor in some shipboard accidents. In the United Kingdom, seafaring occupations carry a high mortality rate from chronic liver disease and cirrhosis, of which alcohol intake is a major cause.

Work aboard ship involves many of the risk factors which are believed to encourage the consumption of alcohol. Written reports on accidents, however, seldom mention whether the injured seafarer was under the influence of alcohol at the time. It is therefore difficult to evaluate the full impact of alcohol use and abuse on ships as a factor contributing to the incidence of accidents to seafarers.

Accident investigation procedures

The reasons for accident investigations are: to learn about the causes of accidents so that similar accidents can be prevented by technical improvements, better supervision, and training of seafarers; to determine the "change" or deviation that produced an "error" that in turn resulted in an accident; to publicise the particular hazard among crews and officers, and to direct attention to the prevention of accidents of similar types; to determine facts bearing on legal liability. Information derived from accident investigations is essential for the collection of reliable statistics, especially as concerns the factors which have indirectly contributed to the accident.

The investigation should answer the following questions: WHO was injured? WHAT happened and what were the contributing factors? WHEN did the accident occur? WHERE did the accident occur? WHY did it occur? And finally, and most importantly: HOW can a similar accident be prevented from happening again?

All too often important indirect causal factors are ignored: how much rest did the injured person have and for how long? What were the hours of work? Was the person under the influence of alcohol or any other substance?
An accident investigation should always be made on the spot. It will be much easier if the investigator finds the situation at the scene of an accident exactly as it was when the accident took place. Accident investigation procedures differ in detail according to national or company regulations and practices, but certain basic elements are similar.

Consequences of accidents

A report from one European country indicated that out of 1,048 seafarers injured on ships in the years 1969-73, 1,001 returned to work at sea, and 47 remained unfit for work on ships (4.48 per cent of the total). Among them 34 remained unfit for a long period of time, and 13 never returned to their jobs at sea. Seven seafarers were declared unfit for any other work (0.67 per cent of the total number of injured).

An international comparison of diseases and injuries among European seafarers indicated that about 1 per cent of reported accidents and injuries involved deaths, and in about 9 per cent seafarers remained temporarily disabled, but finally recovered and returned to work.

The duration of sick-leave is used as an indicator of the severity of disease or injury. A survey conducted on ships of one European country in 1986-88 indicated that the number of working days lost as a consequence of accidents on ships was 1,075 days per 1,000 seafarers per year. During sea voyages, the majority of sick and injured seafarers were put on sick-leave of short duration (one to three days) even when their condition was not very severe. On the other hand, the majority of sick and injured fishermen were put on sick-leave for longer duration, their work absence being caused by more severe diseases and injuries.

Repatriation of sick and injured seafarers

In a study covering the period from 1985 to 1989 and concerning crews of one large European shipping company which employed between 3,590 and 4,781 seafarers each year, there were 354 cases of "medical" repatriation of sick (287) and injured (67) crew members. The calculated rate of repatriation was 13.62 cases of serious diseases and 3.25 cases of serious injury per 1,000 seafarers per year. The leading types of injuries among repatriated patients were fractures (1.79 cases per 1,000 seafarers per year), wounds (0.34), and burns (0.16). The number of repatriations of American seafarers due to illness and injury during one calendar year (1984) was 452 for 13,770 seafarers' jobs; 255 of these cases concerned injuries.

In Spain, in 14 years of observations, there were 1,273 repatriations: 841 cases of illness (66.1 per cent), and 432 injuries (33.9 per cent). Thirty-three per cent of the cases of diseases concerned the alimentary tract, mainly peptic ulcer and inguinal hernia, while psychiatric cases accounted for 17.5 per cent. The most frequent injuries were fractures (75.4 per cent), and wounds and traumas (22.3 per cent). Among the total number of 432 injuries, 202 hand fractures and hand phalanx amputations were recorded.
Notes


4 ibid.

5 ibid.


9 Department of Transport, United Kingdom: Ship Safety, 1992 (London).


14 M. Rzepiak: "Social and medical consequences of injuries at work among seamen of the Polish Merchant Marine", in Bulletin of the Institute of Maritime and Tropical Medicine (Gdansk), 1976, Vol. 27.


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CHAPTER II

ACCIDENT PREVENTION

The prevention of accidents aboard ship involves human, operational and technical considerations. National and international legislation provide the framework within which measures are taken for the prevention of accidents. Such measures should focus on all three aspects of accident prevention.

The human aspects of accident prevention involve, inter alia, the careful selection of candidates for employment at sea, and the regular medical examination of seafarers. Medical examinations should include tests for both physical and mental health, and problems such as the abuse of alcohol or other substances should be a disqualifying factor. Accident prevention on ships should be an integral part of the training of officers and seafarers at nautical schools, and it should be included in programmes of continuous retraining on ships and ashore throughout the seafarer's career.

The operational aspects include the organisation of work on ships and in ports. Over-fatigue may be caused by too long watch periods or excessive overtime. The two-watch system frequently practised on coastal vessels may well lead to high accident rates.

Technical considerations have an impact on the work environment on board ship. Ship designers and builders should pay particular attention to the design of engine-rooms, ladders, machinery, stairways and passages, to ensure personal safety. Since the environment also contributes to occurrence of accidents, the design and construction of a ship should compensate for such conditions as excessive noise, vibration or temperature.

International action

The First and Second Sessions of the Joint ILO/WHO Committee on the Health of Seafarers held respectively in 1949 and 1954 considered and made recommendations for national action regarding such questions as the ship's medicine chest, medical advice by radio to ships at sea and the training of personnel responsible for giving medical treatment at sea. These matters were to a great extent connected with the questions of prevention of accidents and the care of sick and injured seafarers.

In continuing progress towards improving the health care of seafarers, as a result of the proposal of the Joint Committee's Third Session in 1961, an international model for a ship's medical guide was developed by the ILO, WHO and IMO (then IMCO). The final version of the guide was agreed by the Fourth Session of the Committee in 1964, and published by the WHO in 1967. The Fifth Session of the Joint Committee, held in 1973, dealt mainly with the training of personnel in first aid and nursing care, while its Sixth Session in 1981 agreed on the revision of the contents of the ship's medical chest and on the content of training syllabuses for seafarers in medical matters.

In 1970 the ILO adopted the Prevention of Accidents (Seafarers) Convention (No. 134) and its supplementary Recommendation (No. 142). These instruments sought to encourage national authorities to establish the legal and organisational framework for national systems of accident prevention. In addition, the ILO published in 1978 a set of guidelines on the Prevention of Accidents Aboard Ship and in Ports, which is currently being revised. The
74th (Maritime) Session of the International Labour Conference adopted the Health Protection and Medical Care (Seafarers) Convention, 1987 (No. 164).

The International Maritime Organization (IMO) has adopted a number of Conventions regulating safety at sea and published a large number of codes and guidelines closely related to the prevention of accidents aboard ship. Some relate to the construction, design and equipment of vessels and others to the carriage of various cargoes, especially those involving hazards. A medical section is included in the International Code of Signals. Important in this context is the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods.

The involvement of the World Health Organization in this area began in 1948, when the First World Health Assembly recommended that a small joint committee be formed with the ILO to deal with the hygiene of seafarers. An important achievement of WHO in this area is the publication of the International Medical Guide for Ships. To support its work, WHO has an Expert Advisory Panel on the Health of Seafarers and a network of collaborating centres on the health of seafarers. WHO's cooperation with the ILO has been mainly through the Joint ILO/WHO Committee on the Health of Seafarers.

Elements of a national policy on accident prevention

The Prevention of Accidents (Seafarers) Convention, 1970 (No. 134) states that the provisions for the prevention of occupational accidents shall be laid down by laws or regulations, codes of practice or other appropriate means. Therefore, national authorities need to have minimum standards of safety of work on ships and in ports. In many cases shipping companies have their own more detailed operational guidelines on the subject. National legislation has to be based on national experience and needs as well as on international legislation, codes and guidelines adopted by international organisations.

Where a country has not adopted specific legislation for the maritime industry, general legislation may apply in such areas as safety in the workplace, worker insurance and other social questions.

Convention No. 134 further states that appropriate measures shall be taken to ensure the proper application of the provisions of the relevant laws and regulations, as well as to ensure compliance with them.

Labour inspection services usually supervise the enforcement of all labour protection laws, including those dealing with safety and health. Some maritime countries have a specialised maritime inspection service. The general principles for the inspection of the conditions of work of seafarers are given in the Labour Inspection (Seamen) Recommendation, 1926 (No. 28). This instrument describes the rights, powers and duties of ship inspectors and makes suggestions on the way these inspection services should be organised. Some countries with merchant fleets do not have any labour inspection services and rely on classification societies for the other safety inspections.

Convention No. 134 also requires ratifying States to establish programmes for the prevention of occupational accidents with the cooperation of organisations of shipowners and seafarers. The competent authority is required to include accident prevention in the formal training of seafarers at vocational training institutions as well as to inform seafarers of particular hazards. Convention No. 134 also provides for the creation of national or local joint accident prevention committees or ad hoc working parties, on which both shipowners' and seafarers' organisations are represented.
In most of the main maritime countries, permanent bodies are responsible for providing seafarers with social facilities and services including medical care and the promotion of safety aboard ship. In some countries this is done by the industry itself, in others by the government or on a tripartite basis. In Spain, the Instituto Social de la Marina, which comes under the Labour and Social Security Office of the Government, is responsible for providing social assistance and medical care to all Spanish sea workers and their families. Its work covers safety and health promotion and training for seafarers. It runs a number of maritime health centres in Spain and abroad, a radio medical centre and a hospital ship. In France, a report on the Occupational Safety of Seafarers (Hanno, 1991), has recommended the creation of a National Prevention Council, and the Government has taken measures to implement the recommendations contained in the report. However, many countries do not yet have a fully adequate national system of accident prevention for the shipping sector.

Convention No. 134 also requires countries to ensure that occupational accidents are adequately reported and investigated. Statistics should be kept and analysed. In practice this means that the master must submit a report on all accidents aboard. Investigations have to be made by the seagoing staff and the management ashore, in certain cases with the participation of the inspection services.

Collecting and analysing statistics are also required by Convention No. 164. In some countries, data on the incidence, causation and consequences of accidents on ships are collected and analysed. In many countries, accident investigation reports are distributed back to ships, so that lessons learnt can be applied through accident prevention measures. Detailed records and statistics are not available from many countries. Therefore limited information is available on morbidity, mortality, disability, risk factors, the number of people concerned, the psycho-social effects and determinants as well as the quality of life of survivors. The collection of statistics and further research could be encouraged on, for example, the possible links between the watch system and accidents, the introduction of technological modifications to make the working environment safer and the costs and benefits of preventive action.

Training of seafarers, an active safety promotion programme and other forms of information dissemination are also useful tools in the implementation of national policy for the prevention of accidents aboard ships. During their pre-sea training as well as throughout their career, seafarers are taught many aspects of safety. Many shipping companies, especially those involved in the transport of dangerous goods, have good training programmes both for officers and for ratings. Not only the important mandatory regulations but also pamphlets, posters and videotapes dealing with certain aspects of safety need to be available on board.

However, not all seafarers have the benefit of this type of training and information dissemination, because the necessary effort is not made either by the country of registry or the shipping company or both.

Shipboard measures for the prevention of accidents

Convention No. 134 provides that a suitable person should be appointed among the crew of every ship to be responsible for accident prevention. This person should promote the interest of crew members in this regard, particularly of those new to the ship. He should consider the safety and health aspects of all operations aboard the ship and ensure the effectiveness of all safety and health measures required in the crew's working environment.
If the number of officers and crew aboard the vessel is large enough, a ship safety committee should be established. Further measures could be taken to implement these provisions more widely.

Promotional efforts on accident prevention

Various types of educational material have been produced for ships' crews, such as stickers and posters, films, books and magazines, etc. and are still widely used to discourage bad habits or to give detailed information, advice or instruction on particular points of good practice. Promotional material, however, cannot replace good housekeeping, correct planning, and good working habits; but it can help create a greater awareness of safety.

Existing publications describing accidents on board, the results of investigations, methods of prevention, reports of labour inspectorates and research institutions, general safety manuals, guidelines, and booklets and instructions on safety of work on ships and in ports, including the previously mentioned ILO publications (codes of practice) are useful not only to inspectors, safety officers in shipping companies, but to everyone bearing some responsibility for the promotion of occupational safety on ships and should be made available to seafarers.

Educational programmes on safety for seafarers are also included in the curricula of some maritime training institutions, but usually only as part of other subjects. Specific training on accident prevention could be an efficient way to encourage safety consciousness among seafarers. It is also important for shipping companies to ensure that precise written instructions are given to ship personnel on all aspects of safety, with all necessary guidelines and advice made available aboard ship. Special measures should be taken to encourage safety among young seafarers and on vessels with multinational crews.

Other possible measures for improved accident prevention

Among the other possible measures which could be taken at international level is standardisation in the reporting and recording of data on accidents. Such standardisation would allow more accurate analysis of the real causes of accidents and lead to more effective preventive measures.

Further efforts could be made to implement the standardisation of life-saving and personal protection equipment, signs, symbols, signals, colours, etc. as provided for by the Safety of Life at Sea Convention and other IMO instruments.

Of particular importance would be the harmonisation of health and fitness standards set for seafarers recruited internationally. The basic standards regarding visual acuity, colour vision, hearing and general fitness should be in line with an accepted minimum level, compatible with the safety of the ship, the health protection of the individual seafarer and the safety of other crew members. This harmonisation has become particularly important in recent years because of the increasing mobility of labour from one country to another, and the internationalisation of the Manning of ships. Work at sea may require less physical strength but a higher standard of health (with less probability of recurrence of chronic diseases and ailments during a sea voyage), and the appropriate "psychological profile". A more careful selection of seafarers for employment on modern high-tech ships having crews may be necessary.
Close collaboration between national institutions and international organisations for the production and distribution of safety promotion material could be encouraged.

Since alcohol is a factor in the causation of diseases and injuries among seafarers, measures could be taken to prevent accidents through the education of seafarers on the negative effects of alcohol consumption. In certain cases, it may be necessary to limit the possibilities of access to alcohol.

Within shipping companies, it would be advisable that a senior executive has overall responsibility for safety and health. Clear policy objectives should be formulated and implemented by line management. Attention should be given to provide adequate training for accident prevention. Furthermore, appropriate means should be placed at the disposal of safety committees and safety officers in order to encourage safety as a way of life on board ship.
CHAPTER III

PROVISIONS FOR THE TREATMENT OF INJURED AND SICK SEAFARERS

The Health Protection and Medical Care (Seafarers) Convention, 1987 (No. 164), contains a number of relevant provisions with regard to issues discussed in this chapter such as the medicine chest, the ship's medical guide, medical radio services, the carriage of doctors and medical officers as well as their training.

In a situation of emergency at sea, medical assistance to seafarers can be a matter of life and death. Technological advances in the field of telecommunications have made it easier for crews to communicate with a doctor ashore, to summon assistance for an evacuation to a hospital, for instance by helicopter. More widespread and improved medical training for seafarers means that better medical care can be made available aboard ship. However, seafaring still involves many hazards, and the need for further improvements in the standards of medical care aboard ship persists.

Aboard many ships today, manning levels are such that the sickness or injury of a seafarer would directly affect the workload of his shipmates, or jeopardise the safety of the ship and her crew. Much has been done in recent years to improve the health and safety conditions of seafarers, both afloat and ashore. The following paragraphs describe the present situation as concerns the medical care available to seafarers.

On-board facilities

In application of ILO Convention No. 164, legislation in some countries requires a doctor to be carried on a ship when the number of people embarked exceeds a certain number - for example 100 persons, or 75 persons (German regulations), or if the ship is classified as a passenger vessel. Only in exceptional circumstances are doctors assigned to ships with a crew much below 100 men, for instance on cargo vessels with a crew of 30-40 men which operate in areas where there are special dangers or where obtaining high-standard medical care in ports is not always possible.

In the great majority of merchant vessels, however, the normal practice is for an officer to be responsible for medical care of the crew. In case of injury resulting from an accident aboard ship, first aid is of course very important but it does not go beyond the kind of treatment which is normally given on land before an ambulance or a doctor arrives. Medical treatment must continue to be given by ship staff, if necessary under the advice of a doctor from shore, until a port is reached or the seafarer can be evacuated.

For the ILO's Preparatory Technical Maritime Conference, held in Geneva in May 1986, information was collected from 57 countries on the means by which medical care was provided to seafarers aboard merchant vessels. In most cases, legislation required that all ships carry a medicine chest, a medical guide, medical stores and equipment. In 27 countries legislation specified the responsibilities of shipowners in this regard. Rules and regulations requiring medical supplies to be carried by ships existed in all the countries. A great majority of countries had national medical guides for ships, or used the International Medical Guide for Ships. The captain or one of the officers was directly in charge of caring for the sick and the injured. Nearly all maritime countries conformed to the requirements of the Ships' Medicine Chests Recommendation, 1958 (No. 105), that every vessel engaged in maritime navigation should carry a medicine chest appropriate to 2024o/v.8
the nature and duration of the voyage and the number of persons on board. Medicine chests were inspected annually or at the beginning or end of each long voyage, by the competent authority, sometimes together with the shipboard personnel concerned. The list of drugs in the chest was periodically reviewed. In the second updated edition of the International Medical Guide for Ships (WHO, Geneva, 1988), the list contained 83 various drugs and was based on the WHO list of essential drugs. National lists might well be slightly different, e.g. the Polish Medical Guide for Ships (Gdynia, 1987) lists 126 drugs. A medical guide explaining how the contents of a medicine chest were to be used was also prescribed by Recommendation No. 105. All countries for which information was available appeared to conform to this rule. Two-thirds of the countries reported that the text used was prepared either nationally or by some other country. In a good number of countries the guide was a direct translation or adaptation of the International Medical Guide for Ships published by WHO, and was also used in the training of medical officers. Guides therefore needed to be revised to keep up with new treatment methods and other developments in medical science.

The latest international provisions on the medicine chest and the medical guide are contained in Convention No. 164, and could be further promoted within the industry. It is possible that the list of essential drugs could be improved through a regular review at intervals of five years, for example, in order to replace certain drugs by more effective and less toxic ones. Also relevant in this context is the IMO publication "Medical First-Aid Guide for Use in Accidents involving Dangerous Goods".

A possible development would be the introduction of computer-based aids to assist the medical officer aboard ship in making accurate diagnoses.

Radio medical services

As provided for by Convention No. 164, radio medical services, often supported from public funds, operate in most industrialised maritime countries, giving medical advice free of charge at any hour of the day or night. In some countries, as the United States, private companies offer this service against fees paid by the shipowners.

At present, over 200 radio stations around the world are engaged in radio medical services for ships. The advice is given by doctors especially kept on duty for this service (as for instance in the United States, Italy, Spain, Poland) or contact is made with a doctor on duty in a general hospital or hospital for seafarers as in other countries.

In the last decade, considerable improvements in communications with ships at sea have been made by the use of satellite communications systems such as the one operated by the International Maritime Satellite Organisation (INMARSAT) which enables the establishment of immediate contact between ships and health institutions on shore. This facility is widely used for the benefit of sick or injured seafarers. By the end of 1991, INMARSAT terminals were installed on about 13,000 ships.

The efficiency of radio medical services depends on the quality of telecommunication between the ship and shore and the ability of the contact person on board ship, who should be able to notice and describe signs and symptoms of disease and report them to the doctor on shore, as well as follow the instructions of the advising doctor (preferably one experienced in maritime medicine).
Over the years, national radio medical stations have collected valuable information and experience. Some of them publish statistics on the incidence of diseases and injuries in treated seafarers; this is a useful source of information on the frequency of occurrence of various groups of diseases, and the nature of injuries in patients aboard ships at sea.

In a few countries, the future of medical advice by radio is threatened by cuts in state funding. It could be argued that with the improvement in the quality of communications equipment fewer medical radio centres are required. However, many vessels are not equipped with the appropriate modern equipment which could make some stations redundant.

Medical treatment ashore

In most ports there are modern hospitals where seafarers will receive excellent services, sometimes better than average because seafarers are often treated by private practitioners and in well-equipped hospitals against high fees which the local working population cannot afford.

In some large ports, for instance Rotterdam, there are port hospitals in which national and foreign seafarers are a considerable proportion of the patients treated. In Gdynia, Poland, there is a clinic of the Institute of Maritime and Tropical Medicine where seafarers are examined and treated (the WHO Interregional Collaborating Centre on Maritime Occupational Health is located in this Institute).

In many countries, such as Japan, the Philippines and Spain, there are special hospitals for seafarers. They are owned or operated by government agencies, trade unions or independent foundations. In the United Kingdom, a large hospital, the Dreadnought, used to specialise in the treatment of seafarers. It was, however, closed due to funding cuts. Seafarers are now treated in a specialised wing of another London general hospital.

In view of the high standard of medical treatment provided by general medical establishments in most places, the need for specialised seafarers' hospitals today is not so obvious. However, there are cases where, for instance, seafarers who have caught exotic diseases may not be diagnosed correctly and may not receive the correct treatment at a general hospital. Seafarers sometimes have to wait for treatment for long periods and in many cases miss their turn as they go back to sea with more or less minor ailments which remain untreated, ultimately worsening and placing seafarers at risk. Such cases may justify the existence of specialised seafarers' hospitals in maritime countries and especially in large ports.

Medical training for shipboard personnel

In addition to the provisions of Convention No. 164 the requirements for training relating to first aid and medical care are dealt with in the Document for guidance, 1985, prepared jointly by ILO and IMO. Instruction in first aid for officers may be given over an extended period as part of the curricula of nautical schools or it may comprise special short courses of one to four weeks' duration in hospitals, approved colleges or other special facilities.

Most countries require officers to complete a prescribed course in first aid either during their vocational training at maritime schools or as part of their preparation for qualifying for certificates of competency. The level of instruction is usually that of basic first aid, including some maintenance of a patient until definitive care is available. More rarely, ships' ratings are
instructed in first aid so as to be able to preserve life and prevent further injury. Several countries require prospective masters or even chief officers to pass an additional special course of instruction in medical emergencies and care with some emphasis on practical experience under realistic conditions.

**Emergency assistance and the medical evacuation of seafarers at sea**

In case of serious illness or accident while at sea, a seafarer may require urgent professional medical care. The ship may be diverted from its planned route to land the patient or to meet a vessel which has a doctor on board. More and more frequently, helicopters are used to evacuate seafarers whose lives are gravely threatened off the ship directly to a hospital. The planning of evacuation and discussion of the patient's condition demands good communications and elaborate logistics which are usually available only in sea lanes close to developed areas. In many parts of the developing world, this kind of assistance is not available.

Convention No. 164 provides that member States should cooperate in this respect in conformity with the International Convention on Maritime Search and Rescue, 1979.

**Seafarers' medical records**

One of the problems relating to the proper treatment of seafarers is the lack of proper records of previous medical history of injured or sick seafarers in case of emergency. Seafarers receive medical treatment in various parts of the world and records are not communicated to anybody. As a result, a doctor treating a seafarer in an emergency may have little information on which to base his diagnosis.

The Joint Committee examined this problem in 1981 and considered that severe practical problems and confidentiality prevented the routine transfer of medical records of seafarers.

The use of a smart card - a credit card size computer data storage card with information on the health of an individual seafarer - is one possible solution to the problem of information on medical history: it may contain information on past examinations and treatment, as well as any other medical records, and preserve confidentiality. The card would be kept by the seafarer and would be handed over to the doctor concerned, who would be able to add information if he has the right type of terminal. However, the use of such cards is at present feasible only at shipping company level, or in a country where the system is established. Their international use may be limited by such factors as language problems or the cost of the equipment that would have to be provided to health services.

Another solution would be to use some other form of information storage such as computer diskettes. These should be updated regularly by the seafarer's doctor in his home country but kept aboard ship by the seafarer to be handed over to the treating doctor.

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Possible improvements in international collaboration

Improvements in the delivery of health care to seafarers away from their home countries may be improved through closer collaboration among the maritime health services in different countries. Within Europe, there already exists a certain degree of collaboration through exchanges such as symposia and research projects. The WHO collaborating centres on maritime occupational health, with the active support of international organisations and the shipping industry, could conduct or coordinate research on the health status, medical treatment and preventive health care of seafarers; collect statistics concerning work-related accidents, diseases and fatalities in seafarers; and organise international exchanges of technical information, training materials and personnel, as well as international training courses, seminars and working groups. Such activities would contribute to the improvement of health services for seafarers.
CHAPTER IV

CONCLUDING REMARKS AND SUGGESTED POINTS FOR DISCUSSION

Concluding remarks

Every year, accidents to seafarers result in heavy human, social and material costs. Mortality among seafarers from accidents is high, and younger and older seafarers seem to be more vulnerable.

Injuries rank high in the general pathology of seafarers.

About two in five accidents occur on deck, and another two in the engine-room. More accidents occur on cargo ships than on tankers and passenger ships. More accidents are recorded on small and old ships than on large and new ones. Regarding the type of injury, statistical data show the commonest are contusions (34 per cent), wounds (22 per cent), fractures (19 per cent) and strains (17 per cent).

The human factor is regarded as the most important single cause of accidents. Faulty machines and equipment as well as environmental factors such as weather, noise and vibration also contribute to cause accidents. In addition, many accidents on ships are caused by dangerous goods, alcohol abuse and war-like incidents.

While accidents result mainly in injuries and short-term diseases, long-term exposure to certain substances, particularly volatile cargoes, can be linked with the development of diseases such as cancer.

Work-related injuries and diseases, therefore, constitute a very important health problem for seafarers, and efforts should be intensified to reduce their incidence. Research should also be conducted on the different methods of prevention.

Present international action by IMO, WHO and ILO as well as other organisations and especially those of seafarers and shipowners should focus on the implementation of preventive measures. Accident prevention and the health of seafarers should be important aspects of the inspection of national and foreign registered ships. A coherent policy on accident prevention for the shipping industry needs to be implemented at the national level.

The same facilities should be made available to all seafarers irrespective of the place of registration of the ship. For shipping companies, effective accident prevention measures need to be taken through proper management procedures, staff training and motivation, the establishment of safety committees, as well as accident investigation procedures and reporting. Particular attention could be given to the promotion of safety as well as health and fitness standards for seafarers.

Suggested points for discussion

It is now for the Joint Committee, in the light of the information contained in this working paper and any other available information, to consider further action to be undertaken by the ILO, the WHO or any other relevant organisations, as well as by the governments of their member States or by shipowners and seafarers and their organisations. The Joint Committee may wish to consider the following points:
1. What steps, if any, should be taken to properly assess the magnitude of the problem of work-related accidents and diseases among seafarers, particularly on board ships of countries which do not at present collect or publish statistics on this subject?

2. Is a more accurate assessment of the role of various factors, and especially the human factor, in the occurrence of accidents aboard ship necessary? If so, how should this assessment be carried out?

3. Recent research has demonstrated that long-term exposure to certain volatile cargoes has negative effects on the nervous system of seafarers and is related to the development of cancer. What measures should be taken to reduce the incidence of these problems?

4. It appears that in spite of the existing ILO recommendations on the classification of industrial accidents, available statistics on the causes of accidents are not detailed enough for the assessment of the role of the human factor. What steps, if any, should be taken to harmonise accident investigation and reporting procedures to assist research in this area?

5. What further prevention measures are necessary, in addition to those currently being taken by maritime countries?

6. What is the contributory role of noise, vibration and other environmental conditions in causing accidents? How can the effects of these factors be alleviated?

7. Should the inspection of vessels by flag states and port states cover more medical matters? If so, what are the most important issues to consider?

8. Promotional material on accident prevention is produced and distributed in the major maritime countries. What steps, if any, should be taken to facilitate the distribution of this material to all ships, including open-registry vessels?

9. To what extent is it desirable to improve the standard of post-accident medical care on board ship? What means should be made available to achieve this objective?

10. An essential element of medical care for seafarers aboard ship is the quality of the training of medical staff. On most vessels, one or more members of the crew has some form of medical training. What improvements, if any, should be made in these training programmes? Is some form of international harmonisation necessary in this regard?

11. Medical radio services are currently facing financial restrictions in some countries. With due regard to recent technical developments, are these services still useful and should they continue to be supported?

12. Since seafarers spend limited periods in their home countries, they are unable to wait for treatment when specialised seafarers' hospitals do not exist. What measures are necessary to ensure that timely treatment is provided to seafarers? Is the practice of certain countries to provide specialised seafarers' hospitals still necessary?

13. The standard of medical care available to visiting seafarers is not always at an acceptable level. What measures, if any, could be implemented to improve this situation?
14. Emergency assistance (e.g. helicopters) for the evacuation of seafarers from ships is not available in all countries. What steps, if any, should be taken to improve this situation?

15. The lack of proper medical records is often detrimental to the quality of treatment given to seafarers in case of injury or disease. What initiatives are possible to improve the rapid transfer of medical records while preserving confidentiality?

16. Already computer programs are being used by doctors to obtain more accurate diagnoses. Could such programs be modified for use aboard ship to assist in the treatment of seafarers?

17. Convention No. 164 entered into force in January 1991. What steps should be taken to further promote its application and ratification?