OFFSHORE TECHNOLOGY REPORT - OTO 98 171

Study of Medical Evacuations from Offshore Installations: 1987-1992

Date of Issue: January 1999

Health & Safety Executive
STUDY OF MEDICAL EVACUATIONS
FROM OFFSHORE INSTALLATIONS

FIVE YEAR REPORT 1987-1992

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October 1993
SUMMARY

Following a retrospective study (1976-1984) of medical evacuations from North Sea installations, a five year prospective study involving a consortium of nine North Sea oil companies with the backing of the Department of Energy was initiated in 1985. A common data collection form was used and the data were collated centrally.

The aims of the study were to establish a database of incidents of illness and injury which had led to a medical evacuation from an offshore installation and to use this database to analyse the incidence of these evacuations and the effectiveness of their management.

3,979 evacuations were reported, representing a sample of the total medical evacuations from the North Sea over the five years concerned.

Descriptive findings are presented in this report. Some of the observed patterns showed a consistency over the five years: 90% of the evacuations were managed using existing routine flights, the remaining 10% were recorded as requiring "unscheduled" flights. The highest incidence of cases of illness resulting in evacuation was consistently on the first day of the scheduled tour of offshore duty. The occurrence of injuries requiring evacuation "peaked" on the fourth and fifth day of the scheduled tour. The high incidence of evacuations occurring for dental problems, highlighted by the study, has now been addressed by the revised standards of medical and dental fitness for offshore workers.

However, other of the trends noted may reflect changes in the composition of the offshore population or changes in practices and procedures.

Certain results strongly suggest a changing pattern in the nature of the medical events requiring evacuation. The observed trend in the distribution of illness and injury as a reason for evacuation deserves further investigation.

The study has now continued beyond the initial five year project. A simplified data collection form and a system of quality assurance involving feedback from the offshore medics are being used.

The findings of this and related research may be used to recommend appropriately targeted changes to the industry's medical and training standards. The effectiveness of any such initiatives could also be monitored.
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Introduction

i. Background to present study

The need to provide health care to those operating in remote and isolated regions is not new and has developed as a result of the widening exploration and colonisation of the planet.

However, over the last twenty years two developments have influenced the development of what has been termed Remote Health Care (RHC). Firstly, the scale of scientific and commercial exploration has increased dramatically. Secondly, technological advances have provided the means to deliver a higher standard of health care thus raising the standard of what can be achieved, as well as the expectations.

The provision of a medical service to expeditioners of the British Antarctic Survey (BAS) is a long established example of such a Remote Health Care system.

The philosophy of Remote Health Care, as developed by the Survival Centre’s former Medical Director, Professor J Nelson Norman, comprises three elements:

- Training
- Research
- Clinical Practice

All three contribute to the delivery of balanced and appropriate health care.
The research component is viewed as essential to the development of such health care systems: data from medical events are used in evaluating standards of medical fitness, training requirements, and the appropriateness of drugs and equipment.

The discovery and subsequent exploitation of oil and gas in the UK sector of the North Sea has required large numbers of workers to operate in a hazardous and hostile environment, isolated from mainstream medical facilities. The emergence of this new industry led to the development of a Remote Health Care infrastructure to cater for the needs of this workforce. This included pre-employment and routine medical screening of all offshore workers, the training and equipping of remote practitioners ("rig medics"), and the provision of the necessary communications and onshore support. Operating outside the UK mainland, the development of this system fell largely to individual oil companies in conjunction with several specialist agencies and individuals.

In order to measure the effectiveness of the health care provided by this system a retrospective study of medical evacuations from offshore installations was undertaken covering the period 1976-1984(1). This exercise reviewed the medical records of four major oil companies since the commencement of their operations in the North Sea. Certain trends were established but incompatibilities in the data gathering systems between companies resulted in missing data, and hampered the extent of possible analysis.

However, the results of this study provided the impetus behind the establishment of a five year prospective project, initiated in September 1987, the results of which are presented in this report.
ii. Initiation

In the Summer of 1987, a proposal to establish a prospective study of medical evacuations from offshore installations was formulated by the RGIT Centre for Offshore Health. This was accepted by a consortium of nine offshore operating companies and the Department of Energy. Approval was obtained from the Joint Ethical Committee of the Grampian Health Board and Aberdeen University. This approval addressed the issues of patient anonymity and medical confidentiality. The study formally commenced on September 1st 1987, and subsequent annual collection and analysis of data was from September 1st to August 31st of each year.

iii. Participating Organisations

The following organisations contributed data during the five year study period:

- British Gas plc
- BP Petroleum Development Ltd / (Britoil plc)
- Chevron Petroleum Development (UK) Ltd
- Conoco (UK) Ltd
- Elf Enterprise / (Occidental Petroleum (Caledonia) Ltd)
- Mobil North Sea Ltd
- Phillips Petroleum Co Uk Ltd
- Shell UK Exploration and Production
- Total Oil Marine
- Unocal UK Ltd

Financial backing for the first year of the study was received from the Department of Energy.
iv. Investigating team

The investigating team at the RGIT Survival Centre Ltd (formerly RGIT Centre for Offshore Health) over the five year study period comprised:

Professor J N Norman  
Dr J A Brebner  
Dr S E Wilcock  
Dr M J Valentine  
Dr WB Leese  
Mr S J Gauld  
Mrs N Trail-Thomson  
Mrs M Mackie  
Mr H D Horsley

Mrs M Thom, Dr W Haston and Dr A Innes have greatly contributed to the production of this and the annual reports.

v. Aims and Objectives

The major aim of the study was to establish a database of incidents of illness or injury which had led to a medical evacuation from an offshore installation operated by a consortium member. The second aim was to use this database as a means of analysing the incidence of these medical events and the effectiveness of their management.
In the proposal the objectives of the study were defined as:

"The establishment of an ongoing system of surveying those medical incidents which require evacuation from offshore installations. This will identify those medical events which are the most costly, i.e., emergency evacuations. As a result it may well be possible to avoid some evacuations by modifications to the guidelines for medical fitness for offshore work, and rig medic training. Elements of desired emphasis in safety training may also be brought to light. It will also measure whether judgements applied in current criteria of fitness to work offshore are correct."

vi. Methods

Questionnaire design and data collection

This prospective study used a standardised data collection form (Appendix 1) which was completed by the rig medic for every medical evacuation which they initiated. The original form was returned to the central point for collation, and a copy retained on the installation for reference.

A second copy was designed to act as a confirmation procedure and provide a final diagnosis. This form accompanied the evacuee in order to be completed by the doctor at the point of disposal and then returned to the research team. A low rate of return of these forms meant that not enough of these confirmations were received to produce meaningful results. This report therefore uses the medic’s diagnosis or reason for evacuation.

Guidance notes (Appendix 2) were supplied for the rig medics to ensure consistency of data. A patient information sheet (Appendix 3) was also supplied, although individual patient consent was not required according to the approval obtained from the Joint Ethical Committee of the Grampian Health Board and Aberdeen University.
Database management

Coding and data entry was undertaken by registered nurses or medical officers in accordance with the guarantees on medical confidentiality contained in the proposal. Coding of the reason for evacuation employed the International Classification of Diseases, 9th Revision, (ICD-9), an internationally agreed system maintained by the World Health Organisation (WHO).

Commercial software database packages, "Reflex" (Borland International), and "Database" (Datasease Corp) were used for storing data. Patient details were anonymised and the database was registered in accordance with the Data Protection Act (1984). The following fields were used to store data extracted from returned data collection forms:

1. Patient number
2. Operator
3. Interval between onset of incident and evacuation
4. Age of evacuee
5. Occupation of evacuee
6. Employer of evacuee (operator or contractor)
7. Interval since last offshore medical examination
8. Nature of incident (Illness or injury)
9. Reason for evacuation (ICD-9 code)
10. Month of evacuation
11. Time of incident (injuries only)
12. Number of days into tour of duty at evacuation
13. Type of flight (routine or unscheduled)
14. Whether or not a doctor was consulted
15. Whether an escort was provided
16. The qualification of the escort
17. The medical disposal of the evacuee.
ICD-9 structure and some conventions used in this report.

When it was adopted by the twenty-ninth World Health Assembly in 1977, the International Classification of Diseases, 9th Revision, (ICD-9) marked the latest development of an international effort by the World Health Organisation (WHO) to establish a uniform system of coding of medical conditions.

The overall structure of ICD-9 is tree-like. The basic classification is that of a three-digit code which identifies a specific cause of morbidity or mortality, eg 800 - "Fracture of the vault of skull".

An optional fourth digit further defines the condition, eg 800.3 : "Fracture of the vault of skull, open with intracranial injury."

Groups of three-digit codes are categorised into mainheadings, eg the mainheading "Fracture of the skull" encompasses the codes 800 - 804.

Mainheadings are themselves grouped into Chapters. Thus,

"Chapter XVII, Injury & Poisoning" = Chapter

"Fracture of skull (800-804) = Mainheading

"Fracture of the vault of skull" (800) = Three-digit code

"Fracture of the vault of skull, open with intracranial injury" (800.3) = Four digit code
In this study the reasons for evacuation were coded using the three-digit code. The continuing study employs the fourth digit.

In this report, with slight variations to accommodate the specialist nature of offshore medicine, results follow the basic ICD-9 structure. A list of chapter and mainheadings used for the analysis of the present data set is contained in Appendix 4. References in the text to the three-digit codes are identified by enclosing them in square brackets [...].
Results

1. Mode of evacuation

During the period 1st September 1987 to 31st August 1992, reports were received of 3,979 evacuations for medical reasons from participating companies.

This figure represents a sample of the total number of medical evacuations involving the North Sea oil and gas industry, since data are collected only from installations operated by consortium members.

Rig medics are responsible for completing the data collection form, which requests the mode of evacuation to be classified as "routine" or "unscheduled".

It has been noted that the term "unscheduled" used on the data collection form to describe this field is open to misinterpretation. The revised data collection form for the continuing study (Appendix 2) uses the term "dedicated" in order to monitor the incidence of such flights more accurately.

Figure 1 shows the analysis of data received for the period 1987-92 on the mode of evacuation, whether by scheduled or unscheduled flight. The mode of transport was unspecified in 92 evacuations. Overall, 92% of evacuations used "routine" flights, the remaining 8% for which data were available used unscheduled flights.
The trend shown in Figure 1a suggests the consistency of this pattern over the five year period. Ninety percent or more of evacuations were managed using scheduled flights to the installation, presumably, avoiding extra transportation costs.
EVACUATIONS 1987 - 92
ROUTINE AND UNSCHEDULED

ROUTINE 3577
92%

UNSCHEDULED 310
8%

N= 3887 (no info=92)

TOTAL NUMBER OF EVACUATIONS = 3979

FIGURE 1
EVACUATIONS 1987-1992
Mode of transport (trend)

% of evacs

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Routine</th>
<th>Unscheduled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987-88</td>
<td>91.7</td>
<td>8.3</td>
</tr>
<tr>
<td>1988-89</td>
<td>94.2</td>
<td>5.8</td>
</tr>
<tr>
<td>1989-90</td>
<td>89.6</td>
<td>10.4</td>
</tr>
<tr>
<td>1990-91</td>
<td>90.9</td>
<td>9.1</td>
</tr>
<tr>
<td>1991-92</td>
<td>93.2</td>
<td>6.8</td>
</tr>
</tbody>
</table>

FIGURE 1a
2. Distribution of illness and injury

The reason for evacuation classified into illness or injury for the five year period is shown in Figure 2. Overall, illness (including dental cases) accounted for 55% of evacuations and injury 45%.

Numbers of evacuations for the individual years of the study, and the proportions of illness, injury and dental are presented in Table 2.0

<table>
<thead>
<tr>
<th>YEAR</th>
<th>REPORTED EVACUATIONS</th>
<th>% ILLNESS (inc dental)</th>
<th>% INJURY</th>
<th>% DENTAL (alone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>87-88</td>
<td>792</td>
<td>47%</td>
<td>53%</td>
<td>9%</td>
</tr>
<tr>
<td>88-89</td>
<td>744</td>
<td>53%</td>
<td>47%</td>
<td>9%</td>
</tr>
<tr>
<td>89-90</td>
<td>717</td>
<td>55%</td>
<td>45%</td>
<td>5%</td>
</tr>
<tr>
<td>90-91</td>
<td>697</td>
<td>52%</td>
<td>48%</td>
<td>7%</td>
</tr>
<tr>
<td>91-92</td>
<td>1029</td>
<td>64%</td>
<td>36%</td>
<td>11%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3979</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Much attention has been focused on this changing distribution of illness and injury.

Over the course of five years a pattern is discernible of the increasing proportion of illness compared with injury as a reason for evacuation as suggested by the trend noted in Figure 2a.
The reason for this change is likely to be multifactorial. The effect of an ageing workforce has been cited as one possible factor. Other influences include increased safety regimes and the industry's transition from exploration and drilling into the production phase.

Further analysis suggests that the rising proportion of evacuations for illness is not accounted for by dental cases alone. Amongst the reported 2176 cases of illness, 342 were for dental problems (16% of reported illness and 9% of total).

One of the undoubted strengths of the present study is the ability to highlight specific problems. One example being the attention which has been focused on the problem of dental health amongst the offshore workforce.

This problem has been recognised by the UKOOA Medical Sub-Committee in its 1992 guidelines on medical fitness for offshore workers which now recommends a certificate of dental fitness.
EVACUATIONS 1987-92
ILLNESS AND INJURY

ILLNESS (inc dental) 2176  
55%

INJURY 1803  
45%

N= 3979

FIGURE 2
3. Distribution of operator / contractor personnel

From its inception, the North Sea Oil and Gas industry has made maximum use of personnel contracted through service companies. Anecdotal evidence suggests marked differences in terms and conditions of work between those personnel employed directly by the Operating company and contract workers.

The status of the evacuee, i.e whether employed by the company operating the installation, or a contracting company was requested on the data collection form.

Over the course of the five year period no data on employment status of the evacuee were available in 77 cases. Of the remaining 3,902 reported evacuations, 786 (20%) were recorded as being employees of an Operating company, and 3,116 (80%) were contractors (Figure 3).

The lines of best fit shown in Figure 3a suggest the trend of evacuations for contractor and operator personnel over the five year period. The increasing proportion of contracted personnel involved in medical evacuation as shown in this figure may, of course, merely reflect the changing patterns of employment within the industry.
EVACUATIONS 1987-92
OPERATOR / CONTRACTOR RATIO

OPERATOR 786
20%

CONTRACTOR 3116
80%

N= 3902 (no info=77)

FIGURE 3
Operator/ contractor status
1987-92

% of evacuations

contractor

operator

% operator  % contractor

FIGURE 3a
4. Routine evacuations: Illness trend

Reasons for routine means of evacuation for illness during the period 1987-92, classified into chapter headings of the International Classification of Diseases, 9th Revision, (ICD-9) are shown in figure 4.

It should be noted that categorisation into "illness" or "injury" is determined by ICD-9 classification, rather than the medics' classification which has been used to produce Figure 2. Only in a small number of cases is there any conflict, an example being a hernia which may have been induced by a strain, and therefore coded as injury by the medic, but which is classified as illness in ICD-9.

The following is a breakdown of the reasons for evacuation within the individual ICD-9 chapter headings.
Routine Evacuations 1987-92
Illness Trends

- Digestive: 522
- Musc/Skeletal: 368
- Respiratory: 294
- Nervous: 174
- Mental: 78
- Cardiovascular: 42
- Skin/Subcutaneous: 78
- Genito-Urinary: 93
- Infectious/Parasitic: 169
- Miscellaneous/Vague: 277

N= 2093

Figure 4
4.1 Routine evacuations 1987-92: ICD-9 Chapter IX. Digestive

Of the 2093 reported cases evacuated by routine flight, 522 (25%) were classified as being for gastro-intestinal (GI) reasons. An analysis of these 522 cases using the ICD-9 mainheadings is presented in table 4.1

316 (61% of GI cases, 15% of total reported illness) were for dental problems.

Amongst the 58 cases attributed to "Diseases of oesophagus, stomach & duodenum"[530-537], the reason for 27 was gastric, peptic or duodenal ulceration. In a further 21 cases the evacuation was for gastritis or duodenitis [535]. A further 15 cases of unspecified GI haemorrhage are concealed under the main heading "Other diseases of the digestive system"[537]. As the final diagnosis in these cases was not available, it may be surmised that GI ulceration was suspected by the offshore medic in all these 62 evacuations.

Suspected gastro-intestinal ulceration would therefore constitute the second most frequent reason for GI evacuations, after dental problems.

Of the 45 cases coded under the mainheading "Other diseases of intestines and peritoneum"[560-569], 21 were for unspecified GI disorders, and 14 for anal or rectal abscess. In addition to the 15 cases reported as GI haemorrhage, 6 cases of gallbladder and one of pancreatitis were coded under main heading "Other diseases of digestive system" [570-579].
Table 4.1  
Routine evacuations 1987-92 : ICD-9 Chapter IX: digestive

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>520-529</td>
<td>322</td>
<td>Diseases of oral cavity, salivary glands and jaws</td>
</tr>
<tr>
<td>530-537</td>
<td>58</td>
<td>Diseases of oesophagus, stomach &amp; duodenum</td>
</tr>
<tr>
<td>540-543</td>
<td>13</td>
<td>Appendicitis</td>
</tr>
<tr>
<td>550-553</td>
<td>26</td>
<td>Hernia of abdominal cavity</td>
</tr>
<tr>
<td>555-558</td>
<td>36</td>
<td>Noninfective enteritis and colitis</td>
</tr>
<tr>
<td>560-569</td>
<td>45</td>
<td>Other diseases of intestines and peritoneum</td>
</tr>
<tr>
<td>570-579</td>
<td>22</td>
<td>Other diseases of digestive system</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>522</strong></td>
<td></td>
</tr>
</tbody>
</table>
4.2 Routine evacuations 1987-92: ICD-9 Chapter XIII. Musculoskeletal

Musculoskeletal (MS) problems constituted the next most common category for routine evacuations for illness, accounting for 366 cases (17.5% of illness). Further analysis of these cases by ICD-9 main headings is presented in Table 4.2.

96 cases (26% of MS, 5% of total routine illness) were categorised under "Arthropathies and related disorders" [710-719]. These included 47 evacuations for unspecified disorder of joint(s) [719] and 33 for internal derangement of knee [717].

The largest number, 204, of evacuations for musculo-skeletal reasons were classified under ICD mainheading "Dorsopathies" [720-724]. These cases represent 56% of MS and 10% of total routine illness. Amongst these cases, 150 evacuations were for unspecified back disorders[724], 25 for cervical region disorders [723], 21 for intervertebral disc disorders [722] and 8 for other inflammatory conditions [721,720].

Amongst the 63 cases classified under main heading "Rheumatism, excluding the back" [725-729], disorders of peripheral ligamentous or muscular attachments, synovium, tendons and bursa [726,727] accounted for 32 cases, and unspecified soft tissue disorders a further 28 cases.
Table 4.2
Routine evacuations 1987-92: ICD-9 Chapter XIII. Musculoskeletal

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVCAS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>710-719</td>
<td>96</td>
<td>Arthropathies and related disorders</td>
</tr>
<tr>
<td>720-724</td>
<td>204</td>
<td>Dorsopathies</td>
</tr>
<tr>
<td>725-729</td>
<td>63</td>
<td>Rheumatism, excluding the back</td>
</tr>
<tr>
<td>730-739</td>
<td>3</td>
<td>Osteopathy, chondopathy &amp; acquired musculoskeletal deformities.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>366</td>
<td></td>
</tr>
</tbody>
</table>
4.3 Routine evacuations 1987-92: ICD-9 Chapter VIII. Respiratory

The two major reasons for the 294 evacuations for respiratory problems (Table 4.3) were "Acute respiratory infections" [460-466] and "Pneumonia and influenza" [480-487].

Of the 150 evacuations classified as "Acute respiratory infections" [460-466], nasopharyngitis, sinusitis and pharyngitis accounted for 18 cases, acute tonsillitis 35 and acute non-specific Upper Respiratory Tract Infections (URTIs) 85.

Eighty-one cases diagnosed by the offshore medic as influenza accounted for the majority of the 102 cases coded under "Pneumonia and influenza" [480-487]. In the remaining 21 cases, pneumonia was the medic's diagnosis.

The 19 cases of "Chronic obstructive pulmonary disease and allied conditions" [490-496] comprised 15 cases attributed to asthma, and 4 cases of bronchitis.

One spontaneous pneumothorax, 4 cases of pleurisy and 6 of pulmonary congestion made up the 11 evacuations classified under "Other diseases of respiratory system" [510-519].
<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-466</td>
<td>150</td>
<td>Acute respiratory infections</td>
</tr>
<tr>
<td>470-478</td>
<td>12</td>
<td>Other diseases of upper respiratory tract</td>
</tr>
<tr>
<td>480-487</td>
<td>102</td>
<td>Pneumonia and influenza</td>
</tr>
<tr>
<td>490-496</td>
<td>19</td>
<td>Chronic obstructive pulmonary disease and allied conditions</td>
</tr>
<tr>
<td>510-519</td>
<td>11</td>
<td>Other diseases of respiratory system</td>
</tr>
<tr>
<td>TOTAL 294</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.4 Routine evacuations 1987-92: ICD-9 Chapter VI. Nervous (inc sense organs)

174 evacuations were attributed to this classification. Their distribution is shown in Table 4.4.

Of the 18 cases of "Other diseases of the central nervous system" [340-349], epileptiform fits accounted for 13, and migraine for cases.

Ten cases of Keratitis [370], 36 of disorder of conjunctiva [372], 9 involving inflammation of eyelids [373] were the main constituents of the 94 cases under "Disorders of the eye and adnexa" [360-379].

Of the 48 evacuations coded as "Diseases of the ear and mastoid process" [380-389], nonsuppurative and suppurative otitis media [381,382] accounted for 17 cases, and vertiginous syndromes [386], 10 cases.

Table 4.4
Routine evacuations 1987-92: ICD-9 Chapter VI. Nervous (inc sense organs)

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>330-337</td>
<td>1</td>
<td>Hereditary and degenerative diseases of the CNS</td>
</tr>
<tr>
<td>340-349</td>
<td>18</td>
<td>Other disorders of the central nervous system</td>
</tr>
<tr>
<td>350-359</td>
<td>13</td>
<td>Disorders of the peripheral nervous system</td>
</tr>
<tr>
<td>360-379</td>
<td>94</td>
<td>Disorders of the eye and adnexa</td>
</tr>
<tr>
<td>380-389</td>
<td>48</td>
<td>Diseases of the ear and mastoid process</td>
</tr>
</tbody>
</table>

TOTAL 174
4.5 Routine evacuations 1987-92 : ICD-9 Chapter V. Mental

The 9 evacuations classified under "Organic psychotic conditions" [290-294] comprised 7 cases of alcoholic psychosis[291], and 2 cases of drug psychosis [292].

Forty-three cases of unspecified neurotic disorder [300], and 11 cases of acute reaction to stress [308], made up the majority of the 63 cases of "Neurotic disorders, personality disorders & other nonpsychotic mental disorders" [300-316].

Table 4.5
Routine evacuations 1987-92 : ICD-9 Chapter V. Mental

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA GS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>290-294</td>
<td>9</td>
<td>Organic psychotic conditions</td>
</tr>
<tr>
<td>295-299</td>
<td>6</td>
<td>Other psychoses</td>
</tr>
<tr>
<td>300-316</td>
<td>63</td>
<td>Neurotic disorders, personality disorders &amp; other nonpsychotic mental disorders</td>
</tr>
<tr>
<td>TOTAL</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>
4.6 Routine evacuation 1987-1992: ICD-9 Chapter XII. Skin & subcutaneous tissue

In 78 cases of evacuation for illness using the routine mode of transport, the reason provided by the offshore medic was classified under the ICD-9 chapter "Skin & subcutaneous tissue". 45 of these evacuation were for "Infections of skin and subcutaneous tissue" [680-686], of which 5 were for cellulitis and abscess of finger or toe [682], and 23 for other types of cellulitis and abscess [682]. Cases of pilonidal cysts accounted for a further 6 evacuations.

Contact dermatitis and other eczema [692] was the reason given for 16 of the 24 evacuations classified under "Other inflammatory conditions of skin & subcutaneous tissue" [690-698].

Table 4.6
Routine evacuations 1987-92 : ICD-9 Chapter XII. Skin & subcutaneous tissue

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>680-686</td>
<td>45</td>
<td>Infections of skin and subcutaneous tissue</td>
</tr>
<tr>
<td>690-698</td>
<td>24</td>
<td>Other inflammatory conditions of skin &amp; subcutaneous tissue</td>
</tr>
<tr>
<td>700-709</td>
<td>9</td>
<td>Other diseases of skin and subcutaneous tissue</td>
</tr>
<tr>
<td>TOTAL</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>
4.7 Routine evacuations 1987-92 : ICD-9 Chapter VII. Cardiovascular

Routine flight evacuations attributed to disorders of the cardiovascular system accounted for 42 cases, constituting 2% of routine evacuations for illness. The subdivisions of this ICD-9 chapter are presented in Table 4.7.

Haemorrhoids accounted for 11 of 21 cases of "Diseases of veins & lymphatics, & other disorders of circulatory system" [451-549].

Table 4.7
Routine evacuations 1987-92 : ICD-9 Chapter VII. Cardiovascular

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>401-405</td>
<td>7</td>
<td>Hypertensive disease</td>
</tr>
<tr>
<td>410-414</td>
<td>8</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td>415-417</td>
<td>0</td>
<td>Diseases of pulmonary circulation</td>
</tr>
<tr>
<td>420-429</td>
<td>3</td>
<td>Other forms of heart disease</td>
</tr>
<tr>
<td>430-438</td>
<td>3</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>451-459</td>
<td>21</td>
<td>Diseases of veins &amp; lymphatics, &amp; other disorders of circulatory system</td>
</tr>
<tr>
<td>TOTAL</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>
4.8 Routine evacuations 1987-92 : ICD-9 Chapter X. Genito-urinary

Table 4.8 presents the classification by ICD-9 main heading of the 93 cases of Genito urinary (GU) cases (4% of routinely evacuated illness).

The largest proportion of the 47 attributed to "Other diseases of the urinary system" [590-599], 34 cases, were diagnosed by the medic as nonspecific disorders of the urethra and urinary tract.

In 27 of the 41 cases of "Diseases of the male genital organs" [600-608], the reason for evacuation was given as "Orchitis and epididymitis" [604].

Table 4.8
Routine evacuations 1987-92 : ICD-9 Chapter X. Genito-urinary

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>580-589</td>
<td>1</td>
<td>Nephritis, nephrotic syndrome and nephrosis</td>
</tr>
<tr>
<td>590-599</td>
<td>47</td>
<td>Other diseases of urinary system</td>
</tr>
<tr>
<td>600-608</td>
<td>41</td>
<td>Diseases of male genital organs</td>
</tr>
<tr>
<td>614-616</td>
<td>2</td>
<td>Inflammatory disease of female pelvic organs</td>
</tr>
<tr>
<td>617-629</td>
<td>2</td>
<td>Other disorders of female genital tract</td>
</tr>
<tr>
<td>TOTAL</td>
<td>93</td>
<td></td>
</tr>
</tbody>
</table>
4.9 Routine evacuations 1987-92: ICD-9 Chapter I. Infectious/parasitic

Evacuations classified under this ICD-9 chapter accounted for 169 cases (8% of routinely evacuated illness). A breakdown into main headings is shown in Table 4.9.

To the 42 cases of intestinal infections [001-009] must be added the 36 cases coded as "Noninfective enteritis and colitis" [558], loosely constituting "food poisoning" as a reason for evacuation.

Thirty-three cases of Chickenpox [52] and 17 of Herpes simplex made up the majority of the 62 cases of viral diseases accompanied by exanthem [50-57]. Non-specific viral disease [79] accounted for 29 instances coded under "Other diseases due to viruses and Chlamydiae" [70-79]. Infectious mononucleosis ("glandular fever") was diagnosed in a further 6 cases.
<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>001-009</td>
<td>42</td>
<td>Intestinal infectious diseases</td>
</tr>
<tr>
<td>010-018</td>
<td>1</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>030-041</td>
<td>3</td>
<td>Other bacterial diseases</td>
</tr>
<tr>
<td>045-049</td>
<td>3</td>
<td>Poliomyelitis &amp; other non-arthropod-borne viral diseases of CNS</td>
</tr>
<tr>
<td>050-057</td>
<td>62</td>
<td>Viral diseases accompanied by exanthem</td>
</tr>
<tr>
<td>070-079</td>
<td>43</td>
<td>Other diseases due to viruses and Chlamydiae</td>
</tr>
<tr>
<td>090-099</td>
<td>9</td>
<td>Syphilis and other venereal diseases</td>
</tr>
<tr>
<td>110-118</td>
<td>3</td>
<td>Mycoses</td>
</tr>
<tr>
<td>120-129</td>
<td>1</td>
<td>Helminthiases</td>
</tr>
<tr>
<td>130-136</td>
<td>2</td>
<td>Other infectious and parasitic diseases</td>
</tr>
</tbody>
</table>

TOTAL 169
4.10 Routine evacuations 1987-92: ICD-9 Chapter XVI
miscellaneous / vague

This ICD-9 chapter accounted for 277 (13%) of the 2093 evacuations for illness using routine flights. Table 4.10 presents the breakdown of these cases.

Table 4.10
Routine evacuations 1987-92: ICD-9 Chapter XVI. Miscellaneous / vague

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>170-175</td>
<td>1</td>
<td>Malignant neoplasm of bone, connective tissue, skin &amp; breast</td>
</tr>
<tr>
<td>250-259</td>
<td>4</td>
<td>Diseases of other endocrine glands</td>
</tr>
<tr>
<td>270-279</td>
<td>5</td>
<td>Other metabolic disorders and immunity disorders</td>
</tr>
<tr>
<td>280-289</td>
<td>1</td>
<td>Diseases of blood and blood-forming organs</td>
</tr>
<tr>
<td>740-759</td>
<td>3</td>
<td>Congenital anomalies</td>
</tr>
<tr>
<td>780-789</td>
<td>252</td>
<td>Symptoms</td>
</tr>
<tr>
<td>790-796</td>
<td>3</td>
<td>Nonspecific abnormal findings</td>
</tr>
<tr>
<td>797-799</td>
<td>8</td>
<td>Ill-defined and unknown causes of morbidity and mortality</td>
</tr>
</tbody>
</table>

TOTAL 277
252 of these cases were for symptoms [780-789] with no final diagnosis available.

Analysis of these symptoms is shown in Table 4.11.

Table 4.11
Analysis of ICD-9 mainheading "symptoms" [780-789]

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 3 DIGIT CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>780</td>
<td>57</td>
<td>General symptoms</td>
</tr>
<tr>
<td>782</td>
<td>20</td>
<td>Symptoms involving skin &amp; integumentary tissue</td>
</tr>
<tr>
<td>784</td>
<td>12</td>
<td>Symptoms involving head &amp; neck</td>
</tr>
<tr>
<td>785</td>
<td>2</td>
<td>Symptoms involving cardiovascular system</td>
</tr>
<tr>
<td>786</td>
<td>36</td>
<td>Symptoms involving respiratory system &amp; other chest symptoms</td>
</tr>
<tr>
<td>787</td>
<td>15</td>
<td>Symptoms involving digestive symptoms</td>
</tr>
<tr>
<td>788</td>
<td>30</td>
<td>Symptoms involving urinary system</td>
</tr>
<tr>
<td>789</td>
<td>80</td>
<td>Other symptoms involving abdomen &amp; pelvis</td>
</tr>
<tr>
<td>TOTAL</td>
<td>252</td>
<td></td>
</tr>
</tbody>
</table>
5. Unscheduled evacuations (illness)

During the five year period 1987-1992, there were 160 evacuations for illness reported as using unscheduled flights.

The description "unscheduled" was originally selected to describe this mode of evacuation in order to highlight those evacuations which necessitated a special flight.

Figure 5 shows the pattern of these cases of illness for the overall period of the study.
UNSCHEDULED EVACUATIONS 1987-92
ILLNESS TRENDS

DIGESTIVE
MUSC\SKELETAL 7
RESPIRATORY 16
NERVOUS 12
MENTAL 8
CARDIOVASCULAR 19
SKIN\SUBCUTANEOUS 5
GENITO-URINARY 7
INFECTIONOUS\PARASITIC 8
MISCELLANEOUS\VAGUE 41

1987-92
N= 160

FIGURE 5
5.1 ICD-9 Chapter IX: Digestive

Table 5.1 is an analysis by main headings of the 37 cases classified under the ICD-9 chapter IX, "Diseases of the digestive system". Notably, 11 evacuations (30% of digestive cases, 7% of unscheduled cases of illness evacuations) were for dental reasons. The 8 cases of diseases of the oesophagus, stomach and duodenum, were for proven or suspected gastrointestinal (GI) ulceration. A further 5 cases of unspecified GI haemorrhage occur in the category "Other diseases of the digestive system" [570-579].

Table 5.1: Unscheduled evacuations 1987-92 : ICD-9 Chapter IX. Digestive

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>520-529</td>
<td>11</td>
<td>Diseases of oral cavity, salivary glands and jaws</td>
</tr>
<tr>
<td>530-537</td>
<td>8</td>
<td>Diseases of oesophagus, stomach &amp; duodenum</td>
</tr>
<tr>
<td>540-543</td>
<td>4</td>
<td>Appendicitis</td>
</tr>
<tr>
<td>550-553</td>
<td>3</td>
<td>Hernia of abdominal cavity</td>
</tr>
<tr>
<td>555-558</td>
<td>2</td>
<td>Noninfective enteritis and colitis</td>
</tr>
<tr>
<td>560-569</td>
<td>3</td>
<td>Other diseases of intestines and peritoneum</td>
</tr>
<tr>
<td>570-579</td>
<td>6</td>
<td>Other diseases of digestive system</td>
</tr>
<tr>
<td>TOTAL</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>
5.2 Unscheduled evacuations 1987-92: ICD-9 Chapter XIII. Musculoskeletal

Seven evacuations, 4% of unscheduled evacuations for illness, were attributed to musculo-skeletal (MS) reasons. These 7 cases included problems relating to the back, neck and joints.

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>710-719</td>
<td>0</td>
<td>Arthropathies and related disorders</td>
</tr>
<tr>
<td>720-724</td>
<td>4</td>
<td>Dorsopathies</td>
</tr>
<tr>
<td>725-729</td>
<td>3</td>
<td>Rheumatism, excluding the back</td>
</tr>
<tr>
<td>730-739</td>
<td>0</td>
<td>Osteopathy, chondropathy &amp; acquired musculoskeletal deformities.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
5.3 Unscheduled evacuations 1987-92 : ICD-9 Chapter VIII. Respiratory

Respiratory problems were responsible for 16 cases (10% of evacuations using unscheduled transport). Acute respiratory infections (7 cases) and other diseases, notably pneumonia (4 cases) were the main diagnoses provided.

Table 5.3 Unscheduled evacuations 1987-92: ICD-9 Chapter VIII. Respiratory

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-466</td>
<td>7</td>
<td>Acute respiratory infections</td>
</tr>
<tr>
<td>470-478</td>
<td>1</td>
<td>Other diseases of upper respiratory tract</td>
</tr>
<tr>
<td>480-487</td>
<td>1</td>
<td>Pneumonia and influenza</td>
</tr>
<tr>
<td>490-496</td>
<td>1</td>
<td>Chronic obstructive pulmonary disease and allied conditions</td>
</tr>
<tr>
<td>510-519</td>
<td>6</td>
<td>Other diseases of respiratory system</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>
5.4 Unscheduled evacuations 1987-92: ICD-9 Chapter VI. Nervous (including sense organs)

These 12 cases of evacuations reported as using unscheduled flights are further analysed in table 5.4. Problems related to the ear (5 cases), and eye (3 cases) were the main reasons. Three cases of epilepsy were reported in this category.

Table 5.4 Unscheduled evacuations 1987-92: ICD-9 chapter VI. Nervous (inc sense organs)

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>340-349</td>
<td>3</td>
<td>Other disorders of the central nervous system</td>
</tr>
<tr>
<td>350-359</td>
<td>1</td>
<td>Disorders of the peripheral nervous system</td>
</tr>
<tr>
<td>360-379</td>
<td>3</td>
<td>Disorders of the eye and adnexa</td>
</tr>
<tr>
<td>380-389</td>
<td>5</td>
<td>Diseases of the ear and mastoid process</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>
5.5 Unscheduled evacuations 1987-92: ICD-9 Chapter V. Mental

All 8 evacuations on unscheduled flights were attributed either to neurotic disorders (4 cases), or acute reactions to stress (4 cases).

Table 5.5 Unscheduled evacuations 1987-92: ICD-9 Chapter V. Mental

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-316</td>
<td>8</td>
<td>Neurotic disorders, personality disorders &amp; other nonpsychotic mental disorders</td>
</tr>
<tr>
<td>TOTAL 8</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
5.6 Unscheduled evacuations 1987-92: ICD-9 Chapter XII. Skin & subcutaneous tissue

The 5 cases evacuated by this mode of transport for problems related to the skin or subcutaneous tissue are further analysed in table 5.6.

Table 5.6 Unscheduled evacuations 1987-92: ICD-9 Chapter XII. Skin & subcutaneous tissue

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>680-686</td>
<td>3</td>
<td>Infections of skin and subcutaneous tissue</td>
</tr>
<tr>
<td>690-698</td>
<td>1</td>
<td>Other inflammatory conditions of skin &amp; subcutaneous tissue</td>
</tr>
<tr>
<td>700-709</td>
<td>1</td>
<td>Other diseases of skin and subcutaneous tissue</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
5.7 Unscheduled evacuations 1987-92: ICD-9 Chapter VII. Cardiovascular

Cardiovascular (CV) problems were the reasons recorded for 19 evacuations (12% of illness transported using unscheduled flights).

The majority (14 cases) were diagnosed by the offshore medic as ischaemic heart disease (IHD).

Table 5.7 Unscheduled evacuations 1987-92: ICD-9 Chapter VII. Cardiovascular

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>410-414</td>
<td>14</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td>415-417</td>
<td>1</td>
<td>Diseases of pulmonary circulation</td>
</tr>
<tr>
<td>420-429</td>
<td>3</td>
<td>Other forms of heart disease</td>
</tr>
<tr>
<td>430-438</td>
<td>1</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
5.8 Unscheduled evacuations 1987-92: ICD-9 Chapter I. Infectious / Parasitic

The 8 cases of unscheduled evacuations classified as infectious or parasitic are presented in table 5.8. No noteworthy pattern is readily identified.

Table 5.8 Unscheduled evacuations 1987-92: ICD-9 Chapter I. Infectious / Parasitic

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>001-009</td>
<td>3</td>
<td>Intestinal infectious diseases</td>
</tr>
<tr>
<td>050-057</td>
<td>1</td>
<td>Viral diseases accompanied by exanthem</td>
</tr>
<tr>
<td>070-079</td>
<td>3</td>
<td>Other diseases due to viruses and Chlamydiae</td>
</tr>
<tr>
<td>080-088</td>
<td>1</td>
<td>Rickettsioses and other arthropod-borne diseases</td>
</tr>
</tbody>
</table>

TOTAL 8
5.9 Unscheduled evacuations 1987-92: ICD-9 Chapter XVI. Miscellaneous / Vague

Miscellaneous or undiagnosed symptoms were the reasons given for 41 evacuations (26% of unscheduled illness). Of these cases, 36 were for symptoms [780-789], of which a further analysis is presented in Table 5.10.

The largest single category of symptoms, "Respiratory and other chest symptoms" (11 cases) also includes the coding for "chest pain" [786.5] which may indicate an underlying cardiovascular problem.
Table 5.9 Unscheduled evacuations 1987-92:
ICD-9 Chapter XVI. Miscellaneous / vague

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>250-259</td>
<td>1</td>
<td>Diseases of other endocrine glands</td>
</tr>
<tr>
<td>280-289</td>
<td>1</td>
<td>Diseases of blood and blood-forming organs</td>
</tr>
<tr>
<td>780-789</td>
<td>36</td>
<td>Symptoms</td>
</tr>
<tr>
<td>797-799</td>
<td>3</td>
<td>Ill-defined and unknown causes of morbidity and mortality</td>
</tr>
<tr>
<td>TOTAL</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.10 Analysis of ICD-9 mainheading "symptoms" [780-789]

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 3 DIGIT CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>780</td>
<td>9</td>
<td>General symptoms</td>
</tr>
<tr>
<td>784</td>
<td>2</td>
<td>Symptoms involving head &amp; neck</td>
</tr>
<tr>
<td>786</td>
<td>11</td>
<td>Symptoms involving respiratory system &amp; other chest symptoms</td>
</tr>
<tr>
<td>787</td>
<td>3</td>
<td>Symptoms involving digestive symptoms</td>
</tr>
<tr>
<td>788</td>
<td>4</td>
<td>Symptoms involving urinary system</td>
</tr>
<tr>
<td>789</td>
<td>7</td>
<td>Other symptoms involving abdomen &amp; pelvis</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

1482 evacuations for injury (according to ICD-9) were reported as using the existing routine flights. The pattern of injury for the period 1987-1992 is shown in figure 6.

6.1/2/3 Routine evacuations 1987-92:
Fractures / Dislocations / Sprains & strains

Musculoskeletal problems, encompassing fractures, dislocations, and sprains and strains formed the largest category of injury, accounting for 713 cases (48%).

Further analyses of these 3 categories are presented in tables 6.1 / 6.2 / 6.3.

In those cases where a fracture was confirmed or suspected, the upper limb was more likely to be involved (65% of fractures). Amongst these 165 cases involving the upper limb, in 84 cases (51%) the fracture was of the phalanges or other hand bone. Fractures, confirmed or suspected, of the wrist accounted for a further 55 cases.

The most frequent occurrence of dislocation in joints was reported in the upper limb, specifically the shoulder (12 cases). Nine occurrences of dislocated knee joints were recorded.

The 430 reported cases of sprains and strains unfortunately contained a high number (194) of injuries whose site was unspecified. However, among the remaining cases it would appear that sprains and strains in the lower limbs predominated, especially ankle strains (104). Strains and sprains of the back (43 cases) formed another important single category.
ROUTINE EVACUATIONS 1987-92
INJURY TRENDS

- FRACTURES 255
- DISLOCATIONS 28
- SPRAINS/STRAINS 430
- HEAD INJURY 20
- CRUSH 77
- OPEN WOUNDS 103
- SUPERFICIAL 22
- CONTUSIONS 163
- FOREIGN BODIES 133
- BURNS 41
- MISCELLANEOUS/VAGUE 210

N = 1482

FIGURE 6
Table 6.1
Routine evacuations 1987-92: ICD-9 main headings: Fractures

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>800-804</td>
<td>12</td>
<td>Fracture of skull</td>
</tr>
<tr>
<td>805-809</td>
<td>18</td>
<td>Fracture of spine and trunk</td>
</tr>
<tr>
<td>810-819</td>
<td>60</td>
<td>Fracture of lower limb</td>
</tr>
<tr>
<td>820-829</td>
<td>165</td>
<td>Fracture of upper limb</td>
</tr>
<tr>
<td>TOTAL</td>
<td>255</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2
Routine evacuations 1987-92: ICD-9 main headings: Dislocations

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>830-834</td>
<td>18</td>
<td>Dislocation of upper joint</td>
</tr>
<tr>
<td>835-837</td>
<td>10</td>
<td>Dislocation of lower joint</td>
</tr>
<tr>
<td>TOTAL</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.3
Routine evacuations 1987-92: ICD-9 main headings: Sprains & strains

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>840-842</td>
<td>46</td>
<td>Sprains and strains of joints and adjacent muscles in upper limbs</td>
</tr>
<tr>
<td>843-845</td>
<td>147</td>
<td>Sprains and strains of joints and adjacent muscles in lower limbs</td>
</tr>
<tr>
<td>846</td>
<td>43</td>
<td>Sprains and strains of joints and adjacent muscles of sacroiliac region</td>
</tr>
<tr>
<td>847-848</td>
<td>194</td>
<td>Other and unspecified sprains and strains of joints and adjacent muscles</td>
</tr>
<tr>
<td>TOTAL</td>
<td>430</td>
<td></td>
</tr>
</tbody>
</table>
6.4 Routine evacuations 1987-92: Head injury

20 evacuations using routine flights were recorded in which the reason given was intracranial injury. This does not include those cases where a fracture of the skull was confirmed.

Table 6.4 Routine evacuations 1987-92: ICD-9 main headings: Head injury

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>850-854</td>
<td>20</td>
<td>Intracranial injury, excluding those with skull fracture</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

6.5 Routine evacuations 1987-92: Crush injury

Of the 75 cases of crush injury, 62 involved the upper limb. The hand and fingers were specifically at risk.

Table 6.5 Routine evacuations 1987-92: ICD-9 main headings: Crush injury

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>806-869</td>
<td>2</td>
<td>Internal injury of chest, abdomen and pelvis</td>
</tr>
<tr>
<td>925</td>
<td>1</td>
<td>Crushing injury of face/ scalp/ neck</td>
</tr>
<tr>
<td>927</td>
<td>62</td>
<td>Crushing injury of upper limb</td>
</tr>
<tr>
<td>928</td>
<td>12</td>
<td>Crushing injury of lower limb</td>
</tr>
<tr>
<td>TOTAL</td>
<td>77</td>
<td></td>
</tr>
</tbody>
</table>
6.6 Routine evacuations 1987-92: Open wounds

The 103 cases of open wounds are further analysed in table 6.6. Open wounds of fingers and thumbs accounted for 58 (56%) of these cases.

Table 6.6
Routine evacuations 1987-92: ICD-9 main headings: Open wounds

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>870-879</td>
<td>29</td>
<td>Open wound of head, neck and trunk</td>
</tr>
<tr>
<td>880-887</td>
<td>63</td>
<td>Open wound of upper limb</td>
</tr>
<tr>
<td>890-897</td>
<td>11</td>
<td>Open wound of lower limb</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>103</strong></td>
<td></td>
</tr>
</tbody>
</table>

6.7 Routine evacuations 1987-92: Superficial injury

Amongst the 22 evacuations for superficial injury, the largest single category was for those injuries related to the eye and adnexa (10 cases).

Table 6.7
Routine evacuations 1987-92: ICD-9 main headings: Superficial injury

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>911</td>
<td>1</td>
<td>Superficial injury to trunk</td>
</tr>
<tr>
<td>912-915</td>
<td>8</td>
<td>Superficial injury to upper limbs</td>
</tr>
<tr>
<td>916</td>
<td>2</td>
<td>Superficial injury to lower limbs</td>
</tr>
<tr>
<td>918</td>
<td>10</td>
<td>Superficial injury to eye and adnexa</td>
</tr>
<tr>
<td>919</td>
<td>1</td>
<td>Superficial injury to multiple or unspecified sites</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>22</strong></td>
<td></td>
</tr>
</tbody>
</table>
6.8 Routine evacuations 1987-92: Contusion

Evacuations for contusions are presented in table 6.8

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>920</td>
<td>4</td>
<td>Contusion with intact skin surface, scalp and neck except eye</td>
</tr>
<tr>
<td>921</td>
<td>9</td>
<td>Contusion with intact skin surface of eye &amp; adnexa</td>
</tr>
<tr>
<td>922</td>
<td>33</td>
<td>Contusion with intact skin surface of trunk</td>
</tr>
<tr>
<td>923</td>
<td>55</td>
<td>Contusion with intact skin surface of upper limb</td>
</tr>
<tr>
<td>924</td>
<td>62</td>
<td>Contusion with intact skin surface of lower limb and unspecified site</td>
</tr>
<tr>
<td>TOTAL</td>
<td>163</td>
<td></td>
</tr>
</tbody>
</table>

6.9 Routine evacuations 1987-92: Foreign bodies

Foreign bodies in the external eye [930] accounted for 127 of the 133 cases requiring evacuation which are presented in table 6.9

Table 6.9
Routine evacuations 1987-92: ICD-9 main headings: Foreign bodies

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>930-939</td>
<td>133</td>
<td>Effects of foreign body entering through orifice</td>
</tr>
<tr>
<td>TOTAL</td>
<td>133</td>
<td></td>
</tr>
</tbody>
</table>
6.10 Routine evacuations 1987-92: Burns (including chemical burns)

The majority of burn injuries requiring evacuation involved the eye. Implicit is that many of these injuries were the result of chemical splashes or radiation burns from welding, rather than thermal burn.

Table 6.10
Routine evacuations 1987-92: ICD-9 main headings: Burns (inc chemical burns)

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>940</td>
<td>24</td>
<td>Burns confined to eye and adnexa</td>
</tr>
<tr>
<td>941</td>
<td>3</td>
<td>Burn of head, face and neck</td>
</tr>
<tr>
<td>942</td>
<td>1</td>
<td>Burn of trunk</td>
</tr>
<tr>
<td>944</td>
<td>7</td>
<td>Burn of wrist(s) and hand(s)</td>
</tr>
<tr>
<td>945</td>
<td>3</td>
<td>Burn of lower limb(s)</td>
</tr>
<tr>
<td>946</td>
<td>1</td>
<td>Burn of multiple unspecified sites</td>
</tr>
<tr>
<td>949</td>
<td>2</td>
<td>Burn, unspecified</td>
</tr>
</tbody>
</table>

TOTAL 41
6.11 Routine evacuations 1987-92 : Misc / vague

The 210 cases classified under the heading of miscellaneous or vague are presented in table 2.11.

The largest number of these injuries (152) refer to cases where no further information has been supplied.

Table 6.11
Routine evacuations 1987-92 : ICD-9 main headings: Misc / vague

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>905-909</td>
<td>11</td>
<td>Late effect injury, poisoning, toxic effect &amp; other external causes</td>
</tr>
<tr>
<td>950-957</td>
<td>7</td>
<td>Injury to nerves and spinal cord</td>
</tr>
<tr>
<td>958-959</td>
<td>152</td>
<td>Certain traumatic complications and unspecified injuries</td>
</tr>
<tr>
<td>960-979</td>
<td>1</td>
<td>Poisoning by drugs, medicaments and biological substances</td>
</tr>
<tr>
<td>980-989</td>
<td>11</td>
<td>Toxic effects of substance chiefly nonmedicinal as to source</td>
</tr>
<tr>
<td>990-995</td>
<td>18</td>
<td>Other and unspecified effects of external causes</td>
</tr>
<tr>
<td>996-999</td>
<td>10</td>
<td>Complication of surgical &amp; medical care not elsewhere classified</td>
</tr>
</tbody>
</table>

TOTAL 210

149 evacuations for injury were reported as using unscheduled flights. The pattern of injury for the period 1987-1992 is shown in figure 7.

7.1/2/3 Unscheduled evacuations 1987-92: Fractures / Dislocations / Sprains & strains

Musculoskeletal problems, encompassing fractures, dislocations and sprains and strains formed the largest category of injury, accounting for 69 cases (46%). This is a similar pattern to the evacuations for injury using routine flights.

Further analyses of these 3 categories are presented in tables 7.1, 7.2, 7.3.

Confirmed or suspected fractures of the upper limbs were a more frequent reason for evacuation than those involving lower limbs. Further analysis of the evacuations for sprains and strains is not possible because of the large number of records where the injury site is not specified.
UNSCHEDULED EVACUATIONS 1987-92
INJURY TRENDS

FRACUTRES
DISLOCATIONS
SPRAINS/STRAINS
HEAD INJURY
CRUSH
OPEN WOUNDS
SUPERFICIAL
CONTUSIONS
FOREIGN BODIES
BURNS
MISCELLANEOUS/VAGUE

N = 149
FIGURE 7
### Table 7.1
Unscheduled evacuations 1987-92: ICD-9 main headings: Fractures

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>800-804</td>
<td>1</td>
<td>Fracture of skull</td>
</tr>
<tr>
<td>805-809</td>
<td>7</td>
<td>Fracture of spine and trunk</td>
</tr>
<tr>
<td>810-819</td>
<td>14</td>
<td>Fracture of lower limb</td>
</tr>
<tr>
<td>820-829</td>
<td>24</td>
<td>Fracture of upper limb</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>46</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 7.2
Unscheduled evacuations 1987-92: ICD-9 main headings: Dislocations

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>830-839</td>
<td>4</td>
<td>Dislocation</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>4</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 7.3
Unscheduled evacuations 1987-92: ICD-9 main headings: Sprains & strains

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>840-842</td>
<td>6</td>
<td>Sprains and strains of joints and adjacent muscles in upper limbs</td>
</tr>
<tr>
<td>843-845</td>
<td>2</td>
<td>Sprains and strains of joints and adjacent muscles in lower limbs</td>
</tr>
<tr>
<td>846</td>
<td>1</td>
<td>Sprains and strains of joints and adjacent muscles of sacroiliac region</td>
</tr>
<tr>
<td>847-848</td>
<td>10</td>
<td>Other and unspecified sprains and strains of joints and adjacent muscles</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>19</strong></td>
<td></td>
</tr>
</tbody>
</table>
7.4 Unscheduled evacuations 1987-92: Head injury

There were 4 reported evacuations using the unscheduled mode of transport involving injury to the head, excluding confirmed skull fractures.

Table 7.4
Unscheduled evacuations 1987-92: ICD-9 main headings: Head injury

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>850-854</td>
<td>4</td>
<td>Intracranial injury, excluding those with skull fracture</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
7.5 Unscheduled evacuations 1987-92: Crush injury

An analysis of evacuations for crush injuries is presented in Table 7.5. Crush injuries to the hand and fingers were the most frequent sites of such injuries.

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVACS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>806-869</td>
<td>1</td>
<td>Internal injury of chest, abdomen and pelvis</td>
</tr>
<tr>
<td>927</td>
<td>6</td>
<td>Crushing injury of upper limb</td>
</tr>
<tr>
<td>928</td>
<td>1</td>
<td>Crushing injury of lower limb</td>
</tr>
<tr>
<td>929</td>
<td>1</td>
<td>Crushing injury of multiple &amp; unspecified sites</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>9</strong></td>
<td></td>
</tr>
</tbody>
</table>
7.6 Unscheduled evacuations 1987-92 : Open wounds

The upper limbs, specifically the hands and fingers were the most common sites of open wounds requiring evacuation by unscheduled transport.

Table 7.6
Unscheduled evacuations 1987-92 : ICD-9 main headings: Open wounds

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>870-879</td>
<td>5</td>
<td>Open wound of head, neck and trunk</td>
</tr>
<tr>
<td>880-887</td>
<td>10</td>
<td>Open wound of upper limb</td>
</tr>
<tr>
<td>890-897</td>
<td>4</td>
<td>Open wound of lower limb</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

No evacuations using unscheduled flights were reported for superficial injury.

Tables 7.7 and 7.8 present the site of injury for evacuations reported as contusions and foreign bodies.
Table 7.7
Unscheduled evacuations 1987-92 : ICD-9 main headings: Contusion

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>922</td>
<td>6</td>
<td>Contusion with intact skin surface of trunk</td>
</tr>
<tr>
<td>923</td>
<td>7</td>
<td>Contusion with intact skin surface of upper limb</td>
</tr>
<tr>
<td>924</td>
<td>6</td>
<td>Contusion with intact skin surface of lower limb and unspecified site</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>19</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.8
Unscheduled evacuations 1987-92 : ICD-9 main headings: Foreign bodies

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>930</td>
<td>6</td>
<td>Foreign body in external eye</td>
</tr>
<tr>
<td>935</td>
<td>1</td>
<td>Foreign body in mouth, oesophagus or stomach</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7</strong></td>
<td></td>
</tr>
</tbody>
</table>
7.9 Unscheduled evacuations 1987-92: Burns (including chemical burns)

Two burn injuries were reported as being evacuated using unscheduled transport (Table 7.9).

Table 7.9
Unscheduled evacuations 1987-92 : ICD-9 main headings: Burns (inc chemical burns)

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>944</td>
<td>1</td>
<td>Burns of wrist(s) and hand(s)</td>
</tr>
<tr>
<td>948</td>
<td>1</td>
<td>Burns classified according to extent of body area</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

No further details were available on a large number of the injuries classified under miscellaneous and vague (Table 7.10)

Table 7.10
Unscheduled evacuations 1987-92 : ICD-9 main headings: Misc / vague

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 MAINHEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>900-904</td>
<td>1</td>
<td>Injury to blood vessels</td>
</tr>
<tr>
<td>905-909</td>
<td>1</td>
<td>Late effect injury, poisoning, toxic effect &amp; other external causes</td>
</tr>
<tr>
<td>950-957</td>
<td>2</td>
<td>Injury to nerves and spinal cord</td>
</tr>
<tr>
<td>958-959</td>
<td>11</td>
<td>Certain traumatic complications and unspecified injuries</td>
</tr>
<tr>
<td>980-989</td>
<td>4</td>
<td>Toxic effects of substance chiefly nonmedicinal as to source</td>
</tr>
<tr>
<td>990-995</td>
<td>1</td>
<td>Other and unspecified effects of external causes</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>
8. Occupational distribution

The job title of the evacuee was specified in 3807 cases. These have been combined into six occupational groups which reflect the main areas of activity in the offshore industry.

- Maintenance
- Catering
- Drilling
- Technical
- Production
- Other

The occupational distribution of cases of illness and injury over the period 1987 - 1992 can be seen in figure 8. The "maintenance" category of occupations has incurred the highest numbers of evacuations for both illness and injury.

Table 8.1 shows the evacuations for individual occupational groups analysed by the nature of the incident, whether illness or injury.

Table 8.1
Nature of incident by occupational group.

<table>
<thead>
<tr>
<th>Occupational Group</th>
<th>Number of reported evacuations</th>
<th>Proportion of illness (%)</th>
<th>Proportion of injury (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>N = 1815</td>
<td>51.7</td>
<td>48.3</td>
</tr>
<tr>
<td>Catering</td>
<td>N = 463</td>
<td>71.5</td>
<td>28.5</td>
</tr>
<tr>
<td>Drilling</td>
<td>N = 687</td>
<td>41.0</td>
<td>59.0</td>
</tr>
<tr>
<td>Technical</td>
<td>N = 367</td>
<td>68.7</td>
<td>31.3</td>
</tr>
<tr>
<td>Production</td>
<td>N = 333</td>
<td>61.6</td>
<td>38.4</td>
</tr>
<tr>
<td>Other</td>
<td>N = 142</td>
<td>54.9</td>
<td>45.1</td>
</tr>
</tbody>
</table>
8. Occupational distribution cont.

Recalling that the overall proportion of illness to injury as a reason for evacuation is 55:45, the occupational groups "catering", "technical" and "production" demonstrate a higher proportion of evacuations for illness, but lower for injury.

Conversely the occupational groups "maintenance" and "drilling" demonstrate a higher proportion of evacuations for injury but lower for illness.

This imbalance is most pronounced in the cases of "catering" and "drilling". The "drilling" group would seem to incur the most risk of injury in proportion to illness, and "catering" the least.

Workers risk of illness or injury requiring evacuation is related to factors such as age and individual health, as well as the risk attached to the occupational group to which they belong.

No authoritative data have been found on the occupational distribution of the whole population at risk. These results may simply reflect this distribution.
9. Age distribution.

The age of evacuee was available in 3789 cases. The mean age was 35.6 years. These ages have been grouped into decades and are presented in Figure 9 according to the nature of the incident leading to evacuation.

It has been reported that older workers are less likely to incur accidents, but this is dependant upon the type of occupation. It is suggested that in new recruits experience is the crucial factor in relation to accident causation, but after the initial period of employment, experience becomes less important than does increasing age. It has also been suggested that older workers may be more prone to accidents at work involving fast motor responses, as it has already been established that motor reaction times deteriorate with age.

Analysis of the data for individual years of the study suggests evidence of a significant \((p < 0.005)\) increase in evacuations of personnel aged over 45 years. Figure 9a also suggests an ageing trend among the population involved in evacuation.
EVACUATIONS 1987-92
AGE DISTRIBUTION

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Evacs for Injury</th>
<th>Evacs for Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26YRS</td>
<td>242</td>
<td>298</td>
</tr>
<tr>
<td>26-35YRS</td>
<td>663</td>
<td>726</td>
</tr>
<tr>
<td>36-45YRS</td>
<td>566</td>
<td>691</td>
</tr>
<tr>
<td>46-55YRS</td>
<td>214</td>
<td>318</td>
</tr>
<tr>
<td>56-65YRS</td>
<td>29</td>
<td>42</td>
</tr>
</tbody>
</table>

N = 3789 (no info = 190)  

FIGURE 9
Evacuations by age groups
1987-92 (trend)

% of age groups


- % < 26 yrs
- 26-35 yrs
- * 36-45 yrs
- 46-55 yrs
- X 56-65 yrs

FIGURE 9a
10. Interval since last medical examination.

The timing of the last medical examination relative to the evacuation for cases of illness was available in 1894 (87% of total illness) cases:

This information is set out in figure 10.

In 50 (2.3%) cases of illness (including dental) there was evidence that the last medical examination had taken place over the three years prior to the evacuation, i.e. beyond the maximum recommended time limit.
EVACUATIONS FOR ILLNESS 1987-92
TIME LAPSE SINCE LAST MEDICAL

WITHIN LAST YEAR  45.4%
WITHIN LAST 3YRS.  84.7%
MORE THAN 3 YEARS  2.3%
NEVER/NO INFO.  12.9%

FIGURE 10

The date of evacuation was obtained in 3851 cases, and the annual distribution of cases of illness and injury for the period 1987-1992 is shown in figure 11.

Overall, the highest number of reported cases occurred in September, but this is not repeated throughout the individual years of the data collection.

The two main factors which may influence the annual distribution of evacuations are:

- The level of offshore activity
- The nature of offshore activity

The level of offshore activity can be measured by the offshore population. Population numbers in the form of detailed Personnel on Board (POB) returns on a monthly basis were only available from a sample (5) of the consortium members. Analysis of this limited data did not demonstrate any evidence of a significant trend.

The predominant type of work in progress is another factor which may determine the level of evacuations. No detailed information of this type was collected in the study, but it is known that installations contributing data encompassed a broad spectrum of activity including the major areas of exploration, drilling, construction and production.
Monthly distribution of illness and injury (continued).

One of the original aims of this study was to examine the annual distribution of evacuations and relate this to the seasonal variation in light and darkness. Analysis of the present data has produced no evidence to support such a relationship. Collection of additional data would be required to fully reject the influence of seasonal light variation or other environmental conditions such as cold as significant factors in the incidence of evacuations.
12. Time interval between incident and subsequent unscheduled evacuation

Information on the time elapsed between the occurrence of an emergency incident and the evacuation was available in 303 cases.

Figure 12 shows the pattern for the five year period of the reported time interval between the onset of an incident and evacuation in those cases requiring the emergency mode of transport.

It is noted that the relative frequency of emergency evacuations occurring within ten and twenty four hours has fallen over the period of the study. Figure 12a displays this trend.

Possible interpretations of this trend include:

- increased confidence in managing such cases in the offshore environment.
- delayed decision taking process.
- increased pressure to avoid the expense of emergency flights.

There has been some evidence to suggest that all flights reported as "unscheduled" flights may not necessarily be "dedicated" to that evacuation. The revised data collection form for the continuing study has incorporated amendments to avoid any such misinterpretation.
EMERGENCY EVACUATIONS 1987-92

FIGURE 12

WITHIN 1HR.

WITHIN 2HRS.

WITHIN 10HRS.

WITHIN 24HRS.

N = 303 (no info - 7)

EVACUATED

NOT EVACUATED

259

218

106

50

0

50

100

150

200

250

300

250

200

150

100

50

0
Emergency evacuations
Elapsed time trend 1987-1992

% of emergency evacuations

% within 24 hrs

% within 10 hrs


% evac within 10 hrs
% evac within 24 hrs

Fig 12a

Information on the time of those incidents which resulted in injury and subsequent evacuation was available in 1558 cases, representing 86% of the total cases of injury over the five year period.

The graph illustrated in Figure 13 shows the distribution of these data over the twenty four hour period. The most noticeable feature is a rise in incidents during the early morning, reaching a peak at 10 a.m.

One of the most common shift patterns in the offshore industry is 0700hrs -1700hrs (dayshift), and 1900hrs - 0700hrs (nightshift). Figure 13a presents the data on the time of accidents in relation to these two shifts. 1099 cases (71%) reportedly occurred during the dayshift period 0700hrs -1700hrs, and the remaining 459 (29%) during the nightshift.

It is, however, accepted that many other shift patterns are in operation offshore. Previous research on circadian rhythms has suggested a relationship between time of accident and shift working. The present data are insufficient to permit reliable examination of this relationship, but the highlighted trends would seem to suggest some factors which may be worthy of further investigation.

As a monitoring exercise the present study is viewed as important in any consideration of levels of medical and First Aid cover, especially with increased scrutiny of offshore staffing levels.
Time of onset for injury
1987-92

Number of reported cases

Time (24hr clock)

1987-92

FIGURE 13
EVACUATIONS FOR INJURY 1987-92
TIME OF INCIDENT

DAY SHIFT 7AM-7PM
1099 71%

NIGHT SHIFT 7PM-7AM
459 29%

N = 1558 (no info = 245)

FIGURE 13a
14. Day of onset for illness and injury

The day of onset relative to the start of the tour of duty offshore was reported in 1828 cases of illness (84% of total), and 1594 cases of injury (88% of total).

Combined data for the five year period are presented in figure 14.

In cases of evacuation resulting from illness, the peak occurring on the first day of the individual’s tour of duty has featured every year.

Various inferences may be drawn from this. It suggests that some workers are commencing their tour of duty whilst medically unfit. Additionally, stress involved in travel, to both the point of departure as well as the offshore flight, may provoke ill health.

Figure 14a shows the analysis by ICD-9 mainheading of the 260 cases of illness evacuated on day one of the tour. Figure 14b presents the same data as proportions. Illness classified as digestive constituted the largest proportion of cases (22%). Of these 58 evacuations, 33 were for dental reasons.

Respiratory causes formed the second largest proportion, accounting for 47 cases (18%) of which 21 were diagnosed as acute respiratory infections, and 20 as influenza.
Amongst the 26 evacuations for musculoskeletal reasons, 15 were for back or neck problems.

Miscellaneous or undiagnosed symptoms were the reason provided for 43 evacuations (17% of illness on day one). Undiagnosed symptoms accounted for 37 of these cases, and the distribution of these cases may be seen in Table 14.

Table 14.
Analysis of ICD-9 mainheading "symptoms" [780-789] as reason for evacuation on first day of tour

<table>
<thead>
<tr>
<th>ICD-9 THREE DIGIT CODES</th>
<th>No. EVA CS</th>
<th>ICD-9 3 DIGIT CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>780*</td>
<td>12</td>
<td>General symptoms</td>
</tr>
<tr>
<td>782</td>
<td>3</td>
<td>Symptoms involving skin &amp; integumentary tissue</td>
</tr>
<tr>
<td>784</td>
<td>1</td>
<td>Symptoms involving head &amp; neck</td>
</tr>
<tr>
<td>785</td>
<td>1</td>
<td>Symptoms involving cardiovascular system</td>
</tr>
<tr>
<td>786</td>
<td>3</td>
<td>Symptoms involving respiratory system &amp; other chest symptoms</td>
</tr>
<tr>
<td>787</td>
<td>3</td>
<td>Symptoms involving digestive symptoms</td>
</tr>
<tr>
<td>788</td>
<td>4</td>
<td>Symptoms involving urinary system</td>
</tr>
<tr>
<td>789*</td>
<td>10</td>
<td>Other symptoms involving abdomen &amp; pelvis</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>37</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: ICD-9 code 780 "General Symptoms" includes 780.6: "Pyrexia of unknown origin".

ICD-9 code 789 "Other symptoms involving abdomen & pelvis", includes 789.0 "Abdominal pain".
Day of onset for illness and injury (continued)

In the case of injuries, for the combined data for the five years of the study, day five was when most injuries occurred. Analysis of the data for individual years confirmed the pattern of the fourth or fifth day into the tour of duty presenting the most risk of the occurrence of injury.

An obvious explanation of this interesting finding is not forthcoming. This period would not normally mark a changeover of shift working. Further research would be required to determine the influence of other factors such as fatigue, and compare this finding with other studies into offshore accidents.
INCIDENT ONSET FOR EVACUATIONS 87-92
DAYS INTO TOUR OF DUTY

<table>
<thead>
<tr>
<th>DAY</th>
<th>INJURY [N=1594]</th>
<th>ILLNESS [N=1828]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>135</td>
<td>260</td>
</tr>
<tr>
<td>2</td>
<td>118</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>113</td>
<td>138</td>
</tr>
<tr>
<td>4</td>
<td>135</td>
<td>151</td>
</tr>
<tr>
<td>5</td>
<td>173</td>
<td>169</td>
</tr>
<tr>
<td>6</td>
<td>123</td>
<td>135</td>
</tr>
<tr>
<td>7</td>
<td>141</td>
<td>184</td>
</tr>
<tr>
<td>8</td>
<td>98</td>
<td>111</td>
</tr>
<tr>
<td>9</td>
<td>105</td>
<td>90</td>
</tr>
<tr>
<td>10</td>
<td>118</td>
<td>125</td>
</tr>
<tr>
<td>11</td>
<td>85</td>
<td>76</td>
</tr>
<tr>
<td>12</td>
<td>103</td>
<td>99</td>
</tr>
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<td>13</td>
<td>66</td>
<td>58</td>
</tr>
<tr>
<td>14</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>&gt;14</td>
<td>41</td>
<td>40</td>
</tr>
</tbody>
</table>

(no info=209)  (no info =348)  FIGURE 14
EVACUATIONS 1987-1992
CASES OF ILLNESS ON DAY ONE

DIGESTIVE
MUSC\SKELETAL
RESPIRATORY
NERVOUS
MENTAL
CARDIOVASCULAR
SKIN\SUBCUTANEOUS
GENITO-URINARY
INFECTIOUS\PARASITIC
MISCELLANEOUS\VAGUE

FIGURE 14a
EVACUATIONS 1987 - 92
EVACUATIONS ON DAY ONE OF TOUR (ILLNESS)

FIGURE 14b
15. Frequency of medical consultation.

In 3829 evacuations data were available as to whether any consultation took place between the offshore medic and a medical officer. In such cases the medical officer sanctions the evacuation, otherwise the responsibility rests with the medic.

Figure 15 shows the frequency for this data analysed by mode of flight over the five year period. Overall, there is seen to be a higher proportion of evacuations by the unscheduled mode of transport which were not the subject of consultation.

The proportions of evacuations entailing consultation have varied over the course of the study period 1987-1992. The trends, according to the mode of transport for this period are presented in figure 15a. These figures suggest a rise in the number of consultations for routine flights, but no discernible pattern for unscheduled flights.

It is desirable practice that evacuations are undertaken with the knowledge and authority of a Medical Officer. It has been suggested that changing company practices in the light of the annual reports may have caused the observed variation.
EVACUATIONS 1987-92
FREQUENCY OF MEDICAL CONSULTATION

ROUTINE
N=3522 (no info 55)

CONSULTATION 82% 2999
NO CONSULTATION 18% 623

CONSULTATION 87% 267

CONSULTATION 13% 40
NO CONSULTATION

UNSCHEDULED
N= 307 (no info 3)

FIGURE 15
EVACUATIONS 1987-1992
Frequency of medical consultation (trend)

% of evacs with prior consultation

unscheduled

routine

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine</td>
<td>71.9</td>
<td>78.9</td>
<td>93.9</td>
<td>86.1</td>
<td>89.2</td>
</tr>
<tr>
<td>Unscheduled</td>
<td>78.1</td>
<td>92.9</td>
<td>91.8</td>
<td>89.8</td>
<td>84.1</td>
</tr>
</tbody>
</table>

FIGURE 15a
16. Provision of escort

Figure 16 shows the provision of escort for patients evacuated using both routine and unscheduled flights for the overall period of the study.

Over this five year period, 9% of those on routine flights and 60% on unscheduled flights were escorted.

Figure 16a presents the annual relative frequency and trend for escorted evacuations. The proportions of escorted evacuations using scheduled flights have remained relatively constant, between 8% and 11%.

The proportion of those using unscheduled flights however, has fluctuated between 37% and 76%.

The greatest variation, a rise of 39% occurred between the first and second years of the study. This may be attributed to the influence of the first year results of the study itself. In the course of the last four years, the maximum degree of fluctuation for this mode of transport has been 18%.
EVACUATIONS 1987-92
PROVISION OF ESCORT

ROUTINE
N=3516 (no info 64)

UNSC SCHEDULED
N=306 (no info 4)

FIGURE 16
EVACUATIONS 1987-1992
Provision of escort (trend)
17. Qualification of escort

Categories of escort qualifications for both modes of transport are shown in figure 17.

For reported evacuations using routine flights, data were available in 285 (92%) cases. Combined data for the five year period show the majority of cases were escorted by lay personnel with either First Aid (40%), or Advanced First Aid (AFA) (28%) qualifications. In 11% of cases for which data were available, the escort was reported as possessing no qualification.

The majority of evacuees by unscheduled flights was escorted by someone with an AFA qualification, the remaining 71% was shared approximately equally between doctors, nurses or First Aiders. Only 4% (6 cases) was escorted by someone reportedly unqualified.

Over the course of the study the proportions of evacuations escorted by the different categories have altered.

The changes in the consortium membership have brought to bear different policies on the subject of escort qualification. This is apparent in the switch of emphasis from First Aiders to Advanced First Aiders during the final year of the study as shown in figure 17a.
Qualification of escort (continued)

However, if the data on escort qualifications are combined into the following three categories:

- No qualification
- Medical or Nursing qualification
- First Aid or Advanced First Aid

a trend emerges as in figure 17b which suggests a reduction in those escorts with no qualification, and increasing use of a suitably qualified escort.

The greatest change occurred in the proportions of unqualified escorts between the first and second years of the study, when a reduction of 13% was reported. This could be attributed to the influence of the results from the first year of the study on medical policies of consortium members.
EVACUATIONS 1987-92
QUALIFICATION OF ESCORT

ROUTINE
N=285 (no info=26)

- FIRST AID 40%
- DOCTOR 4%
- RGN 16%
- TRAINED ESCORT 28%
- NONE 11%

UNSCHEDULED
N=168 (no info=15)

- FIRST AID 23%
- RGN 23%
- DOCTOR 22%
- TRAINED ESCORT 29%
- NONE 4%

FIGURE 17
EVACUATIONS 1987-1992
Qualification of escort

% of evacs with escort

Year of study


FIGURE 17a
EVACUATIONS 1987-1992
Qualification of escort (trend)
(First Aid & Escorts combined)

% of evac with escort

Year of study

FA/AFA
MO/NURSE
NO QUALIFICATIONS

FIGURE 17b
18. Onshore disposal

Figure 18 shows the data for onshore disposal of evacuees according to mode of transport for the combined five years of the study.

For routine evacuations, these data were available in 3191 cases (89%), and showed that the majority (39%) were referred to medical agencies or Company Medical Officers. Thirty-two percent went straight to hospital (including Accident and Emergency Department). Nineteen percent were referred to their general practitioner. Only one percent were reported as going directly home without any form of medical assessment.

For unscheduled flights, 78% of the cases for which information was available were referred to hospital.

In many cases onshore disposal is determined as much by individual company medical policy as by medical needs. The changes in consortium membership may have contributed to the wide variation of disposal demonstrated in figure 18a.
EVACUATIONS 1987-92
ONSHORE DISPOSAL

UN SCHEDULED

HOME 1%
G.P. 5%
CO. DOC./AGENCY 13%
DENTIST 3%
HOSP 76%

N = 284 (no info=26)

ROUTINE

COMPANY DOC./AGENCY 39%
G.P. 19%
DENTIST 9%
HOSP. 32%
HOME 1%

N = 3191 (no info=389)
EVACUATIONS 1987-1992
Onshore disposal

% of evacs

Year of study


Dentist  Company Doc/ Agency  GP  Home  Hosp/A&E

FIGURE 18a
Discussion and Conclusion

Individual items of note have been discussed in the relevant section of the results.

The major aim of the study, which was to establish a database of incidents of illness and injury has been achieved. A single database has been created which now contains all 3,979 records of medical evacuations covering the period from September 1987 to August 1992. This database constitutes a unique source of reference for Health Care and Safety professionals who are involved in the provision of medical services to the offshore oil and gas producing industry.

Throughout the five years of the study period annual reports have been produced for participating members of the consortium. These reports contain an analysis of the reported evacuations of each company, as well as the combined data for that year.

It is possible that some of the observed variations in patterns of evacuations over the five year period of the study may be attributable to changes initiated as a result of the findings of these annual reports.

The prominence of dental problems as a reason for evacuation is an example of the relevance of the study to increasing safety and efficiency in the industry. The pattern of dental problems forming a substantial proportion of routine evacuations in every data collection year was confirmed by this research. These cases also represent a problem which is, in part, preventable and has been addressed by the recent introduction of certification for dental fitness for the offshore workforce.
Within the next three years the effect of the revised UKOOA guidelines on medical and dental fitness for offshore work should be demonstrable.

Further examples of patterns which have emerged in the findings of the study include:

- the prevalence of back and spinal conditions requiring evacuation.
- the high incidence of finger and hand injuries.
- the number of evacuations taking place for medical reasons on the first day or very early in the scheduled tour of duty.

Given the evolutionary nature of the industry, the workforce and the working practices, it is desirable that the pattern of medical events requiring evacuation continues to be monitored. Examples of such changing practices are the growing number of female offshore workers, and the elusive answer to the question of the effects of an ageing workforce.

Contrasted with the value of the study must be noted the difficulties of coordinating such a data collection exercise, and the resulting limitation of some of these results.

In particular, the voluntary nature of the study has meant reliance on the cooperation of companies and their rig medics to provide accurate data and avoid selective or under-reporting.
Another area highlighted by this study is the need to establish a reliable system of accurately monitoring the offshore population and its demographic profile. Such data would complement and enhance the value of this and other research. Increasing computerisation of personnel movements in the North Sea makes such a system eminently feasible, but collection and collation of these data requires willingness and resources.

Over the course of the five years the membership of the consortium of participating companies has changed, but the overall value of the exercise has been acknowledged and support for a continuation of the study has been obtained.

Building on experience gained in data collection and database management, the continuing research utilises the fourth digit of the ICD-9 codes in coding the reason for evacuation, thus allowing more detailed analysis. Evacuations are also attributed to specific offshore installations as well as companies, and already this has enabled an increase of crucial feedback between the rig medics and the research team. In addition to providing a system of quality assurance for the data, this feedback also encourages follow-up of the evacuee by the medics and may help to enhance their professional fulfilment.

The data collection form has been greatly simplified and designed to be more appealing to the rig medics, whilst at the same time providing the necessary information. An example of the new form is presented in Appendix 5.
The offshore oil and gas industry represents a unique working environment whose influence on workers' lifestyle is more pronounced than in any comparable onshore industry. The effects of such a lifestyle on the health, and in particular the cardio-vascular health, of the workforce is the subject of much speculation. The influence of the offshore lifestyle is likely to reveal itself in the long term rather than over a short period. Data from the present study, although of value, are inconclusive.

The continuing study, by encouraging offshore medics to follow up their patients, will permit a more clear analysis of this aspect of the offshore workforce.

In conclusion, it may be stated that this research was essentially descriptive. Some resulting limitation in scope and loss of sensitivity of results are reflected in the findings. More detailed analysis was hampered by the difficulties encountered in tracing authoritative baseline data relating to the offshore population.

However, it would appear to be to the advantage of all companies and training establishments involved in the offshore oil and gas extractive industry to support the continuation, and possibly the extension of research into this field as an additional measure in the protection of the health and safety of the workforce.

Recommendations based on the findings of such research allow changes to the industry's medical or training standards to be appropriately targeted. Also the effectiveness of any such initiatives can be monitored during the continuation of the research project.
The following summarises the recommendations of this study:

♦ That the established system of reporting and analysing medical evacuations from offshore installations be continued. Also that the number of companies contributing data be extended.

♦ That further qualitative analysis of the collected data be made and to relate this to the demographic profile of the population at risk and to evaluate the validity of trends suggested in this report.

♦ To establish a system of collecting baseline data on the demographic profile of the offshore workforce to increase the validity of this and future monitoring exercises.

It is believed that this study will have contributed to current knowledge and understanding of the ways in which the task of creating a safer and healthier working environment might be achieved.

It is hoped that the experience gained to date will continue to be profitably used.
References


Appendix 1

Data collection form
<table>
<thead>
<tr>
<th>STUDY OF MEDICAL EVACUATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.G.I.T. Survival Centre Ltd</td>
</tr>
<tr>
<td>338 King Street, ABERDEEN AB9 3BJ</td>
</tr>
<tr>
<td>0224 639579  Telex 735212 RGITOS G</td>
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<table>
<thead>
<tr>
<th>1 INSTALLATION</th>
<th>2 OPERATOR</th>
<th>3 DATE</th>
<th>4 TIME</th>
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<table>
<thead>
<tr>
<th>5 PATIENT’S SURNAME</th>
<th>6 FIRST NAME (S)</th>
<th>7 DATE OF BIRTH</th>
<th>8 PATIENT’S OCCUPATION</th>
<th>9 YEARS IN OCCUPATION</th>
<th>10 EMPLOYER</th>
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<thead>
<tr>
<th>11 OFFSHORE EXPERIENCE</th>
<th>12 YEAR OF LAST FULL MEDICAL</th>
<th>13 DONE BY</th>
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<tbody>
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<thead>
<tr>
<th>14 PREVIOUS EVACUATIONS FROM ANY INSTALLATION IN U.K. CONTINENTAL SHELF</th>
<th>YES</th>
<th>NO</th>
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<th>MONTH</th>
<th>YEAR</th>
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<thead>
<tr>
<th>16 NATURE</th>
<th>17 WORKING DIAGNOSIS</th>
<th>18 LOCATION ON INSTALLATION AT TIME OF ONSET</th>
<th>19 DATE ONSET</th>
<th>20 TIME ONSET</th>
<th>21 DATE FIRST REPORTED TO MEDIC</th>
<th>22 TIME FIRST REPORTED TO MEDIC</th>
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<table>
<thead>
<tr>
<th>23 DUTY AT TIME OF ONSET OF INCIDENT</th>
<th>24 HOURS INTO SHIFT ON</th>
<th>25 HOURS INTO SHIFT OFF</th>
<th>26 DAYS INTO TOUR</th>
<th>27 FLIGHT ROUTINE</th>
<th>28 FLIGHT UNSCHEDULED</th>
<th>29 CONSULTATION WITH ONESHORE DOCTOR</th>
<th>30 CONSULTATION WITH OFFSHORE DOCTOR</th>
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<tr>
<th>31 MEDICATION USED</th>
<th>32 DOSE</th>
<th>33 ROUTE</th>
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<th>34 MEDICATIONS NAME</th>
<th>35 EMPLOYER</th>
<th>36 OFFSHORE EXPERIENCE</th>
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<thead>
<tr>
<th>37 MEDIC'S BASIC QUALIFICATIONS (tick as appropriate):</th>
<th>38 CASUALTY ESCORTED</th>
<th>39 STRETCHER USED ON AIRCRAFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ RGN □ SEN □ MILITARY □ OTHER, SPECIFY</td>
<td>YES</td>
<td>NO</td>
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<table>
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<tr>
<th>40 ESCORT'S OCCUPATION</th>
<th>41 FIRST-AID OR MEDICAL QUALIFICATIONS/TRAINING</th>
<th>42 ESCORT'S EMPLOYER</th>
</tr>
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<tr>
<th>43 INTENDED DESTINATION</th>
<th>44 INTENDED DISPOSAL ON LANDING</th>
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<tr>
<th>45 P.O.B.</th>
<th>46 PATIENT'S EMPLOYER'S P.O.B.</th>
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1. Top Copy to be sent to S. Gauld, Research & Development, R.G.I.T., Survival Centre Ltd, 338 King Street, Aberdeen AB9 3BJ
2. Second Copy to be sent to Operating Company
3. Medical Officer for comparison
4. Bottom Copy to be retained by Rig Medic.
Appendix 2

Guidance notes for completion of data collection form
GUIDANCE NOTES FOR COMPLETING FORM

PLEASE USE BALLPOINT PEN AND PRESS HEAVILY TO ENSURE GOOD COPIES

1. Please complete one set of forms (sections A to E) for each medical evacuation.

2. Separate the top set of three forms from the remaining supply by inserting a piece of card, to ensure information is not copied through.

3. Each set of forms is self carbonated. Please use a ball point pen to ensure good copies on all three forms. Retain the bottom copy for your future reference. A copy of Section F which the Company Medical Officer completes will be returned to you for information.

A1 Name of the installation or ship from which the patient was evacuated.

A2 Name of the operator of the installation or ship from which the patient was evacuated.

A3 Day, month, year, eg, 14/09/87.

A4 Use 24 hour clock.

A5 Patient's surname.

A6 Maximum of two first names.

A7 Day, month, year eg 03/04/56.

A8 Patient's Occupation.

A9 Number of years in occupation irrespective of whether onshore or offshore.

A10 Name of the direct employer of the patient, which in most instances will be a contracting firm.

B11 Number of years offshore irrespective of occupation.

B12 State year in which last medical was carried out.

B13 Was the last full medical carried out by own GP, company doctor, Aberdeen Industrial Doctors, Offshore Medical Support, North Sea Medical Centre, Marine Medical Services, etc?

B14 Has the patient ever previously been returned onshore from this or any other installation for any medical reason before end of normal tour of duty. Delete inappropriate answer.
If previous medical evacuation has taken place for this patient please give brief description of reason with month and year if possible.

Indicate whether nature of the current incident is illness or injury.

State a working/provisional diagnosis, if possible.

State the location of the patient at the time of onset, eg, drill floor, cabin, dining room. Please state if this happened outwith the installation, eg barge, supply ship, standby vessel, etc.

Date and time of onset of incident, ie when patient first felt unwell, or time of accident. Day, month, year, eg, 09/02/87. Use 24 hour clock.

Date and time incident first reported to rig medic. Day, month, year, eg, 21/01/87. Use 24 hour clock.

Please indicate whether patient was on duty or off duty at onset of incident.

For example, if the incident occurred when the patient was 8 hours into his normal 12 hour shift then the answer for this would read 8/12. Not applicable if patient was off duty.

If the incident occurred when the patient was 4 days into his normal tour of 14 days, then this would read 4/14.

Please indicate if a special flight had to be arranged to evacuate patient.

Please indicate if an onshore doctor was consulted prior to evacuation of patient.

For example, entry may read "Patient fell down stairs injuring his right leg, severe pain and swelling around knee joint. Limb immobilised using inflatable splint ...". Please be as comprehensive as space allows.

Please indicate name of medication, dosage and route of application, eg, orally, topical, intra-muscularly.

This refers to rig medic or first aider who attends the patient on the installation and who completes the form.

Name of the direct employer of the rig medic.
C32 Please state total offshore experience as a rig medic.

C33 One or more boxes may be indicated.

D34 Please specify medical authority for evacuation, eg name of doctor and designation.

D35 Please indicate if casualty was escorted ashore.

D36 Please indicate if stretcher was used during the evacuation journey.

D37 Please indicate routine occupation of escort, if applicable.

D38 Briefly indicate medical qualifications or training of escort, if any with year of last course where available.

D39 Please indicate direct employer of escort.

D40 Please state, eg, name of airport, hospital, helipad.

D41 This may be own GP, hospital casualty/out-patient department, company doctor, organisations such as Aberdeen Industrial Doctors, Offshore Medical Support, North Sea Medical Centre, Marine Medical Services, etc.

D42 Total personnel on board the installation.

D43 Total number of people onboard the installation from which the evacuation took place, that have the same direct employer as the patient, eg, Dinylin Drilling Company employees = 65 on board - Answer 65.
THIS SECTION IS TO BE COMPLETED ONSHORE BY THE OPERATOR'S MEDICAL REPRESENTATIVE THEN FORWARD TO CENTRE FOR OFFSHORE HEALTH

F44/45 Date and time of patient's arrival onshore. Day, month, year eg 22/02/87. Use 24 hour clock.

F46 For example, this may be Aberdeen Airport, Aberdeen Royal Infirmary Helipad, etc.

F47 More than one box may be used, where required.

F48 This may be own GP, company doctor, casualty department, etc.

F49 This section is to be completed when definitive diagnosis is made by the doctor.
Appendix 3

Patient information sheet
STUDY OF OFFSHORE EVACUATIONS

SUMMARY FOR SUBJECTS

On 1 September 1987, the Centre for Offshore Health (RGIT), in co-operation with several major offshore operators and the Department of Energy, began collecting information on every medical evacuation from the offshore installations of the participating companies. This information is analysed using a computer.

The aim of the study is to build up an overall picture of the pattern of illness and injury occurring offshore, and of the resources used in dealing with these. To date this information is not universally available, yet it is essential in planning the health care of the offshore population of the future.

The patient’s name and medic's name are requested on the form simply to identify the number of individuals involved in these incidents. The study, however, has no interest in any individual case or person. These names will not be entered onto the computer, and all the other information which is entered onto the computer will be in coded form in accordance with the Data Protection Act (1984). Only the Research Team members will be able to decode this information.

At RGIT Survival Centre (where the study is now co-ordinated) the information on the actual forms will only be seen by Medical Officers or Registered Nurses who are part of the Research Team, and medical confidentiality will be maintained at all times.

No-one apart from the relevant company medical representatives will have access to the information, and any reports issued by the Research Team will be of a general nature, and will not refer to any identifiable individual or case.

We appreciate the co-operation of all concerned, and will be pleased to answer any enquiries.

Offshore Medical Evacuation Study Team
RGIT Survival Centre
August 1992
Appendix 4

ICD-9 Chapters and mainheadings used in analysis
EVACUATIONS 1987-92. ILLNESS
CHAPTER & ICD-9 MAIN HEADINGS
CHAPTER: DIGESTIVE. Mainheadings:

Other diseases of respiratory system
Diseases of oral cavity, salivary glands and jaws
Diseases of oesophagus, stomach & duodenum
Appendicitis
Hernia of abdominal cavity
Noninfective enteritis and colitis
Other diseases of intestines and peritoneum
Other diseases of digestive system

CHAPTER: MUSCULOSKELTAL. Mainheadings:

Arthropathies and related disorders
Dorsopathies
Rheumatism, excluding the back
Osteopathy, chondropathy & acquired musculoskeletal deform.

CHAPTER: RESPIRATORY. Mainheadings:

Acute respiratory infections
Other diseases of upper respiratory tract
Pneumonia and influenza
Chronic obstructive pulmonary disease and allied conditions
Other diseases of respiratory system

CHAPTER: NERVOUS (including sense organs). Mainheadings:

Hereditary and degenerative diseases of the CNS
Other disorders of the central nervous system
Disorders of the peripheral nervous system
Disorders of the eye and adnexa
Diseases of the ear and mastoid process

CHAPTER: MENTAL. Mainheadings:

Organic psychotic conditions
Other psychoses
Neurotic disorders, personality disorders & other nonpsychotic mental disorders
CHAPTER: SKIN / SUBCUTANEOUS
Mainheadings:

Infections of skin and subcutaneous tissue
Other inflammatory conditions of skin & subcutaneous tissue
Other diseases of skin and subcutaneous tissue

CHAPTER: CARDIO-VASCULAR. Mainheadings:

Hypertensive disease
Ischaemic heart disease
Diseases of pulmonary circulation
Other forms of heart disease
Cerebrovascular disease
Diseases of veins & lymphatics, & other dis of circ. sys

CHAPTER: GENITO-URINARY. Mainheadings:

Nephritis, nephrotic syndrome and nephrosis
Other diseases of urinary system
Diseases of male genital organs
Inflammatory disease of female pelvic organs
Other disorders of female genital tract

CHAPTER: INFECTIOUS / PARASITIC. Mainheadings:

Intestinal infectious diseases
Tuberculosis
Other bacterial diseases
Polioymyelitis & other non-arthropod-borne viral dis. of CNS
Viral diseases accompanied by exanthem
Other diseases due to viruses and Chlamydiae
Rickettsioses and other arthropod-borne diseases
Syphilis and other venereal diseases
Mycoses
Helminthiases
Other infectious and parasitic diseases

CHAPTER: MISC / VAGUE. Mainheadings:

Malignant neoplasm of bone, connective tissue, skin & breast
Diseases of other endocrine glands
Other metabolic disorders and immunity disorders
Diseases of blood and blood-forming organs
Congenital Anomalies
Symptoms
Nonspecific abnormal findings
Ill-defined and unknown causes of morbidity and mortality

Appendix 4
EVACUATIONS 1987-92. INJURY
CHAPTER & ICD-9 MAIN HEADINGS

FRACTURES. Mainheading:

Fracture of skull
Fracture of spine and trunk
Fracture of lower limb
Fracture of upper limb

DISLOCATIONS. Mainheading:

Dislocation

SPRAINS & STRAINS. Mainheading:

Sprains and strains of joints and adjacent muscles

HEAD INJURY. Mainheading:

Intracranial injury, excluding those with skull fracture

CRUSH INJURY. Mainheading:

Internal injury of chest, abdomen and pelvis
Crushing injury

OPEN WOUNDS. Mainheading:

Open wound of head, neck and trunk
Open wound of upper limb
Open wound of lower limb

SUPERFICIAL. Mainheading:

Superficial injury
CONTUSIONS. Mainheading:
Contusion with intact skin surface

FOREIGN BODIES. Mainheading:
Effects of foreign body entering through orifice

BURNS (inc chemical). Mainheading:
Burns

MISC / VAGUE. Mainheading:
Injury to blood vessels
Late effect injury poisoning toxic effect & other ext cause Injury to nerves and spinal cord
Certain traumatic complications and unspecified injuries
Poisoning by drugs, medicaments and biological substances
Toxic effects of substance chiefly nonmedicinal as to source
Other and unspecified effects of external causes
Complication of surgical & medical care not elsewhere class.
Appendix 5

Revised data collection form used in continuing study
**GENERAL DETAILS**

1. INSTALLATION
2. OPERATOR
3. DATE

**PATIENT DETAILS**

4. PATIENT'S SURNAME
5. FIRST NAMES
6. AGE
7. SEX
   - Male
   - Female
8. PATIENT'S OCCUPATION
9. PATIENT'S EMPLOYER
   - Operator
   - Contractor
10. OFFSHORE EXPERIENCE (years)
11. YEARS SINCE LAST MEDICAL
   - < 1yr
   - 1-2yrs
   - 2-3yrs
   - > 3yrs
12. NATURE
    - Illness
    - Injury
13. AT TIME OF ACCIDENT
    - On Duty
    - Off Duty
    - Day Shift
    - Night Shift
14. WORKING DIAGNOSIS
15. IS THIS DIAGNOSIS CONFIRMED?
   - Yes
   - No

**ILLNESS / INJURY DETAILS**

**EVACUATION DETAILS**

17. TIME INTERVAL BTWN REPORTING TO MEDIC & LEAVING INSTALLATION
   - < 2hrs
   - 2-10hrs
   - 10-24hrs
   - 24-48hrs
   - > 48hrs
18. CONSULT WITH DOCTOR
   - Yes
   - No
19. DAYS INTO TOUR @ MEDEVAC
20. TYPE OF FLIGHT
    - Routine
    - "Dedicated"
21. STRETCHER USED
   - Yes
   - No
22. IV IN SITU
   - Yes
   - No
23. CASUALTY ESCORTED
   - Yes
   - No
24. ESCORT QUALIFICATION
    - None
    - Doctor
    - Nurse
    - First Aider
    - Advanced FA
25. INTENDED DISPOSAL
    - Dentist
    - Company Doctor
    - Home
    - Hospital
    - Medical Agency
    - G.P.
26. NAME
27. QUALIFICATIONS
    - RGN
    - SEN
    - MILITARY
    - OHNC(D)
28. OFFSHORE EXPERIENCE (yrs)

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1. Top Copy to be sent to BASMU, R.G.I.T. Survival Centre Ltd, 338 King Street, Aberdeen AB2 3BJ. (Shell Medics send to Shell Medical Centre, 338 King Street, Aberdeen AB2 3BJ).
2. Second Copy to be retained by rig medic.