

SICK LEAVE ABOARD – A ONE-YEAR DESCRIPTIVE STUDY AMONG CREW ON A PASSENGER SHIP

EILIF DAHL ¹

ABSTRACT

Objectives - To study crew sick leave aboard and medical sign-off during one year (2004) among crew on a passenger ship doing worldwide cruising.

Methods - Patient data were registered continuously during the year and reviewed afterward.

Results - There was an average of 612 crew members (22% women) aboard. There were 6,378 recorded crew visits (= 17.5 per day), 3,705 of which directly involved the doctor (= 10.2 per day). Four-hundred-and-fifty-one crew were on sick leave aboard for a total of 829 days. One-hundred-and-thirty-eight crew were isolated for a total of 268 days (= 32% of all sick leave) to prevent spreading of gastroenteritis. Among the 142 reported injuries, 77 (54%) led to sick leave on board for a total of 182.5 days (= 22% of all sick leave). Fifty-six crew were referred to dentists and 18 to medical specialists

¹ Prof.Dr Eilif Dahl, MD, MHA, PhD, Medical Consultant
Surgical Department, Rikshospitalet- Radiumhospitalet Health Enterprise,
0027, Oslo, Norway, Phone +47 22 56 23 24, Fax +47 22 56 31 12
E-mail: eilif.dahl@hotmail.com

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The author has worked part time for a number of cruise companies as an independent maritime medical consultant and as a ship surgeon

in port. Twenty-eight crew were medically signed off, 16 (57%) of them following injuries, and 7 (25%) for pre-existing conditions. Three crew were hospitalized in port prior to repatriation.

Conclusions - Crew consultation rates were high and sick leave rates low. Many factors aboard promoted sick presenteeism, minimized absenteeism, prevented malingering and reduced the length of sick leave. A substantial part of the sick leave was imposed by management and doctor, and if it was up to the crew, the number of sick leave days would have been even lower. The crew was eager to work, and their work morale was high.

INTRODUCTION

To ensure a healthy crew, the ships' flag states, insurance companies and owners demand that all seafarers pass a comprehensive pre-employment medical examination. When accidents and illness occur on passenger vessels, the ship's doctor determines whether the seafarer must be transferred to a medical facility ashore or can be treated aboard. In the latter case, the doctor decides the length of sick leave.

On land, sick absenteeism is primarily the employers' worry, while physicians are "to prevent illness, not sick absence" (1). Also at sea the doctor's main concern is the patient, but being part of the ship's management, the doctor has several, sometimes conflicting roles and must also keep the welfare of the passengers and fellow crew, the safety of the ship, and even the expected high quality of the cruise product in mind when deciding on a course of action. A new ship's doctor will quickly realize that the concept of sick leave is different at sea.

The purpose of this study is to describe crew sick leave and medical sign-off during a year on a passenger ship doing worldwide cruising. Based on the results, some factors that may contribute to temporary sick leave and to medical sign-off will be discussed. The findings may be of value for physicians considering cruise ship work, and might help to reduce sick absenteeism - and presenteeism - of the crew aboard.

MATERIALS AND METHODS

Ship, Itinerary and Medical Staff

The ship is a large, modern luxury cruise ship of Bahamian registry with a capacity of more than 1000 passenger and 650 crew. During the year it cruised worldwide, including transatlantic and transpacific crossings. Longest time at sea was 7 days.

There were two distinctly different patient groups onboard: The vacationing passengers and the working crew. All crew members had been subjected to standardized pre-employment examinations and were assigned an official crew number. All other persons aboard were considered passengers.

The medical center was equipped for performance of most simple diagnostic and therapeutic procedures and was staffed with one physician and two nurses. Five different doctors and 7 nurses, all Scandinavian, worked aboard during the year. All but one doctor and one nurse had previous shipboard experience. A nurse was always on-call. The doctor had separate office hours for passengers and crew twice every day and was on 24-hour call for emergencies at sea. Medical service for the crew was free.

Data Collection

Crew data were collected from the official lists of the cruise line.

Data were collected during a full year from 5 January 2004 to 5 January 2005 (365 days) during 27 complete cruises of 7-29 (mean: 13.5; median: 12) days duration. The following patient data were registered continuously in the medical center and reviewed after completion of the year: Number of crew consultations for illness or injury, divided in doctor and nurse consultations; number of vaccinations; number of crew off work; total number of sick leave days onboard, and number of crew signed off for medical reasons, number of injuries resulting in official accident reports, sex of the victim, type of injury and accident location; number of crew isolated for potentially contagious gastrointestinal illness (GI), number of isolated asymptomatic GI contacts - and total number of crew/days in isolation; number of crew monitored in wards onboard; number of crew referred to medical and dental specialists ashore; and number of shore-side crew hospitalizations.

A "reportable GI case" was defined according to Centers for Disease Control and Prevention (CDC) as 3 or more loose stools in 24 hours, or vomiting plus one other symptom (2). Reportable GI cases among passengers and crew and their asymptomatic contacts (room mates) were isolated according to an isolation program (3) based on the CDC Vessel Sanitation Program 2000 (2).

RESULTS

Crew Characteristics

The number of officers, staff and crew, from more than 50 nations, ranged from 561 to 655, with an average of 612 crew per day for the whole year.

Sex and age distribution was determined from the crew lists of the 4 longest cruises (January - May 2004). During that period, there was an average daily number of 615 crew aboard; 22% were women, with median age 28 (range: 21 – 54) years, and 78% men with median age 31 (range: 20 – 61) years.

Crew Consultations

The medical staff had a total of 6 378 crew consultations (= 17.5 per day; 123 per week) for illness or injury in the medical center or cabins, 3 705 (= 10.2 per day; 71 per week) of which directly involved the doctor. Among the 2 673 nurse consultations, 827 (31%) were connected with immunizations; most were against influenza, but also yellow fever, hepatitis A + B and tetanus vaccines were given. The nurse consultations also included testing for alcohol and drugs.

Sick Leave and Ward Observations Aboard

Four-hundred-and-fifty-one crew were on sick leave for a total of 829 (0.5-21) days. This means that each sick-listed crew was off work for an average of 1.84 days, while among 612 crew 2.27 (= 0.37%) were on the sick list per day, and each crew member was on average off work for 1.35 days a year.

Seven crew members were admitted to wards aboard: 2 acute appendicitis, 1 acute abdominal pain, 1 vertigo, 1 back injury, 1 acute kidney infection, and 1 chronic fatigue syndrome, triggered by a minor head injury.

Gastrointestinal Illness

One-hundred-and-thirty-eight crew (66 GI cases and 72 asymptomatic contacts) were isolated for a total of 268 days (= 32% of all sick leave). None of them were hospitalized or signed off because of medical problems.

Injuries (Tables 1, 2)

Among the 142 (37 women; 26%) reported injuries, 77 (54%) led to sick leave on board for a total of 182.5 days. This is equivalent to an average of 1.3 days of sick leave per reported injury, or 2.4 days per injury resulting in sick leave, or ½ day of sick leave a day due to injury. Hence, injuries accounted for 22% of all sick days aboard. One crew members was seen 18 times following a back injury before he was signed off due

to medical problems after 14 days of sick leave.

Table 1. Distribution of crew injury types and resulting days of sick leave aboard a passenger ship during one year of worldwide cruising, according to sex

Type of Injury	Women	No. of Days	Men	No. of Days	Total No of crew cases (%)	Total No. of Days (%)
Wounds	12	2	44	72	56 (39)	74 (41)
Contusions	16	23	27	34.5	43 (30)	57.5 (32)
Sprains + Strains	4	1,5	18	28.5	22 (16)	30,0 (16)
Burns	1	1	15	10	16 (11)	11 (6)
Fractures + Dislocations	4	10	1	0	5 (4)	10 (5)
Total	37	37,5	105	145	142 (100)	182.5 (100)

Table 2. Distribution of crew accident location on a passenger ship during one year of worldwide cruising, according to sex. Number of cases.

Accident Location	Women	Men	Crew	%
Galley	2	47	49	35
Cabin	16	7	23	16
Deck/Stairs/Gangway	3	11	14	10
Lounges/Casino	5	8	13	9
Corridor	3	6	9	6
Dining Room	1	7	8	6
Ashore	4	4	8	6
Engine Area	0	7	7	5
Pool/Gym	2	4	6	4
Tender (Life Boat)	1	1	2	1
Store/Office	0	2	2	1
Laundry	0	1	1	1
Total	37	105	142	100

The most common injury type was contusions in women and open wounds in men (Table 1). The average number of sick days was similar for the 3 most frequent types (=1.3 days).

The most frequent accident location for women were cabins (43%) and for men galleys (45%) (Table 2).

Referrals to Specialists in Port and at Home

Crew had 56 dentist consultations in port. Another 18 crew were sent to medical specialists in port, for radiology (n=6), second opinions (4 gynecologists, 3 dermatologists, 2 orthopedic surgeons) or expert treatment (2 laryngologists, 1 ophthalmologist) and returned to the ship afterward. Another 4 had blood samples sent for elective tests in port; in two for follow-up of pre-employment conditions, and 2 had skin tumors removed on the ship and sent for histology.

Seven of the 18 port referrals were due to back pain, and 4 of the 5 port referrals that were related to recent injury had back pain.

Among 11 crew referred to various medical specialists during scheduled vacation (3 orthopedic surgeons, 2 dermatologists; 2 gastroenterologists, 1 laryngologist, 1 plastic surgeon, 1 neurologist and 1 gynecologist), seven were referred for follow-up of conditions previously treated at home.

Hospitalizations Ashore, Medical Sign-Off and Repatriation

Twenty-eight crew were signed off for medical reasons and repatriated, but only three of them (crus fracture, coma/suspected intracerebral hemorrhage, perforated appendicitis) were first hospitalized in port. The other 25 were referred to orthopedic surgeons (n=15), neurologists (n=2), general surgeons (n=2), psychiatrist, endocrinologist, laryngologist, dermatologist, urologist, and gynecologist (1 of each). Seven (25%) were signed off for (aggravations of) pre-existing conditions

Of the 28 repatriations, 16 were injury-related, 9 were caused by back pain.

There were no emergency evacuations of crew while the ship was at sea.

DISCUSSION AND CONCLUSION

Sickness absence adversely influences planning and production. In welfare states, sick leave rates tend to be particularly high. The 2004 sick leave rate was 7.1% in Norway, of which about one third exceeded 3 months (4). Hence, the low sickness rate found in the present study, about 2 of 612 crew on sick leave per day, would be envied by most land-based companies.

However, conditions on ships under flags of convenience can hardly be compared to conditions in Norway where self-certified sickness absence for up to three days is a lawful right, and employees are ensured full pay during sick leave (1).

The number of doctor visits of the present study might seem high, especially when considering that the population was primarily healthy and young. The consultation rate on board was high compared to estimated numbers from ships doing shorter cruises (5),

but similar to previous reports from around-the-world voyages (6,7). Easy access (in-house medical center, short distances, and an open-door policy) encouraged drop-in visits, which facilitated early intervention ('nip problems in the bud'). Frequent follow-ups allowed the doctor to make prompt treatment adjustments as well as get the patient off the sick list earlier, an appreciated effect of more frequent doctor visits also seen in land-based studies (8). However, in the present study follow-up was more extreme: As a rule, most sick-listed crew was seen twice a day, every morning and afternoon, which reduced the length of sick leave, but consequently increased the number of consultations as well.

A high number of consultations, particularly by the nurses, was caused by preventive issues, but the study design allows only speculations about their effect on the sick leave rate. Besides, improved individual health was only intended as an extra benefit from some of them: Yellow fever vaccination of all crew (and passengers) is a condition for the ship to land in some ports, and influenza vaccination is offered every year to all crew also to reduce the risk of exposure for old and frail passengers from unvaccinated employees. The effect on sick days remains unknown, but the goal of 85% of the crew vaccinated against influenza was quickly reached and maintained during the studied year. Although respiratory infections are common among crew on cruise ships (5,6,7), no crew with respiratory symptoms and fever tested positive for influenza A or B.

Occupational health physicians argue that, apart from influenza vaccination, it is difficult to think of preventive health measures that can significantly decrease production loss (1). However, the medical center was involved with some other primarily prophylactic programs that increased the number of consultations, such as programs for alcohol and drug testing, isolation of potentially contagious crew, and accident reporting and follow-up. These programs may all have directly or indirectly decreased sick leave:

1. Pre-employment forewarning about alcohol and drug testing aboard and mandatory testing at sign-on and later at random and for cause may have kept problem cases off the ship and prevented (mis-)use, as intoxicated accident victims were seldom seen.

2. Prompt week-long isolation of the only crew member with varicella may have prevented further cases.

3. To prevent outbreaks of gastroenteritis, all reportable GI cases were isolated, regular crew for 48 hours and food handlers for 72 after the last GI symptoms, while their asymptomatic contacts were isolated separately for 24 hours. The program certainly influenced absenteeism: the sick leave rate of the present series was twice as high as the sick leave rate on a similar ship during an around-the-world cruise in 1997 (7), before the CDC Vessel Sanitation Program 2000 was implemented. And as

enforced isolation was responsible for 32% of all sick days in the present series, the isolation policy explains most of the increase in number of sick days of the present series. Thus, paradoxically, measures partly aimed at reduction of the sick leave rate in fact increased it. Gastroenteritis aboard can be disastrous for the ships involved (3), and if the isolation policy prevented only one outbreak, the extra sick days were well worth it. On the other hand, CDC have recently revised their GI policy and now recommend isolation of only 48 hours for food handlers, 24 hours for regular crew, and no isolation for asymptomatic contacts (9). By following the new rules sick leave can be significantly reduced in the future.

4. Injuries are in theory preventable, and many flag states investigate reported injuries to identify risk factors. The masters of all Danish flag ships have a statutory duty to notify the Danish Maritime Authorities of all personal injuries aboard leading to incapacity of more than one day beyond the day of the accident, but considerable underreporting has been demonstrated, even of fatalities and disability cases (10). Contrary to national registers, injuries were over-reported aboard in the present series. Reported as part of a proactive safety culture by the physician working and living on board, most registered injuries did not fulfill the statutory criterion for notification, but all were investigated to prevent recurrence.

In agreement with studies from national registers (10), most tasks causing accidents were routine work often performed on board. The distribution of injury types reflected the common work areas for the sexes. The most typical injury in women was a finger crushed in a cabin door and in men a wound sustained while handling sharp galley utensils. Galley accidents will in many cases make the victim temporarily unfit for food handling, but seldom cause permanent disability (10). Actually, crew with minor, but potentially contagious wounds were routinely brought to the medical center by their supervisors for treatment and temporary sick leave, and crew with innocent but annoying illness symptoms (runny nose, sneezing, coughing) were referred to be sick-listed until symptom relief, thus increasing the number of doctor visits and sick leave days.

On the other hand, there were many 'incentives' to shorten sick leave, like economy (loss of overtime and tips), boredom (forced cabin stay except for meals, no shore leave), negative attitudes (social pressures from coworkers and superiors), as well as a strong feeling of loyalty and responsibility.

Moreover, these are factors that promote sickness presenteeism, the phenomenon of working through illness (11). Considerable work presence is particularly seen in people who feel responsible for patients, students, clients, where colleagues will suffer when one is absent, and where it is difficult to get replacements (1,11), all typical for a ship cruising worldwide.

Dew et al (11) explored factors contributing to presenteeism in 3 different work settings in New Zealand: a private hospital, a public hospital, and a small manufacturing company, and metaphorically labeled the three typologies of presenteeism 'sanctuary', 'battleground' and 'ghetto'. Conditions aboard would mostly resemble 'sanctuary': emphasis on team work, a sense of making important contributions, and a 'family relationship' with informal support and caring for colleagues provide a powerful motivation for presenteeism, while strong institutionalized processes inhibit some forms of it (11). But also characteristics from 'battleground' and 'ghetto' were recognizable, like performance pressure from above and poor separation of work and private life due to the dominance of work. Whether shipboard conditions were viewed more as 'sanctuary' or 'ghetto' would differ by class and position in the social structure, like motivation for working at sea differed, from utility crew ('I must support my family') to dancers (strong personal ambitions; 'we are not looking for performers who want to dance, but those who have to dance!').

Malingering, a major concern of employers and their insurers (1), is counteracted by the factors promoting presenteeism and rarely encountered in crew who want to keep their jobs. Since all crew live onboard, and workplace and home environment are intertwined, coworkers, superior officers, and medical staff observe the activities and behavior of sick-listed crew more or less around the clock. And because fellow crew, often a cabin mate, must do the extra work, both feelings of loyalty to (and disapproval from) ship mates discourage malingering and instead promote presenteeism.

But if a crew is unhappy on board and wants to go home, the loyalty is gone. If he or she is able to convince the doctor of a medical reason for sign-off, repatriation may be instant and free. If, on the other hand, the crew acts correctly and resigns, he or she will have to endure the notice period, pay his own fare home and have no support while looking for another job. Consequently, the system provides an incentive for malingering in unfit and discontented crew who want to leave. The doctor-patient relationship is based on trust, and it is in practice almost impossible to make a patient work if he feels – or claims to be - unable to perform, even when there are no clinical signs.

In this study no obvious fake sign-offs were proven, but a few crew with lingering back and knee pains after relatively minor accidents were suspected of aggravating their symptoms ('compensation neurosis') (11). Some of the port referrals for radiology (CT, MRI) and 'second opinion' were requested by the doctor to get more objective reasons for a costly sign-off, whereas others were simply done to verify diagnoses, get treatment recommendations, or simply reassure the patient. Yet, logistics contributed to keep the number of specialist referrals in port relatively low: It was difficult to get complex work-ups done in unfamiliar ports during short port visits, especially ones that involved

more than one specialist or exam, and many ports visited during worldwide cruising have medical facilities inferior to those of the vessel (7).

All crew had been subjected to a pre-employment examination with strict exclusion criteria. The frequent dentist referrals in port and the fact that 64% of referrals to specialists at home and 25% of medical sign-offs were due to pre-existing conditions suggest that not all pre-boarding investigations had been up to the expected standard..

One dentist referral a week may not seem like much, but represents a lot of individual misery. Dental emergencies cause much work for the medical staff, for port agents and for the suffering crew and further reduce sparse leisure time in port for latter. The patient may be treated by over-priced dentists of unknown quality. Traditionally, the ship's insurance only covers dental injuries and extractions. Some crew from low cost countries therefore felt that they could not afford simple, but for them expensive repair and instead chose to sacrifice salvageable teeth. Doctors performing pre-employment medical examinations in seafarers should not take the dental assessment lightly and are urged to ensure that necessary dental repairs have been done prior to sign-on.

More conscientious examinations and better knowledge of contraindication and working conditions at sea could also have prevented a number of sign-offs. A few, very conscientious crew were sent back to sea prematurely after medical sign-off, no doubt because they had been pushing doctors and company for an early return. Others, clearly unfit for their job aboard and signed off for musculoskeletal conditions, returned because their doctor at home declared them fit for duty after a resting period. It should surprise no one that they soon had to be repatriated again after resuming the work that had previously triggered their symptoms.

Return after injury, however, was a different matter. Most injuries were minor, and the victims were expected to fully recover within a short time. Two scenarios were seen: When in a sparsely manned department a replacement was needed quickly, the injured crew was promptly signed off due to medical problems to recover at home. In contrast, when a replacement was not readily available, which was not unusual in remote areas, a longer sick leave period on board was granted if recovery was anticipated within that time. Thus some expensive sign-offs were avoided by increasing the number of sick days aboard. Nevertheless, in a few cases the prolonged sick leave and treatment aboard were insufficient, and eventually sign-off became necessary. Such delays meant more work for the medical staff – and more sick days aboard, but the extra convalescence made repatriation safer and easier and did not in any case adversely affect the patient.

A highly motivated stewardess accumulated the highest number of sick days. After repeated attempts of getting back to full-time work after a virus infection, she was signed off for chronic fatigue syndrome.

In conclusion, a healthy and well-motivated crew is essential for the safety of the ship and high quality of the cruise product. Fit for work on land does not necessarily mean fit for sea duty. More conscientious pre- and re-employment evaluation and better knowledge of contraindications and working conditions at sea can decrease problematic and costly medical sign-off. Examining physicians can also prevent agony, inconvenient emergency referrals and expenses for individual crew by insisting on dental repair prior to sign-on.

Many factors aboard promote sickness presenteeism and reduce absenteeism, including a high consultation rate, caused by the easy access of the medical center, close follow-up and extensive preventive programs. These factors discourage malingering, which may, however, be tempting for unfit and discontented crew looking for easy repatriation.

The ship's doctor's main concern is the patient, but at the same time safety of the ship and its entire population must be considered. Protective measures, like enforced work absence and isolation of potentially contagious crew, must be imposed by the management and doctor to inhibit some forms of presenteeism.

As pointed out by others (1), a low sick leave rate may not be a good indicator for a healthy work environment, but the high consultation rate and low sick leave rate of the present study suggest that the crew was eager to work and that their work morale was high.

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