

Sea Term 2016

**Shipboard Emergency
Management**

Shipboard Emergency Management

■ Learning Objectives

- *OICNW-A5.1* Precautions for the protection and safety of passengers in emergency situations
- *PS-SR-X6.1* Importance of obtaining the necessary rest
- *PS-SR-X6.2* Effects of sleep, schedules, and the circadian rhythm on fatigue
- *PS-SR-X6.3* Effects of physical stressors on seafarers
- *PS-SR-X6.4* Effects of environmental stressors in and outside the ship and their impact on seafarers
- *PS-SR-X6.5* Effects of schedule changes on seafarer fatigue

Protection And Safety Of Passengers

- The key issues associated with large passenger vessels are:
 - *collision and grounding;*
 - *fire protection;*
 - *stability and watertight integrity;*
 - *life-saving appliances, including abandonment;*
 - *crew training.*

Prevention of Collision and Grounding

- While a significant hazard, construction of these vessels affords better protection than most other ship types.
- However, this raises significant issues concerning the quality and training and the adequacy of manning, both on the bridge and in the engine room.
- Such vessels are in essence small towns and as such need sufficient operational crew not only to meet routine operational requirements but also to be able to meet the demands associated with intensive operations.
- This requires adequate manning levels, not only to prevent fatigue but also to deal with routine and non-routine operation of the vessel, by responding to emergency situations.
- *Action: Campaign for adequate manning of bridge and engine room, including at least two officers on duty both on the bridge and engine room at all times while the vessel is at sea.*

Stability and Watertight Integrity

- The extrapolation of the rules of construction with respect to large passenger vessels has raised significant questions over their safety.
- In particular, vessels where vessels have been constructed with:
 - a shallow draft in order to improve port access
 - increased number of decks to provide leisure facilities including swimming pools, so reducing the GM.
- The effects of which need to be addressed, particularly in adverse weather conditions and when a vessel is turning.
- *Action: Campaign for the existing standards of the stability and watertight integrity to be maintained and where necessary increased.*

Fire Protection

- The increased size of compartments, including shopping malls and atriums, increases the potential for the spread of fire.
- While effective automated systems may reduce the risk of spread of fire, there is a need for consideration of compartmental size and the adequacy of current fire-fighting arrangements.
- *Action: Encourage research into existing fire protection systems and adequacy of current protection measures.*

Life-Saving Appliances and Abandonment

- Lifeboats have increased in size and mass evacuation systems have been developed to meet the increasing number of passengers carried.
- While regulatory requirements have been met, the adequacy of such systems has increasingly been questioned.
- While occasional reference has been made to innovative systems, i.e. escape modules; the lifeboat and life raft have remained unchanged as the main means of evacuation and survival.
- *Action: Encourage research into innovative systems for abandonment adequacy of existing evacuation systems and the compatibility of life-saving appliances and equipment.*

Crew Training (the human element)

- The structural change in the employment of crews on passenger vessels, largely from agencies resulting in casualization of labor, raises serious questions over the ability to fight fire and ensure an orderly evacuation of passengers.
- While a core crew in both deck and engine, including the officers, are trained to a high level, the bulk of the catering department receive minimalist training.
- Safety training is a fraction of the safety training received by aircraft cabin crew.
- *Action: Seek additional training requirements for all personnel on large passenger vessels.*

Importance Of Obtaining the Necessary Rest

- What Are Sleep Deprivation and Deficiency?
- Sleep deprivation is a condition that occurs if you don't get enough sleep. Sleep deficiency is a broader concept. It occurs if you have one or more of the following:
 - You don't get enough sleep (sleep deprivation)
 - You sleep at the wrong time of day (that is, you're out of sync with your body's natural clock)
 - You don't sleep well or get all of the different types of sleep that your body needs
 - You have a sleep disorder that prevents you from getting enough sleep or causes poor quality sleep

Importance Of Obtaining the Necessary Rest

- Sleeping is a basic human need, like eating, drinking, and breathing. Like these other needs, sleeping is a vital part of the foundation for good health and well-being throughout your lifetime.
- Sleep deficiency can lead to physical and mental health problems, injuries, loss of productivity, and even a greater risk of death.
- Sleep deficiency is linked to many chronic health problems, including heart disease, kidney disease, high blood pressure, diabetes, stroke, obesity, and depression.
- Sleep deficiency also is associated with an increased risk of injury
- A common myth is that people can learn to get by on little sleep with no negative effects

What Makes You Sleep?

- Many factors play a role in preparing your body to fall asleep and wake up. You have an internal "body clock" that controls when you're awake and when your body is ready for sleep.
- The body clock typically has a 24-hour repeating rhythm (called the circadian rhythm). Two processes interact to control this rhythm. The first is a pressure to sleep that builds with every hour that you're awake. This drive for sleep reaches a peak in the evening, when most people fall asleep.

Why Is Sleep Important?

- Sleep plays a vital role in good health and well-being throughout your life. Getting enough quality sleep at the right times can help protect your mental health, physical health, quality of life, and safety.
- The way you feel while you're awake depends in part on what happens while you're sleeping. During sleep, your body is working to support healthy brain function and maintain your physical health. In children and teens, sleep also helps support growth and development.
- The damage from sleep deficiency can occur in an instant (such as a car crash), or it can harm you over time. For example, ongoing sleep deficiency can raise your risk for some chronic health problems. It also can affect how well you think, react, work, learn, and get along with others.

How Much Sleep Is Enough?

- The amount of sleep you need each day will change over the course of your life. Although sleep needs vary from person to person, the chart below shows general recommendations for different age groups.

Age	Recommended Amount of Sleep
Newborns	16–18 hours a day
Preschool-aged children	11–12 hours a day
School-aged children	At least 10 hours a day
Teens	9–10 hours a day
Adults (including the elderly)	7–8 hours a day

Who Is at Risk for Sleep Deprivation and Deficiency?

- Sleep deficiency, which includes sleep deprivation, affects people of all ages, races, and ethnicities. Certain groups of people may be more likely to be sleep deficient. Examples include people who:
 - Have limited time available for sleep, such as caregivers or people working long hours or more than one job
 - Have schedules that conflict with their internal body clocks, such as shift workers, first responders, teens who have early school schedules, or people who must travel for work
 - Make lifestyle choices that prevent them from getting enough sleep, such as taking medicine to stay awake, abusing alcohol or drugs, or not leaving enough time for sleep
 - Have undiagnosed or untreated medical problems, such as stress, anxiety, or sleep disorders
 - Have medical conditions or take medicines that interfere with sleep

What Are the Signs and Symptoms of Problem Sleepiness?

- Sleep deficiency can cause you to feel very tired during the day. You may not feel refreshed and alert when you wake up. Sleep deficiency also can interfere with work, school, driving, and social functioning.
- Sleep deficiency can cause problems with learning, focusing, and reacting. You may have trouble making decisions, solving problems, remembering things, controlling your emotions and behavior, and coping with change. You may take longer to finish tasks, have a slower reaction time, and make more mistakes.

Strategies for Getting Enough Sleep

- You can take steps to improve your sleep habits. First, make sure that you allow yourself enough time to sleep. With enough sleep each night, you may find that you're happier and more productive during the day.
- Sleep often is the first thing that busy people squeeze out of their schedules. Making time to sleep will help you protect your health and well-being now and in the future.
- Napping during the day may provide a boost in alertness and performance. However, if you have trouble falling asleep at night, limit naps or take them earlier in the afternoon. Adults should nap for no more than 20 minutes.
- Naps are called “nooners” on Sea Term

Effects Of Sleep, Schedules, And The Circadian Rhythm On Fatigue

- Circadian rhythms are the natural daily rhythms that govern our daily lives. The circadian clock, located in the suprachiasmatic nucleus of the hypothalamus, regulates daily variations in numerous physiological processes such as sleep/wakefulness, temperature, and hormone release, as well as cognitive performance.
- Ordinarily the clock is synchronized to the 24-hr day by the daily alteration in light and darkness. Problems can arise because the circadian clock cannot adjust immediately to an abrupt change in the timing of the light/dark or sleep/wake schedule, as in shift work.
- When humans move to a new time zone or change their shift schedule (e.g., work at night and sleep during the day), the internal circadian clock can take from days to weeks to adapt physiologically to the new schedule.

Effects Of Physical Stressors On Seafarers

- Working on ships is not an easy task. Negligible social life, monotonous routines, and harsh working conditions are some of the many difficulties faced by seafarers on board ships.
- Leads to both physical and psychological stress.
- Shipping companies employ multinational crews, which brings along its own set of problems such as language barrier, group formation etc.
- All these factors along with the reducing number of crew members on board ships have been one of the main reasons for increase in physical and psychological stress on board ships.

Effects Of Physical Stressors On Seafarers

- Conflicts, politics, ego-clash etc. are bound to exist among crew members.
- These problems further results into a variety of physical and psychological problems among crew members.
- Some of the main ones are:
 - Lack of interest in work
 - Lack of motivation
 - Short temper
 - Careless mistakes while doing work
 - Tendency to take short cuts to finish work
 - Frustration
 - Lack of seriousness towards ones duties and on board safety
 - Tendency to blame juniors or colleagues for mistakes
 - Frequent absence from work place
 - Making professional mistakes

Effects Of Environmental Stressors on Seafarers

- Some of the main reasons and symptoms of physical and psychological stress on board ship are:
 - Lack of interest in work
 - Lack of motivation
 - Short temper
 - Careless mistakes while doing work
 - Tendency to take short cuts to finish work
 - Frustration
 - Lack of seriousness towards ones duties and on board safety
 - Tendency to blame juniors or colleagues for mistakes
 - Frequent absence from workplace
 - Making professional mistakes

Effects Of Environmental Stressors on Seafarers

- Main reasons that lead to environmental stressors are:
 - Shortage of manpower because of less crew members
 - Frequent calling at port (Duties at port require most physical efforts and long working hours)
 - Personal or family problems
 - Long working hours
 - Homesickness
 - Not being relieved on time by the company
 - Work pressure

Effects Of Environmental Stressors on Seafarers

- Main reasons that lead to environmental stressors are:
 - Unfriendly working environment
 - Differences of opinion/conflicts with colleagues
 - Unavailability of necessary provisions
 - Dissatisfied with company policy
 - Dissatisfied with quality of food
 - Rejected from promotion, salary or leave
 - Dissatisfied with facilities provided on board e.g. entertainment facilities

Effects Of Environmental Stressors on Seafarers

"The path to fight and manage the stress on board begins with the successful recognition of its existence. Without acknowledging the presence of the stressor, the expectation of a stress free working environment is useless."

Effects Of Schedule Changes On Seafarer Fatigue

- Seafarers are as likely as other workers to be exposed to work schedules and characteristics associated with fatigue.
- They are also, however, subject to industry-specific factors potentially linked to fatigue.
 - fast port turnarounds and
 - harsh environmental conditions,
 - with demanding (often split) shift systems,
 - regular sustained attention and physical exertion,
- Numerous anecdotal reports and evidence cite fatigue as a causal factor in accidents and impaired collision risk awareness.
- The impact of long periods of sustained attention and inadequate rest has been documented.

Effects Of Schedule Changes On Seafarer Fatigue

- Work stress, job demands, sleep quality and short tours of duty were associated with fatigue.
- Fatigue should be addressed by considering how multiple factors combine to cause fatigue.
- Fatigue among seafarers may also have longer term health consequences.