



## Leg, Foot, and Ankle Injuries

### INTRODUCTION

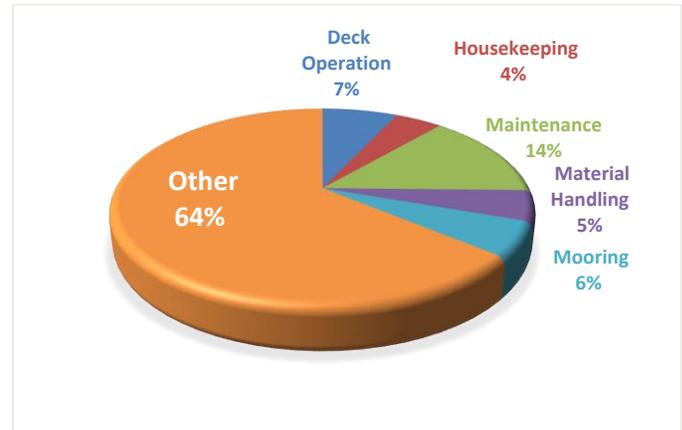
Workers in Offshore and Shipping industries experience many different types of hazards in the work environment, which lead to an increased chance of injury. Some of the contributing factors to injuries include; lack of situational awareness, poor equipment design, organizational factors, and misuse/absence of PPE. In order to prevent injuries it is important to understand how and why they happened in the first place. The Mariner Safety Research Initiative (MSRI) injury database categorizes injuries based on; body part injured, task being performed, type of injury, area of the vessel during injury, and the type of vessel. It is important to understand the circumstances under which the hazards are present to be able to prevent an unwanted outcome, such as an injury.

Approximately 50% of all injuries within the MSRI database affected the workers leg, foot and ankle or arm, hand, and fingers. The leg, foot and ankle categories represent a combined 22% of all reported injuries within MPS. Leg injuries occurred in 715 cases (8.5%), ankle in 419 cases (5%) and foot in 458 cases (5.4%). This report examines in more detail how to prevent leg, foot, and ankle injuries.

### LEG INJURIES

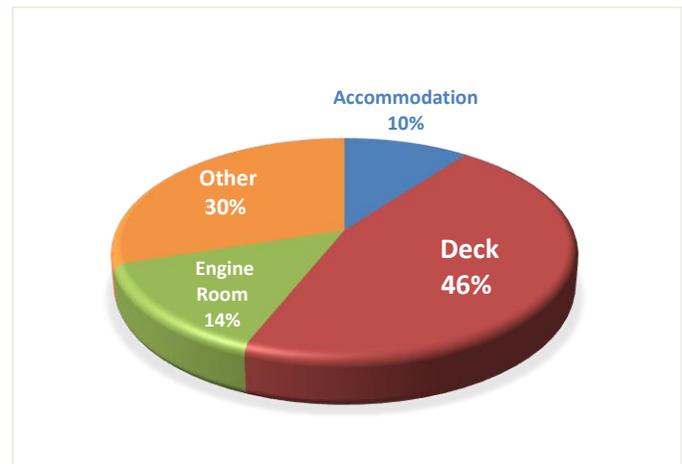
Leg injuries are categorized in MSRI into three categories: foot, ankle and leg. Each of these injuries show similar patterns on the location and circumstances during which they occur the most.

**Foot injuries** – include injuries distal to the ankle joint and include any hard or soft tissue injuries that often occur as a results of dropping/slipping objects (e.g. tools that get slipped from the workers hands) or hitting something that is already on the ground.



**Figure 1.** Foot Injuries Based on the Task Performed

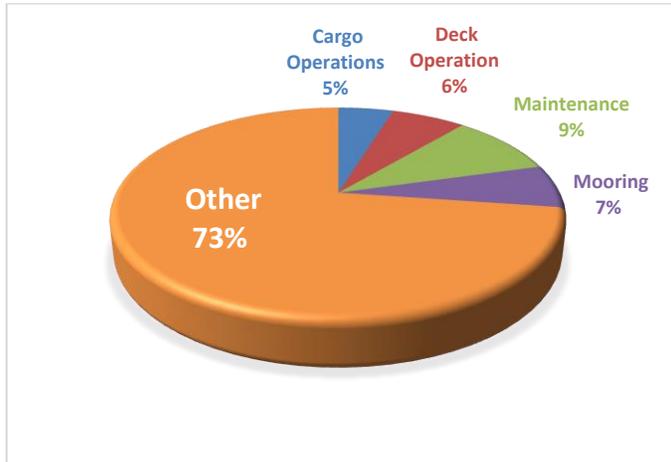
Analyzing the injury and near miss databases, it is clear that foot injuries most often occur during maintenance tasks, deck operation, mooring and material handling tasks (Figure 1). Furthermore, foot injuries more often occur in the deck area, engine room and accommodation area (Figure 2).



**Figure 2.** Foot Injuries Based on the Location

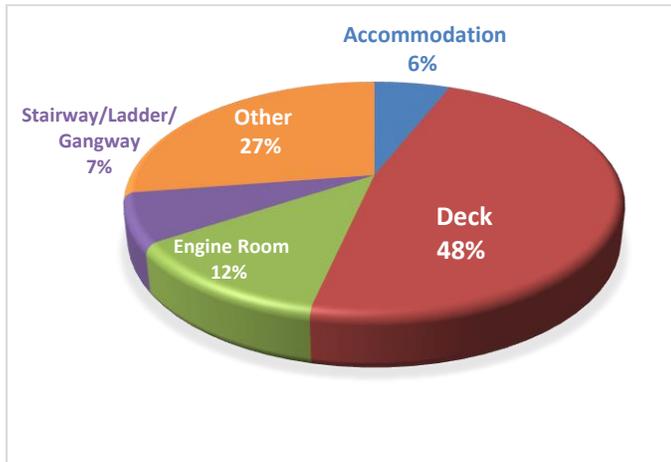


in connective and muscles tissue damage. Lack of situational awareness is one of the main factors that causes these type of injuries, where workers are often unaware of any objects on the floor or there is any change in elevation to the walking surface. Interestingly, ankle injuries often result during maintenance, mooring and deck operation tasks (Figure 3).



**Figure 3.** Ankle Injuries Based on the Task Performed

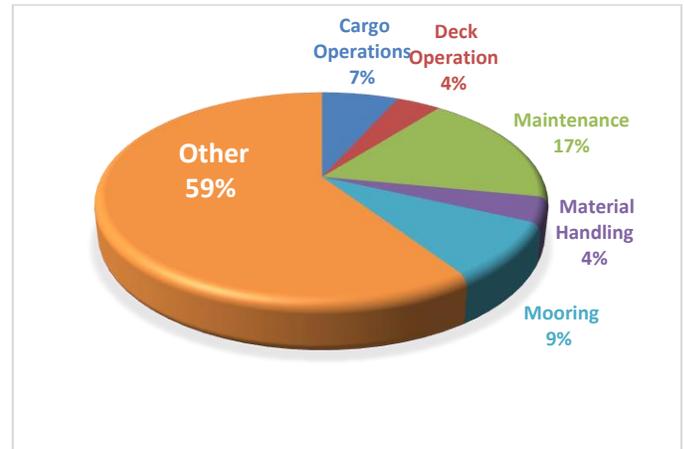
Furthermore, most of the ankle injuries occur on the deck, in the engine room and on the Stairway/Ladder/Gangway (Figure 4).



**Figure 4.** Ankle Injuries Based on the Location

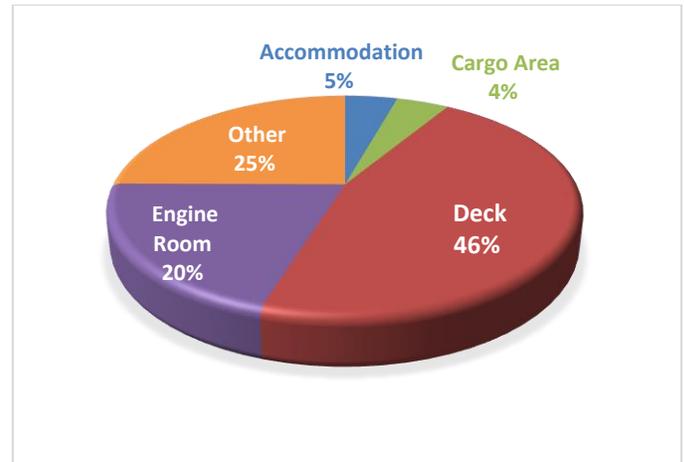
**Leg Injuries** – This includes injuries to the areas of the leg other than the foot and ankle. Most injuries occur at the knee joint, however burns and cuts to these areas are not uncommon. Similar to foot and ankle injuries, most of

the leg injuries occur during maintenance tasks, mooring and cargo operations (Figure 5).



**Figure 5.** Leg Injuries Based on the Task Performed

Interestingly, leg injuries occur in the similar areas on the vessel as ankle and foot injuries: deck, engine room, accommodation and cargo area (Figure 6).



**Figure 6.** Leg Injuries Based on the Location.

Studying the records within MSRI relating to leg, ankle and foot injuries it is possible to determine many behaviors and situations that lead to injuries to the lower extremity of the body. Table 1 provides several incident scenarios that are common among leg, ankle and foot injuries which have been paired with corrective actions and lessons learned to aid in the prevention of these types of injuries in the future.