

Sharing on WSH in Transport & Storage Sector



MINISTRY OF
MANPOWER

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6 July 2023



A Great Workforce A Great Workplace

Overview

- WSH Statistics
- Common Contraventions
- Case Studies & Lessons Learnt

Number and rate of workplace fatal injuries, 2015 - 2022

- 46 workers were fatally injured in 2022, which resulted in an increase of workplace fatal injury rate to 1.3 per 100,000 workers

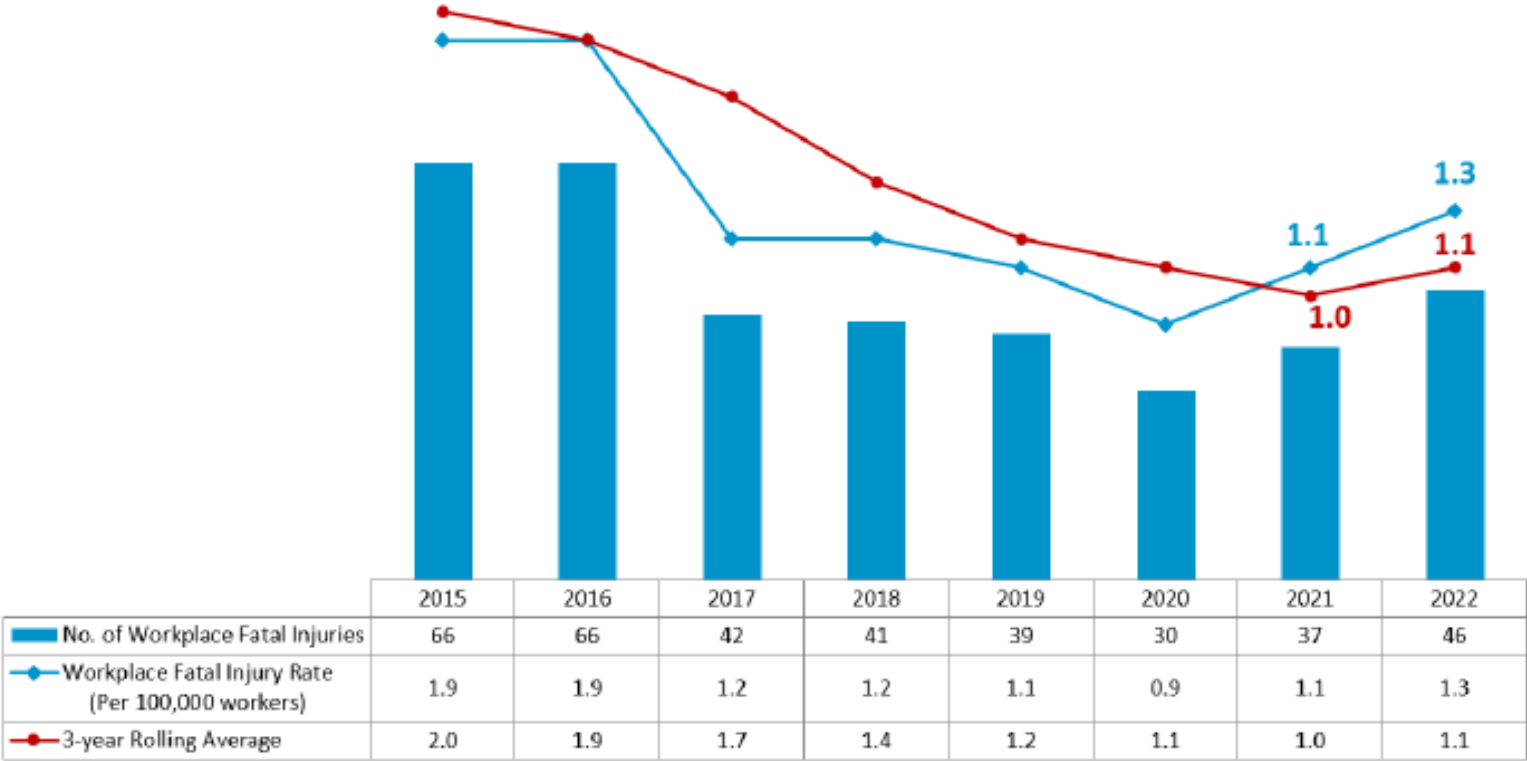
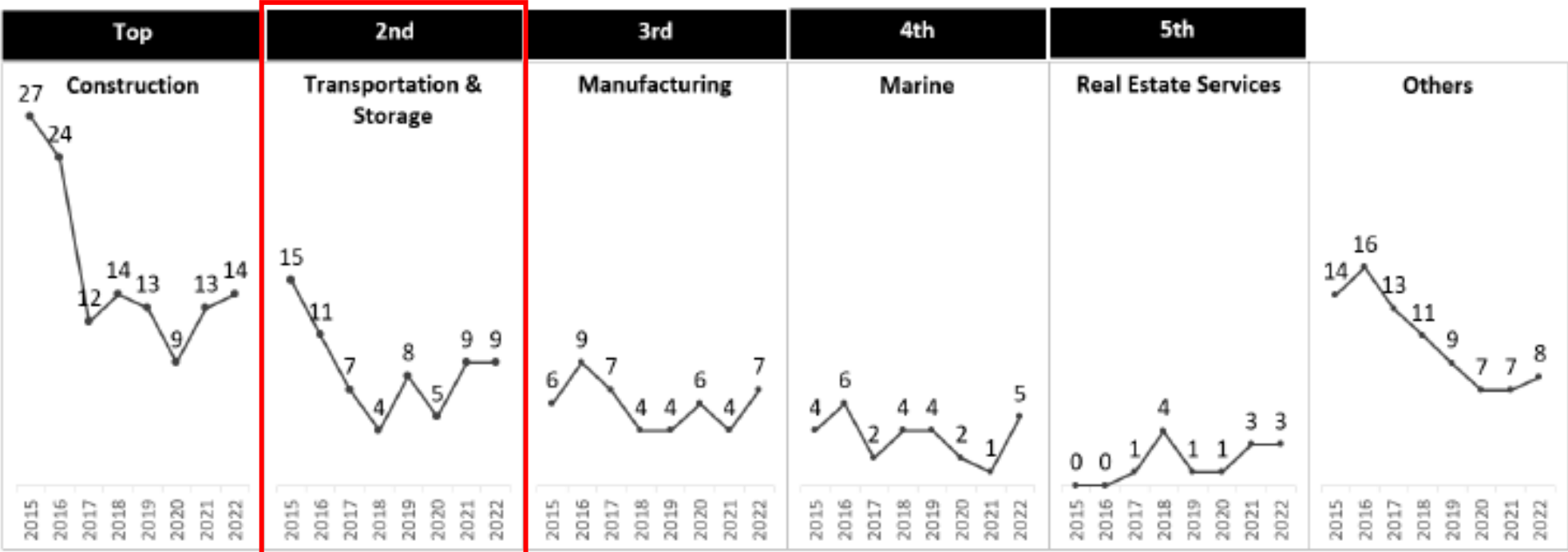


Figure 2a: Number and rate of workplace fatal injuries, 2015-2022

Number of workplace fatal injuries by industry, 2015 - 2022

- T&S sector was the 2nd highest contributor to the number of workplace fatal injuries in 2022



Others refer to the summation of various fatal injury causes with lower incidence of workplace fatalities in recent years. For more information, please refer to the statistical tables in Annex B.

Figure 2d: Number of workplace fatal Injuries by industry, 2015-2022

Number and rate of workplace fatal injuries for Transportation & Storage industry, 2015-2022

- 9 workers were fatally injured in 2022 which registered a rate of 3.4 fatalities per 100,000 workers, higher than the national average of 1.3

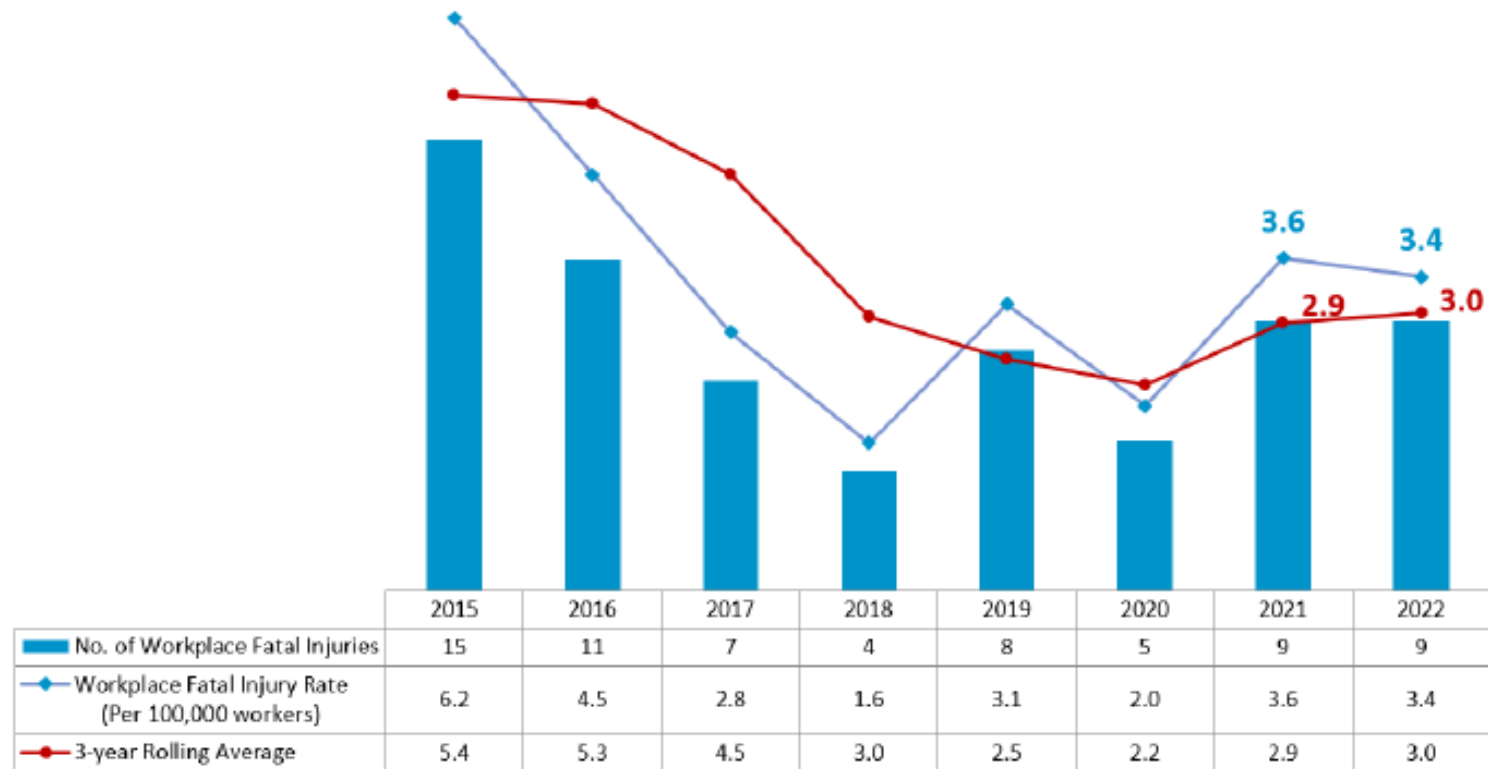


Figure 3g: Number and rate of workplace fatal injuries for Transportation & Storage industry, 2015-2022

Number of workplace fatal injuries by cause of injury, 2015 - 2022

- Top two causes of workplace fatalities in 2022 were (i) Vehicular Incidents and (ii) Falls from Height. These collectively accounted for 50% of the total number of workplace fatal injuries in 2022.

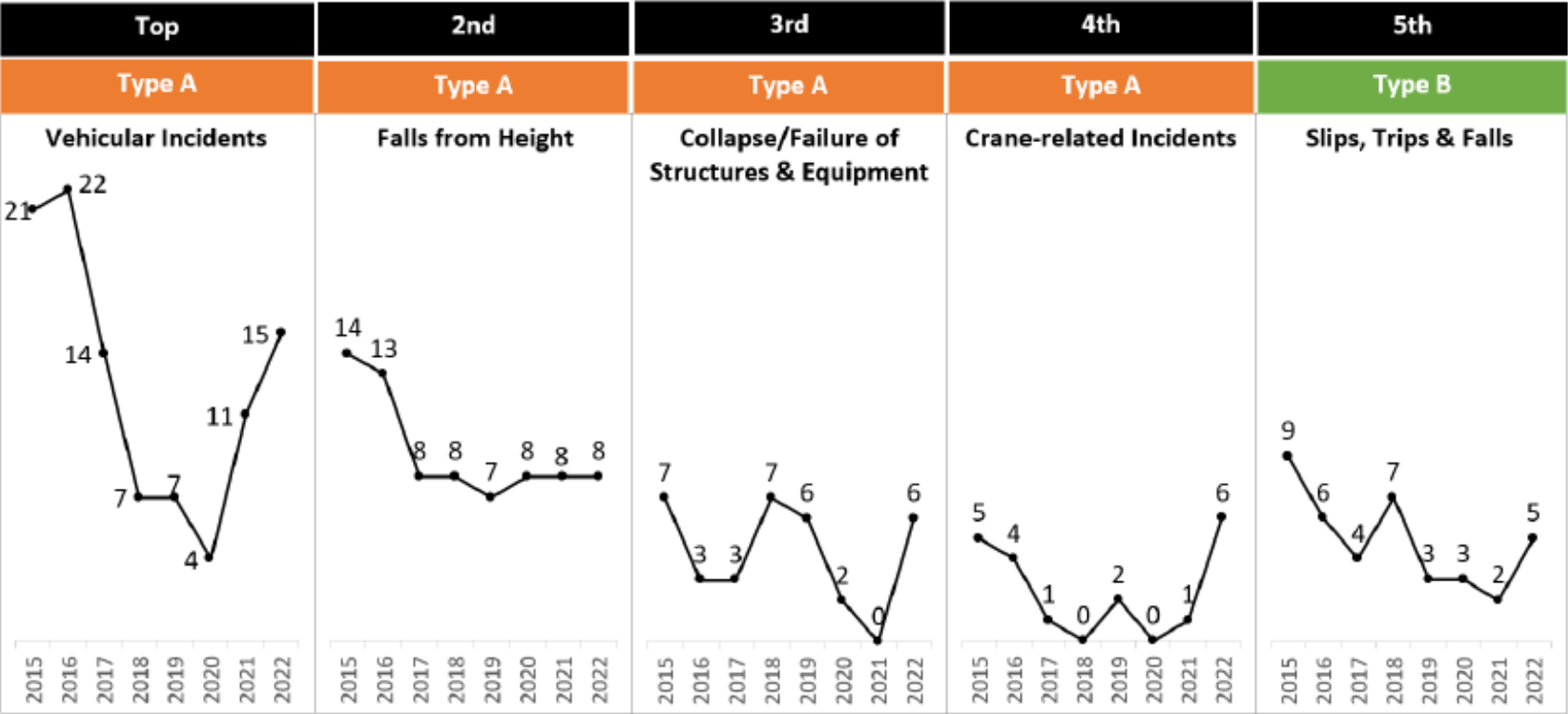


Figure 2c: Number of workplace fatal injuries by cause of injury, 2015-2022

Number and rate of workplace major injuries, 2015 - 2022

- 614 workers sustained workplace major injuries in 2022. Slight decrease in the workplace major injury rate from 18.5 to 17.3 per 100,000 workers

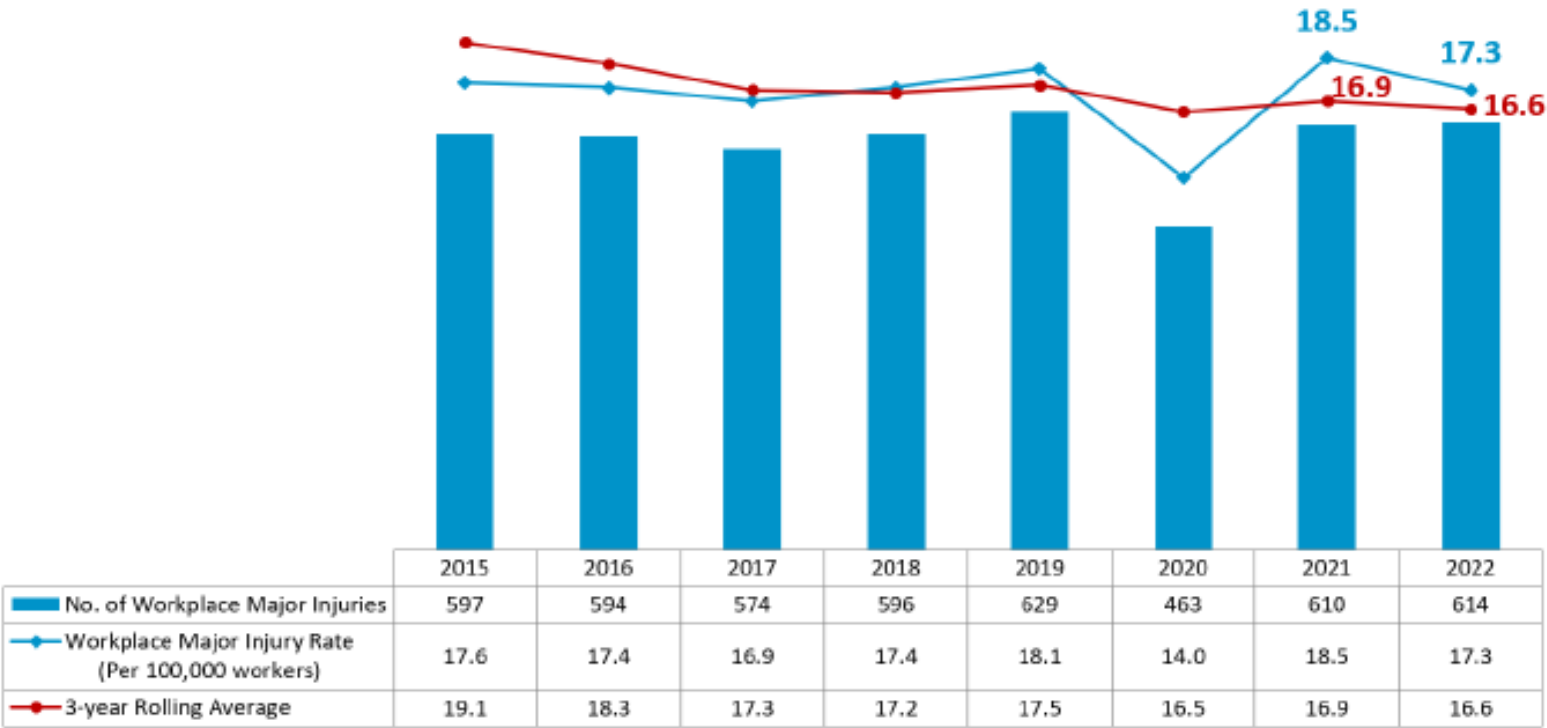


Figure 4a: Number and rate of workplace major injuries, 2015-2022

Number of workplace major injuries by industry, 2015 - 2022

- T&S sector was the 3rd highest contributor to the number of workplace major injuries in 2022

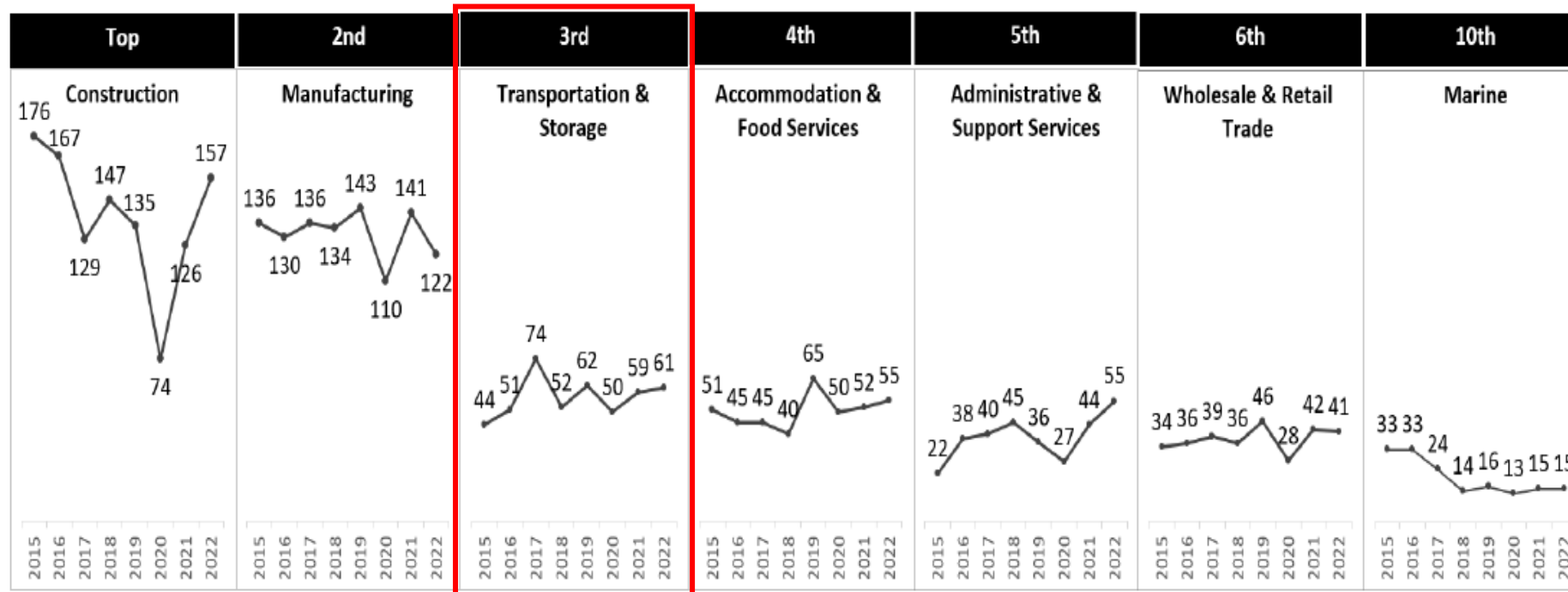


Figure 4d: Number of workplace major injuries by industry, 2015-2022

Number and rate of workplace major injuries for Transportation & Storage industry, 2015-2022

- 61 workers sustained workplace major injuries in 2022 which registered a rate of 23.2 per 100,000 workers, slight decrease as compared to 2021

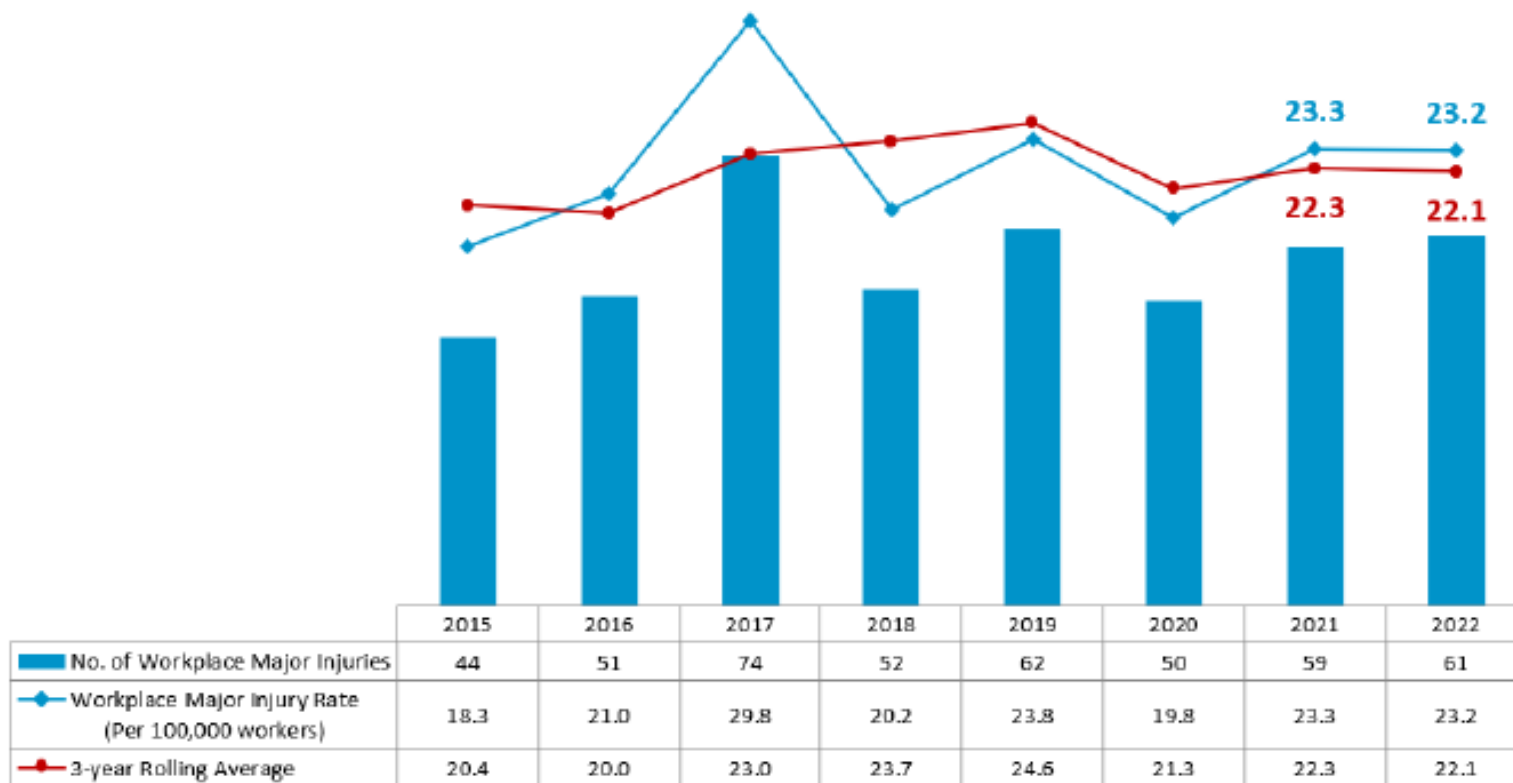


Figure 5g: Number and rate of workplace major injuries for Transportation & Storage industry, 2015-2022

Number of workplace major injuries by cause of injury, 2015 - 2022

- Top three causes of major injuries were (i) Slips, Trips & Falls; (ii) Falls from Height; & (iii) Machinery Incidents. These collectively accounted for 59% of the total number of workplace major injuries in 2022.

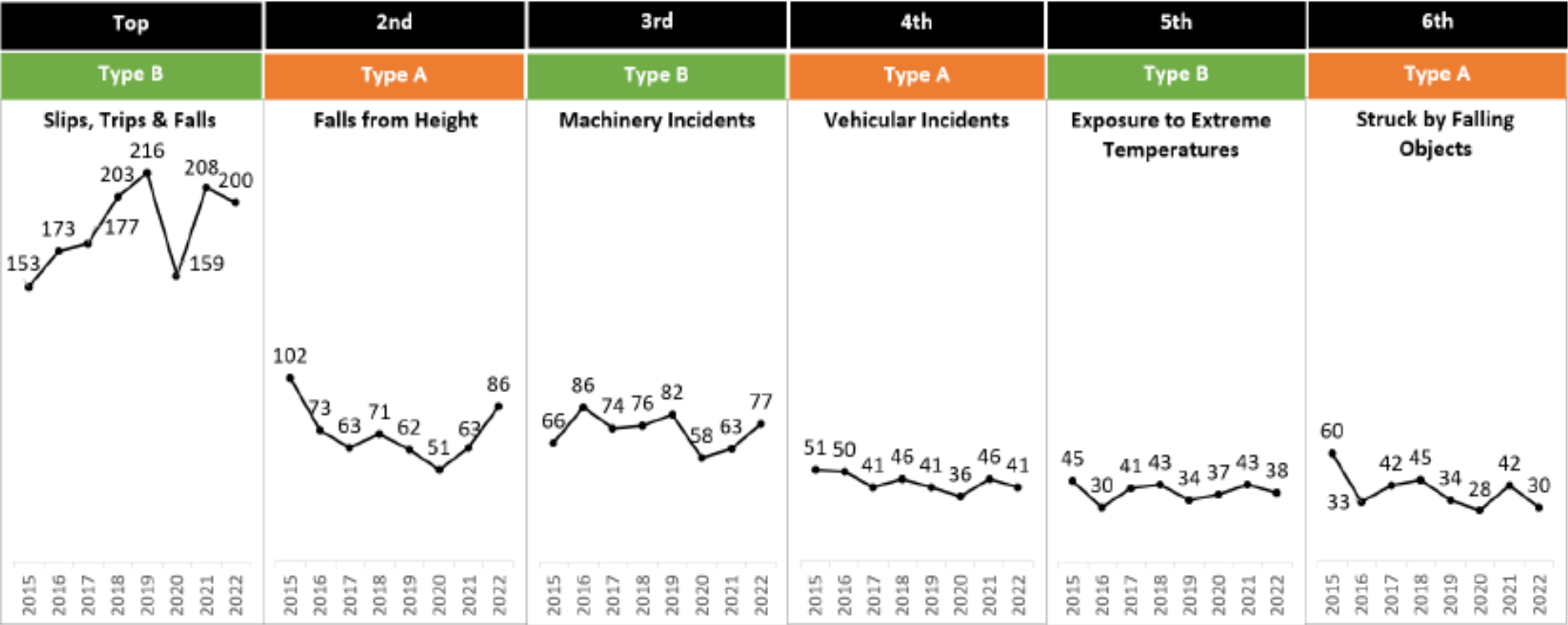
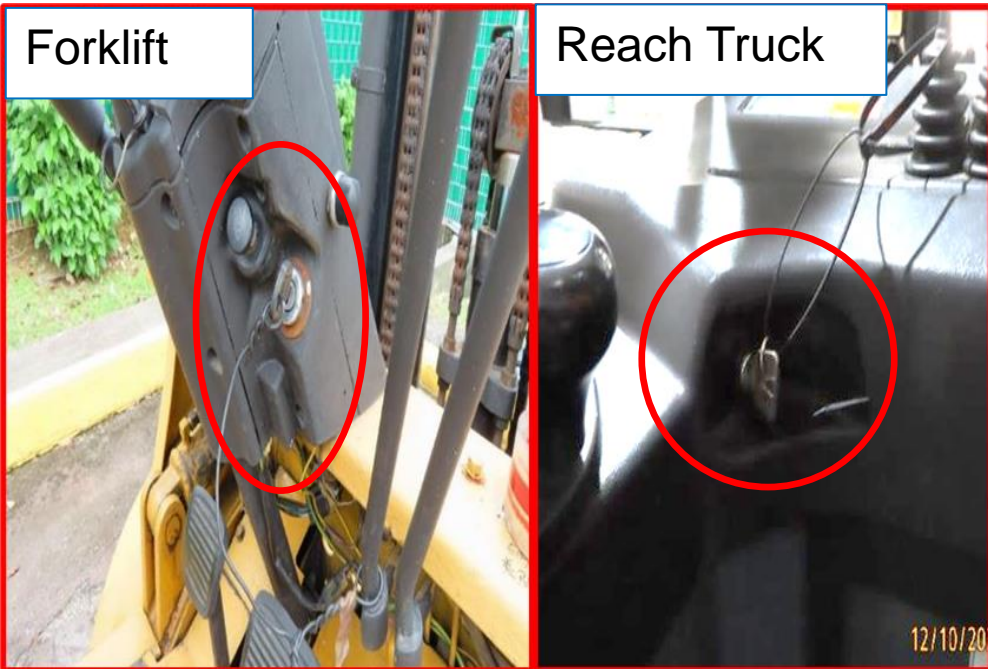


Figure 4c: Number of workplace major injuries by cause of injury, 2015-2022

Common Contraventions



Common Contraventions: Industrial-powered vehicles



No/poor key control



No seat belt installed



Not wearing seat belt



Common Contraventions: Industrial-powered vehicles



Damaged lights



Damaged locking pin



Worn out tyre



Lifting jib



Extension forks

Unapproved attachments



Common Contraventions: Industrial-powered vehicles



Used as lifting platform



Ferrying of passenger



Unsafe lifting

Common Contraventions: Storage



No barricades and travel restraint system



Ineffective barricades



Ineffective barricades and unsafe means of access and egress



Common Contraventions: Storage



Damaged and poor maintenance of storage rack



Common Contraventions: Storage



No SWL and
inadequate support



Damaged pallet



Poor housekeeping



Common Contraventions: Traffic Management



Obstructed driveway



Obstructed passageway



No demarcation



Common Contraventions: Traffic Management



No traffic directional arrow



Driving under Load



Poor control of driveway and no designated walkway

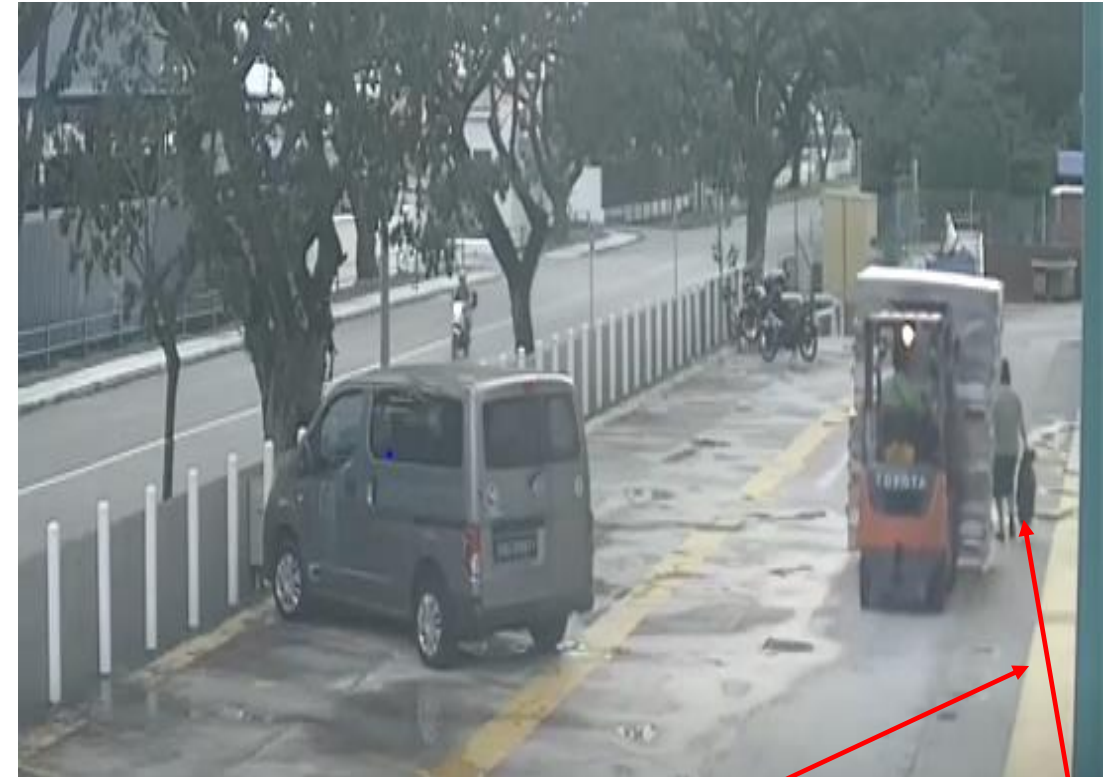


Case Studies



Case 1 - Brief facts

- A forklift operator operated a forklift to transport 2 stacks of palletized cardboards from the production department to the another process department. He was driving in a forward direction.
- The Injured was walking along the designated pedestrian walkway towards the bin center while the forklift was travelling along the driveway next to the designated walkway.
- The forklift hit the Injured when she strayed out from the designated walkway and was not aware that the forklift was coming. The forklift operator did not see the Injured as his vision was blocked by the stacks of palletized cardboard. She was found underneath the fork of forklift and suffered multiple fractures to her body.



Designated
pedestrian
walkway

The injured strayed
out from designated
walkway and crossed
path with the forklift



Case 1 - Findings

- The forklift operator was transferring 2 stack of pallets with cardboards using a forklift. The size and height of the cardboards had blocked the operator's front vision.
- The road where the forklift was travelling had a gradual upwards slope. The forklift operator claimed he did not travel in reverse direction as the goods could become unbalanced and topple due to the gradient. However, there were operators who drove in reverse manner when the goods blocked their front vision on the same road.
- It was a common practice in this workplace for forklift operators to double-stack goods on the forks of the forklift and travel in a forward manner with their front vision blocked by the goods.
- RA and SWP were established for forklift operation and the company was aware of the unsafe practice of driving forklift with front vision blocked, but it failed to implement adequate measures to stop it.
- The Injured had strayed out from the designated walkway without checking for any incoming forklift, and thus crossed path with a forklift that was travelling behind her.
- No zebra crossing was provided to cross the road at the rubbish bin area.



Zebra crossing
painted after
accident

Rubbish
bin area



Lessons Learnt

- Implement effective measures for hazards identified in RA for all work activities at the workplace
- Goods being transferred on the forks of forklift should not block the vision of forklift operator when travelling in forward direction. Alternatively operators should travel in reverse direction
- Unsafe acts should be stopped and firm measures be implemented to eradicate such acts.
- Palletised goods should be moved individually. Avoid double-stacking goods on forklift where possible.
- Implement effective traffic management plan at workplace.



Case 2 - Brief facts

- A worker was transferring small rolls of plastic materials manually from a pallet on the ground into a jumbo bag in the warehouse. He was working beside a stack of materials, which comprised 3 tiers of materials placed on wooden pallets and stacked on top of each other. There were 5 plastic rolls on the topmost wooden pallet.
- While the worker was transferring the plastic materials, the goods on the middle pallet and the topmost pallet with 5 plastic rolls toppled. The plastic rolls fell from a height of about 2.9m and hit his head. The worker was subsequently pronounced dead on the scene by attending paramedics. The cause of death was certified as "Head Injury".



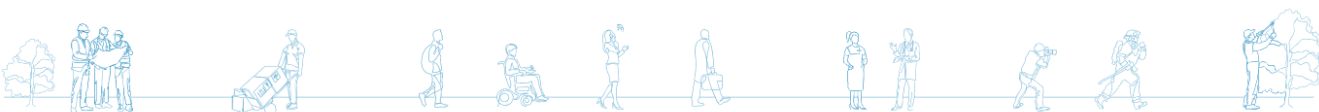
Case 2 - Findings

- The 5 plastic rolls wrapped together were placed on a black plastic pallet before being placed on the topmost wooden pallet. The topmost pallet was then stacked on top of a bundle of plastic materials of the middle pallet, which was in turn stacked on top of another bundle of plastic materials of the bottom pallet.
- The topmost pallet with the 5 plastic rolls weighed about 854kg. The weight of each plastic roll range from 64kg to 315kg. The middle and bottom pallets weighed about 720kg and 800kg, respectively.
- The heavy weight of topmost pallet had likely caused instability due to the higher centre of gravity. Over time, it could likely compress the plastic bundles below, causing the topmost pallet to shift and become unstable.
- There was no proper racking for the goods to be placed on to ensure their stability. All goods were stacked on each other without proper manner of stacking in terms of weight distribution. Due to their irregular shapes and relatively pliable nature, this caused several stacks to tilt and not be fully upright.
- Failed to conduct an adequate RA and SWP to ensure a safe and proper method of stacking goods and materials at the warehouse.



Deceased was packing
small rolls of plastics

Deceased position



Lessons Learnt

- Adequate RA and SWP to be implemented for all work activities at the workplace
- Carefully assess the need for stacking palletised load as stacked loads may be unstable and pose a toppling risk. The total weight of the stacked goods must never exceed the SWL of the lower pallet, which must bear the weight of the goods placed on it plus the weight of the upper stack
- Loose goods placed on pallets should be shrink-wrapped or kept in containers to prevent unwanted movement and falling off the pallet
- Consider the use of engineered storage racks where appropriate and display the Safe Working Load (SWL) for each shelf of the storage rack.
- Store heavier objects on lower **level of shelves** for stability and place goods that are frequently retrieved on the lower shelves



Conclusions

- Implement effective control measures on the use and condition of Industrial-powered vehicles.
- Provide effective measures on storage, managing, and handling of goods at the workplace.
- Implement and maintain good traffic management
- Provide adequate supervision and address any unsafe act immediately.
- Implement effective Risk Management.



Thank you!

