INDEPENDENT STATE OF PAPUA NEW GUINEA

Mining Industry Quarterly OHS Bulletin

Quarter 1- 2017

(January – March)

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2017

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1 Message from Managing Director of MRA

The Mineral Resources Authority through the Mines Safety Branch of the Regulatory Operations Division is proud to provide to you the **"Mining Industry OHS Bulletin – Quarter 1 - 2017"**, which can be read in conjunction with and as a continuation of our previous publications. The 2017 Quarter 1 publication features Health and Fitness Performance of the Industry apart from Safety.

In the 1st quarter of 2017, it is pleasing to note that the mining industry in PNG experienced a fatality-free reporting period. This outcome is a testament of the tireless and unseen efforts of all concerned stakeholders to ensure robust safety and health systems are developed and implemented. I urge all parties to continue to support these efforts and allocate resources to continue to make our mining operational areas safer places to work and live.

However, the recent occurrence of some serious accidents causing bodily injuries at our mines has tarnished the many good initiatives to arrest the recent past incident trends.

In spite of the many challenges that we are faced in our industry, it has been a collaborative effort thus far for MRA through the Mines Safety Branch along with mine management and employees to resource and identify risk exposures, and rectify these immediately.

I applaud the increased compliance efforts undertaken by the Mines Safety Branch and the continuous support of the mine senior management to ensure that workers' health and safety are improved throughout all the mining operational sites.

We trust that these ongoing safety improvements will continue to provide workers and their families' with an assurance that our mining industry can be held to the highest safety standards and practices.

(Philip Samar)
Managing Director

2 Message from Chief Inspector of Mines

Unfortunately, and despite some improving trends, four (4) serious accidents during this quarter provide a continuing reminder that we must remain vigilant and maintain our focus on health and safety every single working day at our mining operational sites. We must strive with all our efforts to achieve our ambitious goal of 'Zero Harm' for the benefit of all persons employed within our integrated mining systems.

The quarterly OHS bulletin enables us another avenue to share data, information and trends, to provide further opportunity to learn from our experience, and to utilize such information to assist us to continually improve practices which correct or prevent incidents at mining operational sites.

The total manpower employed during this reporting period was 17,057, an increase of 13% compared with Quarter 1 of 2016. 2,233 of these employees were females who comprised 13% of the total workforce.

There was a decrease in the fatality frequency rate (FFR) by 100 % (from 0.11 to 0.00), while man-hours increased by 34% in this quarter when compared with the same reporting period in 2016. Whilst serious injury frequency rates also significantly decreased by 25% (from 0.65 to 0.48), the total injury frequency rate (TIFR) has also shown a slight decrease by 13% compared to Quarter 1 of 2016 (from 7.97 to 6.91). The severity rate has also shown a significant decline by 48% (from 73.00 to 38.00).

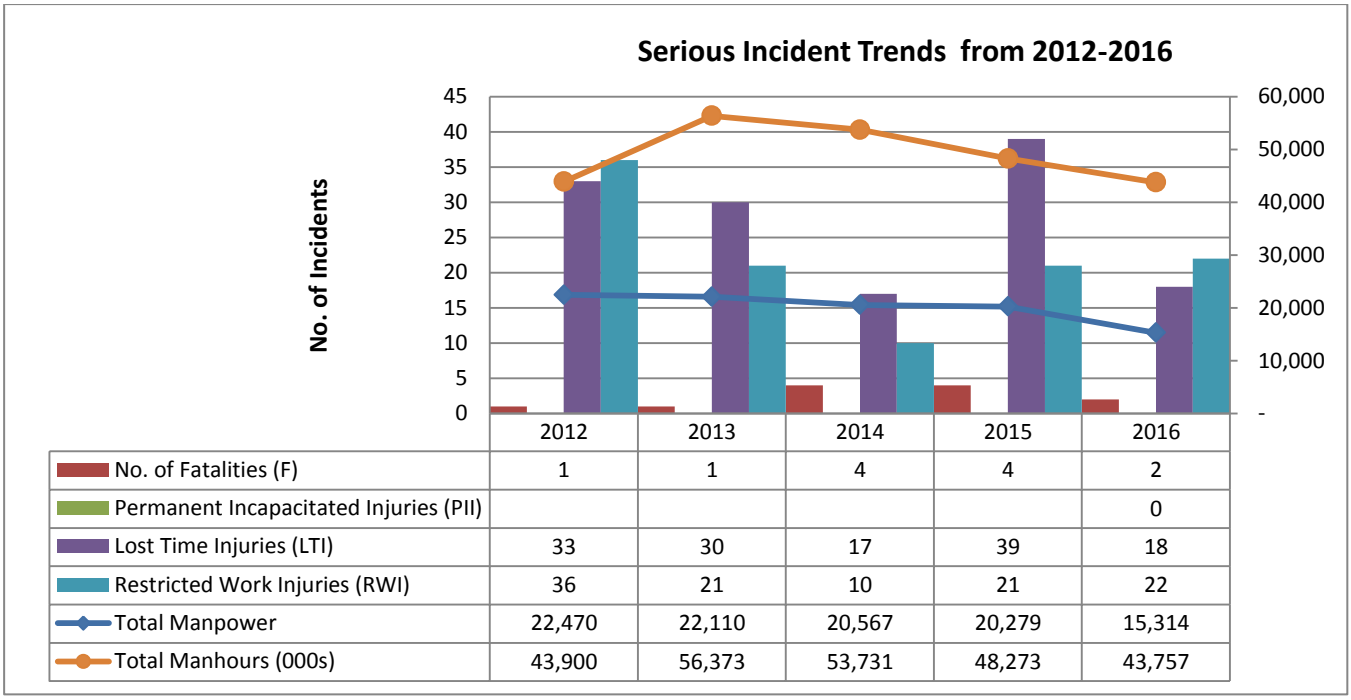
There has, however, been a jump, of 49% (104 to 155), in reporting of near misses when compared with Quarter 1 of 2016.

These trends are largely positive, but there remains no place in our industry for 'risk takers', and those who knowingly break health and safety rules. Safety managers must ensure such attitudes are completely eradicated from our mining sector workforce. Let us devote ourselves to creating a habit of excellence wherein these safety statistics will be an indicator that we are making progress in changing our habits.

Lave Michael
Chief Inspector of Mines

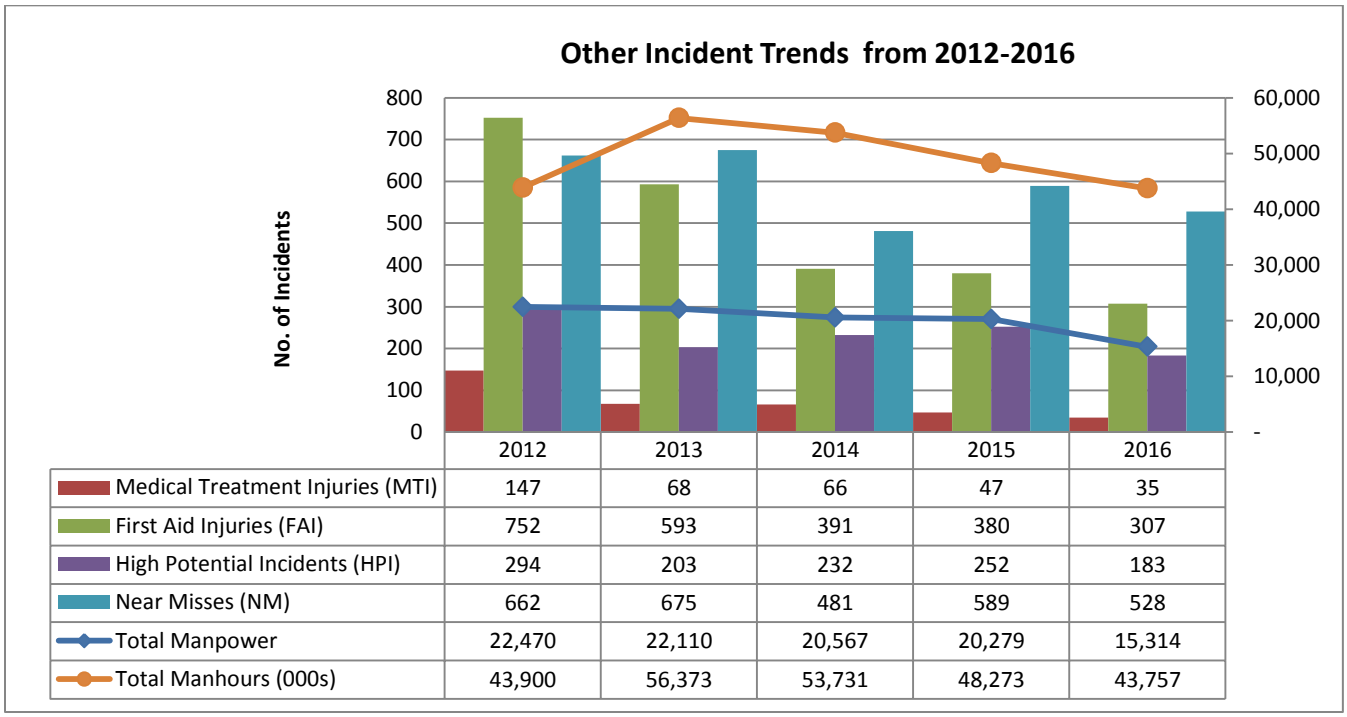
3 Historical Safety Performance of the Industry

The brief below shows the safety performance of the industry in the last five (5) years.



	2012	2013	2014	2015	2016
No. of Fatalities (F)	1	1	4	4	2
Permanent Incapacitated Injuries (PII)					0
Lost Time Injuries (LTI)	33	30	17	39	18
Restricted Work Injuries (RWI)	36	21	10	21	22
Total Manpower	22,470	22,110	20,567	20,279	15,314
Total Manhours (000s)	43,900	56,373	53,731	48,273	43,757

Figure 1: Serious Incident Trends from 2012-2016



	2012	2013	2014	2015	2016
Medical Treatment Injuries (MTI)	147	68	66	47	35
First Aid Injuries (FAI)	752	593	391	380	307
High Potential Incidents (HPI)	294	203	232	252	183
Near Misses (NM)	662	675	481	589	528
Total Manpower	22,470	22,110	20,567	20,279	15,314
Total Manhours (000s)	43,900	56,373	53,731	48,273	43,757

Figure 2: Other Incidents Trends from 2012-2016

4 Current Safety Performance of the Industry

The following charts shows the incidents reported during the reporting quarters.

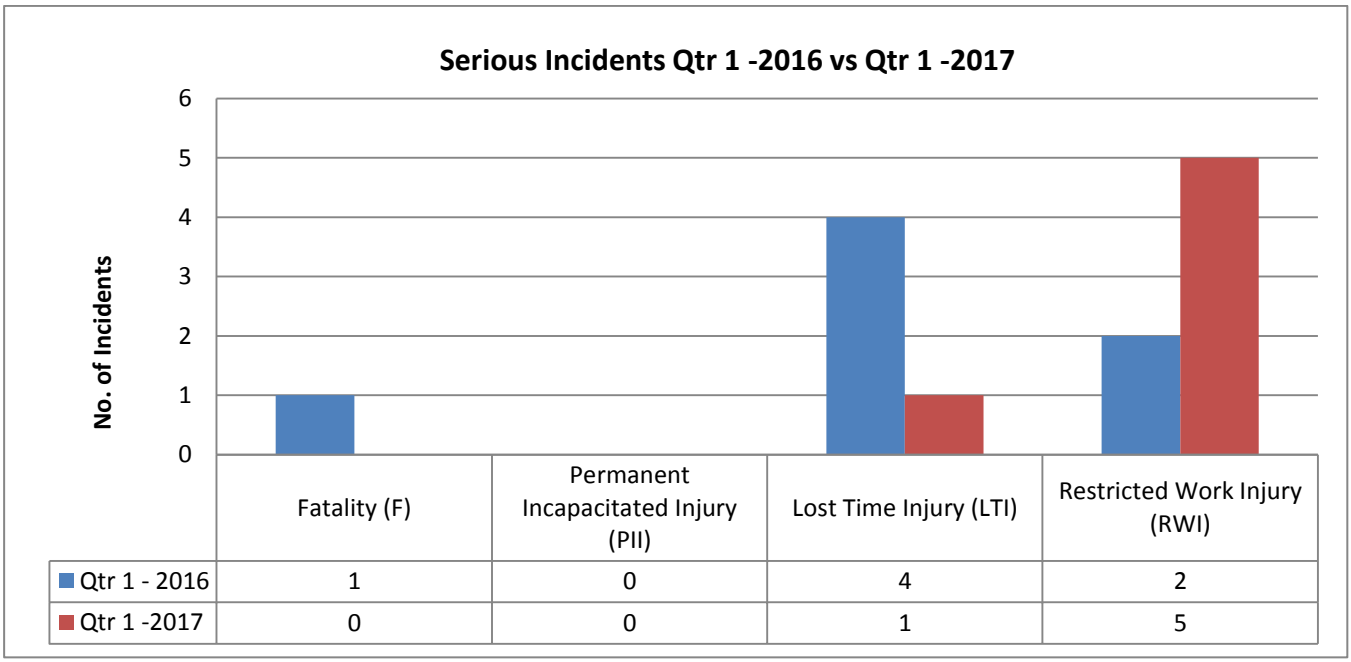


Figure 3: Comparison of Serious Incidents for Qtr. 1 of 2017 with 2016

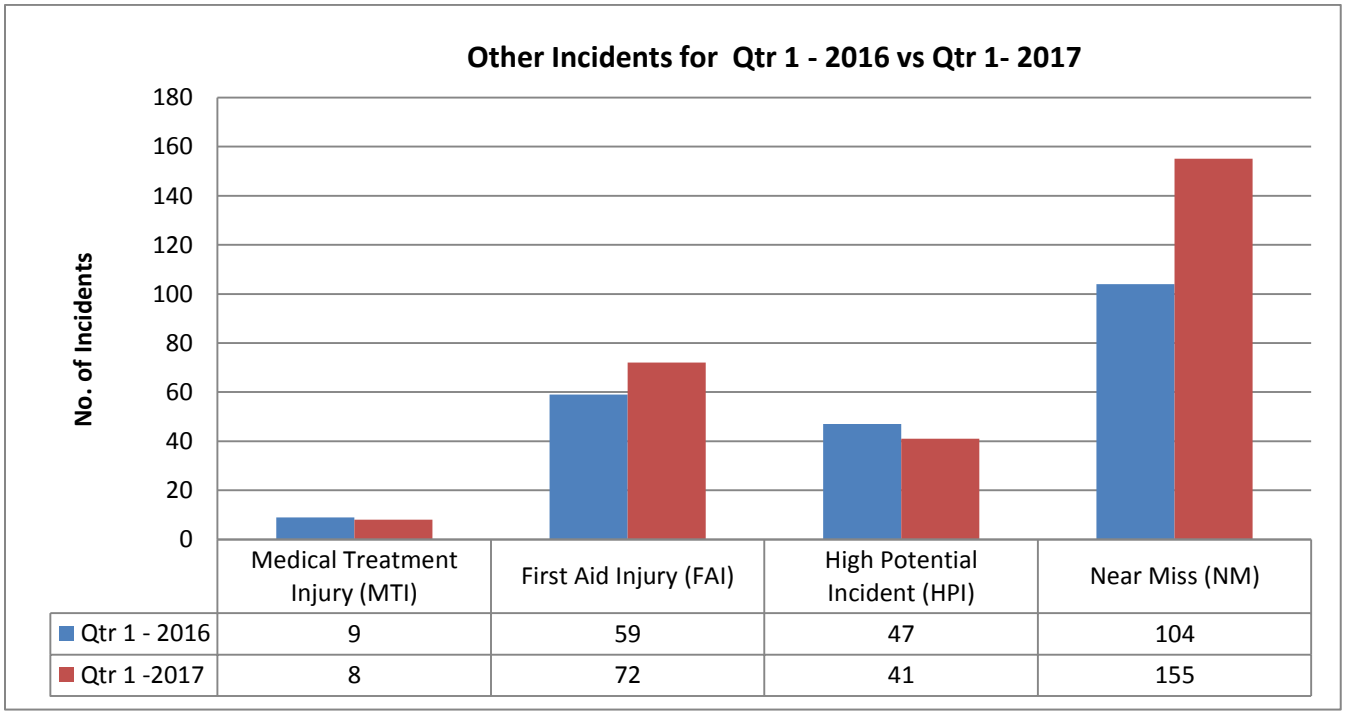


Figure 4: Comparison of Other Incidents for Qtr. 1 of 2017 with 2016

5 Frequency Rates & Severity Rates

The frequency and severity rates provide a more comprehensive analysis of the industry's safety performance. The following formulae were adopted and used to guide us in the calculation of these rates.

Formulae for Frequency & Severity Rates Calculations
Fatality Frequency Rate (FFR) = No. of Fatality x 1,000,000/total Man-hours worked
Serious Injury Frequency Rate (SIFR) = (No. of PII + LTI + RWI) x 1,000,000 & divided by the total man-hours worked
Total Injury Frequency Rate (TIFR) = (No. of F+PII + LTI + RWI + MTI + FAI) x 1,000,000 & divided by the man-hours worked
Severity Rate (SR) = Total Man-days lost divided by no. of (F + PII + other LTI + RWI)
*A fatal injury is treated as 220 days lost

5.1 Frequency Rates

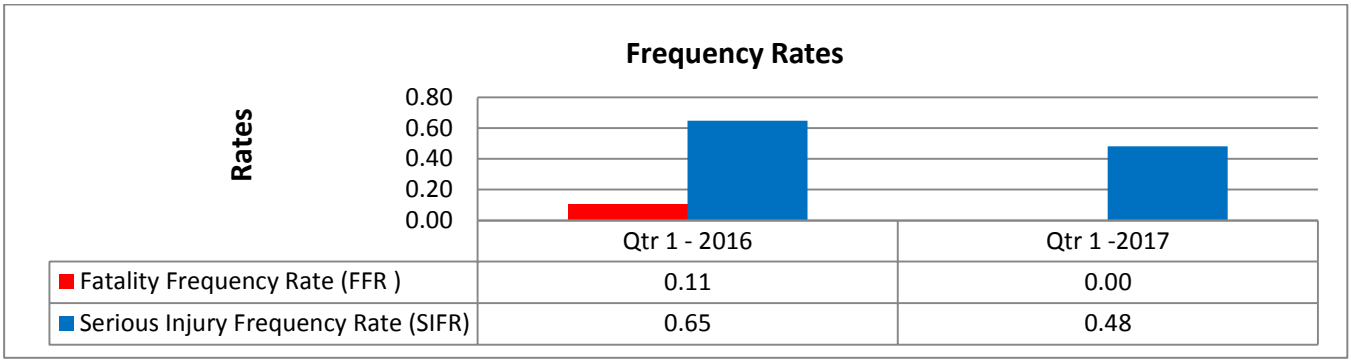


Figure 5: Fatality Frequency Rate and Serious Injury Frequency Rate

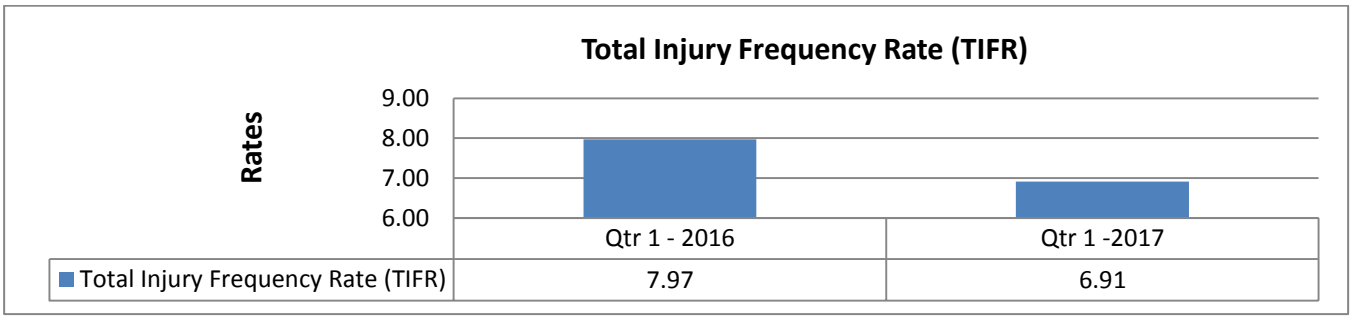


Figure 6: Total Injury Frequency Rate

5.2 Severity Rates

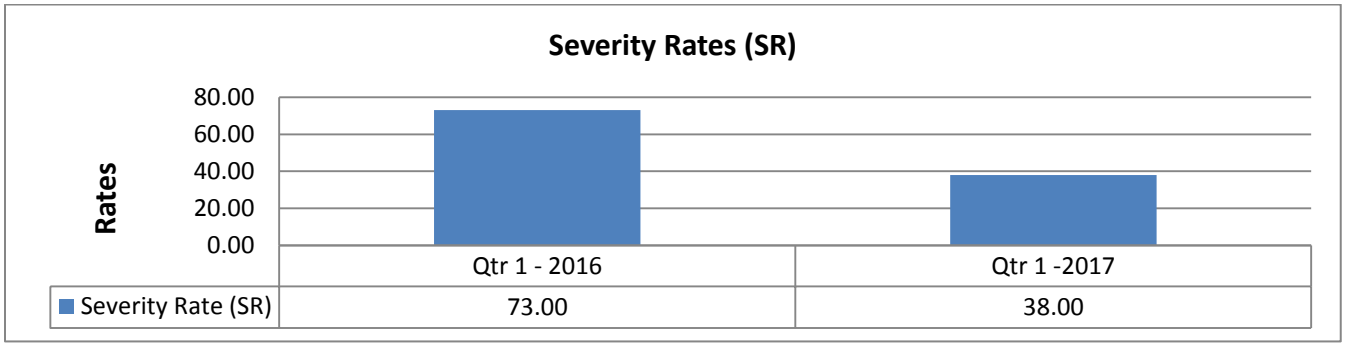


Figure 7: Severity Rates

6 Incident Analysis for Jan-Mar of 2017

To help us further examine the reported incident(s), a detailed incident analysis by; severity types, causes of the incidents, which body –part(s) are involved, location or area where the incident occurred, occupation and age group of persons involved in the incident is being provided.

The severity types includes; Fatality(F), Permanently Incapacitated Injury (PII), Lost Time Injury (LTI), Restricted Work Injury (RWI), Medical Treatment Injury (MTI), First Aid Injury (FAI), High Potential Incident (HPI) and Near Miss (NM) Incidents.

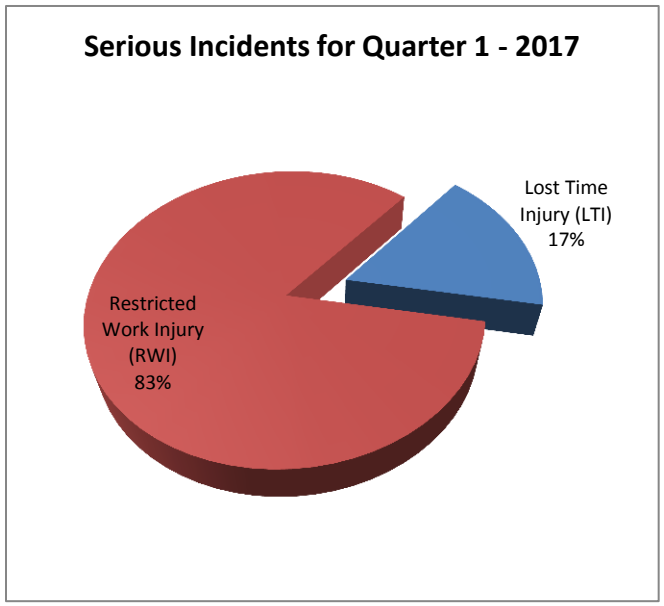


Figure 8: Distribution of Serious Incidents

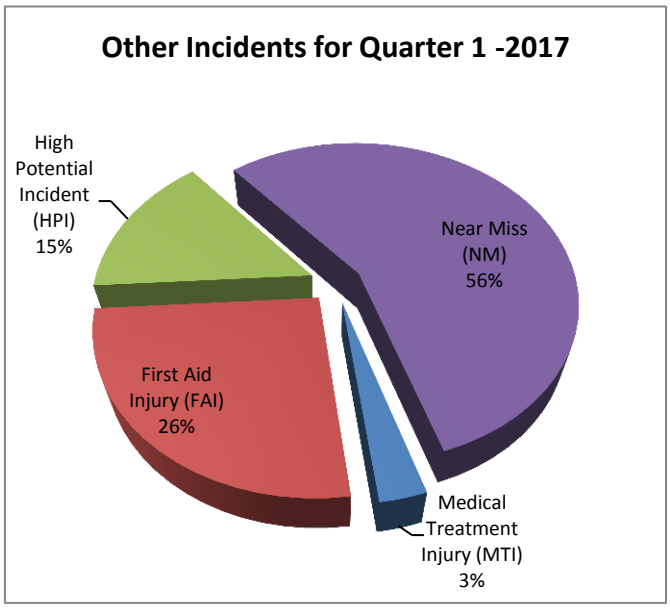


Figure 9: Distribution of Other Incidents

6.2 Incidents by Mechanism of Injury

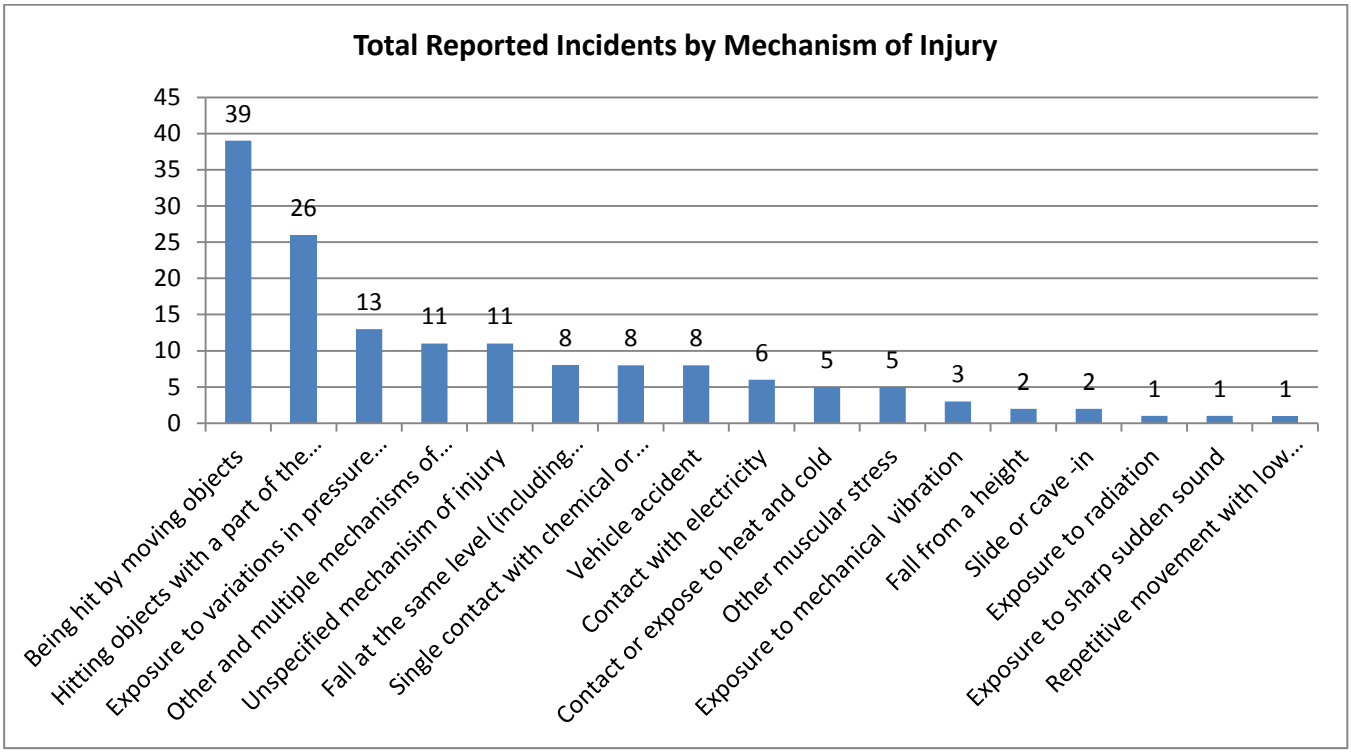


Figure 10: Total Reported Incidents by Mechanism of Injury

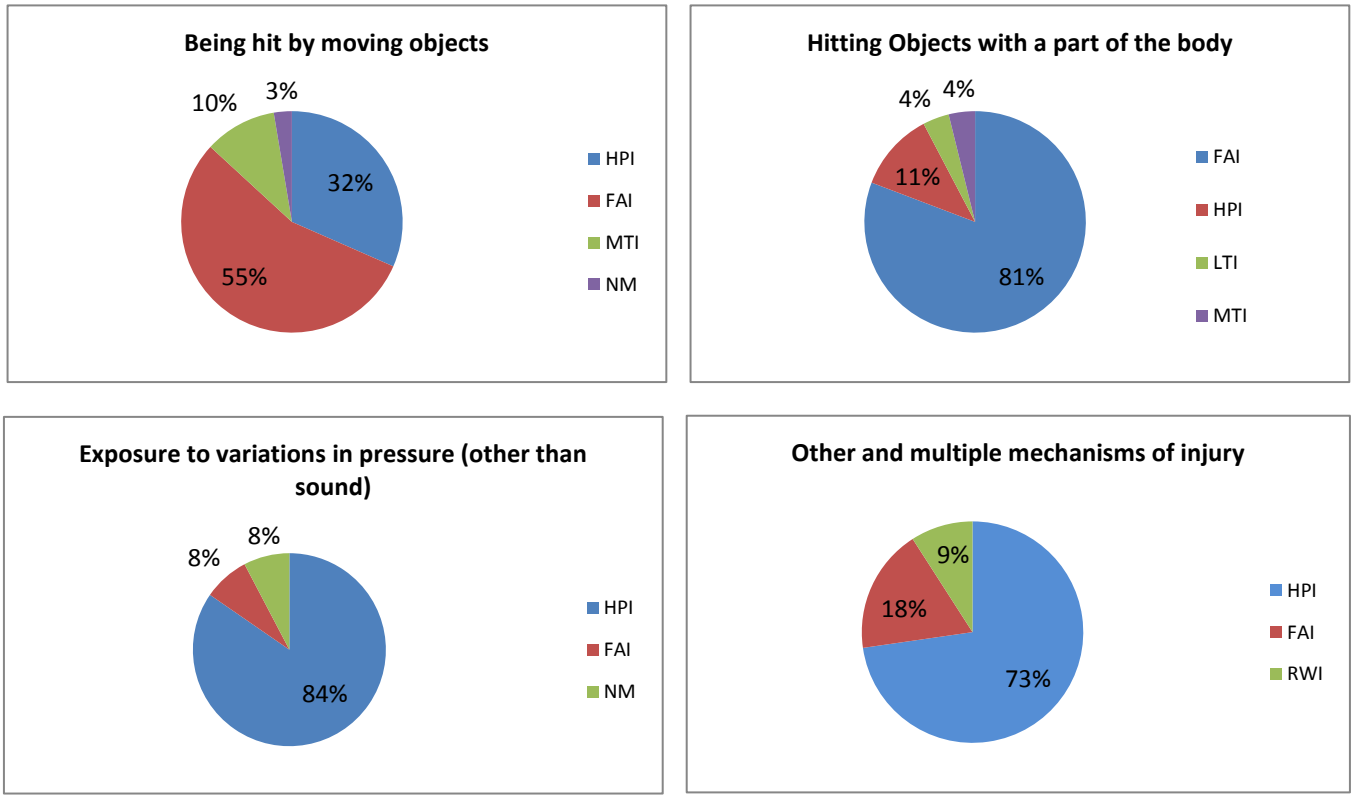


Figure 11: Analysis of Reported Incidents by Top 20% of the leading Mechanisms of Injury

6.3 Injuries by Body Part

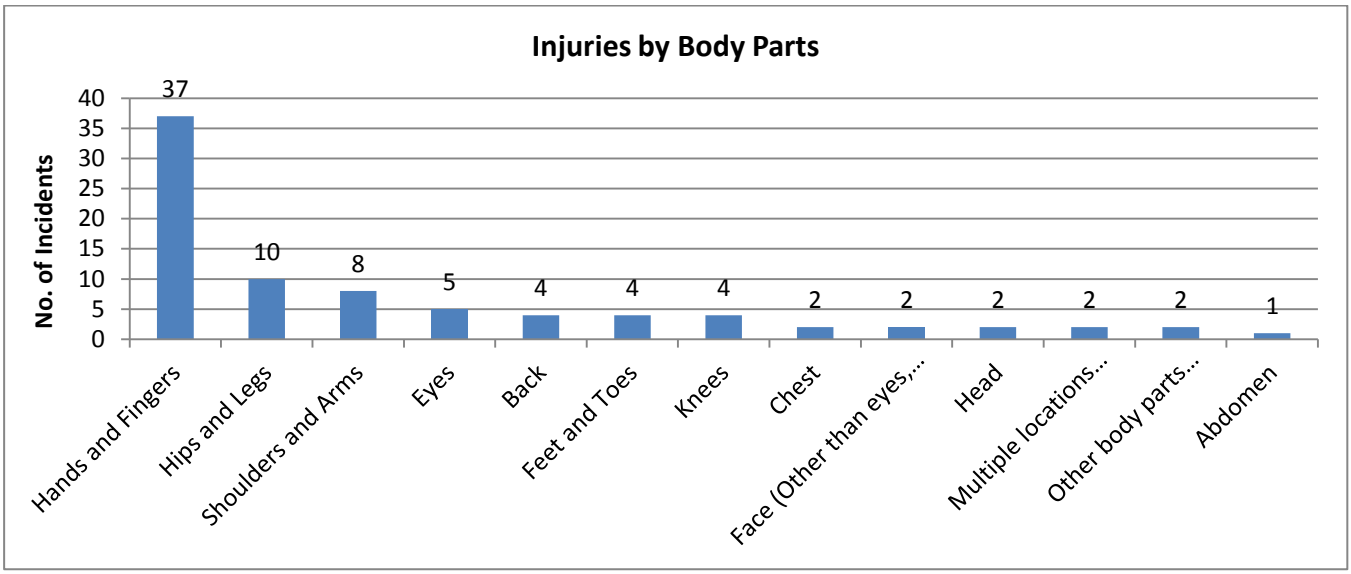


Figure 12: Reported Injury by Body Parts

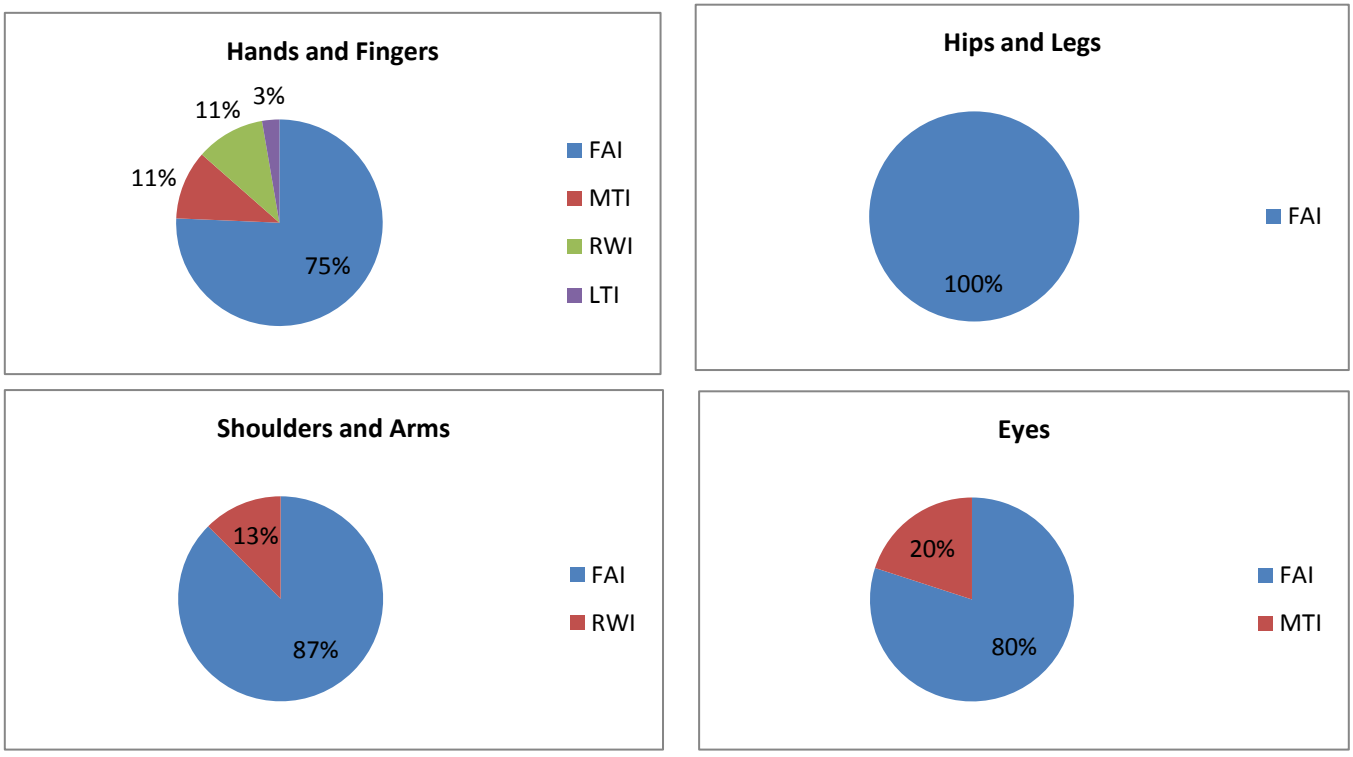


Figure 13: Analysis of Reported Incidents by Top 20 % of the leading Body Parts

6.4 Incidents by Area

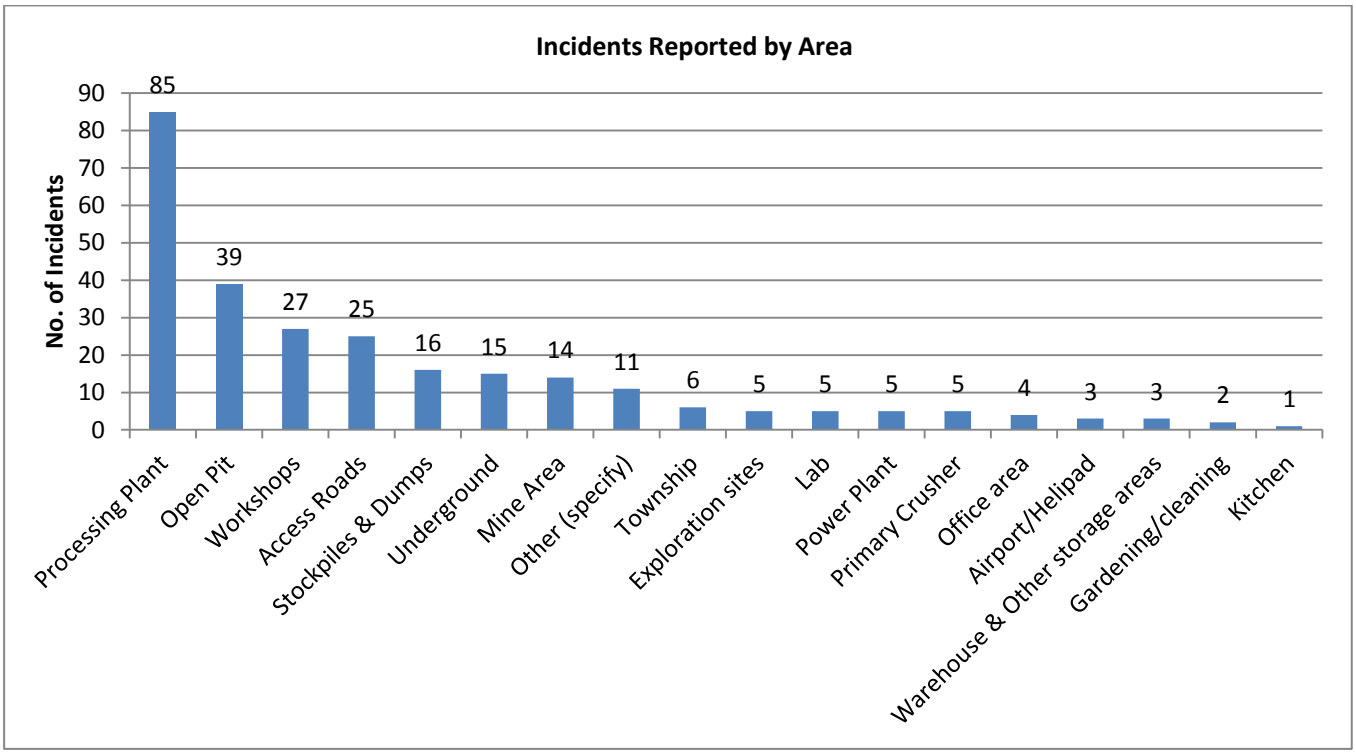


Figure 14: Incidents Reported by Area

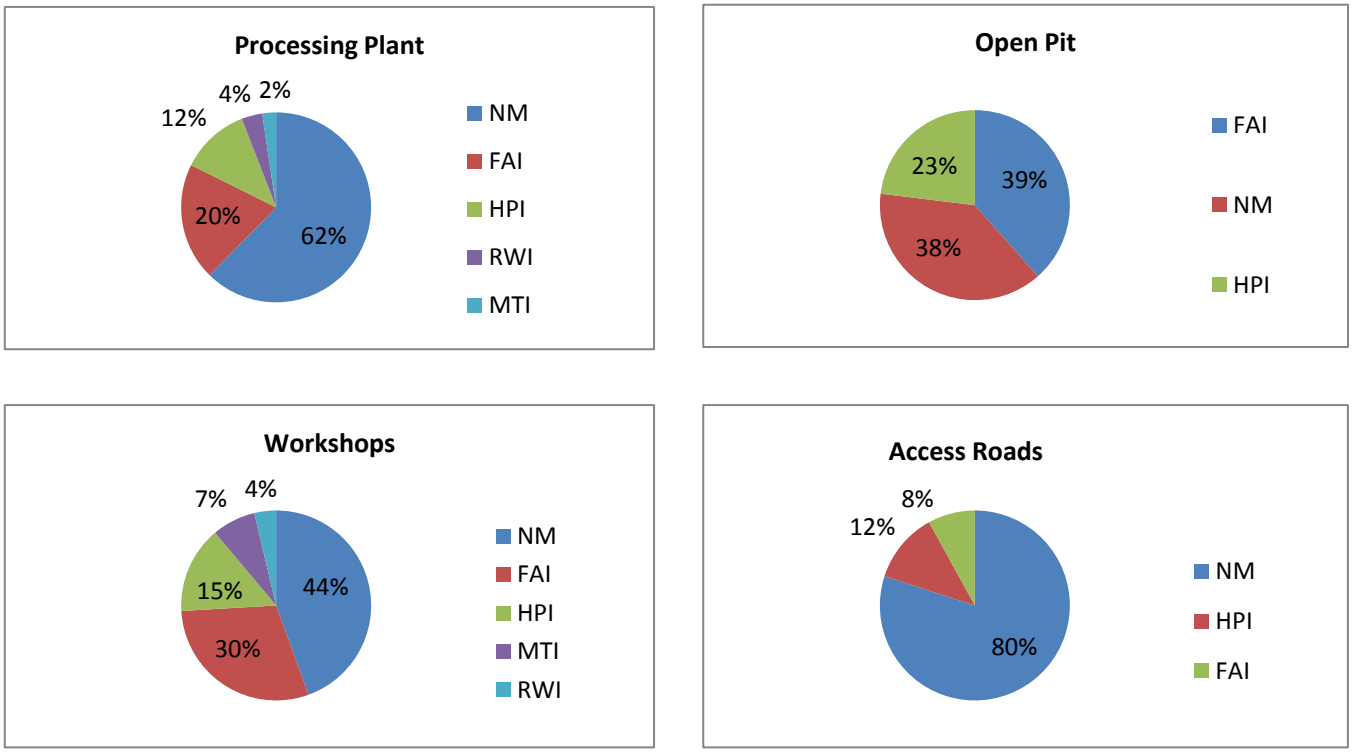


Figure 15: Analysis of Reported Incidents by Top 20% of the leading Areas

6.5 Incidents by Occupation

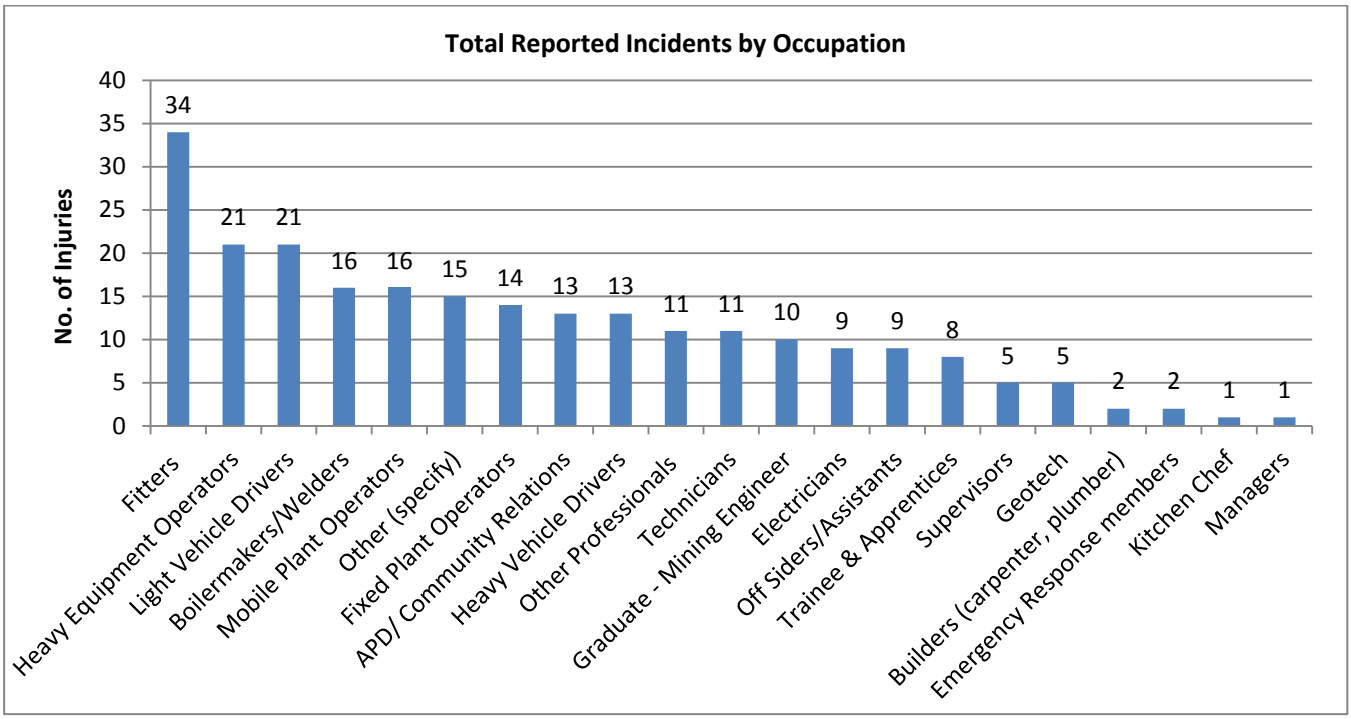


Figure 16: Incidents Reported by Occupation

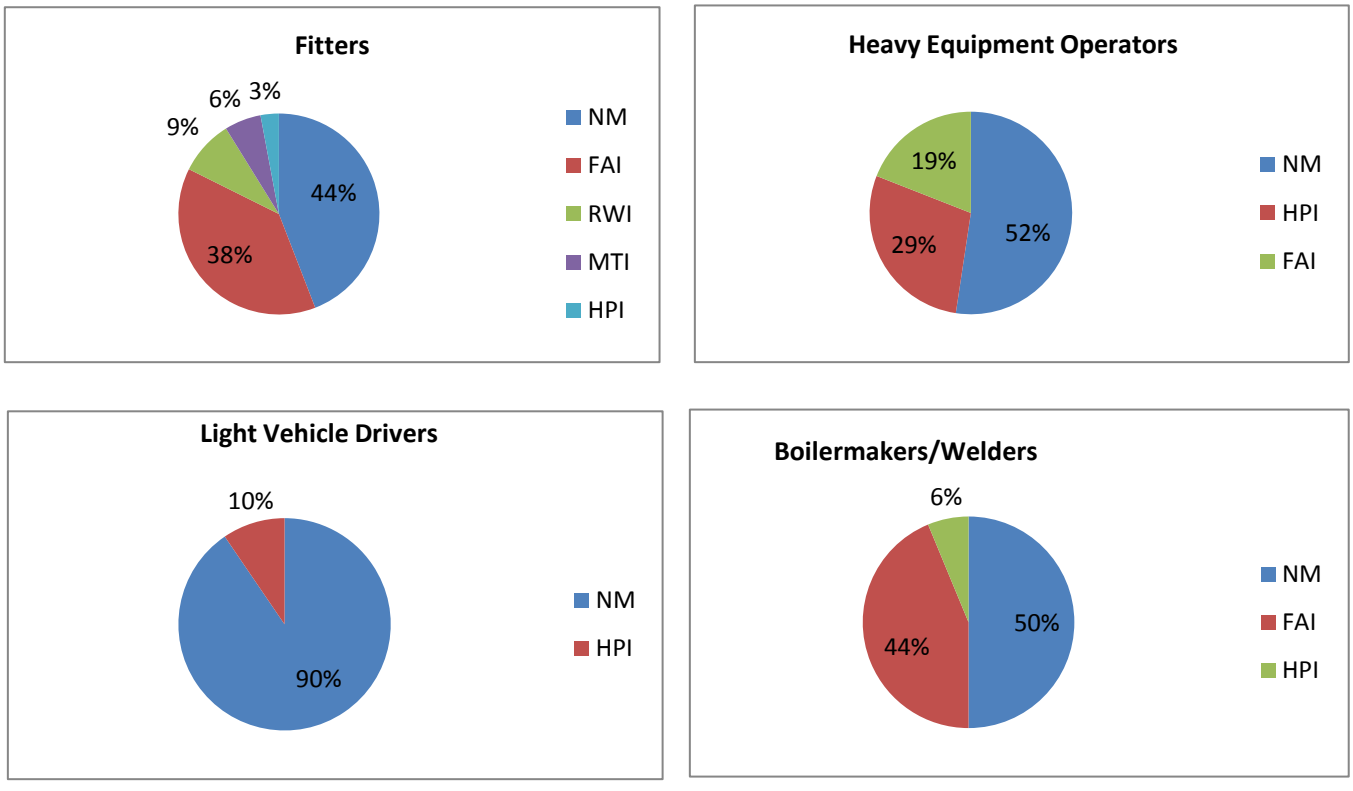


Figure 17: Analysis of Reported Incidents by Top 20% of the leading Occupations

6.6 Incidents and Employment - by Age

The graphs below show the distribution of all reported incidents by Age and total manpower by Age. *Note that some mines have not provided a breakdown of man power by age; hence, it cannot be reflected in the corresponding graph.*

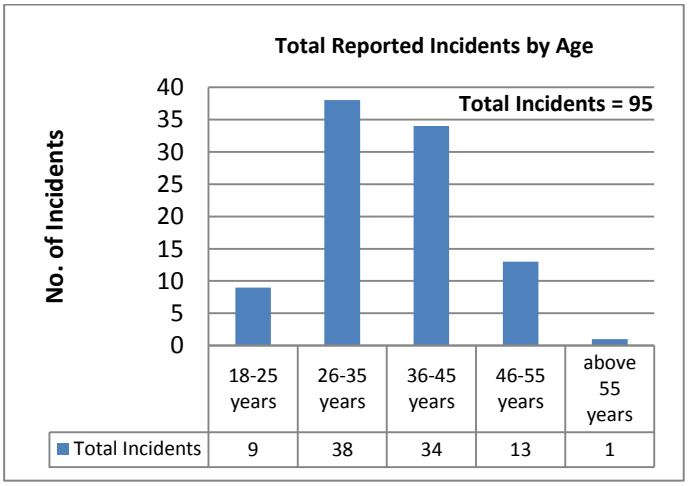


Figure 18: Incidents Reported by Age

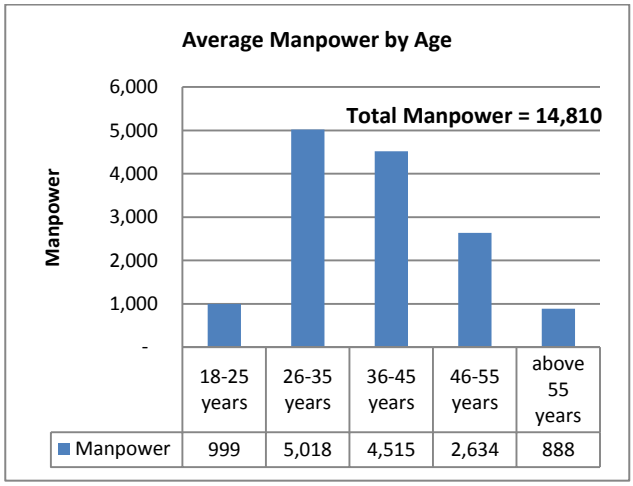


Figure 19: Average Manpower by Age

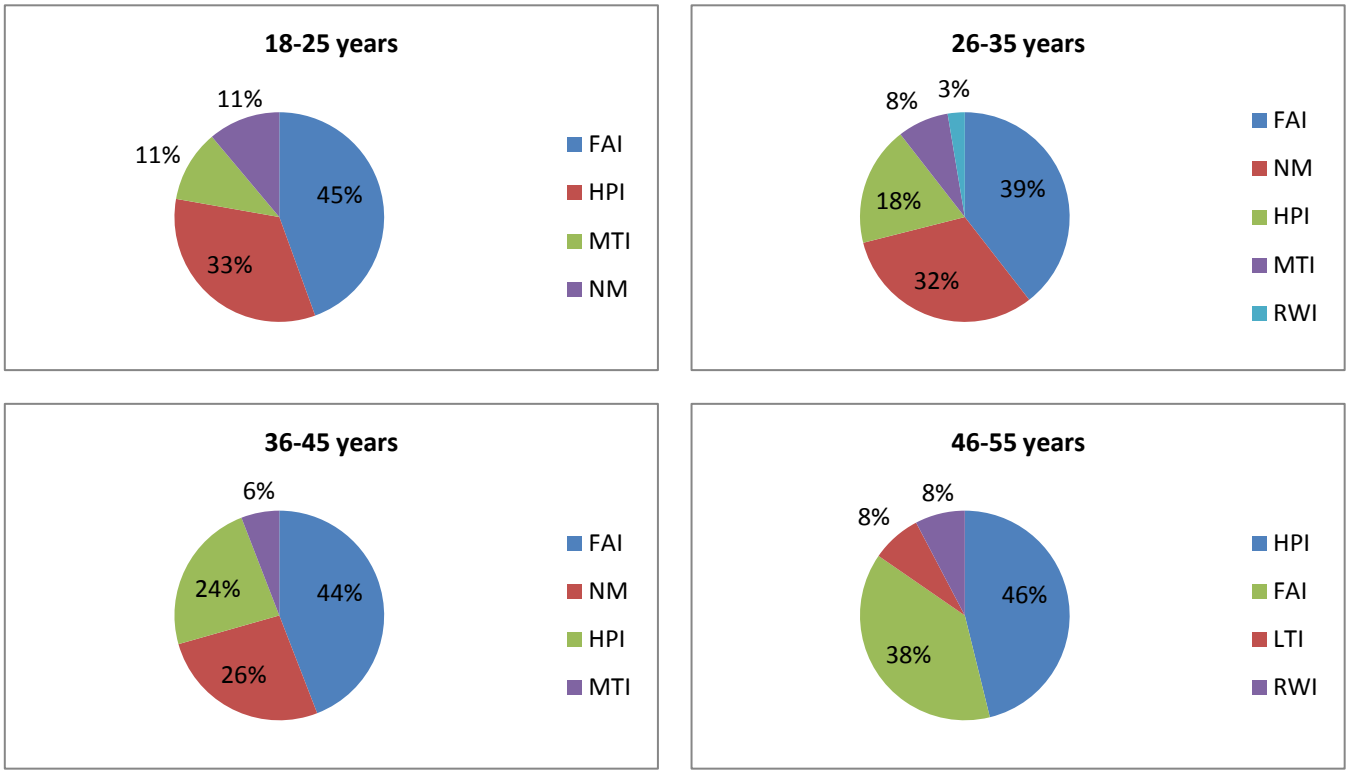


Figure 20: Analysis of Reported Incidents by Top 20% of the leading Age-groups

6.7 Key Safety Initiatives undertaken during the quarter

Safety initiatives for the quarter were more centered on the National Mining Safety Week Celebrations, where a number of significant safety activities were rolled out throughout the industry to raise awareness and promote health and safety issues. The initiatives below are only representative from the mines which have provided the programs to the Inspectorate.

Figure 22: Poster Competition during National Mining Safety Week

Figure 21: Display of Process Plant Hazards and Site Specific PPE

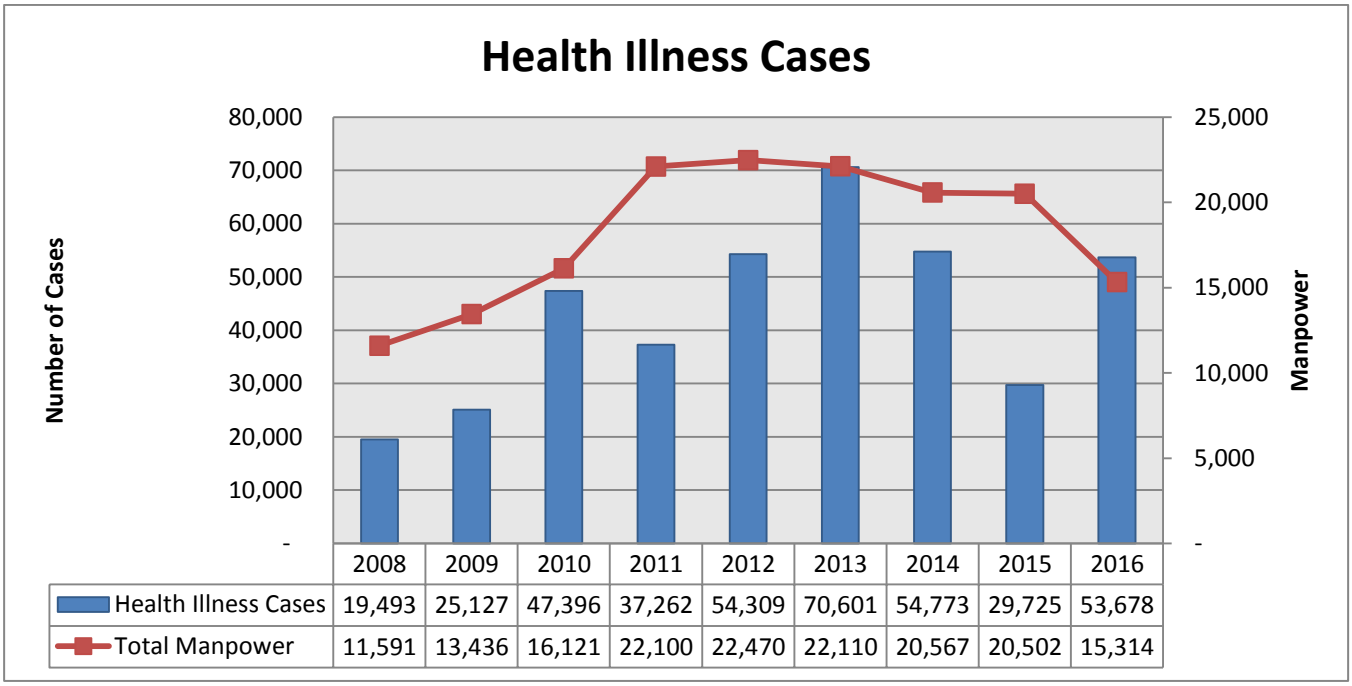
Figure 24: Safety Posters

Figure 23: Recreational Activities during the NMSW celebrations

7 Employee Health and Fitness

Employee Health and Fitness had not attracted much attention in the previous years. With a renewed focus and thrust in this area, reporting of employee health and fitness data (which includes General Health Illness, Occupational Health and Employee Fitness) were being requested from the mines.

7.1 Historical Health Performance of the Industry



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Health Illness Cases	19,493	25,127	47,396	37,262	54,309	70,601	54,773	29,725	53,678
Total Manpower	11,591	13,436	16,121	22,100	22,470	22,110	20,567	20,502	15,314

Figure 25: Health Illness Cases

7.2 Employee Health

The total illness cases reported during quarter one (1) of 2017 was 16,242. The main contributors to this statistics continued to be; 'Diseases of the Respiratory System' which contributed about 41% of the total illness cases being reported. Some of the illnesses in this category include; respiratory conditions, Flu/simple cough/tonsillitis and Pneumonia while 'Diseases of the musculoskeletal system and connective tissue' contributed to about 18% mostly dominated by Myalgia, backache, Musculoskeletal pain, and 'Diseases of the skin and subcutaneous tissue' contributed to about 16% which include; Boils (abscess/carbuncles) dermatitis, and skin infections

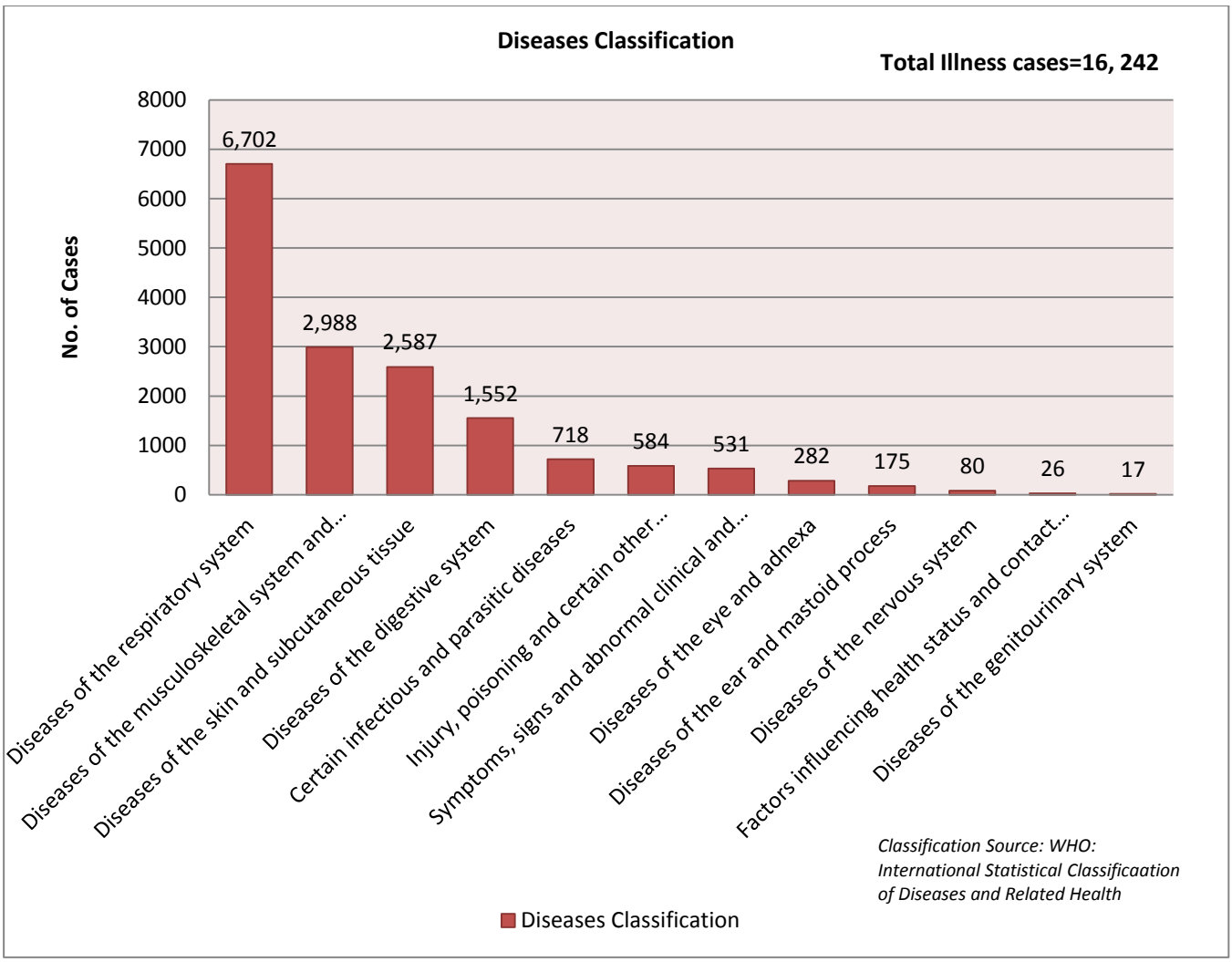
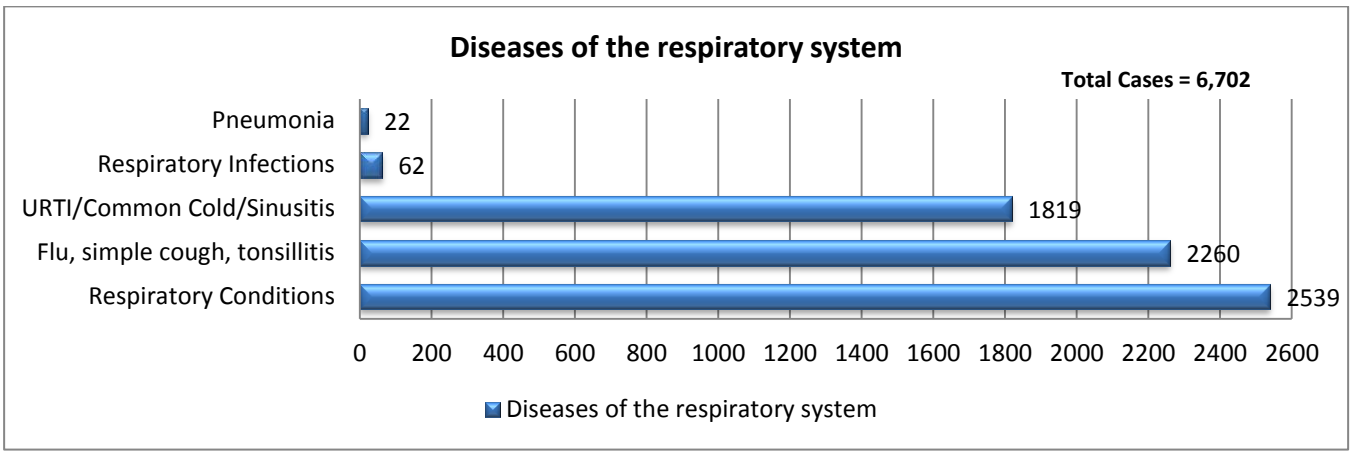
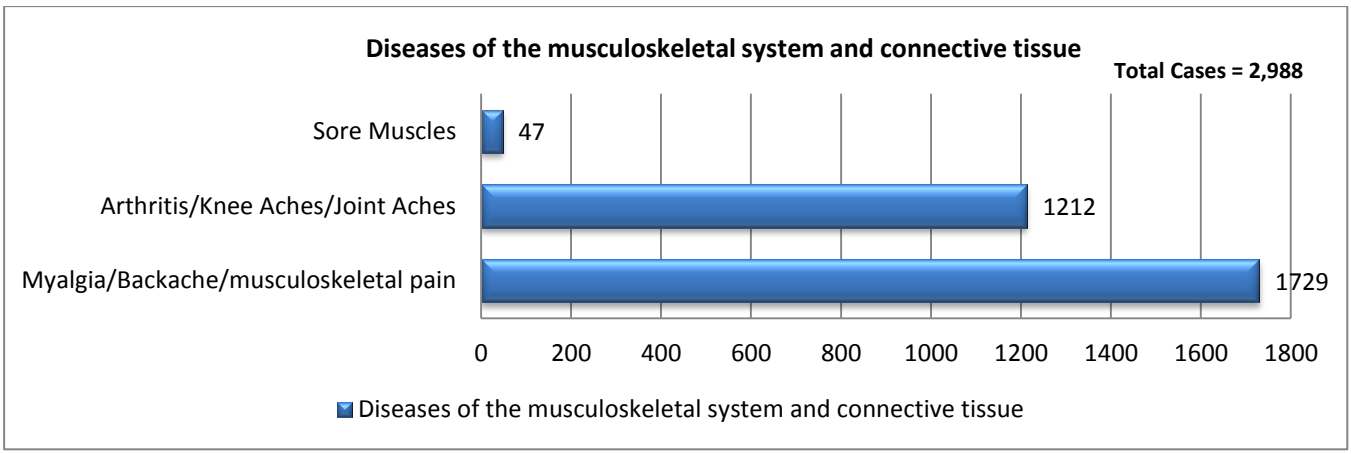
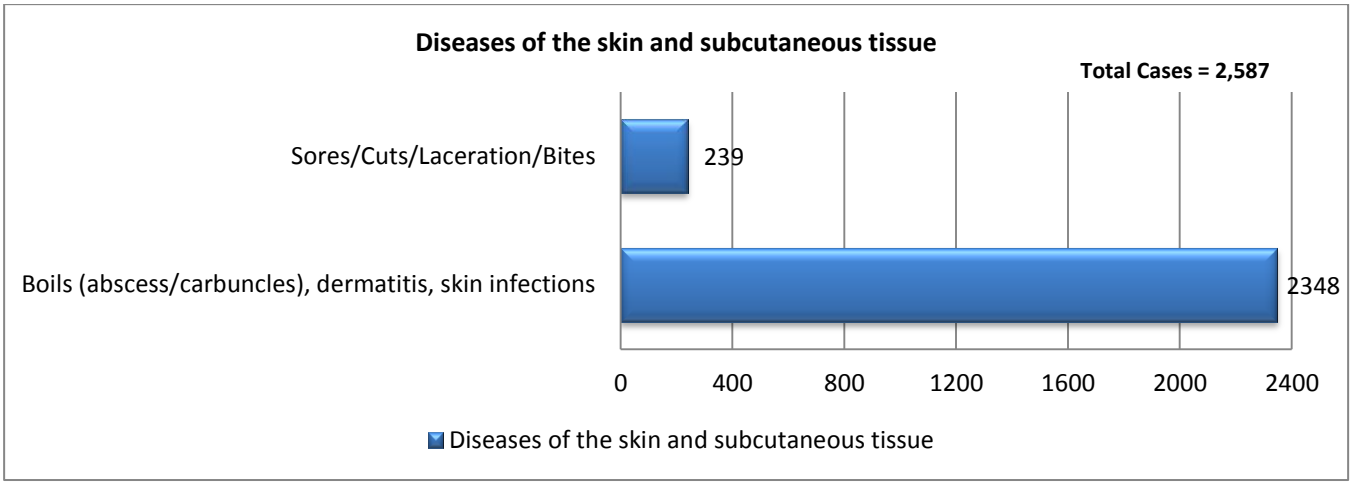


Figure 26: Disease Classification







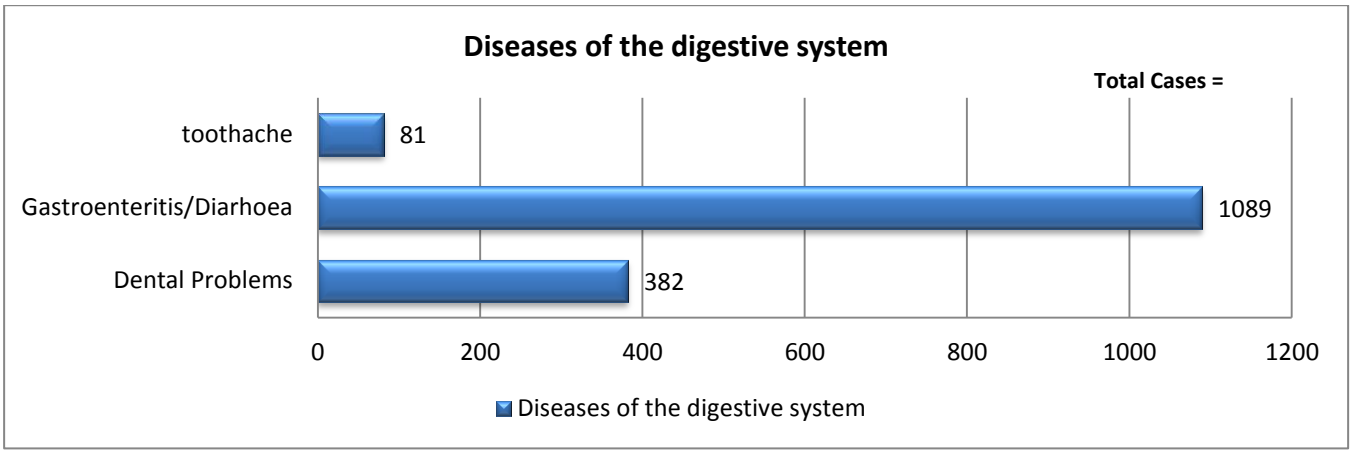


Figure 27: Breakdown of top four (4) disease classifications

7.3 Employee Fitness Analysis

Employee fitness continues to be an area which requires more thrust. A total of 370 cases were being reported out of which 48.65% appears to be overweight, 14.05% hypertension, 13.51% obese and 12.70% suffers from chronic backache.

The pie chart on the right shows the distribution. The subsequent charts show the fitness classification and distribution by occupation.

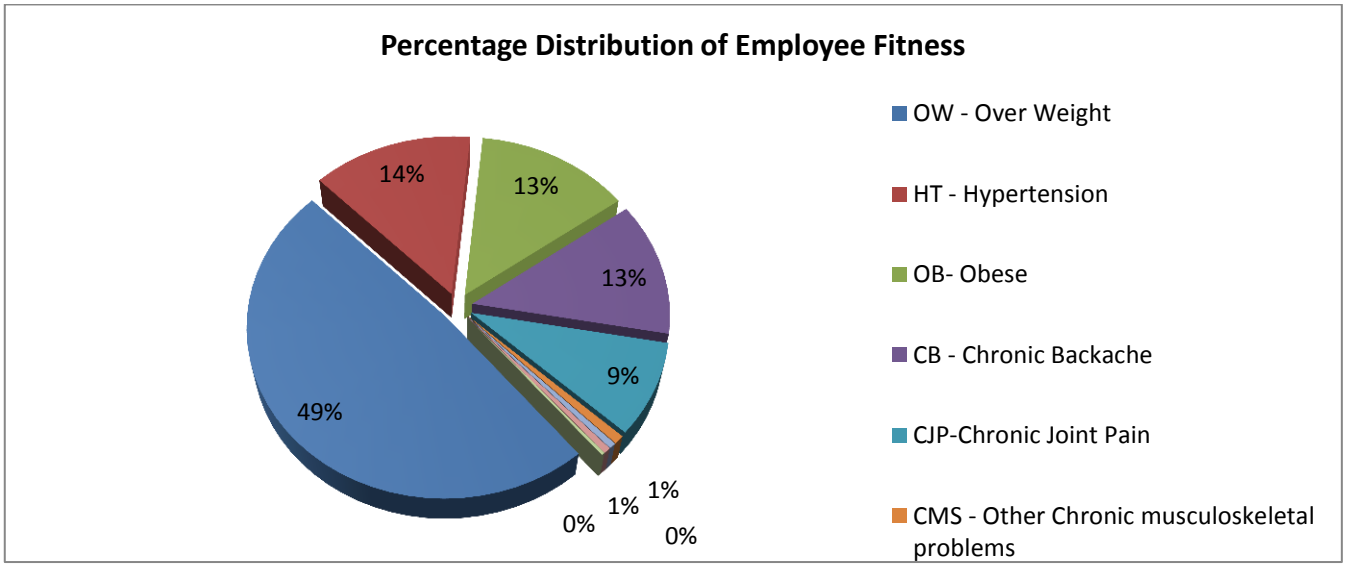


Figure 28: Percentage Distribution of Employee Fitness

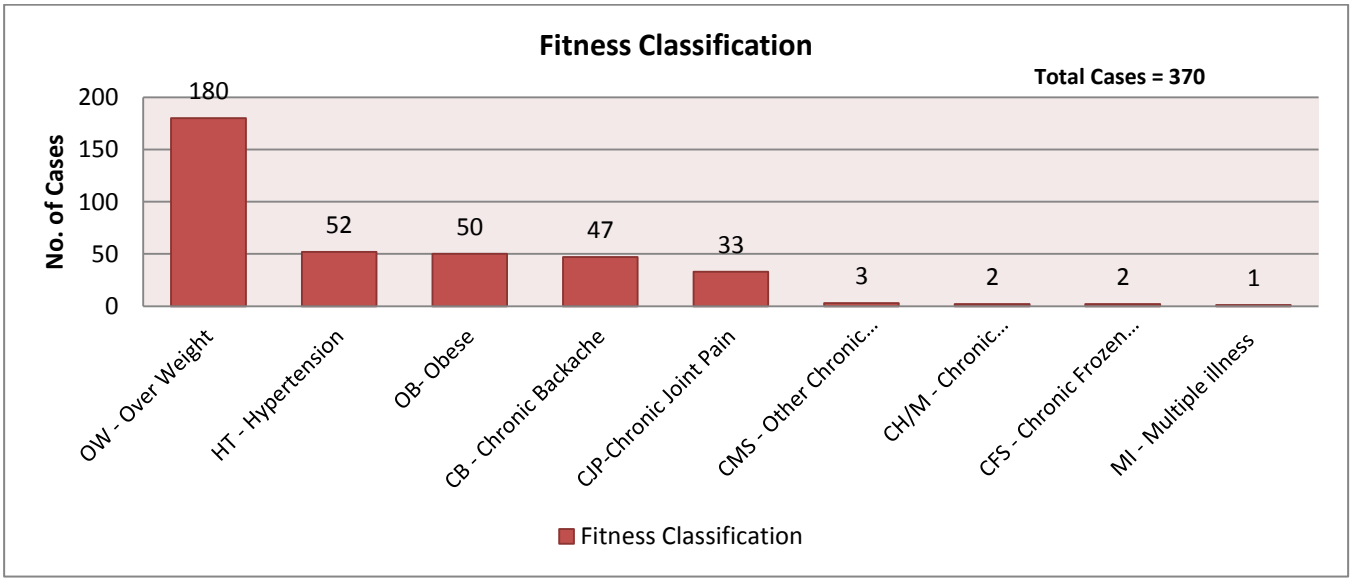


Figure 29: Fitness Classification

Further analysis into the occupations revealed that; Heavy Vehicle Drivers contributed to 22.7%, Heavy Equipment Operators contributed 18.38% while Fitters contributed 17.84% and Off-siders/ Assistants contributed to 15.41%

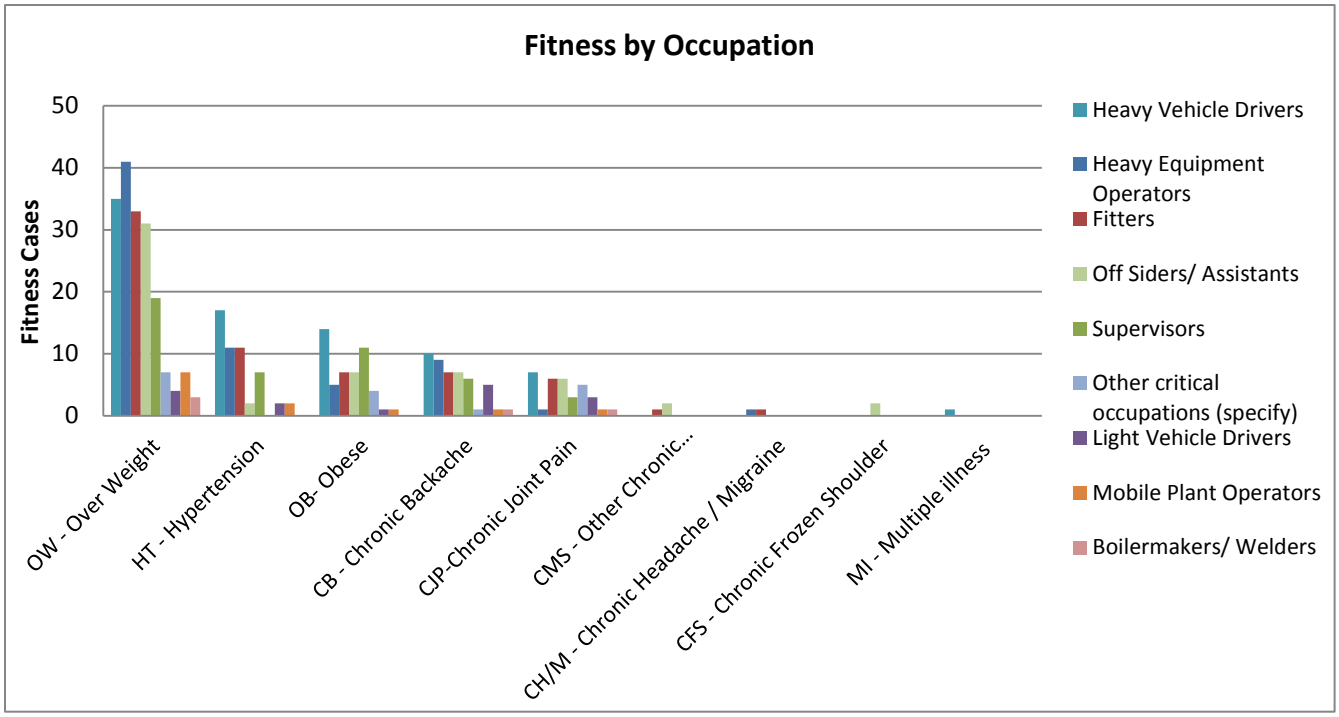


Figure 30: Fitness by Occupation

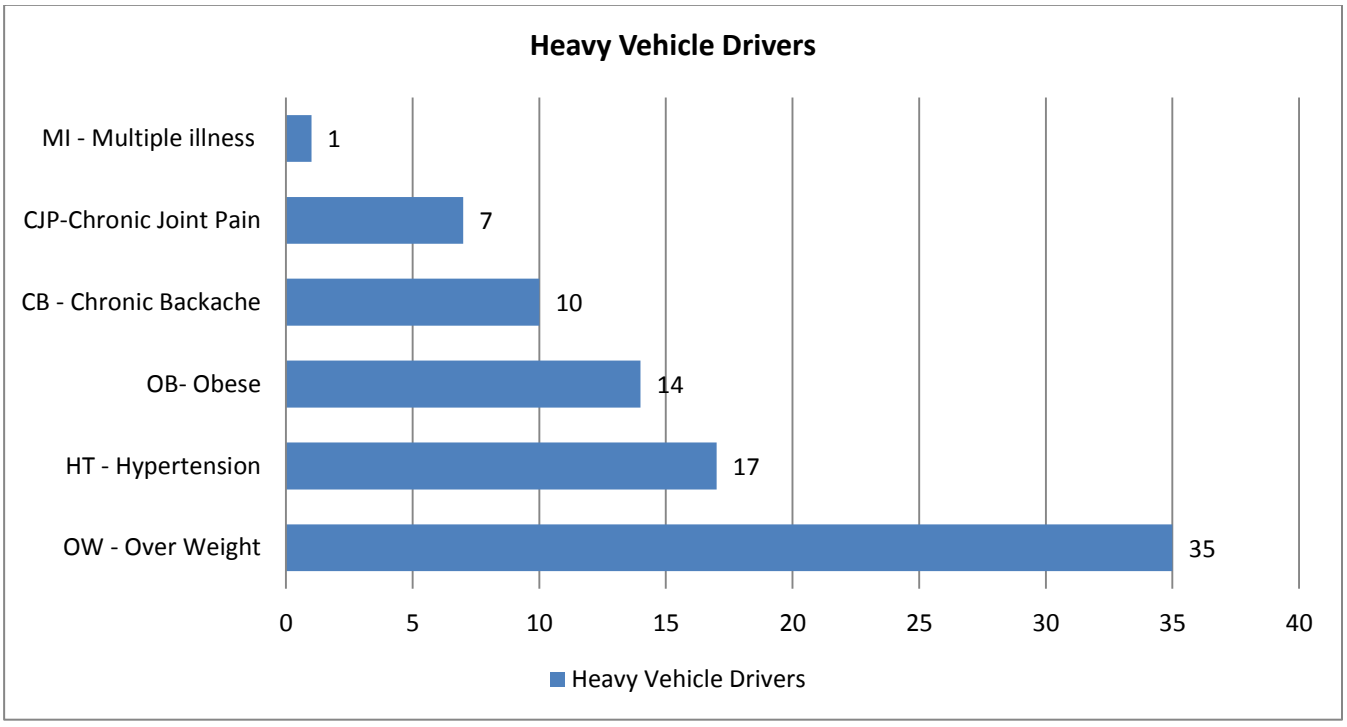


Figure 31: Fitness Classification of Heavy vehicle Drivers

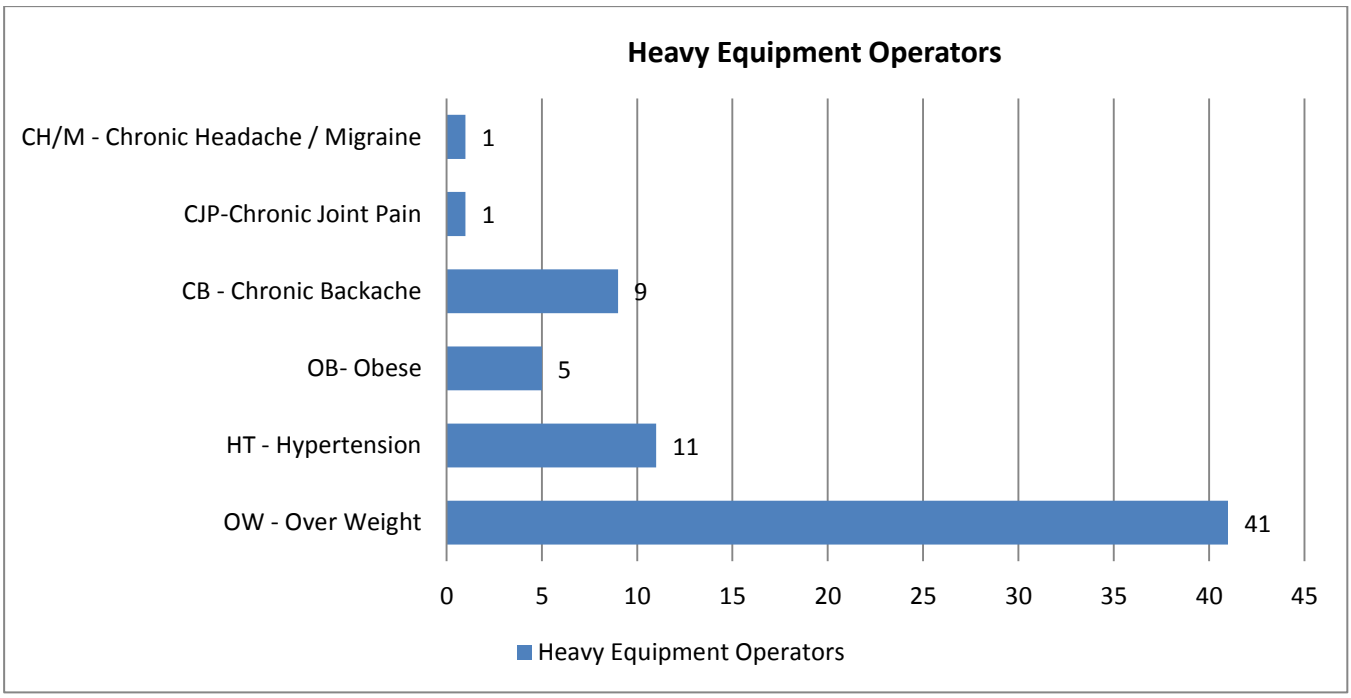


Figure 32: Fitness Classification of Heavy Equipment Operators

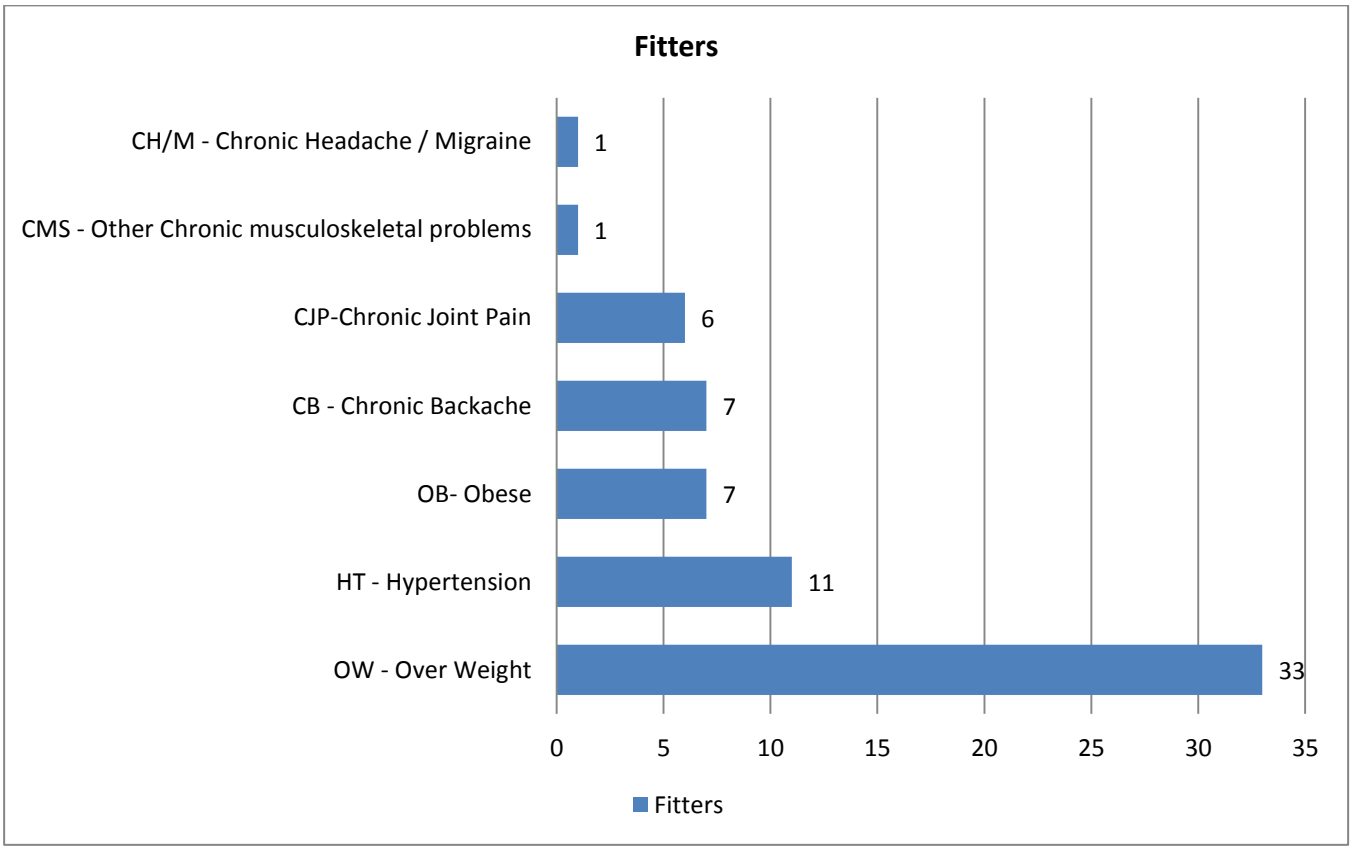


Figure 33: Fitness Classification of Fitters

7.4 Key Health and Fitness Initiatives undertaken during the quarter

Below is a list of significant Health & Fitness Initiatives that were carried out during the quarter. Most of these programs were focused on lifestyle diseases affecting the livelihoods of individuals at the workplace.

7.4.1 Health Awareness

Health monthly themes for the quarter covered range of topics;

- Emotional and Mental Health awareness
- Stress
- Dietary Choices – Healthy Eating Food Hygiene

7.4.2 Health Programs

Health programs included

- Healthy Living – A people safety and health improvement program
- Training of Paramedics

7.4.3 Health Surveillance

Occupational Health Surveillance

- Medical Examinations – Regular health checks conducted to monitor lifestyle diseases
- Constant monitoring of high risk employees – this program is mainly targeted for the work force that are affected by lifestyle diseases.

8 Abbreviations and Definitions

8.1 Abbreviations

- F – Fatality
- PII – Permanent Incapacitated Injury
- LTI – Lost Time Injury
- RWI – Restricted Work Injury
- MTI – Medical Treatment Injury
- FAI – First Aid Injury
- HPI – High Potential Incident
- NM – Near Miss
- FFR – Fatality Frequency Rate
- SIFR – Serious Injury Frequency Rate
- TIFR – Total Injury Frequency Rate
- SR – Severity Rate
- NMSW – National Mining Safety Week

8.2 Definitions

Fatality (F) –Death of a person

Permanent Incapacitated Injury (PII) – The loss of a bodily function or amputation of a body part.

Days lost- All rostered shifts that a worker is unable to work as a consequence of an injury or an unsafe event, not including the day of the injury. This also includes days lost because of recurrences of injuries from previous periods and days on alternative duties after returning to work. A fatal injury is treated as 220 days lost.

Shift length - 12 hours of work within a 24 hour period including travel time.

Lost Time Injury (LTI) – An accident resulting in a; fatality, permanent disability or Injuries which restricts the person; from performing his/her routine work in the following rostered shift of work.

Restricted Work Injury (RWI) – Injury which temporarily restricts the person from performing his/her routine work whilst the person is able to attend to an alternate work in his/her rostered shift of work.

Medical Treatment Injury (MTI) - Injury which temporarily restricts the person from performing his/her routine work for the rest of the shift but does not restrict the person to return to his/her routine work in the following rostered shift of work.

First Aid Injury (FAI) – Injury which does not restrict the person from performing his/her routine work for the rest of the shift.

High Potential Incident (HPI) – An incident that results in loss or damage to property without injuring a person.

Near Miss (NM) – An incident that neither results in any loss or damage to the property nor injuring a person.