OCCUPATIONAL HEALTH

1. INTRODUCTION

In terms of section 11(5B) of the Mine Health and Safety Act (MHSA), Act No. 29 of 1996, as amended; the employer must notify the Principal Inspector of mines (PIoMs) of any occurrence at the mine that results in serious illness or death of any person. The employers must submit to the PIoMs the Health Incident Reports (HIRs); DMRE 231 Forms completed by the Occupational Medical Practitioners (OMPs) on monthly basis to report occupational diseases diagnosed amongst mine employees during medical surveillance.

2. PREAMBLE

The International Labour Organization (ILO) defines occupational diseases as:

- diseases acquired during work; and
- according to medical science having been triggered by exposure at work significantly higher than that of the average population; and
- classified by legislation as such.

In collating and interpreting statistics, it must be borne in mind that many occupational diseases, such as those due to noise at work, crystalline silica, respirable coal dust, platinum mine respirable dust or asbestos dust, are lagging indicators of occupational health and only show their onset years or decades after exposure have ended. Diagnosed/confirmed or compensated cases therefore often reflect the workplace situation of many years ago and do not necessarily reflect the current state of health protection at work (ILO).

3. OVERVIEW OF OCCUPATIONAL MEDICINE PERFORMANCE

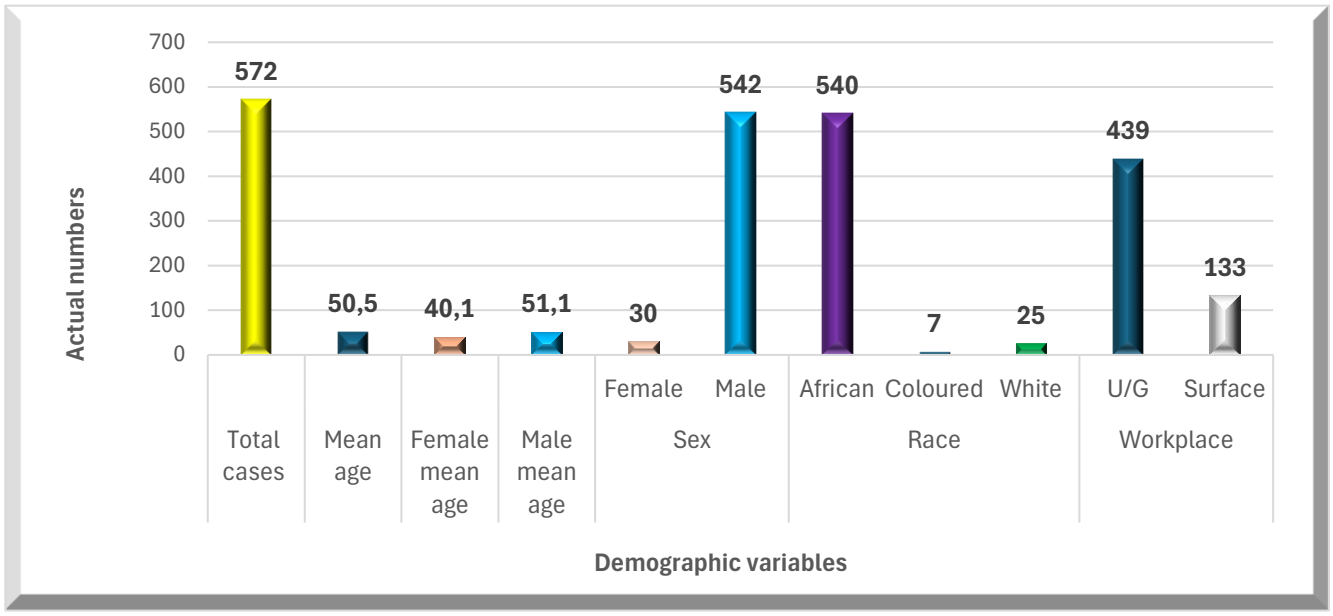
During April-September 2024/25, the mines reported 572 occupational diseases, which is a decrease of 25.03% from 763 cases reported during the same period in 2023/24. The analysis showed that the reported cases have a mean age of 50.5**,** as illustrated in the figure below.

Formula for mean (average) age.
Total age of all employees ÷ total number of cases reported = years mean age

4. ANALYSIS OF DEMOGRAPHIC DATA OF REPORTED CASES

The females account for 5.24% of the total cases reported. The race disaggregation shows 94.4% African, 4.4% White and 1.2% of Coloured employees. The analysis shows that 76.7% of employees work underground, as outlined in the figure below.

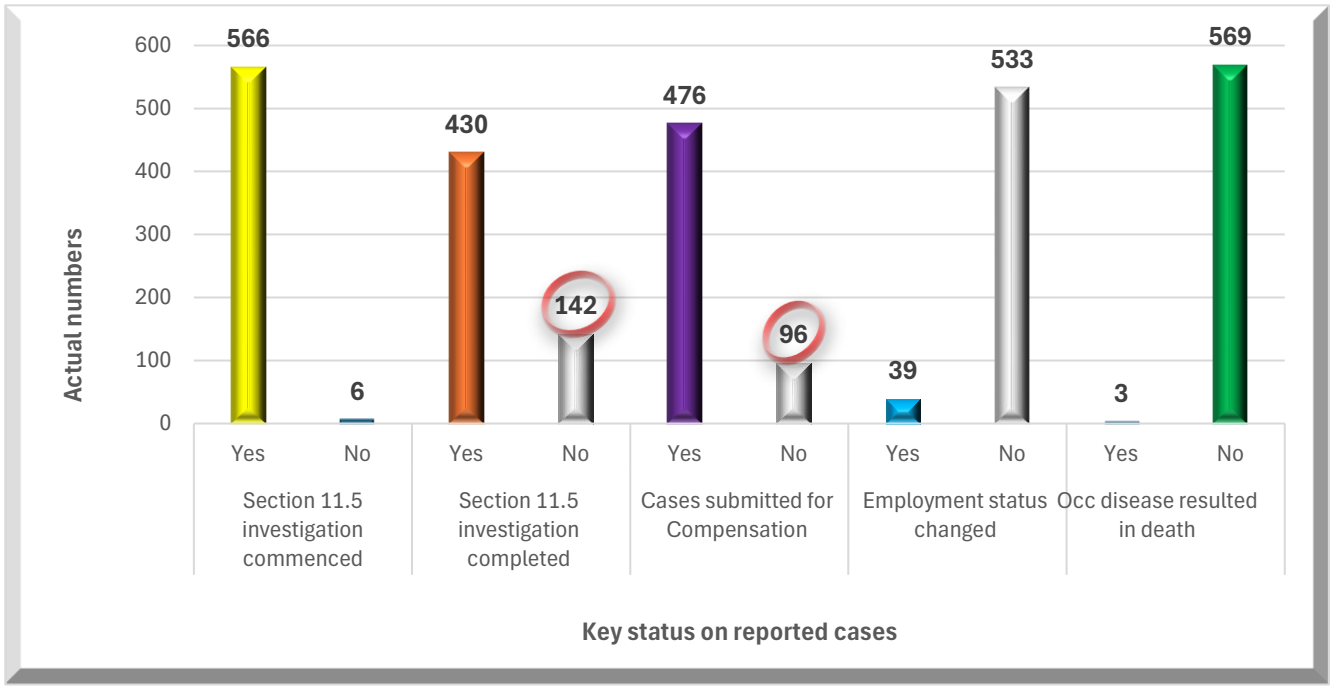
Figure 4.1: Demographic data on reported cases



5. INVESTIGATION AND SUBMISSION STATUS ON OCCUPATIONAL DISEASES

The employer is mandated by section 11.5 of the MHSA to investigate every serious illness that occurs on a mine. The analysis shows that 99.0% of investigations were commenced; 75.2% were completed and 83.2% of cases were submitted for compensation. The employment status changed on 6.8% of cases and 0.5% of deaths due to work-related diseases were reported, as illustrated in the figure below.

Figure 5.1: Section 11.5 Investigations, compensation submission status and employment status change



6. OCCUPATIONAL DISEASES REPORTED

6.1 ANALYSIS OF OCCUPATIONAL DISEASES PER REGION

There is a notable decrease in the cases reported from the Eastern Cape, Free State, Gauteng, North-West: Klerksdorp, and North-West: Rustenburg regions. The cases reported from KwaZulu-Natal, Mpumalanga, and Northern Cape regions increased; whilst cases from Limpopo and Western Cape regions remained unchanged for both reporting periods, as shown in the table below.

Calculation of the percentage change:
(Current total–previous total/previous total* 100 = % change

((572-763)/763)*100= -25.03%

TABLE 6.1: Analysis of occupational diseases reported per region: April-September 2024/25 vs April-September 2023/24

	EC		FS		GR		KZN		LP		Mpu		NC		NWK		NW R		WC		TOTAL		Percentage change
	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	
PTB	4	1	29	20	105	58	1	7	14	15	27	35	12	23	61	22	87	85	0	0	340	266	-21.76
Sil+TB	0	0	2	0	1	3	0	0	0	0	0	0	0	0	12	6	1	1	0	0	16	10	-37.50
MDR-TB	0	0	1	2	2	3	0	1	0	1	1	0	1	0	1	0	5	2	0	0	11	9	-18.18
XDR-TB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!
Silicosis	0	0	48	13	19	25	0	0	0	0	0	1	0	0	24	8	4	3	0	0	95	50	-47.37
Asbestosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!
CWP	0	0	0	0	0	0	0	0	0	0	3	4	0	0	0	0	0	0	0	0	3	4	33.33
COAD	0	0	15	2	0	3	0	0	0	0	2	1	0	0	2	1	12	0	0	0	31	7	-77.42
Occ asthma	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3	2	-33.33
Occ lung cancer	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	#DIV/0!
NIHL	3	0	17	9	77	58	1	1	24	19	3	16	3	4	12	9	104	79	2	2	246	197	-19.92
Occ skin diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	1	3	200.00
Platinum salt sensitivity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!
Musculoskeletal disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	6	0	0	1	9	800.00
Progressive massive fibrosis	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	1	-80.00
Other occ diseases**	0	0	0	0	2	1	0	0	0	2	0	0	1	2	2	0	6	7	0	0	11	12	9.09
Total	7	1	112	46	213	153	2	9	38	38	37	57	17	34	114	48	221	184	2	2	763	572	-25.03

**Other occupational diseases include (e.g., extra pulmonary tuberculosis, miliary tuberculosis, sarcoidosis, bronchiectasis, anthracosis).*

6.2 ANALYSIS OF OCCUPATIONAL DISEASES BY COMMODITY

The cases reported from the gold, platinum, copper and diamond mines showed a decrease; whilst cases from the coal, chrome, iron ore, manganese and other mines increased, as outlined in the table below.

TABLE 6. 2: Analysis of occupational diseases reported by commodity: April-September 2024/25 vs April-September 2023/24

	Gold		Platinum		Coal		Diamond		Copper		Chrome		Iron Ore		Manganese		Other mines*		TOTAL	
	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25	Q2 2023/24	Q2 2024/25
PTB	195	102	95	86	26	37	5	2	1	3	6	12	2	5	4	14	6	5	340	266
Sil+TB	15	9	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	10
MDR-TB	4	5	6	3	0	0	1	0	0	0	0	0	0	0	0	0	0	1	11	9
XDR-TB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Silicosis	91	46	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	95	50
Asbestosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CWP	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	3	4
COAD	16	6	12	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	31	7
Occ asthma	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	3	2
Occ lung cancer	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
NIHL	102	74	116	84	4	17	3	2	8	3	3	6	1	0	1	2	8	9	246	197
Occ skin diseases	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	3
Platinum salt sensitivity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Musculoskeletal disorders	0	0	1	6	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	9
Progressive massive fibrosis	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
Other occ diseases**	4	1	6	8	0	0	0	0	0	0	0	1	1	0	0	1	0	1	11	12
Total	433	245	242	193	37	59	10	4	9	6	9	19	4	7	5	20	14	19	763	572
Percentage change	-43.42		-20.25		59.46		-60.00		-33.33		111.11		75.00		300.00		35.71		-25.03	

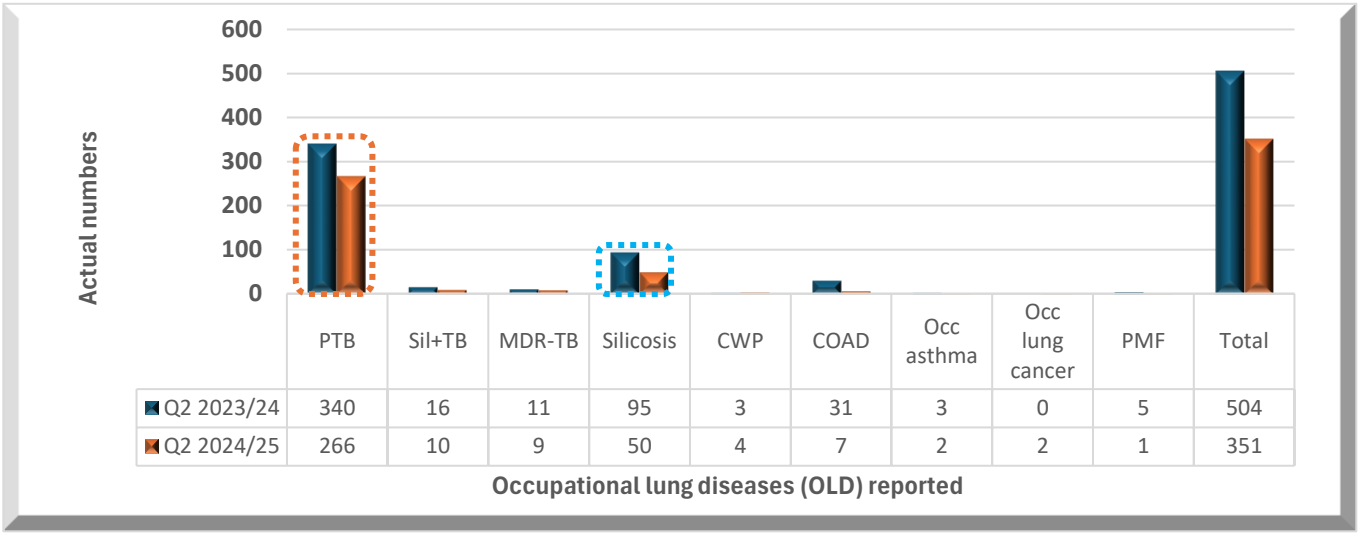
*Other mines include hard rock (e.g., cobalt, dolerite, granite, limestone, magnesite, mica) and soft rock (e.g., clay, dolomite, salt, sand, shale, titanium, vanadium)
**Other occupational diseases include (e.g., extra pulmonary tuberculosis, miliary tuberculosis, sarcoidosis, bronchiectasis, anthracosis)

7. ANALYSIS OF MOST PREVALENT OCCUPATIONAL DISEASES IN SAMI

7.1 OCCUPATIONAL LUNG DISEASES (OLD)

There is a notable decrease of 19.11% on number of occupational lung diseases (OLD) reported as illustrated in the figure below. A slight increase was noted on the MDR-TB and CWP cases reported. The OLD include Pulmonary tuberculosis (PTB), Silico-tuberculosis (Sil+TB), Multidrug-resistant TB (MDR-TB), Silicosis, Coal workers' pneumoconiosis (CWP), Chronic Obstructive Airways Disease (COAD), Occupational asthma, Occupational lung cancer, and Progressive massive fibrosis (PMF).

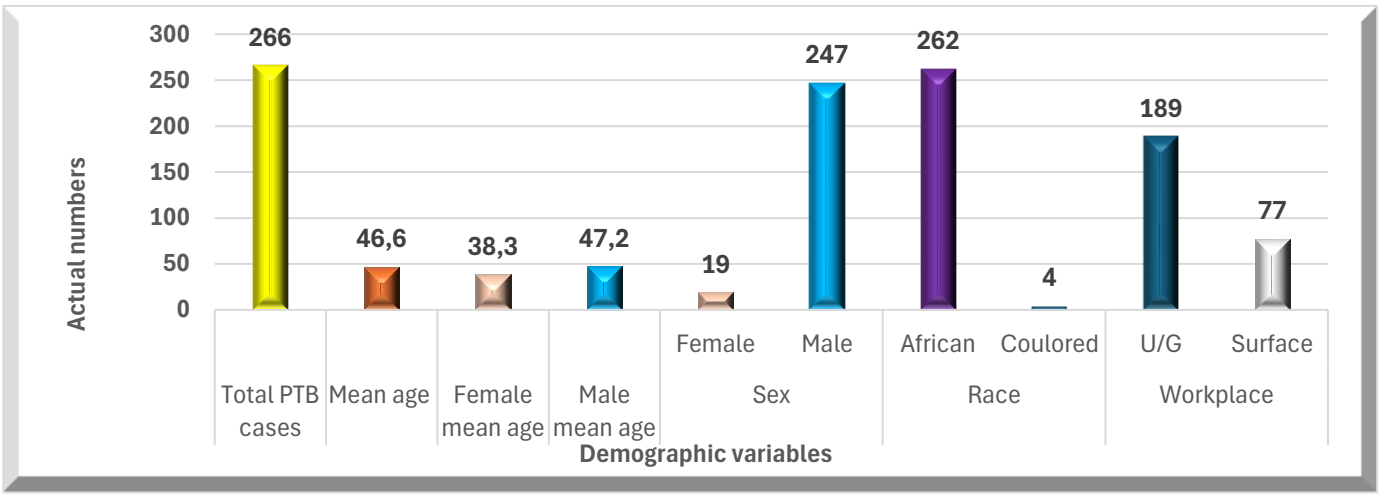
FIGURE 7.1: OCCUPATIONAL LUNG DISEASES (OLD)



7.2 PULMONARY TUBERCULOSIS (PTB)

The mines reported 266 pulmonary tuberculosis (PTB) cases. The females account for 7.1% of the incidence cases. The race disaggregation shows that 98.5% of employees are African and 71.1% of employees work underground, as illustrated in the figure below

FIGURE 7.2 Demographic data on pulmonary tuberculosis (PTB) cases

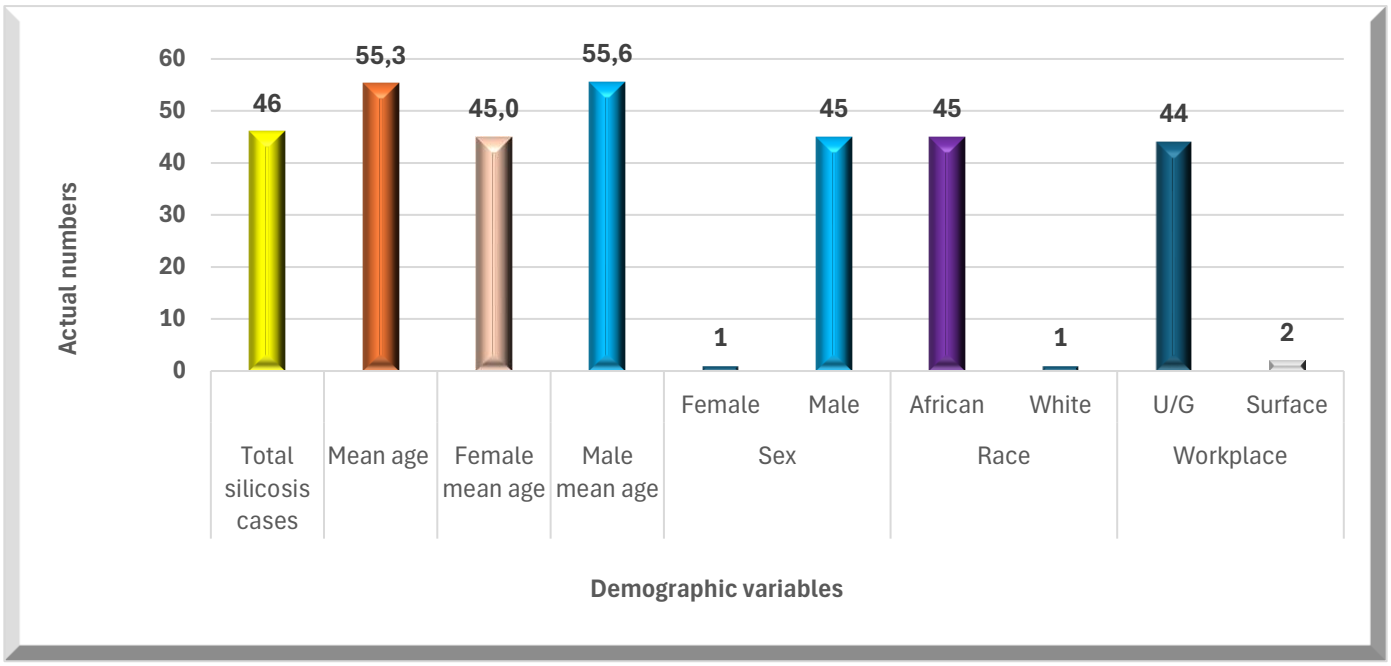


7.3 PNEUMOCONIOSIS

7.3.1 Silicosis

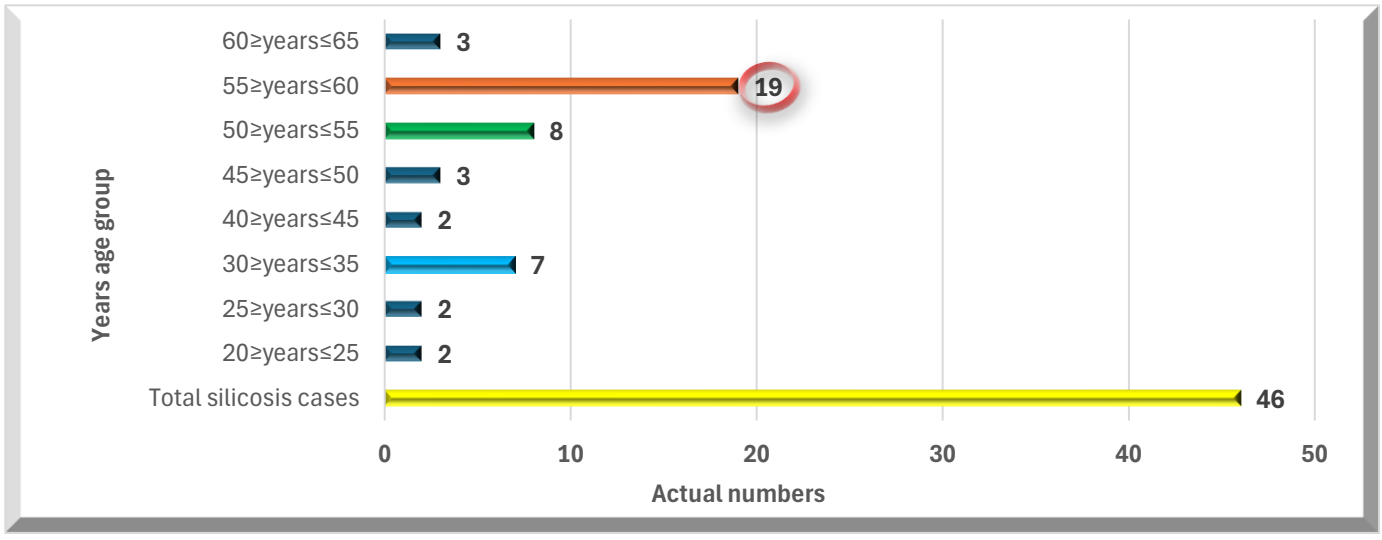
The gold sector reported 46 silicosis cases, as outlined in the figure below.

FIGURE 7.3.1(a) Demographic data on silicosis cases



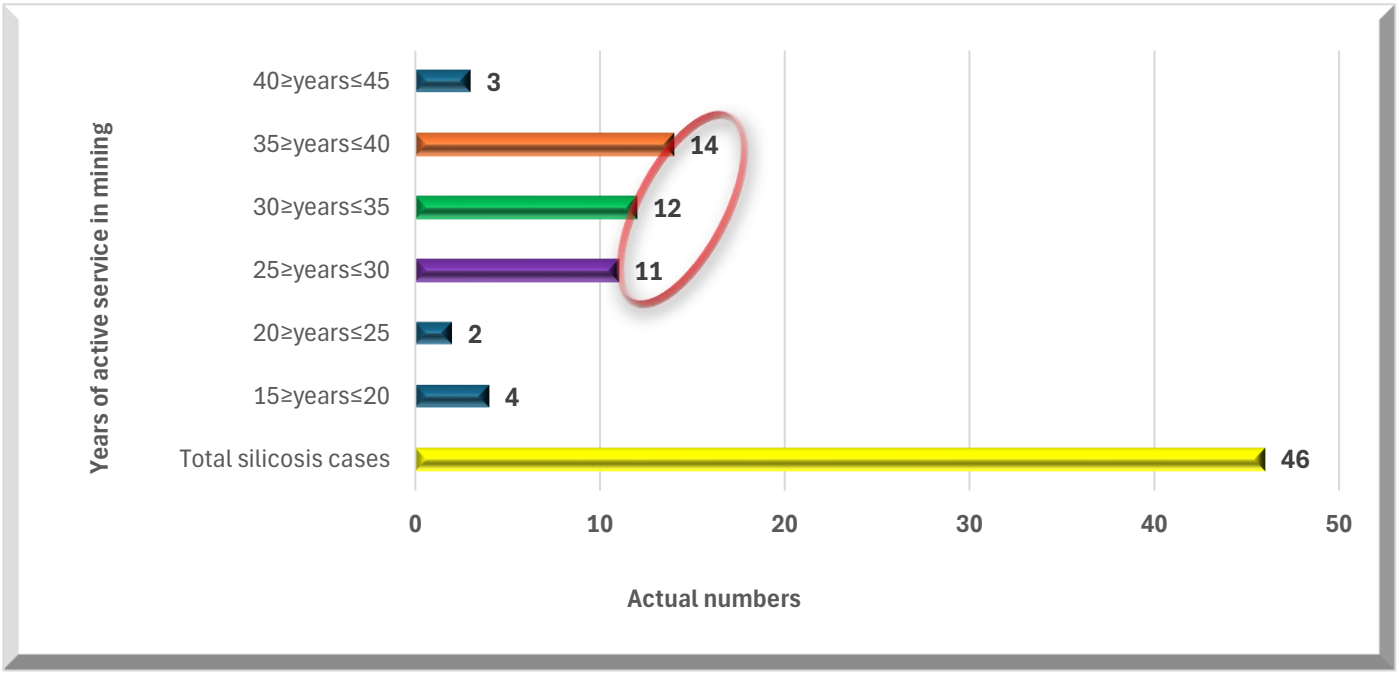
The analysis shows that 41.3% of silicosis cases are within the age group of 55-60 years, as outlined in the figure below.

FIGURE 7.3.1(b) Silicosis cases by years age groups



Most silicosis cases are within 35-40, 30-35, and 25-30 years of service in mining, as shown in the figure below.

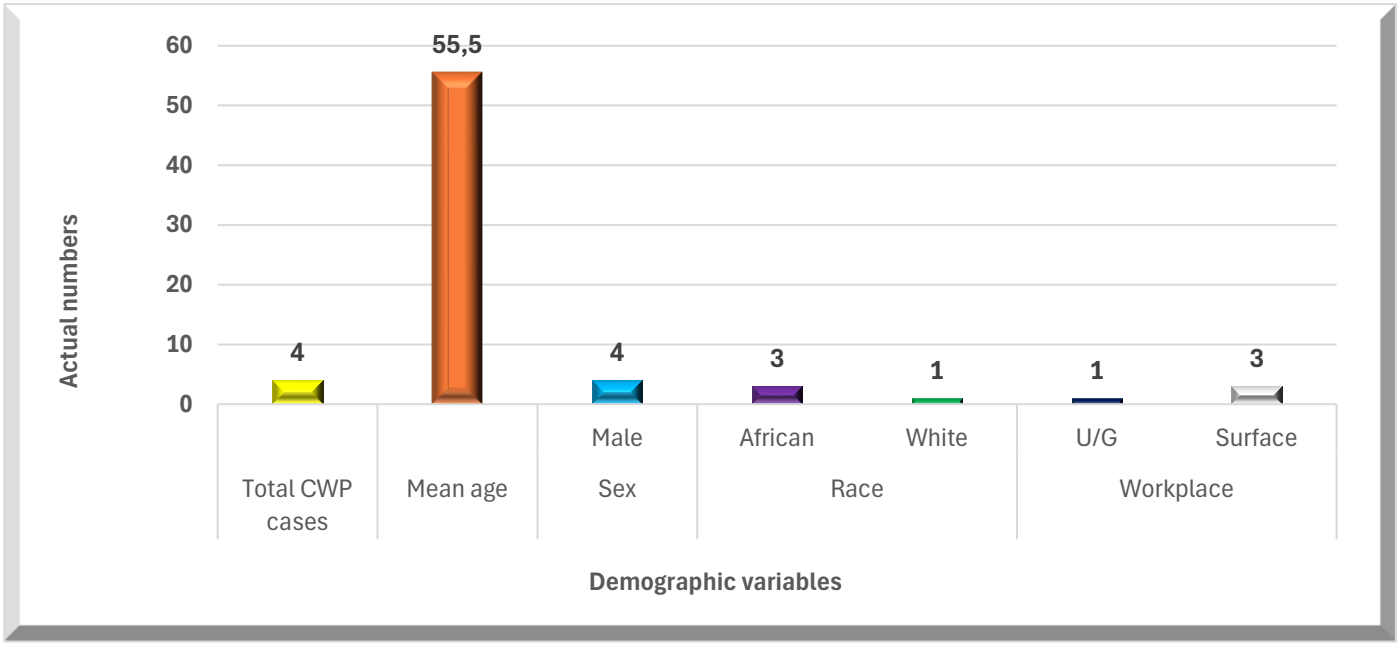
FIGURE 7.3.1(c) Silicosis cases by years of active service in mining



7.3.2 Coal Workers' Pneumoconiosis (CWP) cases

The mines reported four cases of Coal worker' pneumoconiosis (CWP), and occupations which accounted for most incidence cases are Operator, Plant Operator, Engineering Foreman, and Grader Operator, respectively. The cases have a mean age of 55.5, as outlined in the figure below.

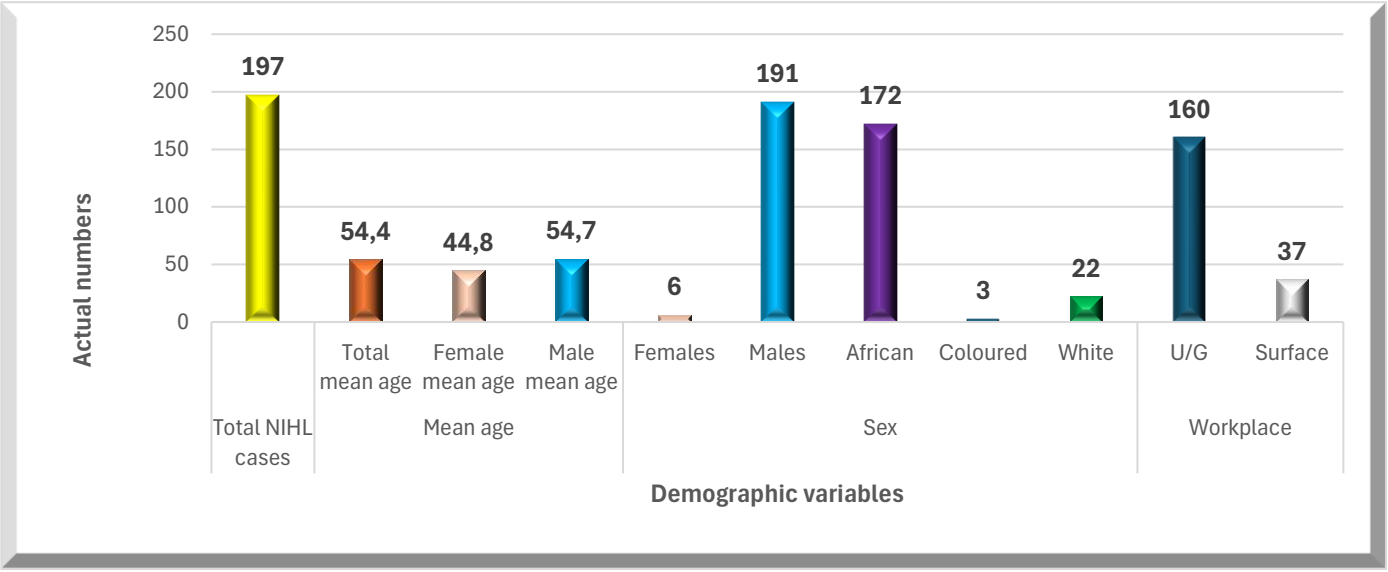
FIGURE 7.3.2: Demographic data on Coal Workers' Pneumoconiosis (CWP) cases



7.4 NOISE-INDUCED HEARING LOSS (NIHL)

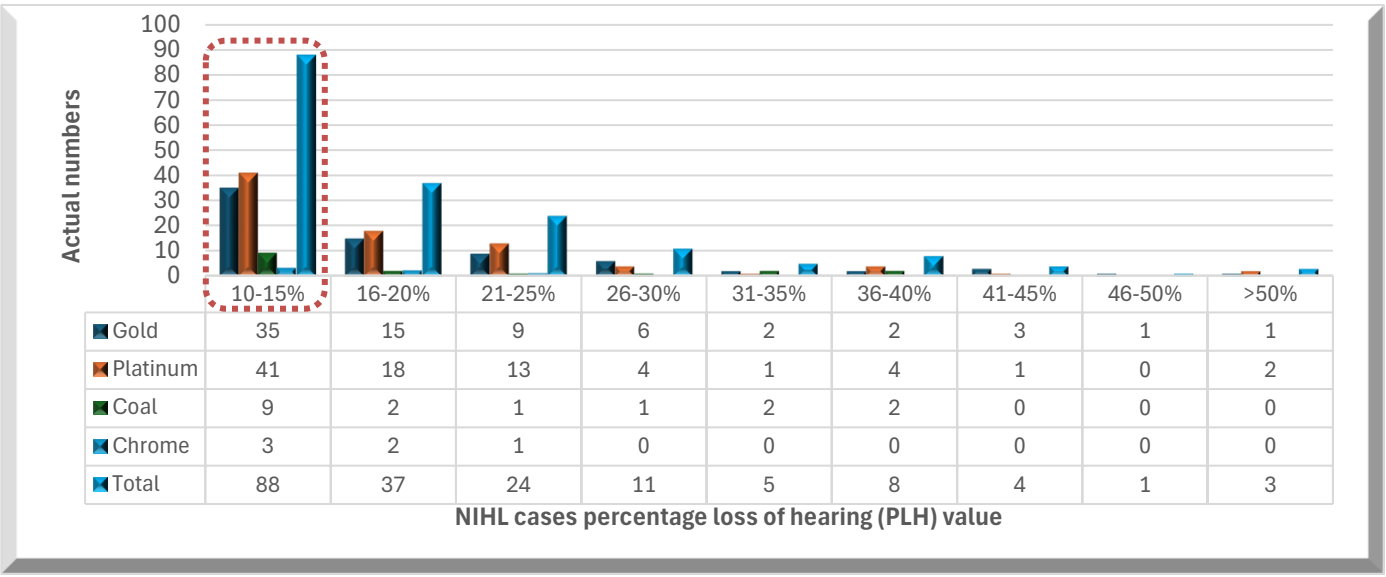
The mines reported 197 cases of noise induced hearing loss (NIHL), and the cases have a mean age of 54.4. Data disaggregation by sex shows that females account for 3.0% of the incidence cases, and the race data shows 87.3% African, 11.2% White, and 1.5% of Coloured employees. The analysis shows that 81.2% of employees work underground, as outlined in the figure below.

FIGURE 7.4.1: Demographic data on noise induced hearing loss (NIHL) cases



The baseline audiogram is used as the reference for all periodic audiograms of employees subject to medical surveillance in terms of regulation 11.4(1) of the MHSA Regulations. The analysis shows that most cases are within the value of 10-15 percentage loss of hearing (PLH), as outlined in the figure below.

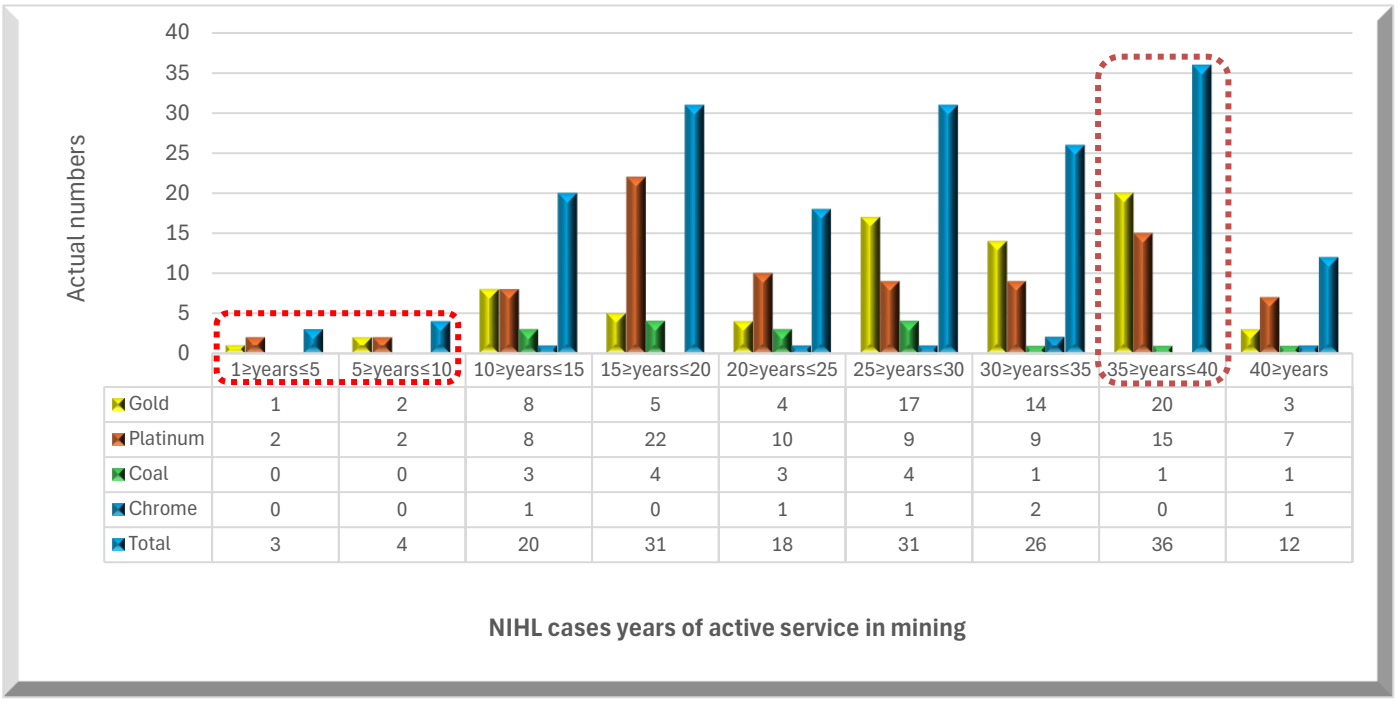
FIGURE 7.4.2: Analysis of NIHL by percentage loss of hearing (PLH) value



	10-15%	16-20%	21-25%	26-30%	31-35%	36-40%	41-45%	46-50%	>50%
Gold	35	15	9	6	2	2	3	1	1
Platinum	41	18	13	4	1	4	1	0	2
Coal	9	2	1	1	2	2	0	0	0
Chrome	3	2	1	0	0	0	0	0	0
Total	88	37	24	11	5	8	4	1	3

Most NIHL cases are within 35-40 years of active service in mining, however, it is concerning to note the seven cases within 01-10 years of active service in mining, as shown in the figure below.

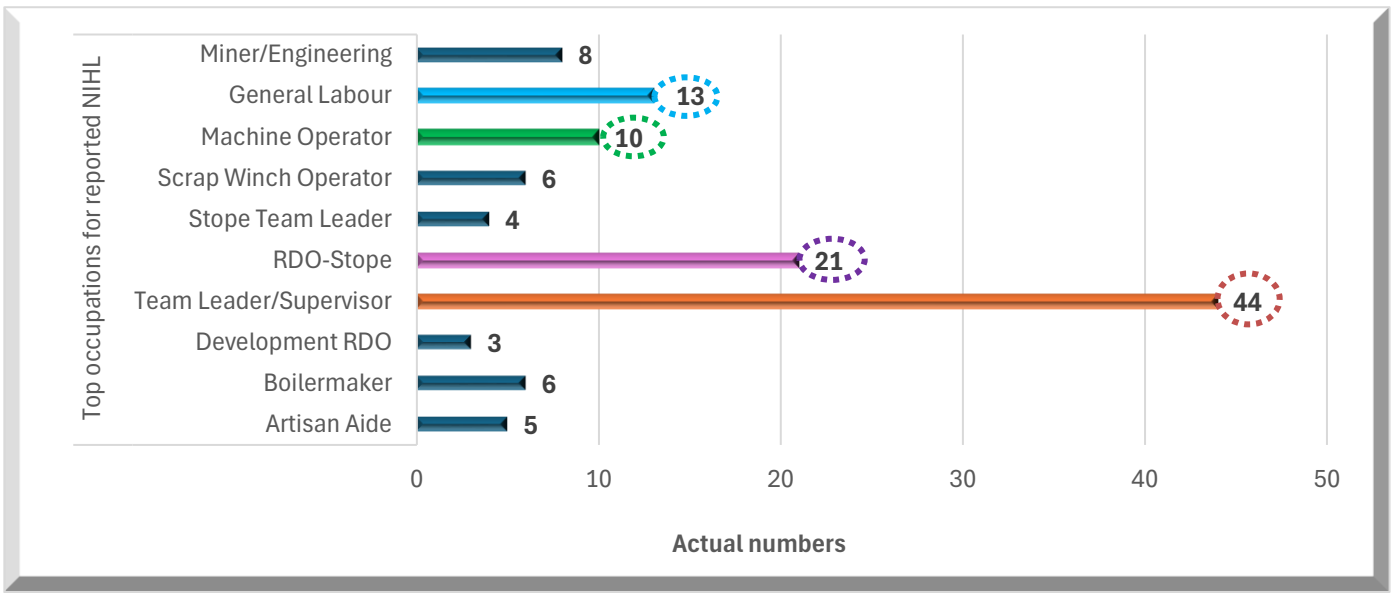
FIGURE 7.4.3: Analysis of NIHL by years of active service in mining



	1≥years≤5	5≥years≤10	10≥years≤15	15≥years≤20	20≥years≤25	25≥years≤30	30≥years≤35	35≥years≤40	40≥years
Gold	1	2	8	5	4	17	14	20	3
Platinum	2	2	8	22	10	9	9	15	7
Coal	0	0	3	4	3	4	1	1	1
Chrome	0	0	1	0	1	1	2	0	1
Total	3	4	20	31	18	31	26	36	12

Some of the top 10 occupations which account for the highest incidence of noise induced hearing loss (NIHL) cases at mines include Team Leader/Supervisor, Rock Drill Operator (RDO)-Stope, General Labourer and Machine Operator, as outlined in the figure below.

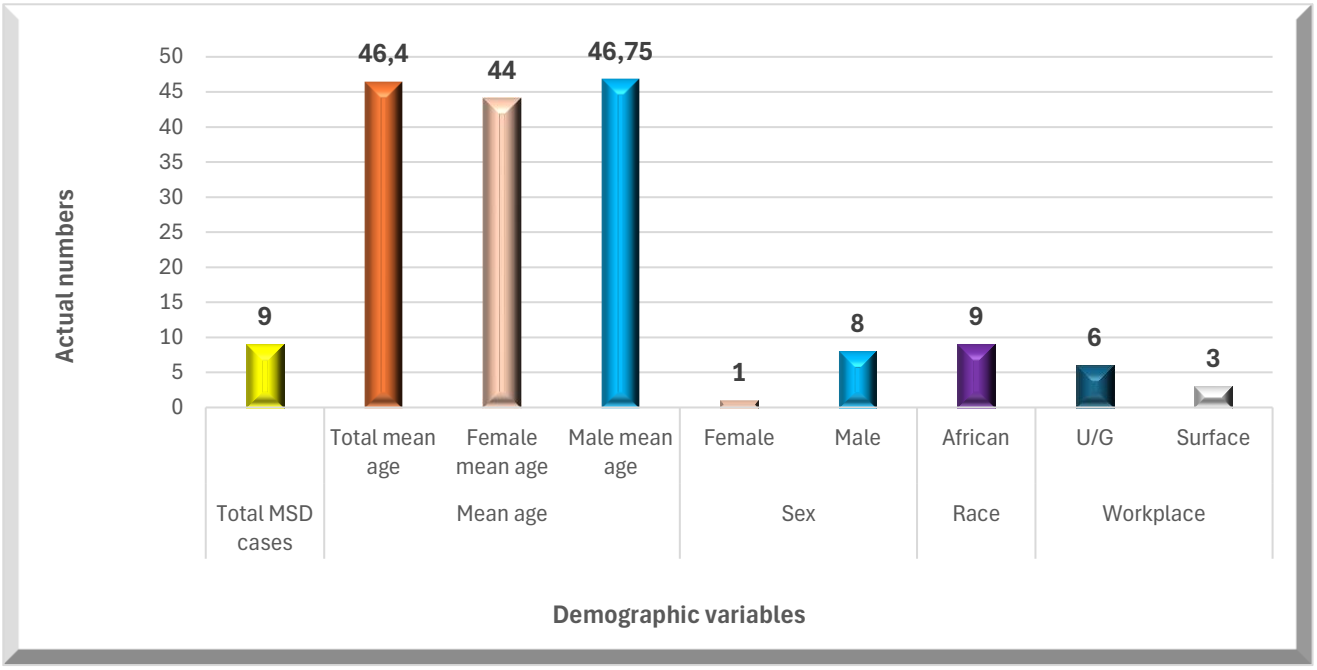
FIGURE 7.4.4: Top 10 occupations for reported NIHL cases



7.5 MUSCULOSKELETAL DISORDERS (MSDs

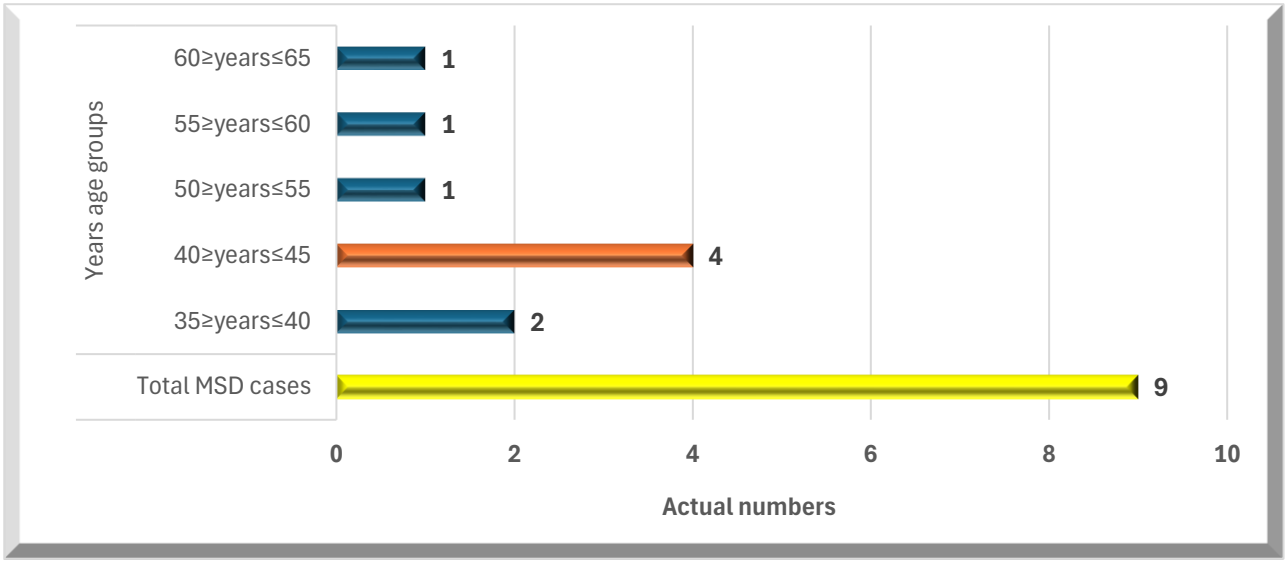
The mines reported nine cases of musculoskeletal disorders (MSDs). The females account for 11.1% of incidence cases and 67% of employees work underground, as outlined in the figure below.

FIGURE 7.5.1: Demographic data on musculoskeletal disorders (MSDs)



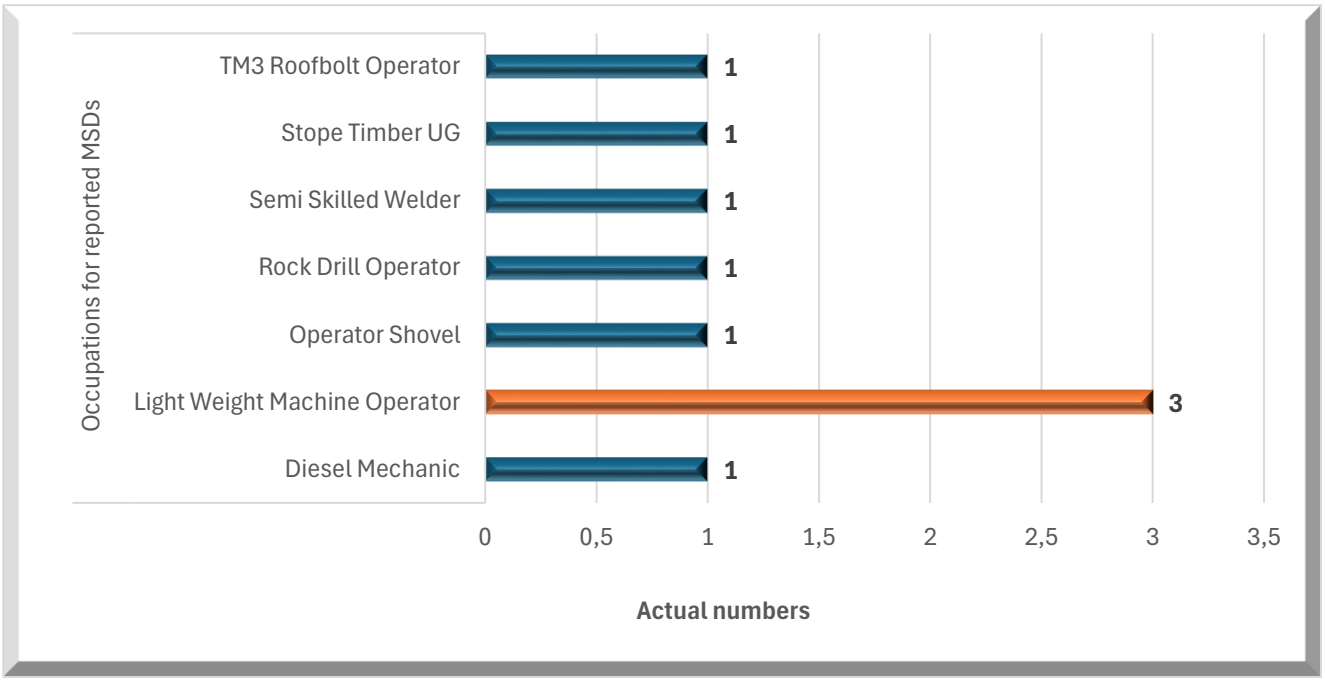
Most cases of musculoskeletal disorders (MSDs) are between 40-45 years, as shown in the figure below.

FIGURE 7.5.2: Analysis of MSDs by years age group



Data analysis shows Lightweight Machine Operator as an occupation which accounts for most incidence of musculoskeletal disorders (MSDs), as illustrated in the figure below.

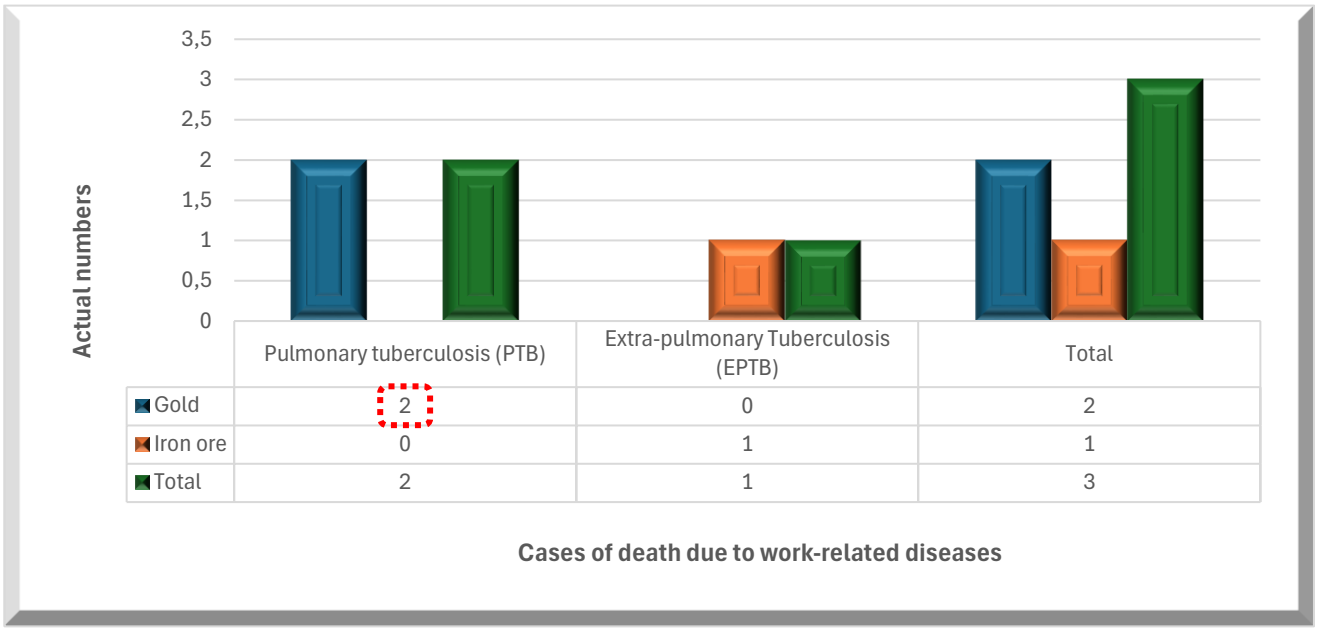
FIGURE 7.5.3: Analysis of MSDs by occupation



8. CASES OF DEATH DUE TO WORK-RELATED DISEASE

The gold mines account for two of the three cases of death due to work-related diseases reported, as shown in the figure below.

FIGURE 8: Analysis of death cases due to work-related diseases



9. CHALLENGES

9.1 Non-compliance with the MHSA legislative requirements:

Mines do not commence the 11.5 investigations on reported cases and cite various reasons for non-compliance, e.g., employees being hospitalized, employees dismissed prior to commencing the investigations, and employees' absence due to sick leave.

9.2 Erroneous reporting of occupational diseases:

a) Two gold mines reported silicosis cases with 5 and 9 years of active service in mining, and the cases were part of the occupational disease stats in the Q1 (April-June 2024/25) Report.

b) Upon further engagements by the MHSI to obtain copies of section 11.5 investigations, the mines cited system challenges that resulted in erroneous reporting and subsequently amended the two cases to a pulmonary tuberculosis (PTB) and noise induced hearing loss (NIHL), respectively.

9.3 Updates on the incidence of occupational diseases and cases that resulted in death:

a) Sections on Part C of the HIRs submitted by two gold mines in May 2024 to report occupational diseases that resulted in death indicated that section 11.5 investigations were commenced but not completed at the time of reporting.

b) Likewise, during May 2024 an iron ore mine reported an occupational disease that resulted in death, and a section on Part C of the HIR indicated that a section 11.5 investigation had been commenced but not completed at the time of reporting.

10. MHSI REMEDIAL ACTION PLANS

a) A focused inspection was conducted at a gold mine that submitted an amended health incident report (HIR) report from silicosis to a PTB case. The employee's 11.5 investigation report was not available for inspection when at the time of reporting, the mine had completed Part C of the employee's HIR with the dates of investigation commencement and completion. The MHSI issued the employer with a statutory instruction to order compliance.

b) The mine Occupational Medical Practitioners (OMPs) should follow up on cases submitted to the MHSI with incomplete details on section 11.5 investigation and submission status for employers to provide updates on the cases.

11. CONCLUSION

Despite a notable decrease in the total occupational diseases reported, the cases from coal, chrome, iron ore, manganese and other mines increased. Mines should put more focus on identifying and addressing Ergonomic Hazards to reduce the incidence of musculoskeletal disorders (MSDs).

ANNEXURE A
Definitions and acronyms

COAD	Chronic obstructive airway disease
CWP	Coal Workers' pneumoconiosis
HIRs	Health Incident Reports
MDR-TB	Multidrug-resistant tuberculosis
MHSA	Mine Health and Safety Act
MHSI	Mine Health and Safety Inspectorate
MSDs	Musculoskeletal disorders
NIHL	Noise-induced hearing loss
Occ asthma	Occupational asthma
Occ lung cancer	Occupational lung cancer
OLD	Occupational lung diseases
Other occ diseases	Other occupational diseases
Occ skin diseases	Occupational skin diseases
OMPs	Occupational Medical Practitioners
PIoMs	Principal Inspector of mines
PLH	Percentage loss of hearing
PMF	Progressive massive fibrosis
PSS	Platinum salt sensitivity
PTB	Pulmonary tuberculosis
Sil+TB	Silico-tuberculosis
U/G	Underground
XDR-TB	Extensively drug-resistant tuberculosis
≥	Greater than or equal to
≥-≤	Greater than or equal to and lesser than or equal to

OCCUPATIONAL SAFETY

1. NUMBER OF FATALITIES PER FY QUARTER 2 (April-September 2024)

During the period of April-September 2024, **twenty four (24)** fatalities were reported whilst during the same period in 2023 **twenty four (24)** fatalities were reported. This translates to a no change year on year.

2. STATISTICS OF FATALITIES BY REGION

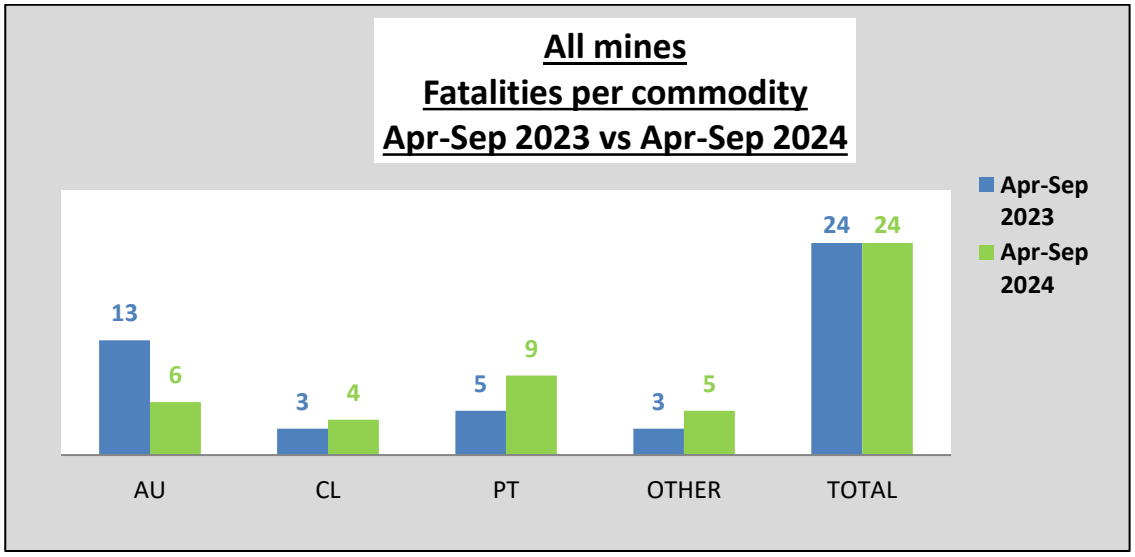
The table below illustrates the progressive performance of each region with regard to fatalities. During the period of April to September 2024, **three (3)** of the **ten (10)** regions had not reported any fatalities.

FATALITIES PER REGION – APRIL 2024 TO JUNE 2024											
	WC	NC	FS	EC	KZN	MP	LP	GP	NW-KLD	NW-RST	TOTAL
FOG		1					1	2			4
MACHINERY		1								1	2
TRANSPORTATION AND MINING											0
GENERAL			1			1		2		2	6
CONVEYANCE											0
EXPLOSIVES AND ACCESSORIES			1								1
HEAT EXAUSTION											0
MISCELLANEOUS	1										1
TOTAL	1	2	2	0	0	1	1	4	0	3	14

3. ANALYSIS OF FATALITIES BY COMMODITY

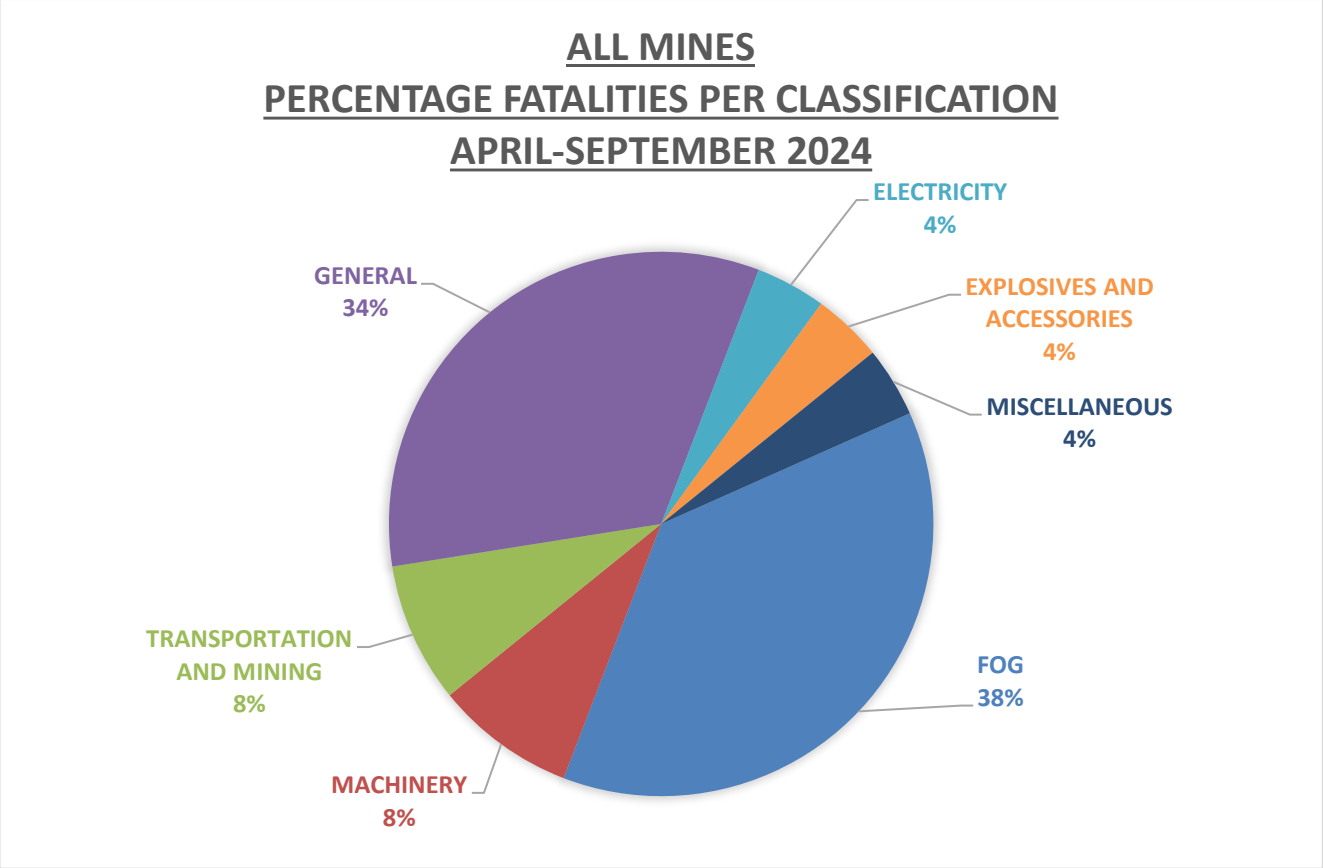
For the purpose of the analysis, commodities are grouped into gold (AU), platinum (PT), coal (CL) and other mines (i.e. zinc, sand, diamond, chrome and mineral sands).

3.1 The comparison of fatalities for the period April to September 2024 and April to September 2023 is reflected on the graph below and shows a decrease of 54% in the gold sector, regressions of 33%, 80% and 67% in the coal, platinum and other mines sectors respectively.



4. ANALYSIS OF FATALITIES BY CLASSIFICATION – ALL MINES

The graph below shows the provisional causes of fatalities per classification for the period under review, April to September 2024:



The provisional classification of fatalities reported in the period under review were as follows, in descending order.

4.1 Fall of ground (FOG) (38%)

There were **nine (9)** fatalities reported in this category during this period. **Two (2)** were reported in the gold sector, **one (1)** at a zinc mine, **four (4)** in the platinum sector and **two (2)** in the coal sector. **All nine (9)** were gravity induced.

4.2 General (34%)

There were **eight (8)** fatalities reported in this category during this period. **six (6)** were reported in the gold sector, **one (1)** in the platinum sector and **one (1)** in the coal sector.

4.2.1 Sub-classification of general fatalities

Sub-classification	Number	Commodity
Caught between	1	Coal
Engulfed by	1	Sand
Struck by	2	Gold
Fell in	2	Platinum
Pressed against sidewall	1	Gold
Overcome by	1	Platinum
TOTAL	**8**	

4.3 Machinery (Conveyors) (8%)

There were **two (2)** fatalities reported in this category during this period. **One (1)** was reported at a diamond mine and **one (1)** at a platinum mine.

4.4 Transportation and mining (8%)

There were **two (2)** fatalities reported in this category during this period. **One (1)** TMM related was reported at a coal mine and **one (1)** RBE related at a platinum mine.

4.5 Electricity (4%)

There was **one (1)** fatality reported in this category during this period at a chrome mine.

4.6 Explosives and accessories (4%)

There was **one (1)** fatality reported in this category during this period at a gold mine.

4.5 Miscellaneous (4%)

Miscellaneous classification refers to a fatality the cause of which is yet to be determined, pending investigations, inquiries or post-mortems. There was **one (1)** fatality reported in this category during this period at a mineral sands mine. The now deceased Service Truck Operator was found seemingly asleep on the driver's seat by another Service Truck Operator during shift change over at the designated service truck parking area. After trying to wake up the now deceased, there was no response and paramedics were contacted immediately. The now deceased was declared deceased at the scene

5. CONCLUSION

For the period under review, falls of ground fatalities were the highest. Always conducting a proper safe declaration before starting any work, always properly supporting the working place properly and active supervision among others, can eliminate these general fatalities.