Resources Safety & Health
Queensland

Biannual Health Surveillance Report

October 2022

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INTRODUCTION

Resources Safety and Health Queensland (RSHQ) advances its vision of zero serious harm by providing effective risk-based safety and health regulation, promoting improved health outcomes and being an exemplar regulator. This includes reporting on health surveillance data it captures.

Our current focus is on health surveillance of mine dust lung diseases (MDLD) for current and former workers across all sectors. This will broaden in the future as other occupational health harm data becomes available into our scope of surveillance.

The objective of reporting this information is to inform on the effectiveness of controls that aim to prevent disease and to support RSHQ's risk-based compliance activity.

MDLDs are generally caused by long-term inhalation of high concentrations of airborne dust, generated during mining and quarrying activities.

MDLDs include a range of occupational lung conditions including but not limited to:

- coal workers' pneumoconiosis (CWP)
- mixed dust pneumoconiosis (MDP)
- silicosis
- chronic obstructive pulmonary disease (COPD)
- asbestosis
- lung cancer.

Non-pneumoconiosis conditions include, but are not limited to: COPD; diffuse dust fibrosis; lung cancer; and other undefined lung disease.

Coal, mineral mine and quarry workers are required to undergo regular respiratory health screening, and screening is available to workers on a voluntary basis on exit from the industry. Former and retired miners and quarry workers can also access free, ongoing respiratory health screening via RSHQ.

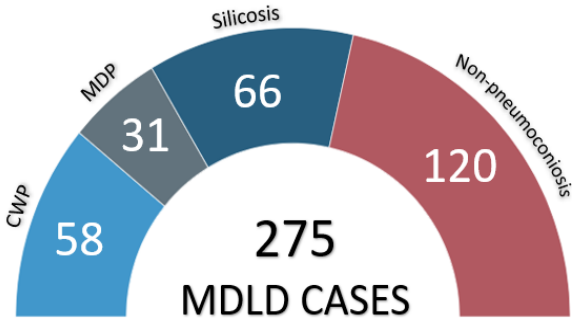
Current and former mine and quarry workers and their families can access information and support from the Mine Dust Health Support Service. The service provides a single point of contact for workers to understand their rights, the lung screening and diagnosis process, and how to access ongoing support and compensation. The service is a joint initiative between RSHQ, the Office of Industrial Relations, and Workcover Queensland.

Key Takeaway:

This information should be used to assess effectiveness of controls. A worker's health outcome ultimately determines whether those controls have been successful.

MDLD CASE SUMMARY

MDLD cases are reported to RSHQ from a variety of sources which include health assessments, the workers' compensation scheme, site senior executive (SSE) reporting and Queensland Health's Notifiable Dust Lung Disease Register. As of 30 June 2022, 275 cases of MDLD have been reported to RSHQ since 1984.



Reports of MDLD continue to be received from the coal mining sector. The number of MDLD cases among mineral mine and quarry (MMQ) workers continues to increase, likely reflecting the recently implemented respiratory health surveillance in this sector (see **Figure 1**).

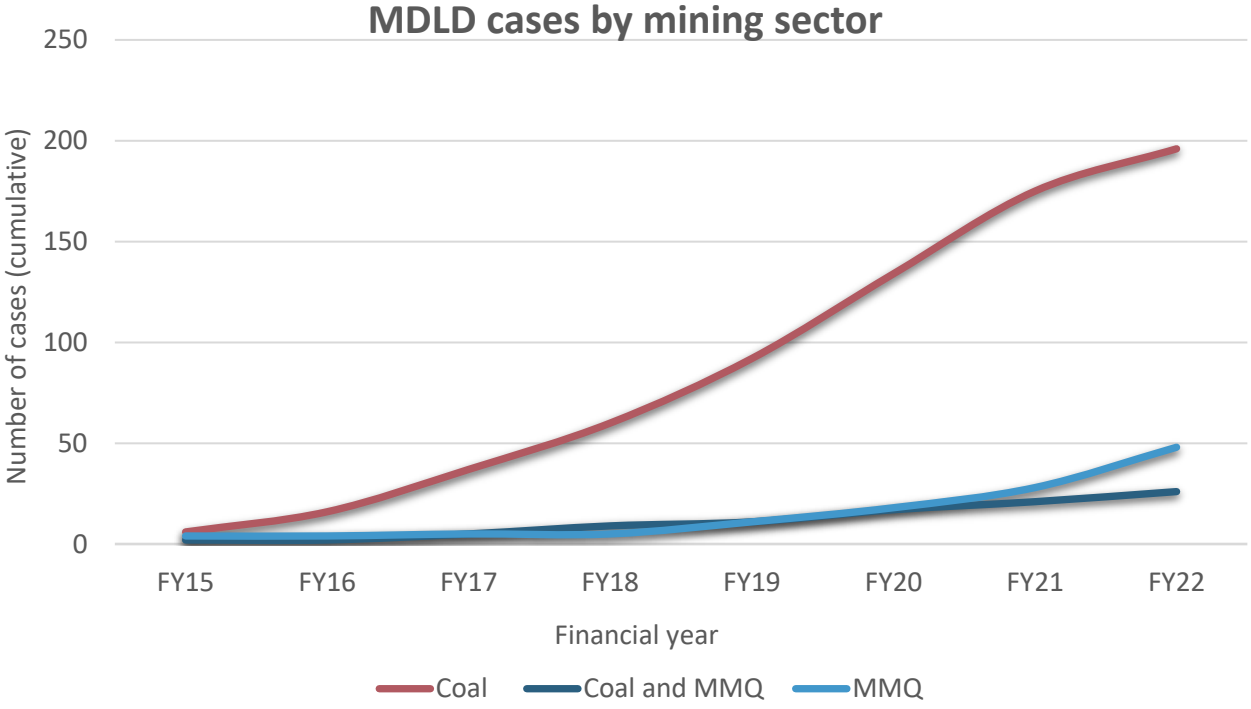


Figure 1: Cases are based on date of diagnosis. Mine sector reflects where majority of work history. Equal coal and MMQ work experience have been grouped accordingly.

Data as at 30 June 2022

Reports of occupational non-pneumoconioses such as COPD continue to increase (see **Figure 2**). COPD cases have been reported among non-smokers, and dust exposure is often a contributing factor for COPD among the smoking miner cohort. Non-pneumoconioses are more commonly reported in surface workers and constitute a large portion of cases reported amongst workers from the MMQ sector.

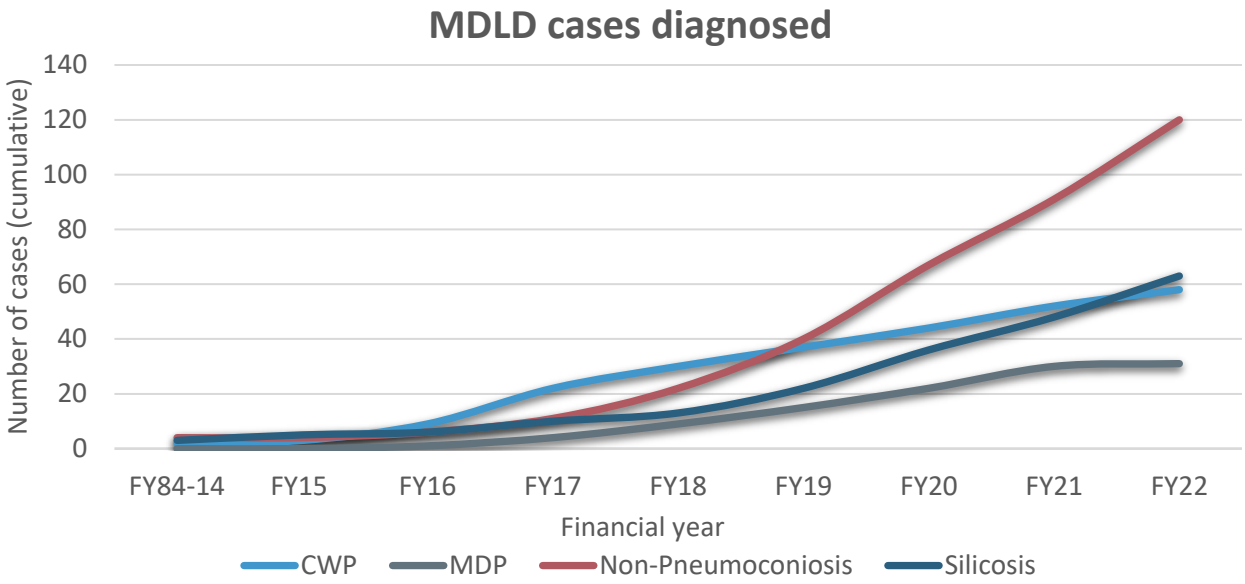


Figure 2: Case numbers are based on date of diagnosis, which may result in changes between reporting periods. Non - pneumconiosis diseases include COPD.

Data as at 30 June 2022

Work history and MDLD

Although most workers diagnosed with MDLD have an extensive mining history, a number have been diagnosed after less than 10 years' experience (see **Figure 3**), with their diagnoses covering a range of disease types. Many workers in this category are at surface operations. These were noted across a range of positions, with 50% of these cases being from non-production roles compared to 31% reported in the overall MDLD population.

Some examples of such diagnoses are provided as cases studies in this report.

Many cases are diagnosed among older workers with longer mining histories. This includes workers from both underground and surface operations.

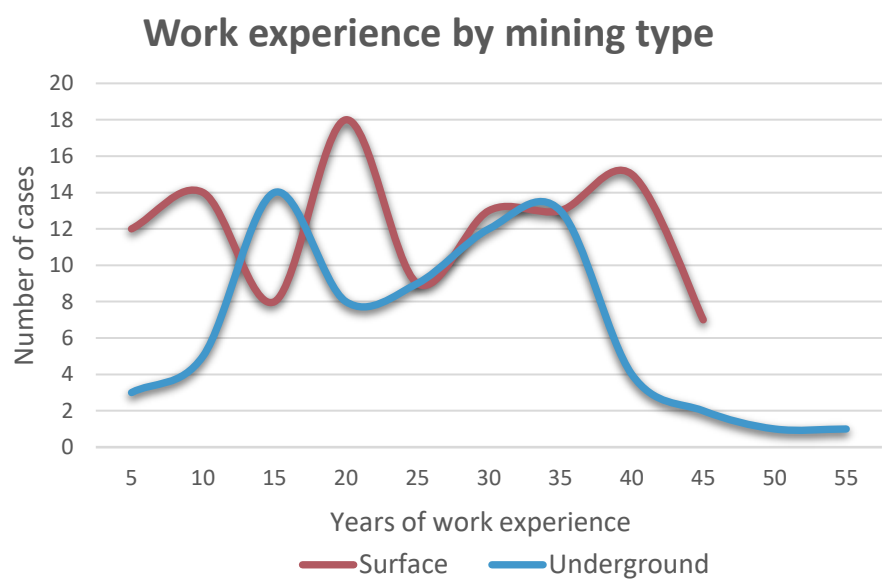


Figure 3: MDLD case by years in mining industry by mining type. Data is based on number of workers assessed through current available programs.

Data as at 30 June 2022

While there has been a renewed focus on dust controls, given the latent onset of MDLD, current workers will be influenced by historic dust exposure and further cases of MDLD are expected.

Former workers and early detection

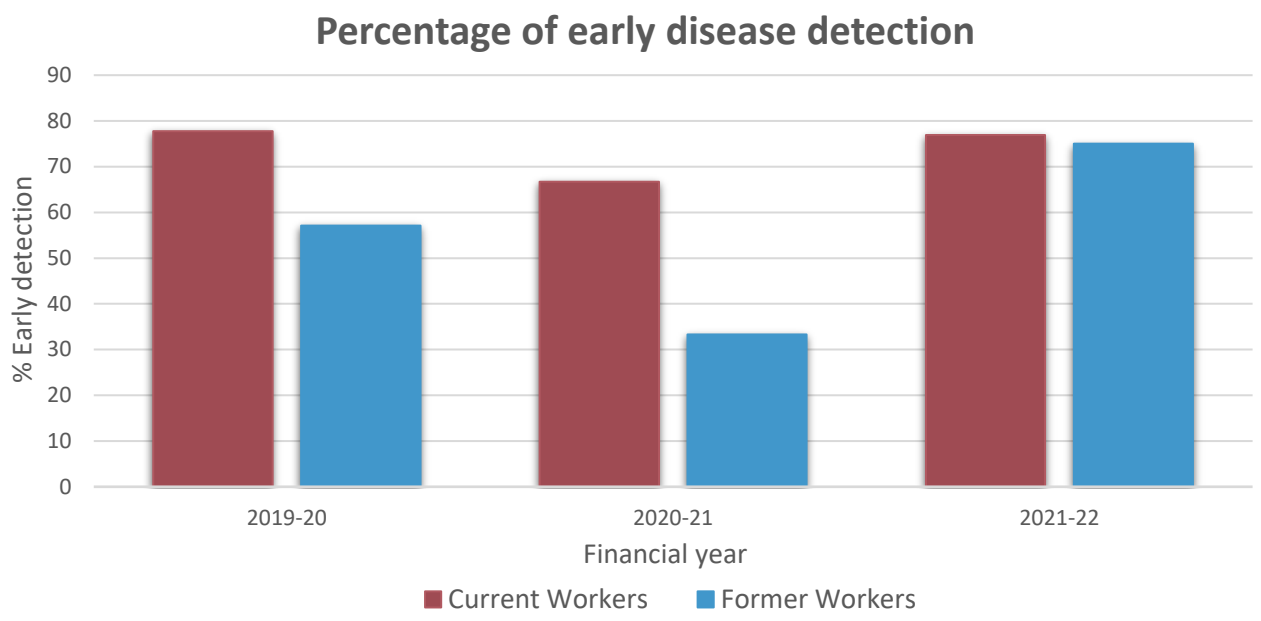


Figure 4: Percentage of early disease detection for current coal miners and former workers across all sectors diagnosed under the scheme.

Data as at 30 June 2022

RSHQ offers free, ongoing respiratory health screening for retired and former miners and quarry workers. Like current workers, COPD is the most common MDLD diagnosed in retired miners from this screening program.

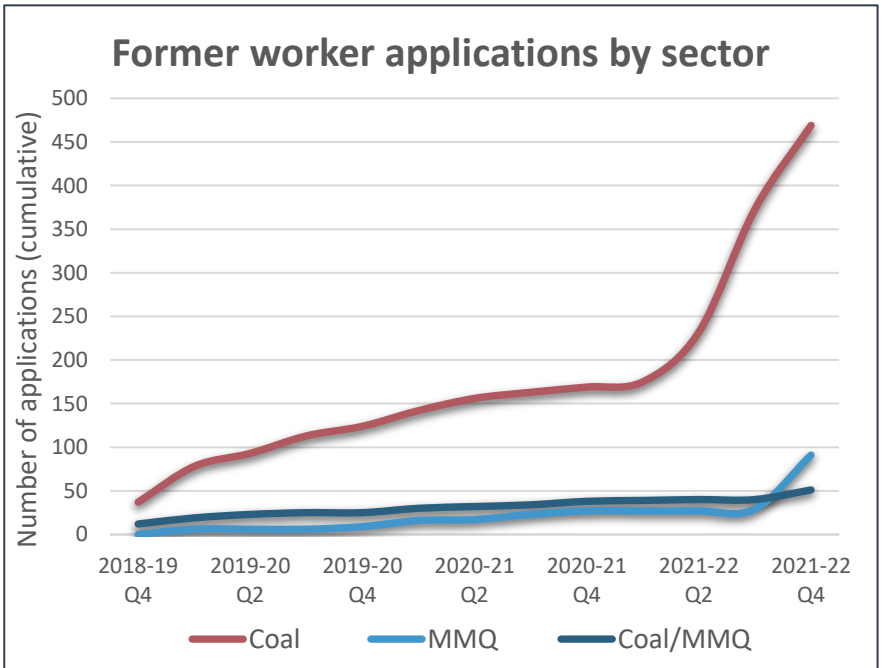


Figure 5: Number of former worker applications approved under the program since March 2019.

Data as at 30 June 2022

Retired workers are more likely to be diagnosed with multiple disease types and at more advanced stages of disease (see **Figure 4**). This could be related to both the long work histories of these individuals and the absence of a readily available screening program for retired miners in prior years. The number of retired miners undergoing screening continues to increase and is likely to identify further disease cases (see **Figure 5**). This highlights the importance of ongoing screening throughout and beyond miners' careers.

COAL SECTOR

Current workers with significant coal mining history

Disease distribution for current workers

Coal mine workers continue to represent the majority of reported MDLD cases. This likely reflects the established respiratory screening program in place for the coal mining sector.

Non-pneumoconiosis diseases, particularly COPD, are most commonly reported (see **Figure 6**). Diagnosed workers are most commonly in positions associated with production. However, MDLD cases have also been reported for workers in a range of non-production roles. These include maintenance roles such as fitters, electricians, and mechanics, as well as technical services, warehousing, and supervisory positions (see **Figure 7**).

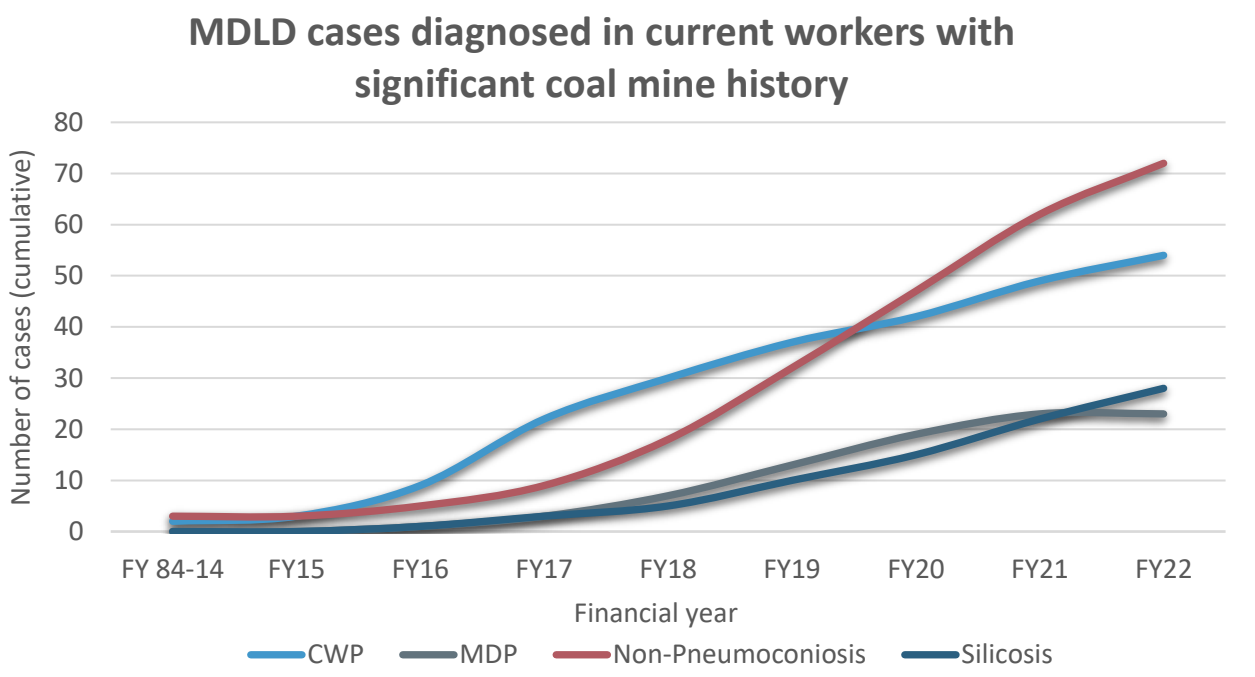


Figure 6: Case numbers are based on date of diagnosis, which may result in changes between reporting periods. Non - pneumconiosis diseases include COPD.

Data as at 30 June 2022

48%

Cases with substantial surface work history

23%

Cases reported among mechanics, fitters, and workshop workers

29

Cases of coal MDLD reported for the 21/22 financial year

Coal MDLD cases and mining type for current workers

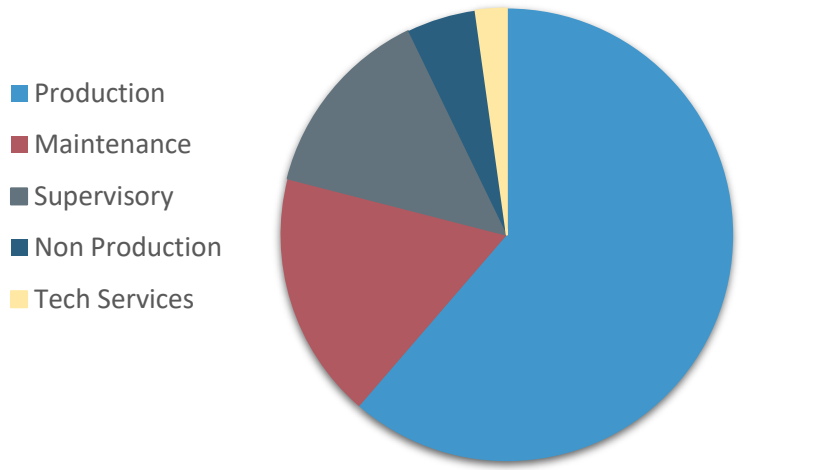


Figure 7

Data as at 30 June 2022

The types of reported diseases vary across surface and underground coal mines. This may reflect different dust types and the environments in which exposures occur.

While cases of MDLD from the coal sector were initially reported in underground miners, MDLD cases reported in current surface workers have increased in recent years. Surface operations contain the majority of coal miner workers, and it is expected that a substantial proportion of MDLD cases will be reported from these operations. However, the recent study into prevalence of disease by Cancer Council Queensland showed that underground workers had a higher rate of disease relative to their workforce size. Cases of MDLD continue to be reported for workers from both underground and surface operations (see **Figure 8**).

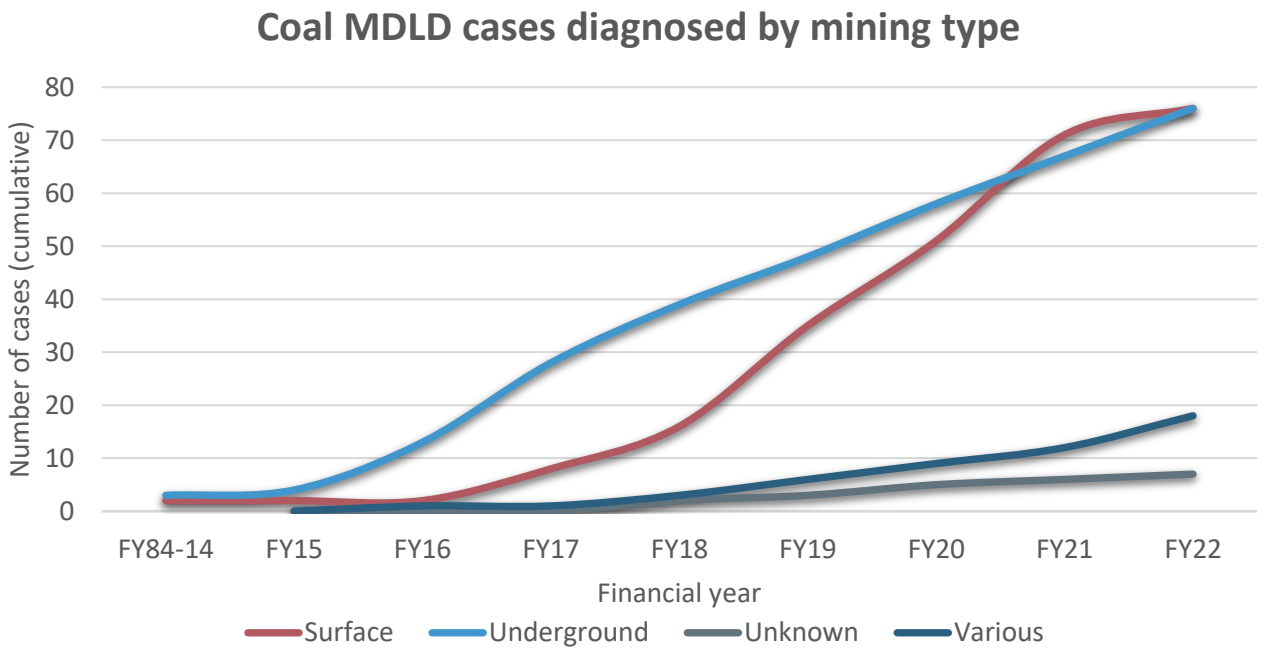


Figure 8: Case numbers are based on date of diagnosed. Mine type reflects where a worker has spent the majority of their work history.

Data as at 30 June 2022

Current surface workers in coal

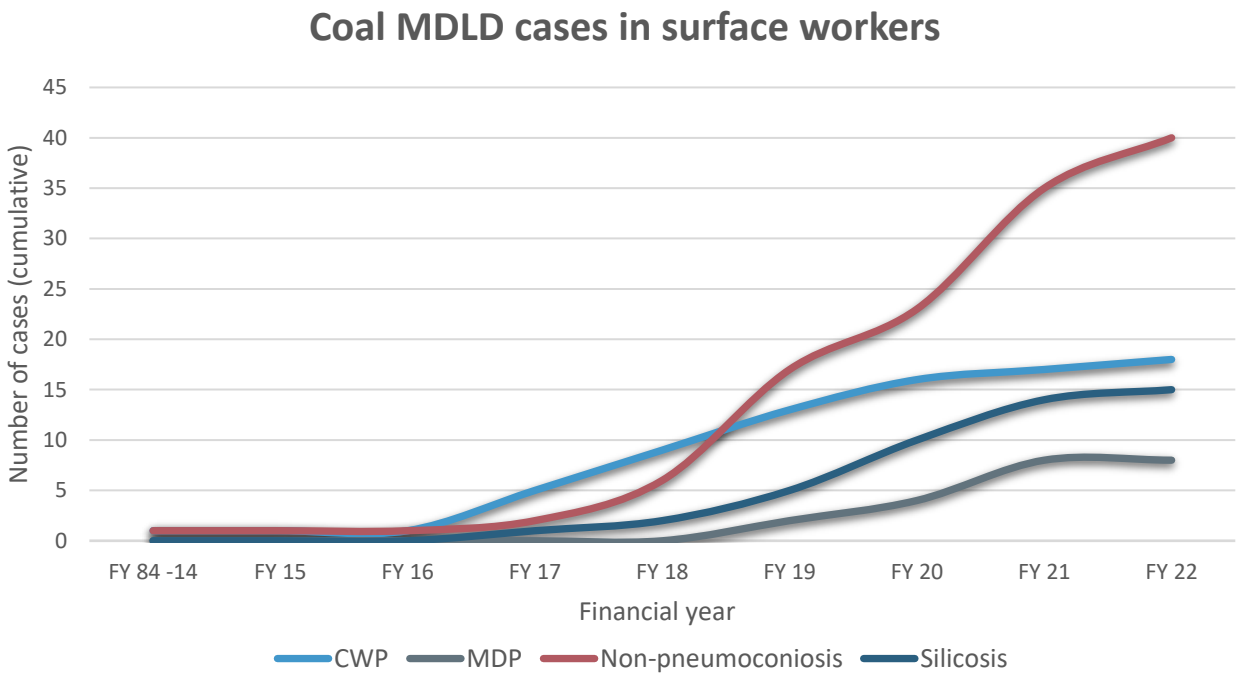


Figure 9: Case numbers are based on date of diagnosis, which may result in changes between reporting periods. Non - pneumconiosis diseases include COPD.

Data as at 30 June 2022

Reports of coal miners at surface operations with COPD and multiple disease types are proportionally higher among operator and production-based positions, compared to miners in non-production roles (see **Figures 9 & 10**). Cases of COPD are not limited to individuals who smoke. In addition to COPD, other non-pneumoconiosis disease types, such as occupational cancer, have been diagnosed among non-production workers. Where work history is known, 16% of coal mine workers in surface operations diagnosed with MDLD have had less than 10 years of industry experience. At this stage, these cases are not confined to a set work history profile.

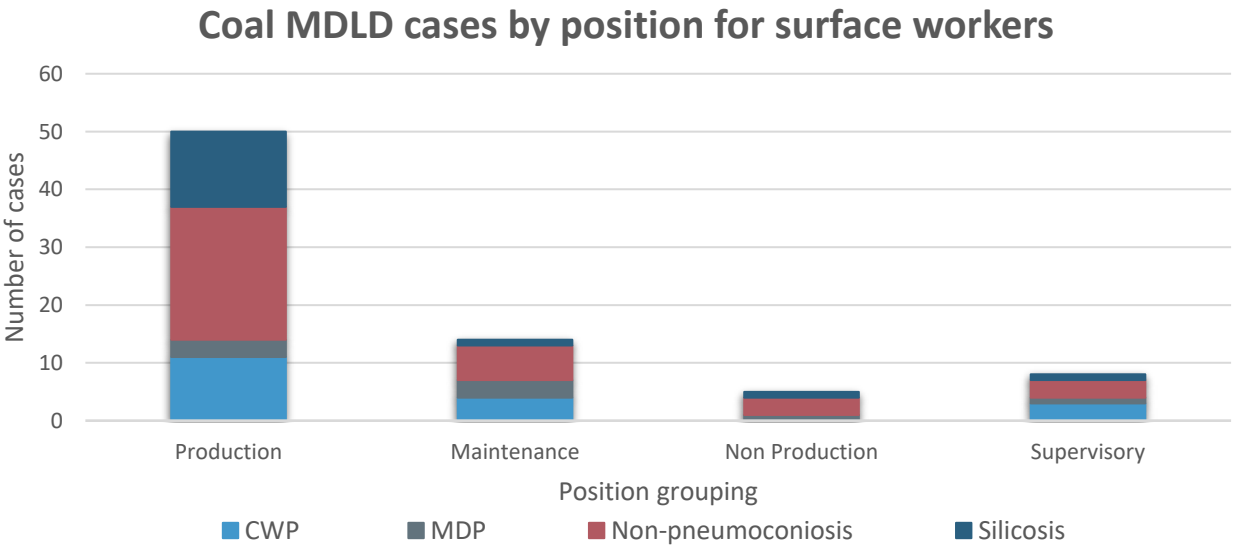


Figure 10: Case numbers per MDLD by position for those coal workers with significant surface history.

Data as 30 June 2022

Current underground workers in coal

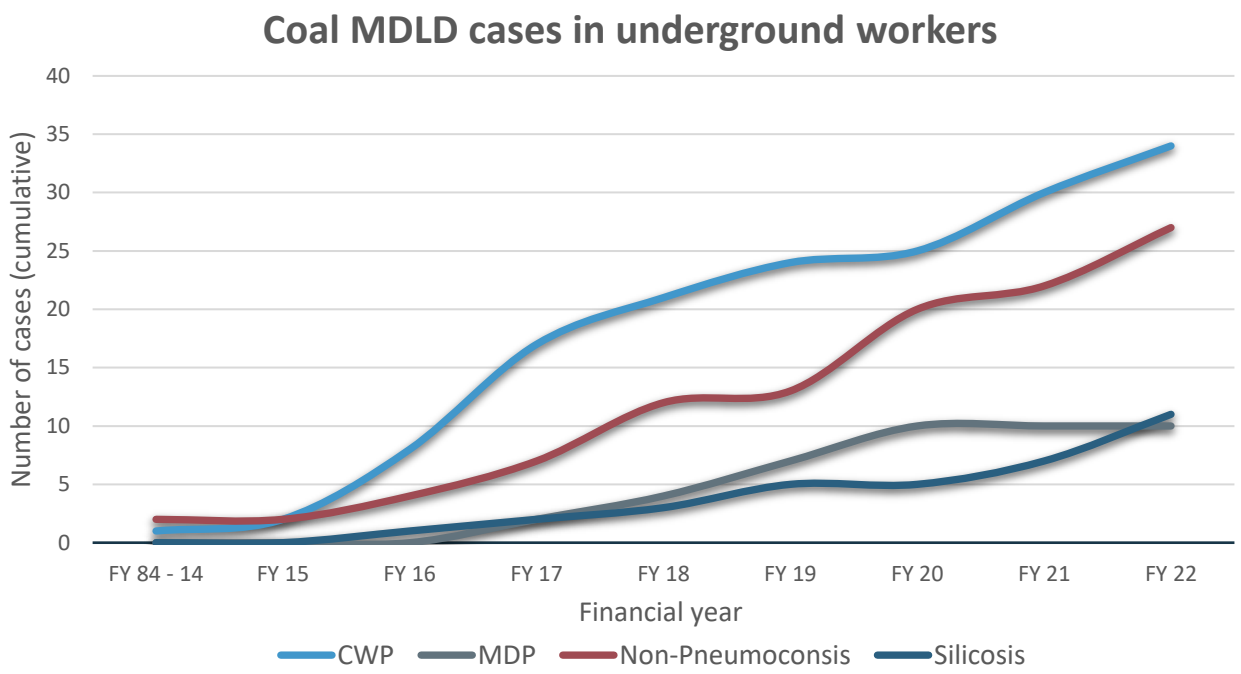


Figure 11: Case numbers are based on date of diagnosis, which may result in changes between reporting periods. Non - pneumconiosis diseases include COPD.

Data as at 30 June 2022

Pneumoconioses are more commonly reported among underground coal miners, with COPD less common than in surface workers. Most cases for underground workers are reported from production-based roles. Supervisory and engineering roles are also represented among these underground workers.

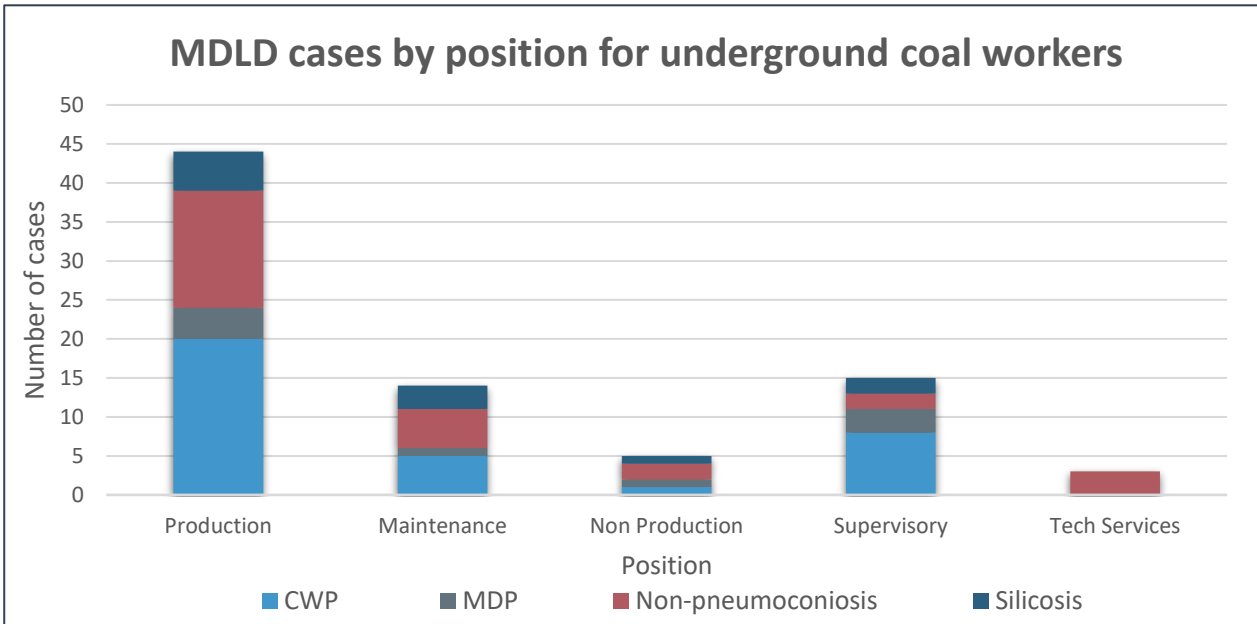


Figure 12: Number of cases per MDLD by position for coal workers with significant underground history.

Data as at 30 June 2022

MINERAL MINES AND QUARRY SECTOR

Current workers with significant MMQ history

Disease reporting for current MMQ workers

MDLD cases are increasingly reported in the mineral mining and quarry sectors, in line with increasing awareness of MDLD and the introduction of mandatory respiratory health surveillance. Whilst case numbers remain low, cases reported from these sectors are increasing.

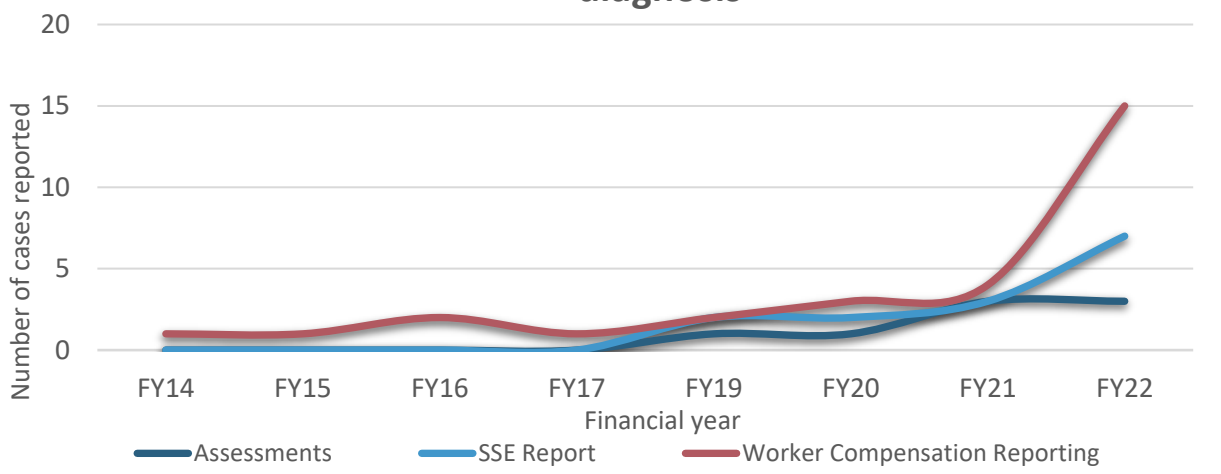


Figure 13: 'Pathway of diagnosis' refers to the way in which disease was reported to RSHQ. Individual cases may be reported through multiple pathways.

Data as at 30 June 2022

SSE reports to RSHQ inspectors about cases of MDLD are particularly important in the MMQ sector. Unlike for coal miners, RSHQ does not receive the records of respiratory health surveillance for MMQ workers. Reporting by SSEs is invaluable for ongoing sector-wide health surveillance and to enable RSHQ to link these workers with information and support through the Mine Dust Health Support Service. SSEs are also required to undertake this reporting by legislation.

Key Takeaway:

SSE reports currently form only a small proportion of the case reports for MMQ workers, suggesting that some SSEs may not be aware of their obligation to report all instances of prescribed diseases known to them. Information for SSEs about how to report disease to RSHQ is available on RSHQ's website.

The most common diseases reported among current workers with significant MMQ history are silicosis and non-pneumoconiosis (COPD) (see **Figure 14**). Positions often considered at risk of dust exposure, such as production, blasting and drilling positions, account for most cases reported.

However, MDLD cases are also being reported for a wide variety of roles including supervisory, maintenance, transport, administration, exploration, and professional/technical services positions.

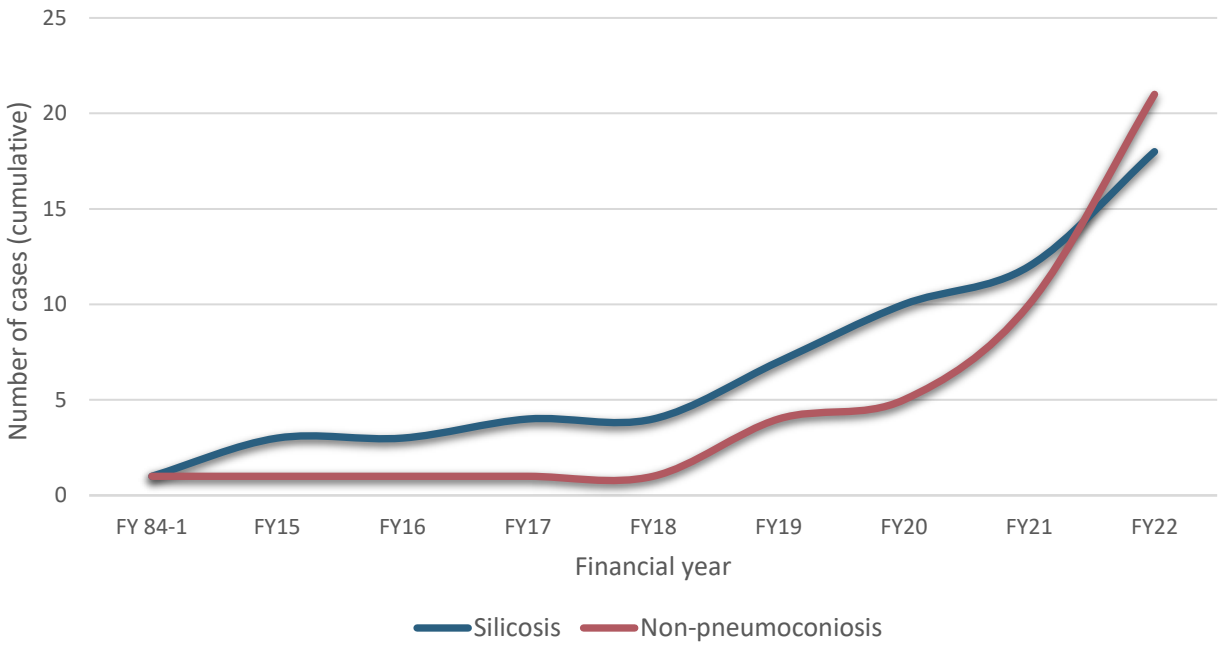


Figure 14: Case numbers are based on date of diagnosis, which may result in changes between reporting periods. Non - pneumconiosis diseases include COPD.

Data as at 30 June 2022

The presence of MDLD among sections of the workforce that are not always considered at risk from dust exposure highlights the importance of regular health surveillance, dust monitoring and prevention for workers in non-production roles. Two such incidences are highlighted in case studies 3 and 4 provided in this report.

MDLD cases and quarrying work experience

Disease distribution by work history for quarry workers

As at 30 June 2022, 25 workers with some quarrying experience, have been reported with an MDLD, or 9% of reported MDLD cases. Six of these workers have only worked in the quarrying industry. The remainder also have experience in other mining sectors.

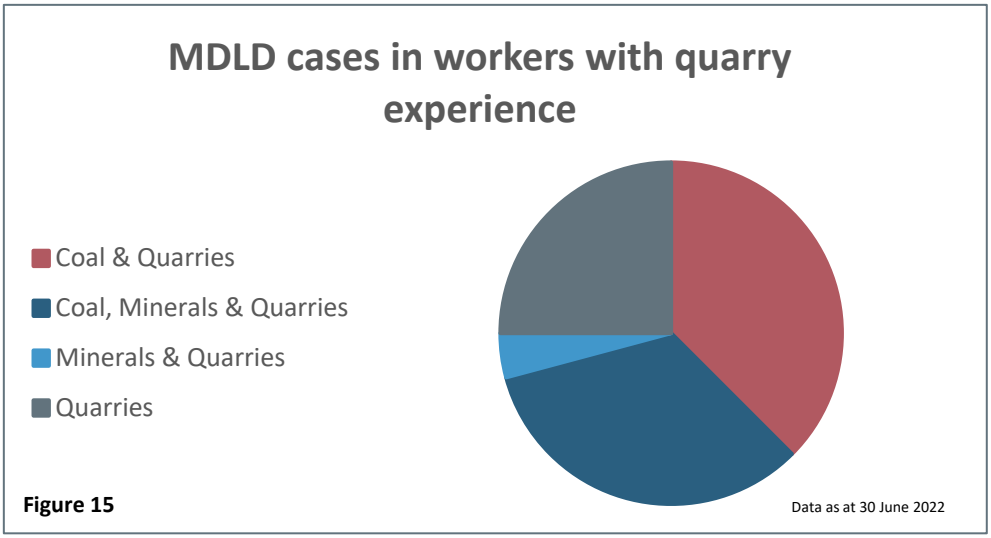


Figure 15

Disease distribution by position for quarry workers

Cases have been identified among drillers, operators, fitters, and supervisors. They have experience in a range of quarry activities, such as those associated with concrete processing. Although the number of cases from the quarry sector is small, additional cases are expected with increased health surveillance, as has been observed in other sectors.

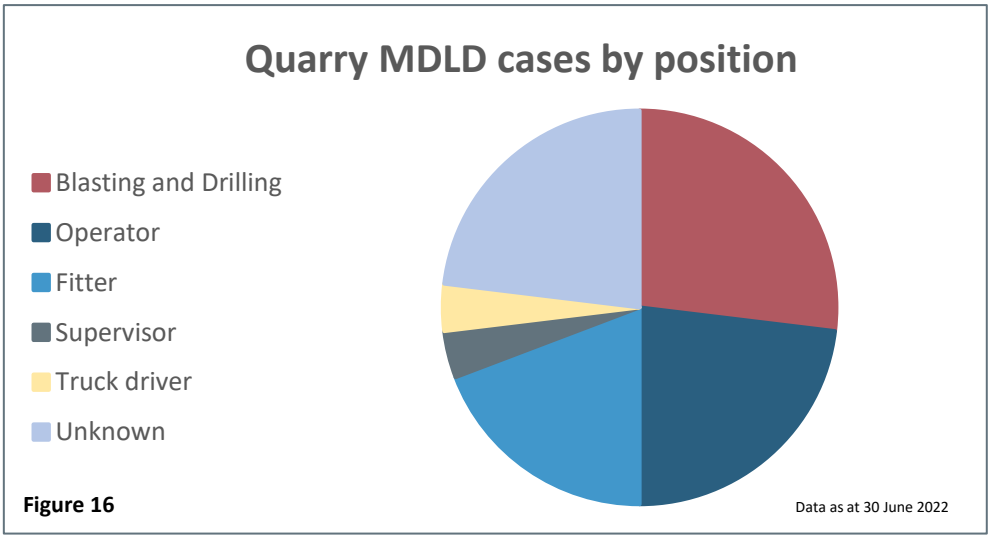


Figure 16

CASE STUDIES

Case 1 - MDP

- Male, under 40
- Fitter

Current worker; 11-15-year work history at the same open cut coal mine. Located in the workshop for 50 % of their work history with one year in the coal mine pit. Smoker. Diagnosed with mixed dust pneumoconiosis (MDP). Highlights the importance of dust monitoring and control in workshop locations, and when accessing equipment.

Case 2 - COPD

- Male, under 40
- Mine Operator

Current worker, non-smoker: 16-20 years in operator positions at the face of an underground coal mine, with most time spent at the same location. Primarily in development or on a continuous miner. Up to a third of their work history was spent on the long wall. A P2 dust mask was used, however worker reported daily high dust levels. Highlights the need for continued management of dust in underground operations.

Case 3 - Silicosis

- Male, under 40
- Geologist

Geologist associated with mineral exploration. Highlights the risk of exposure to silica dust for those involved in exploration activities, not only drilling but also activities in proximity.

Case 4 - Silicosis

- Female
- Administration

Over 20 years in administration associated with a mine processing plant. Diagnosed through health screening. Highlights the risk of dust exposure to mining support personnel and the importance of regular exposure monitoring and respiratory health screening for all workers.