Safety in Mines Research Advisory Committee

Final Report

ANALYSIS OF OCCUPATIONAL LUNG DISEASE IDENTIFIED AND COMPENSATED IN DIFFERENT MINING SECTORS BY COMPARISON OF AVAILABLE DATA BASES WITH AUTOPSIES CONDUCTED UNDER THE OCCUPATIONAL DISEASES IN MINES AND WORKS ACT (ODMWA)

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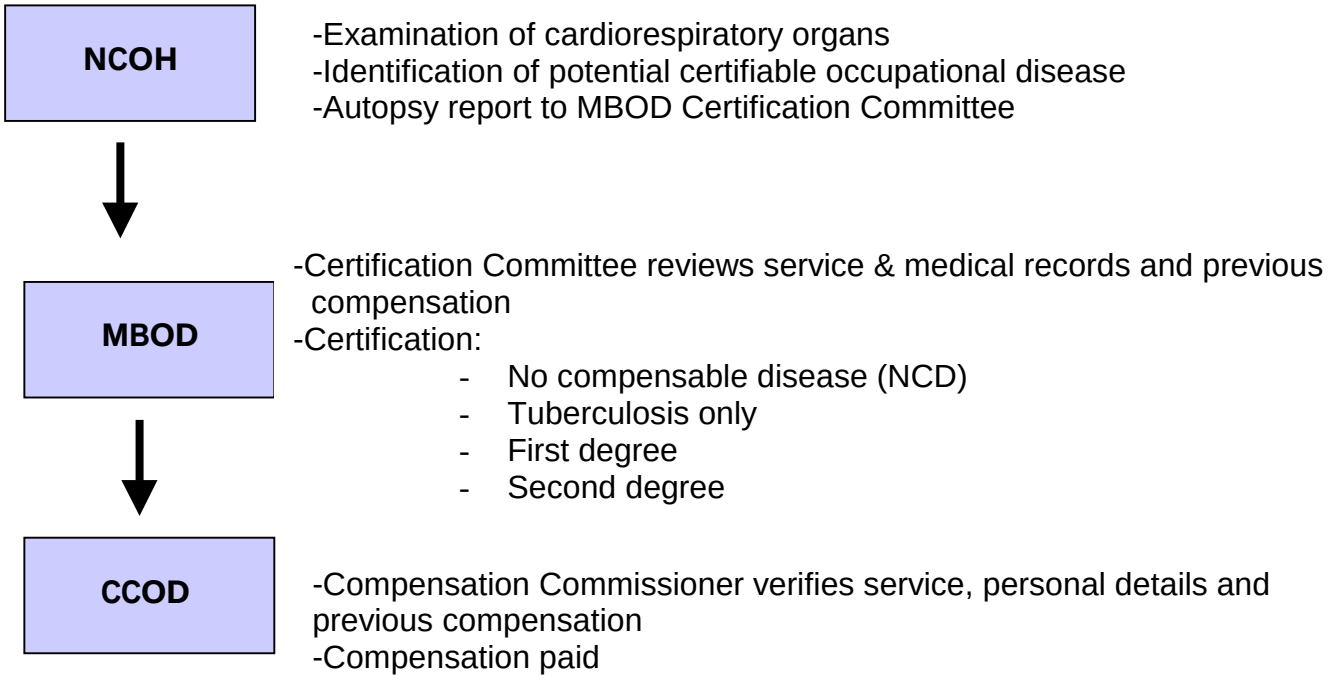
Executive Summary

The Occupational Diseases in Mines and Works Act (ODMWA) makes provision for the autopsy examination of the cardiorespiratory organs of deceased miners and ex-miners for the purposes of compensation.

Three institutions are involved in the compensation process namely the National Centre for Occupational Health (NCOH), the Medical Bureau for Occupational Diseases (MBOD) and the Compensation Commissioner for Occupational Diseases (CCOD). The process involves:



High rates of occupational lung disease are found in currently employed and ex-workers autopsied at the National Centre for Occupational Health. The contribution of the autopsy service in the compensation process has, however, not been comprehensively evaluated.

The objectives of the study were:
(1) to determine the outcome in terms of compensation paid for each case certified at autopsy with occupational lung disease, and
(2) to determine the status of and to identify the deficiencies in information collection, availability of data and current database formats pertaining to deceased persons at the NCOH, the MBOD and the CCOD. The study population consisted of miners and ex-miners who came to autopsy at the NCOH during the 1999 calendar year.

Findings:

- Only 7% (n=31) of deceased's dependants who qualified for compensation were known to have been paid out by February 2001
- Of the men who came to autopsy, 19% (n=446) were certified as having a new or upgraded compensable disease in the 1st /2nd degree categories
- During the period under study, 2 378 cases were analysed

- The NCOH and MBOD are predominantly computerized
- At the CCOD a manual system is in place
- There is no common database or linkage system between the three institutions. The lack of integration and system performance hampers the effective functioning of these institutions

Recommendations:

- Upgrade management systems at the CCOD
- Utilize available information at The Employment Bureau of Africa (TEBA) and Rand Mutual Assurance to trace dependants and effect payment
- Review and streamline the excessive and complicated documentation required from the dependants of the deceased
- Put in place an integrated computer information system at the NCOH/MBOD/CCOD. (A National Department of Health tender to address this has been issued)

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Glossary

A

Asbestosis

A form of lung disease (pneumoconiosis) caused by inhaling asbestos resulting in interstitial fibrosis of the lung, varying in extent from minor involvement of the basal areas to extensive scarring

B

Beneficiary

The dependant of a person whom were under the ODMW Act found to have been suffering from a compensable occupational disease

C

CCOD

Compensation Commissioner for Occupational Diseases

Certification Committee

The Medical Certification committee for Occupational Diseases established under section 39 of ODMWA. This committee consists of the director and not less than three or more than five other members who are medical practitioners

E

Emphysema

A pathological accumulation of air in tissues or organs, applied especially to a condition of the lungs

M

MBOD

Medical Bureau for Occupational Diseases

Mesothelioma

A malignant tumor derived from mesothelial tissue (peritoneum, pleura, pericardium). Pleural mesotheliomas have been linked to exposure to asbestos

N

NCOH

National Centre for Occupational Health

O

ODMWA

Occupational Diseases in Mines and Works Act (Act 78 of 1973)

P

PATHAUT
Pathology Automation System. Computerized database at the Pathology division of the NCOH

Parietal plaques
Asbestos plaques of the walls of the chest cavity

Pneumoconiosis
Permanent lesion, excluding a calcified lesion, of the cardiorespiratory organs caused by the inhalation of dust in the course of the performance of risk work

Pulmonary Tuberculosis (PTB)
Lung disease caused by the presence of *Mycobacterium tuberculosis* organisms

R

Risk
In relation to a mine or works, means the risk of contracting a compensable disease, to which persons who perform risk work in or at or in connection with that mine or works are exposed

RMA
Rand Mutual Assurance

S

SAS
Statistical Analysis System

SIMRAC
Safety in Mines Research Advisory Committee

Silicosis
Pneumoconiosis due to the inhalation of dust containing silica

Surveillance of disease
Continuing monitoring of all aspects of occurrence of disease pertinent to effective control and, in this report, particularly monitoring aimed at early detection of disease

T

TEBA
The Employment Bureau of Africa

1. INTRODUCTION

1.1 Background

In terms of the Occupational Diseases in Mines and Works Act (ODMWA)[1] (Appendix 1 – relevant sections of the Act), provision is made for autopsy examination of the cardiorespiratory organs of deceased miners and ex-miners for the purposes of compensation for occupational lung disease.

Currently employed miners undergo annual surveillance (in the form of radiographs etc.) for occupational lung disease. However, it has been shown that the rate of significant missed findings in life is high. A study on the correlation between radiological and pathological diagnosis found that x-ray's missed 26% of cases of marked silicosis and 54% of cases of moderate silicosis[2]. Analysis of the 1998 autopsy database showed that pulmonary tuberculosis was found at autopsy only (not considered clinically to be a cause of death) in 69% of cases[3] and a SIMRAC study (Health 611 – Clinico-pathlogical study to reduce the rate of missed and misdiagnosis of Pulmonary Tuberculosis in the South African Mining Industry) showed a rate of missed diagnosis of 62%[4].

In addition, ex-miners, many of whom may only develop disease years after leaving the industry (because of the latency period between exposure and disease manifestation), may not be diagnosed in life because they do not have access to medical services able to undertake an examination for the purposes of determining the presence of compensable disease.

High rates of occupational lung disease are found in currently employed and ex-workers autopsied at the National Centre for Occupational Health (NCOH). For example, the incidence rate of active PTB in 1998 was 18%, which is more than double the rate in 1992, which was only 7%. In 1998, 16% had silicosis, 20% had emphysema, 1.8% had asbestosis, 0.5% died of mesothelioma and 3% died of lung cancer.

However, the contribution of the autopsy service in the compensation process has not been comprehensively evaluated.

The ODMW Act makes provision for compensation for the following diseases: pneumoconiosis, tuberculosis, permanent obstruction of airways and any other permanent disease of the cardiorespiratory organs attributable to risk work. Not all disease is sufficiently severe to merit compensation and compensation is awarded in two degrees: first degree being disease resulting in a permanent disability of more than 10 per cent but less than 40 per cent and second degree being disease producing a permanent disability of greater than 40 per cent or simultaneous occurrence of tuberculosis and another compensable condition. Compensation is wage based with first degree payment equal to approximately eighteen months salary and second degree being approximately three years salary (there is a ceiling of R80,510.00).

Three institutions forming part of the National Department of Health are involved in compensating beneficiaries of deceased mine workers with occupational lung disease. These organisations are the National Centre for Occupational Health (NCOH), the Medical Bureau for Occupational Disease (MBOD) and the Compensation Commissioner of Occupational Disease (CCOD). Pathologists at the NCOH perform the examinations. A report of the findings (Appendix 2) is submitted to the Certifying Committee at the MBOD. The committee assesses the report together with the occupational and medical history and certifies the case according to set compensation criteria (Appendix 3). Cases certified as suffering from an occupational disease in the first or second degree are sent to the Compensation Commissioner who determines the amount payable, and effects payment.

When the CCOD's office receives the certification certificate from the MBOD, it is allocated a CCOD number (D-number) and a file is opened. A letter is sent to the dependant (who is identified from the documents in the MBOD file) requesting certified documentation. If such information is not received within 3 months, a reminder is sent.

The NCOH and MBOD have computerised information systems in place. The CCOD has a predominantly manual system. The databases from these institutions are currently not integrated.

1.2 Objectives

1. To determine the status of information collection, availability of data and current database formats at the NCOH, MBOD and Compensation Commissioner's office for occupational lung disease in miners.
2. To determine the role of the autopsy service in the identification of occupational lung disease and in the compensation process.
3. To determine the outcome in terms of compensation paid of each case certified at autopsy for different diseases by following up cases certified with occupational lung disease at the MBOD from January 1999 to December 1999.
4. To identify deficiencies in the existing information systems at the NCOH, MBOD and Compensation Commissioner's office and make recommendations to enable ongoing regular systematic analyses in future.

1.3 Ethics approval

Ethics approval (Ref R14/49 Murray) was obtained through the Committee for Research on Human Subjects at the University of the Witwatersrand.

2. METHODS

The study population consisted of all miners and ex-miners who came to autopsy at the NCOH during the 1999 calendar year.

2.1 Evaluation of information collection, availability of data and current database formats at the NCOH, MBOD and CCOD

The three institutions involved in the compensation process were visited to become familiar with their information systems.

a) Twenty randomly selected cases were used to follow the procedures at the **NCOH,** from receipt of the organs to sending out the pathology report to the MBOD.
b) These 20 cases were also used to follow the procedures at the **MBOD**, from receiving the pathology reports to sending out the certification letters to the families and CCOD.
c) Procedures at the **CCOD** were followed, from receiving the certification letter to actual payment of compensation to qualifying beneficiaries. Initially this was done using a 60% random sample. This was unsuccessful and another attempt was made in February 2001, using all cases certified as suffering from compensable disease during the period under study.

2.2 Determining the role of the autopsy service in the identification of occupational lung disease and the compensation process

The number of cases with potentially certifiable disease at autopsy was compared with the number of cases who were actually certified by the Certification Committee. This was done by statistically analysing data from the PATHAUT database and comparing that to antemortem and postmortem information obtained by attending the Certification Committee's meetings with a data capture sheet (Appendix 4). These data were analysed using the query based method in the Statistical Analysis System (SAS) which has been developed for a previous SIMRAC project (GEN509).

Cases certified as suffering from a compensable disease were followed up at the CCOD with a data capture sheet (Appendix 5) to determine actual compensation paid.

3. RESULTS

3.1 Evaluation of the status of information collection, availability of data and current database formats at the NCOH, MBOD and CCOD

3.1.1 NCOH

3.1.1.1 Information Collection

- Prior to the autopsy examination, the medical and occupational information for each case is summarised from the MBOD paper based files for the pathologists as the NCOH does not have access to the MBOD database containing that information. This information is not entered on the computerised pathology database called PATHAUT.
- Data on the presence and severity of occupational lung disease are generated by pathologists at the autopsy examination and are recorded on the PATHAUT database.
- The database generates, for each case, a report which is signed by the examining pathologist, in a standardised format for submission to the MBOD

3.1.1.2 Availability of pathology data

- Data for individual cases are readily available from the PATHAUT database which can be accessed by name, MBOD number, Pathology number and National Identification number.
- Data can be exported from PATHAUT as a text file and analysed using the query based method on the SAS system. The 273 variables on the database can be accessed and analysed in any combination using this method.
- An annual report with detailed statistical analysis is produced by using the query based method on the SAS system

3.1.1.3 Database format

- The PATHAUT database is (Appendix 6) written in CLARION format. This is the format in general use by the Department of Health. It is an easy to use windows based format that permits printing of reports and the data can be exported as readily accessible text files.

3.1.1.4 Tracking of status

- A system for tracking the progress of each case is in place on a separate computerised database also in the CLARION format, known as REGISTER. Dates when the case is received, examined, completed report signed and sent to MBOD

are recorded. A target has been set that 80% of cases have a signed report within 30 days of receipt of the organs. The REGISTER database is evaluated each month to identify cases outstanding for more than 30 days.

Evaluation and identification of deficiencies

The information system at the NOCH is fully computerized and functioning well. The NCOH system is, however, not linked on a network to the other institutions. This linkage would enable pathologists to have ready access to in-life findings as well as post mortem certification findings, as these are not recorded on the PATHAUT database. Data are readily available from the PATHAUT database and a system for detailed statistical analysis is in place. A system for status tracking is in place but tracking is not done over the December/January period.

3.1.2 MBOD

3.1.2.1 Information collection

- A decision on the certification status of each case is made by the Certification Committee (a panel of doctors as outlined by the ODMW Act) at a meeting where the autopsy report is considered together with the exposure and service history. A pathologist from the NCOH attends these meetings as an observer. Decisions are made based on the ODMWA and MBOD guidelines.
- The decision is recorded both in the file of the individual case and on the agenda of the meeting. This serves as a paper based backup system. This information is also entered into the MBOD computerised database known as the Benefit Examination System database.
- This database generates a certification certificate for each case, copies of which are sent to the families of the deceased miners and submitting medical centres as well as to the CCOD.

3.1.2.2 Availability of data

- Data for individual cases are readily available from the MBOD database which can be accessed by name, MBOD number and National Identification number.
- The database has been structured to produce an annual statistical report with a limited number of tables.
- Although the data can be exported as a text file, a system has not been set up for detailed statistical analysis using for example the query based method on SAS.
- Files can be accessed through the Metrofiling system.

3.1.2.3 Database formats

- The database (Appendix 7) is in CLARION format. This is the format in general use by the Department of Health. It is an easy to use windows based format and

permits printing of reports and exporting as text files.

3.1.2.4 Tracking of status

- Dates to record the progress of each case are present on the database. These include dates when the case is notified to the MBOD, when records were sent to the NCOH and the CCOD. However, a formalised system for evaluating the progress of cases is not in place.

Evaluation and identification of deficiencies

A computerized system and a paper backup are in place. The data are readily available, although a small percentage of files (3%) could not be traced on several occasions. The database produces an annual report but, although the data can be exported in a format that enables further detailed statistical analysis, no such system is in place. The MBOD database is not linked on a network with the other institutions. Linkage would enable the MBOD to have ready access to the detailed Pathology reports as well as data on computer at the CCOD. Although information is available on when cases were completed and sent to the CCOD, a system for status tracking is not formalised. During the study period, cases which had received 2nd degree certification in life were not referred to the Certification Committee and did not go through to the CCOD.

3.1.3 CCOD

3.1.3.1 Information Collection

- On receipt of the certification certificate from the MBOD, the presence of an existing file is determined. Should a case have already received maximum compensation in life, a letter is sent to the family informing them that no further compensation will be awarded.
- Using the information from the NCOH and MBOD, a letter is sent to the family and/or medical centre requesting the following information:

1. Application form for compensation – signed by a Commissioner of Oaths
2. Guarantee for compensation – signed by a Commissioner of Oaths
3. All service records and documents pertaining to the certified person's service at mines and works in the RSA
4. Certified copies of the deceased persons and his/her spouse's identity documents
5. Certified copy of the marriage certificate
6. Certified copy of the deceased person's death certificate
7. Certified copy of the deceased person's salary advice in respect of the month in which he/she was certified to be suffering from a compensable disease
8. Bank account details of the beneficiaries

- If complete, the payment is made. If incomplete, three months after requesting these documents a reminder is sent for outstanding information. No further action is taken after this.

3.1.3.2 Availability of data

- A registration program is in place containing the MBOD-, CCOD- and National ID numbers as well as names and surnames.
- Paper based files can be accessed using the CCOD number.

3.1.3.3 Current database format

- The only section on computer is a registration program containing the MBOD number, CCOD number, National ID number and names and surnames**.** The rest of the system is paper based. A Metrofiling system was instituted, but is no longer functional.

3.1.3.4 Tracking of status

- No system for tracking could be identified

Evaluation and identification of deficiencies

A register program is in place containing identification numbers and names of cases, but no formalised computer system is in place. 29% of cases followed up at the CCOD could not be traced using the register program. Paper based files can be accessed by using the CCOD number. The Metrofiling system is not functional any more. The CCOD is not linked on a network to the NCOH and MBOD. Three months after requesting information from the families and/or medical services, a reminder is sent for the missing information, but no formal system for tracking of status is in place.

3.2 Determining the role of the autopsy service in the identification of occupational lung disease and the compensation process

During 1999, there were 2530 autopsy examinations of the cardiorespiratory organs of miners performed at the NCOH. Files from the MBOD were not available for review for 71 (3%) cases. Of these, 24% (0.7% of all cases coming to autopsy) could not be found on the database and for the rest, the files were in use elsewhere.

3.2.1 Deferral of Cases

The 71 cases not available for review were excluded, leaving 2459 cases for further analysis. On 74 cases (3%), the Certification Committee deferred a decision, most frequently to obtain further history on service (Table 1). By March 2001 30 (41%) of the deferred cases have not been resolved. Letters requesting this information had been sent to the families / submitting medical centres, but no response had been received.

TABLE 1 REASONS FOR CERTIFICATION COMMITTEE DEFERRAL OF DECISION FOR 74 CASES

Reason for deferral	Number of cases N	%
Exposure and service history incomplete	53	72
Clinical data incomplete	5	7
Pathology review	6	8
To ascertain previous compensation	9	12
MBOD incomplete file (temporary file)	1	1

Cases are deferred when an autopsy diagnosis of a potentially compensable disease is made but the relevant information on the service or previous compensation status is not available or there is a discrepancy between clinical and pathological data. This information may affect the eligibility of the deceased for compensation. For example, for the certification of obstructive airways disease (OAD), there must be at least 10 years high dust service or at least 20 years low dust service and certification is only considered within 10 years of leaving service.

The service information was inadequate for a number (53) of cases. These were also deferred to obtain information such as exposure to asbestos for diseases like lung cancer, mesothelioma and asbestosis.

For 5 cases, the clinical data was requested as this might have made the deceased's beneficiaries eligible for compensation. For example, the clinical cause of death was PTB but only a small fragment of lung was received. 6 cases were deferred for review by the pathologists where there was a discrepancy between for example recent radiographs, recent MBOD findings and the autopsy.

In 9 cases, the Committee was not sure whether or not compensation had been granted in life and these were deferred to obtain proof of previous compensation from the CCOD. The files contained letters from the families mentioning previous compensation but there was no confirmatory record.

1 case was deferred to obtain the permanent file as the MBOD file was incomplete and no information was available.

3.2.2 Utilisation of the compensation procedure in life

The 30 unresolved deferred cases were excluded from further analysis, leaving 2429 cases for analysis. Table 2 shows the utilisation of the compensation procedure in life. Of cases coming to autopsy during 1999, 475 (20%) had been submitted to the MBOD for assessment for possible compensation during life. Of these, 213 (45%) had received compensation ($1^{st}/2^{nd}$ degree) in life. Of the cases submitted to the MBOD during life, 368 (78%) were whites, 94 (20%) blacks and 13(3%) coloureds. The majority of in-life 1^{st} and 2^{nd} degree certifications were made for whites while more blacks were certified as TB only.

TABLE 2 UTILISATION OF COMPENSATION PROCEDURE IN LIFE (2429 CASES)

Antmortem compensation status	No	%	Ethnic breakdown of cases submitted to MBOD (475 cases)
Not submitted for assessment	1954	80.4	
No compensable disease (NCD)	190	7.8	Black: 16 (8%) White: 171 (90%) Coloured: 3 (2%)
TB only (TB lymphadenitis/focal TB)	72	3.0	Black: 57 (79%) White: 14 (19%) Coloured: 1 (2%)
1st degree compensation during life	162	6.7	Black: 18 (11%) White: 136 (84%) Coloured: 8 (5%)
Silicosis	75		
Obstructive Airways Disease	48		
Asbestosis	4		
Asbestos plaques	20		
Silicosis & OAD	5		
Coalworkers' pneumoconiosis	1		
Asbestosis & asbestos plaques	6		
Unknown	3		
2nd degree compensation during life	51	2.1	Black: 3 (6%) White: 47 (92%) Coloured: 1 (2%)
Silicosis	1		
Obstructive Airways Disease	23		
Asbestosis	1		
Cancer	1		
Mesothelioma	2		
Tuberculosis &silicosis	1		
Tuberculosis &OAD	11		
Silicosis &OAD	3		
Pneumoconiosis	5		
Asbestosis &OAD	1		
Asbestos plaques & OAD	1		
Unknown	1		

Table 3 shows the correlation of antemortem certification for TB only (as seen in Table 2) with autopsy findings. There were 72 cases who received a certification of TB only in life. At autopsy, no active TB was found in 75% of these cases. This is most likely because the TB was treated and cured.

TABLE 3 CORRELATION OF ANTEMORTEM CERTIFICATION FOR TB ONLY WITH AUTOPSY FINDINGS IN 72 CASES

AUTOPSY FINDING	NUMBER	%
TB absent	54	75
Extensive TB	13	18
TB lymphadenitis	1	1
Focal TB	3	5
Focal and pleural TB	1	1

Table 4 shows the correlation of 1st degree antemortem certification with autopsy findings (as seen from Table 2). Of the 162 cases who received 1st degree compensation in life, discrepancies with the autopsy findings were found in 72 cases (49%). Silicosis was not confirmed at autopsy in 31 (41%) cases and was less extensive than assessed in life in 18 (24%). This might have been due to misinterpretation of radiographs due to other conditions present looking like silicosis. Silicosis also used to be certified if there was only one/a few silicotic nodules in the lungs

At autopsy, emphysema is taken as the pathological indicator for the certification of obstructive airways disease. OAD (emphysema) was absent at autopsy in 42% (20 cases). Chronic obstructive bronchitis which may also result in air-flow limitation in life cannot be reliably assessed at autopsy in most cases.

The absence of asbestos pleural plaques at autopsy in cases certified for plaques in life (plaques absent in 85% of cases certified 1st degree in life) may be because the plaques involved the parietal pleura. The parietal pleura is seldom submitted with the lungs for autopsy examination.

TABLE 4 CORRELATION OF 1ST DEGREE ANTEMORTEM CERTIFICATION WITH AUTOPSY FINDINGS 162 CASES

Disease for which certified in life	No.	Disease at Autopsy					
		Absent		Present not certifiable		Present and certifiable	
		Number	%	N	%	N	%
Silicosis	75	31	41	18	24	26	35
Obstructive airways disease	48	20	42	17	35	11	23
Asbestosis	4	3	75			1	25
Asbestos plaques	20	17	85			3	15
Coalworkers' pneumoconiosis	1	1	100				
Silicosis & OAD	5	3 *	60			2	40
Asbestosis & Asbestos plaques	6	4	67			2	33
Unknown **	3	-		-		-	
TOTAL	162	79	49				

* 1 case had neither silicosis nor OAD; 2 cases had only OAD

** Disease at autopsy: 1 TB, 1OAD

Of the 51 cases certified 2nd degree in life, the disease was confirmed in 55% of cases at autopsy and absent in 33% (Table 5).

TABLE 5 CORRELATION OF 2ND DEGREE ANTEMORTEM CERTIFICATION WITH AUTOPSY FINDINGS

Disease for which certified in life	No.	Disease at Autopsy					
		Absent		Present not certifiable		Present and certifiable	
		N	%	N	%	N	%
Silicosis	1					1	100
Obstructive Airways Disease	23	8	34	2	9	13	57
Asbestosis	1	1	100				
Cancer	1					1	100
Mesothelioma	2					2	100
Tuberculosis & silicosis	11	4 no sil	36			7	64
Tuberculosis & OAD	3	1 no OAD	33			2 for OAD	67
Silicosis & OAD	5	3 no OAD	60			2	40
Pneumoconiosis	1			1	100		
Asbestosis & OAD	1			1	100		
Asbestos plaques & OAD	1			1	100		
Unknown*	1	-		-		-	
TOTAL	51	17	33	5	10	28	55

*Disease at autopsy: insignificant emphysema

3.2.3 Outcome of cases with a potentially certifiable occupational cardiorespiratory disease found at autopsy versus the findings of the Certification Committee

There is a long standing practice at the MBOD whereby cases who have been certified 2nd degree in life (and thus received maximum compensation) are not submitted to the Certification Committee. There were 51 such cases and these were excluded, leaving 2378 cases for further analysis.

There was a high rate of lung disease at autopsy: 659 (28%) had a potentially certifiable disease diagnosed. Of these, 446 (68%) were either newly certified 1st or 2nd degree, or upgraded following the Certification Committee's meeting. These 446 cases made up 19% of all cases coming to autopsy during 1999.

Table 6 shows the cases with autopsy diagnosed potentially certifiable disease versus the findings of the Certification Committee. Of the 659 cases, 370 (56%) were suffering from tuberculosis at autopsy. TB lymphadenitis only was diagnosed in 10% of all cases with potentially compensable disease at autopsy. Of these cases with TB lymphadenitis, 85% were certified TB only, making them eligible for compensation for loss of earnings. Of the 68 cases with TB lymphadenitis, 9 (13%) were certified as 2nd degree as a result of a previous antemortem certification of another disease such as silicosis or OAD which, when present with TB lymphadenitis gets upgraded to 2nd degree.

Focal TB was diagnosed at autopsy in 5% of cases with potentially certifiable disease. Of these, 85% were certified TB only (eligible for compensation for loss of earnings) and 9% were certified 2nd degree as the presence of focal TB together with any other 1st degree in life certification, gets upgraded to the 2nd degree.

There were 268 (41%) cases with extensive TB at autopsy. Of these, 267 were certified 2nd degree and 1 was not compensable because of inadequate service. Where certifiable tuberculosis is the only disease present, compensation is awarded only if risk work was > 1 year duration (in shifts) and if the deceased died within one year of ceasing risk work.

Cases of moderate or a large number of islets are certified 1st degree silicosis. Of these, 9% were certified as 2nd degree. These were cases who were upgraded from another 1st degree certification in life e.g. tuberculosis (certified as TB only in life and now certified as 2nd degree tuberculosis + silicosis).

Emphysema (moderate/marked) was diagnosed at autopsy in 16% of cases. Almost half of these cases (47%) were certified as not compensable due to inadequate service. Moderate emphysema is certified as 1st degree (29% of cases with moderate emphysema certified 1st degree OAD). There were 4 cases (5%) with moderate emphysema certified as 2nd degree due to the presence of tuberculosis (any severity) in the lungs and lymph nodes.

Marked emphysema is certified as 2nd degree (53% of cases with marked emphysema certified 2nd degree OAD). One case with marked emphysema however received 1st degree compensation, as there was only 10 years low dust service and not 20 years.

Lung cancer was diagnosed at autopsy in 6% of cases with potentially certifiable disease. Of these, 32% were certified as not compensable due to absence of exposure to asbestos. 53% were certified 2nd degree.

Mesothelioma was diagnosed in 13 cases (2%), of which 3 cases (23%) were certified.

TABLE 6 CASES (N=659) OF AUTOPSY DIAGNOSED POTENTIALLY CERTIFIABLE OCCUPATIONAL CARDIORESPIRATORY DISEASE VERSUS THE FINDINGS OF THE CERTIFICATION COMMITTEE

NCOH Findings			**Certification Committee Findings**							
Disease*	**Cases diagnosed at autopsy**		**No change from in-life certification**		**NCD on service**		**TB only****		**First Degree**		**Second Degree**	
	N	%	**N**	**%**	N	%	N	%	**N**	**%**	**N**	**%**
TB												
TB lymphadenitis	68	10	1	2			58	85			9	13
Focal TB	34	5	2	6			29	85			3	9
Extensive TB	268	41			1	0.4					267	99.6
TOTAL	370	56	3	1	1	0.3	87	24			279	75
Silicosis	113	17	28	25					75	66	10	9
Emphysema												
Moderate	83	13	15	18	40	48			24	29	4	5
Marked	19	3			8	42			1	5	10	53
TOTAL	102	16	15	15	48	47			25	25	14	14
Lung cancer	41	6	6	15	13	32					22	53
Mesothelioma	13	2			3	23					10	77
Asbestosis / plaques	12	2	5	42	2	17			1	8	4	33
Mixed dust pneumo	3	0.4	1	33					2	67		
Coal Workers	4	0.5	1	25					3	75		
Laryngeal cancer	1	0.1									1	100
Final Outcome												
New certification					67		87		105		300	
Upgraded									1		40	
Totals:	659		59	9	67	10	87	13	106	16	340	52

* 48 (7.3%) cases had more than one occupational disease, and they have been categorised according to the most severe disease.

** TB confirmed in the regional glands only or focal TB in the lungs. It is noted that the patients suffers from TB but not in a compensatable degree

Table 7 shows the proportion of autopsy diagnosed potentially certifiable disease versus the findings of the certification committee. Of the cases found to have had no compensable disease because of inadequate service, 72% had emphysema. 82% of cases certified 2nd degree, had tuberculosis.

TABLE 7 PROPORTION OF CASES WITH AUTOPSY DIAGNOSED POTENTIALLY CERTIFIABLE DISEASE VERSUS THE FINDINGS OF THE CERTIFICATION COMMITTEE

NCOH Findings			Certification Committee Findings									
Disease*	**Cases diagnosed at autopsy**		**No change from in-life certification**		**NCD on service**		**TB only**		**First Degree**		**Second Degree**	
	N	%	**N**	**%**	N	%	N	%	**N**	**%**	**N**	**%**
TB	370	56	3	5	1	1	87	100			279	82
Silicosis	113	17	28	48					75	71	10	3
Emphysema	102	16	15	25	48	72			25	23	14	4
Lung cancer	41	6	6	10	13	19					22	7
Mesothelioma	13	2			3	5					10	3
Asbestosis / plaques	12	2	5	8	2	3			1	1	4	1
Mixed dust pneumo	3	0.5	1	2					2	2		
Coal Workers	4	0.6	1	2					3	3		
Laryngeal cancer	1	0.2									1	0.3
Final Outcome												
New certification					67		87		105		300	
Upgraded									1		40	
Totals:	659		59	9	67	10	87	13	106	16	340	52

* 48 (7.3%) cases had more than one occupational disease, and they have been categorised according to the most severe disease.

Of the 659 cases diagnosed with potential certifiable disease at autopsy, 446 (68%) were certified 1st or 2nd degree. Of these (Table 8), 56% were from gold mines, 5% from coal mines, 5% from platinum mines, 4% from asbestos mines and 1% from diamond mines. The remaining 29% were from other mines including chrome, copper, iron and works such as Iscor.

TABLE 8 CASES REFERRED TO THE COMPENSATION COMMISSIONER'S OFFICE BY MINERAL CATEGORIES

Autopsy disease	Referred by certification committee	Gold		Coal		Platinum		Asbestos		Diamond		Other	
	Number	N	%	No	%	No	%	No	%	No	%	No	%
First degree compensation													
Silicosis	75	52	69									23	31
Moderate OAD	24	14	59	2	8	1	4					7	29
Marked OAD	1	1	100										
Asbestosis/plaques	1							1	100				
Mixed dust pneumoconiosis	2	1	50									1	50
Coalworkers' pneumoconiosis	3			2	67							1	33
Second degree compensation													
TB lymphadenitis	9	4	44									5	56
Focal Tb	3	2	67					1	33				
Extensive TB	267	153	57	15	6	20	8	5	2	1	0.4	73	27
Silicosis	10	8	80									2	20
Moderate emphysema	4	2	50	1	25			1	25				
Marked emphysema	10	4	40									6	60
Lung cancer	22	9	41	1	5	1	5	5	23	1	5	5	23
Mesothelioma	10	1	10					4	40			5	50
Asbestosis/plaques	4							2	50			2	50
Laryngeal cancer	1	1	100										

*Includes unknown service, Chrome, Copper, Chrome, Iscor, Iron

3.3 Follow-up of cases referred to Compensation Commissioner to determine the outcome in terms of actual compensation paid

There were 446 cases who received new or upgraded 1st or 2nd degree certification (Table 7) and were thus eligible for a compensation payment. By February 2001, payment was known to have been made to the families of 31 cases, i.e. 7% of all eligible dependants.

At the CCOD's office, files were available for follow-up and analysis for 281 (63%) of cases (Table 9). In 11% of these cases, payments were made and in 1% the documents had been processed, and the beneficiaries were awaiting payment at the time of submitting this report. Incomplete documents were received back from the beneficiaries in 69%, no documentation was received in 17% (reminders had been sent) and for 2% a letter was not sent to the families as the beneficiaries were untraceable.

A total amount of R1 933 750 was paid to deceased's beneficiaries of which R1 731 880 went towards 2nd degree compensation and R201 750 towards 1st degree compensation.

TABLE 9 OUTCOME OF 1ST AND 2ND DEGREE CASES REFERRED TO THE COMPENSATION COMMISSIONER'S OFFICE AND AVAILABLE FOR ANALYSIS (N=281)

	Number	%
Number of payments made	31	11
Required documents received recently; awaiting payment	2	1
Awaiting documents	47	17
Spouse/beneficiary untraceable	6	2
No application form received/application form sent back incomplete (reminder sent on all but 1 case)	195	69

4. RECOMMENDATIONS

An integrated computer information system for the NCOH/MBOD/CCOD is required. A National Department of Health tender to address this has been issued.

4.1 NCOH

- The PATHAUT database should be amended to include findings of the Certification committee. Until the databases at the NCOH and MBOD are linked, the data on each case should be entered after the Certification Committee has met.
- Status tracking should be done during the December/January period as well
- The NCOH and MBOD databases should be linked on a network

4.1.1 Implementation of recommendations

- The PATHAUT database has been amended. Results of the certification committee are being entered for all cases as from January 2000 and will from part of the annual pathology report as it is within the capacity of the Pathology department to do so.

4.2 MBOD

- Status tracking should be formalised
- The NCOH and MBOD databases should be linked on a network
- A system should be put into place for further detailed statistical analysis
- A system should be put into place to follow up cases which received 2nd degree compensation in life

4.2.1 Implementation of recommendations

- Infomation on the in-life certification of cases receiving 2nd degree compensation in life are now being filled in on the MBOD database

4.3 CCOD

- Upgrade management systems at the CCOD
- Utilize available information at The Employment Bureau of Africa (TEBA) and Rand mutual Assurance to trace dependants and effect payment
- Review the excessive and complicated documentation required from the dependants of the deceased

REFERENCES

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