

COS\_TALK0803

COUNTING THE COST OF INJURY AND ILL HEALTH – AN ANALYSIS OF THE COS DATA

Wasn't that an energy charged speech by Max Walker

I had planned to bore you to tears with my monotonous voice and endless tables of complicated statistics

But Max threw down a personal challenge for me to make my talk interesting and to focus on communicating my message

The first challenge is to get you to re-establish good blood circulation.

Stand up. Put down your book

Raise both arms above your head – unless of course you have an adverse medical condition

Stretch up with your arm, now the left, now the right now the left

Now stretch both arms to the right, now stretch both the left, now right again and finally left again

Take a deep breath and now sit

I hope you feel better - Now back to my talk

### **1 – Who is QCOS**

The Queensland Coal and Oil Shale Mining Industry Superannuation Fund provides the industry superannuation service.

QCOS pays out superannuation benefits and insurance claims to the families of deceased members and persons with chronic disabling health conditions.

### **2 – What is the study about**

To inform the coal mining industry on a previously unreported aspect of health and safety outcomes.

To advise of prevalence disorders such as cancer, heart disease and traumatic injury in the context of data on the general population for the equivalent

To highlight the need to have health and safety management systems to manage health risks in the workplace.

### **3 - Method of Classification**

The 267 records provided by QCOS were classified into 10 categories and analysed by category type, year, age and length of experience.

The QCOS data was generally classified into groups consistent with the International Classification of Disease (ICD Version 10).

For occupational risk assessment purposes, a modification is made to the classification system to capture information of deaths and total permanent disability due to nervous and mental disorders such as depression, suicide and alcoholism.

Under the ICD, these may be classified as external injuries which is often the clinical outcome.

#### 4 - Method of Analysis

The age distribution of the coal mining industry employees was estimated from health assessment age distribution data published by the Department of Natural Resources and Mines (2002).

Death rates by cause were estimated from the QCOS data and compared with general community (male) data published by the Australian Institute of Health and Welfare (2002).

A method of estimating the total cost to the community of death and total permanent disability was used to compare the QCOS data with costs estimated from other data sets published by the Department of Natural Resources and Mines (2002).

#### 5 - QCOS Data - Deaths and TPD by Year

Year	Deaths	TPD	Total
1998	10	22	32
1999	8	65	73
2000	13	59	72
2001	6	46	52
2002	13	24	37
2003	1	0	1
Total	51	216	267

#### XX Deaths and TPD by age group

Age Group	Deaths	TPD	Total
>25	1	3	4
25 – 29	4	6	10
30 – 34	6	7	13
35 – 39	6	21	27
40 – 44	4	25	29
45 – 49	12	42	54
50 – 54	10	62	72
55 – 59	8	41	49
60 – 62	nil	9	8
Total	51	216	267

#### 6 Death and TPD by cause

Cause	Deaths	TPD	Totals	Av. Age
Cancer	14	20	34	51
Circulatory disease	12	21	33	53
Ear disorders	0	3	3	
Endocrine disorders	0	3	3	
Infectious diseases	0	5	5	
Musculo-skeletal disorders	0	83	83	47
Nervous / mental disorders	9	43	52	48
Respiratory disease	0	4	4	
External causes	13	32	45	41
Other	3	2	5	
Total	51	216	267	48

**XX Causes by year**

Cause	Year					Totals
	1998	1999	2000	2001	2002	
Cancer	5	7	7	7	8	34
Circulatory disease	7	10	7	3	5	32
Musculo-skeletal disorders	8	21	26	21	8	84
Nervous / mental disorders	3	11	12	14	11	51
External causes	7	13	16	5	4	45
All Others	2	11	4	2	1	20
<b>Totals</b>	<b>32</b>	<b>73</b>	<b>72</b>	<b>52</b>	<b>37</b>	<b>266</b>

**XX Distribution by Mine Type and Experience Group**

Mine Type	Experience Group		Total	% < 5 years
	0 to 5 years	5 plus years		
Open cut	22	144	166	13
Underground	28	59	87	32
Other	4	10	14	29
<b>Total</b>	<b>54</b>	<b>213</b>	<b>267</b>	<b>20</b>

**7 Causes by Mine Type**

Cause	Open Cut	Underground
Cancer	29	9
Circulatory disease	20	9
Musculo-skeletal disorders	48	33
Nervous / mental disorders	33	13
External causes	24	19
All Others	15	6
<b>Totals</b>	<b>164</b>	<b>89</b>

**XX Distribution of Earnings Lost by Mine Type and Experience Group**

Mine Type	Experience Group		Total
	0 to 5 years	5 plus years	
	\$ M	\$ M	\$ M
Open cut	32.8	91.4	124.2
Underground	37.8	53	90.8
<b>Total</b>	<b>70.6</b>	<b>144.4</b>	<b>215</b>

**8 NRM injury and lost time data, Workcover data compared to QCOS data**

Data Source	Days lost	Man-Years lost	Total Cost \$M
Reported Lost Time Injury Data	3627	18	1
Injury Lost Time from Production Returns	5475	27	2
Sickness Lost Time from Production Returns	31158	156	12
Workers Compensation Report			4
Lost Wage Estimate from QCOS data		660	43

**XX QCOS Data compared to SIMTARS/JCB Heart Disease Risk Research Project**

Cause of Death	QCOS Data		SIMTARS/JCB Project Data		AIHW Gen.Pop.
	Number	Percent	Number	Percent	Percent
Cancer	14	27	113	39	27
Circulatory disease	12	24	75	26	40
Nervous / mental disorders	9	18	0	0	na
Respiratory diseases	0	0	12	4	10
External causes	13	25	66	23	6
Other	3	6	26	9	17
Total	51	100	292	100	100

**9 Estimation and comparison of death rate between QCOS and AIHW data**

**Analysis of Population Group Aged 25 to 44**

Disease	General population			Mining Population			Mining/Gen Pop Rate %
	Numbers Gen.Pop	Percent	Rate/ 100,000	Numbers Min.Pop	Percent	Rate/ 100,000	
Cancer	228	5.3	7.78	4	19.0	13.38	172
Circulatory Disease	565	13.1	19.22	1	4.8	3.34	17
Digestive Disorders	328	7.6	11.15	0	0.0	0.00	0
Injury	2233	51.8	76.01	10	47.6	33.44	44
Nerves/Mental	na	na	Na	5	23.8	16.72	na
Other	957	22.2	32.58	2	9.5	6.69	21
Total	4311	100	146.74	21	100.0	70.23	48

**10 Estimation and comparison of death rate between QCOS and AIHW data**

**Analysis of Population Group Aged 45 to 64**

Disease	Numbers	Percent	Rate/ 100,000	Numbers	Percent	Rate/ 100,000	Rate %
Cancer	4626	41.4	206.33	10	33.3	44.25	21
Circulatory Disease	3184	28.5	142.04	10	33.3	44.25	31
Respiratory Disorders	536	4.8	23.92	0	0.0	0.00	0
Injury	1061	9.5	47.35	3	10.0	13.27	28
Nerves/Mental	na	na	Na	4	13.3	17.70	na
Other	1765	15.8	78.74	3	10.0	13.27	17
Total	11173	100	498.38	30	100	132.74	27

**11 Sensitivity to Alternate Interpretation in Coding**

Cause	Author	Reviewer
Cancer	34	33
Circulatory disease	33	34
Endocrine disorders	3	34
Ear disorders	3	3
Infectious diseases	5	4
Musculo-skeletal disorders	84	88
Nervous / mental disorders	51	59
Respiratory disease	4	4
External causes	45	32
Other	5	4
Total	267	267

## **12 Validity Issues**

No mechanism to capture fatigue related deaths – lost in vehicle accidents

The lead time on dust related deaths is so long that it will take some be seen in death data – and even then the group over 60 will be most affected.

Data of persons over 60 years age is not reliably collected

The delay in reporting the QCOS data 2002 data is considered incomplete

## **13 – Implications for OHS Practice**

Kerr (1966) reported that for each industrial fatality reported there were between 3 to 5 unreported occupational disease related fatalities.

Industry Commission report on Work, Health and Safety' (1995) concluded that

- systems are needed to monitor long term exposures and
- provide a mechanism for collating long term health outcomes for persons working in environments of elevated exposure risk.

*Coal Mining Safety and Health Regulations 2001*, Division 2, Part 6, (Coal Mine Workers Health Scheme) sets out a framework for the collection of long term health and exposure monitoring.

Sections 49 and 53 require a safety management plan for monitoring of workers exposure to hazards with data to be maintained for 30 years

Need research and consultation to establish appropriate trigger levels for management of persons at risk of occupational disorders

Maintain confidentiality of private health data.

## **14 - Conclusions**

A mechanism to use superannuation fund data to identify some adverse long-term health outcomes has been demonstrated.

Musculo-skeletal disorders, nervous / mental disorders and cancer conditions identified as major health issues that have caused 169 out of 267 (63%) cases for premature **superannuation / insurance** claims.

There are 34 cases per year of death or total permanent disability that may be occupational related disorders.

I remind you that under the legislation safety and health management systems are required to manage the risk of mine workers being adversely affected by hazardous exposures

I ask you where are the safety and health management systems that are required to help protect the current workforce from such a tragic ending