



Hearts, Health and

Coal Mining



Simtars
Queensland Government
A business unit of the Department of
Natural Resources and Mines

CARMEL BOFINGER

Heart Disease in Australian Coal Mining?

- Mortality and heart disease
- Incidence of heart disease
- Lifestyle factors
- Work-related factors

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Mortality and CHD

- Sources of data – AIHW, state health databases
- Matched with National Death dataset
- Cause of death – ICD index
- Inclusion/exclusion criteria

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Incidence of CHD

- Information held in datasets
- Blood pressure – WHO classification
 - Systolic ≥ 140 mmHg
 - Diastolic ≥ 90 mmHg
- Body mass index
 - 25 – 30 = overweight
 - > 30 = obese

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Lifestyle factors affecting CHD

- Data from other projects
- Physical inactivity
- Smoking
- Nutrition
- Social and economic factors
- Environmental factors

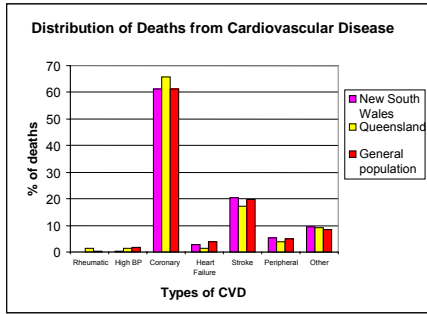
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Work-related factors affecting CHD

- Stress
- Shiftwork
- Noise
- Heat
- Dust
- Cardiotoxic compounds
- CHD across occupations

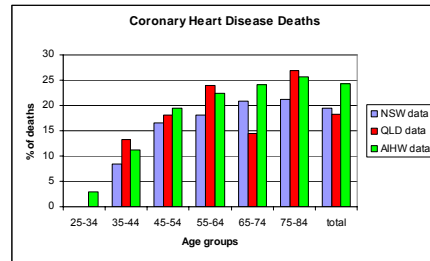
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Results - Mortality



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Results - Mortality



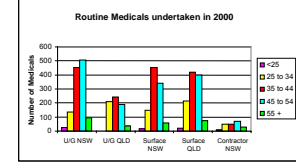
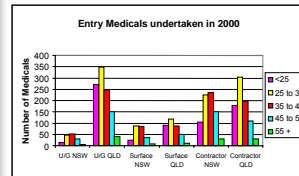
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Mortality results - limitations

- Matching with death data
- Small number of deaths/year/age group
- Estimating population - Birth cohort
- Healthy worker effects

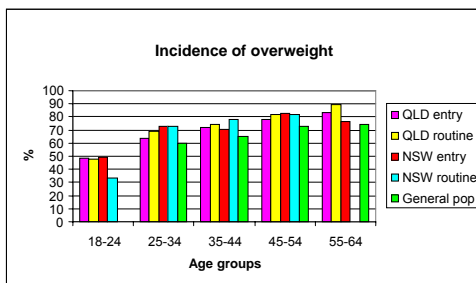
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Results - Incidence of CVD



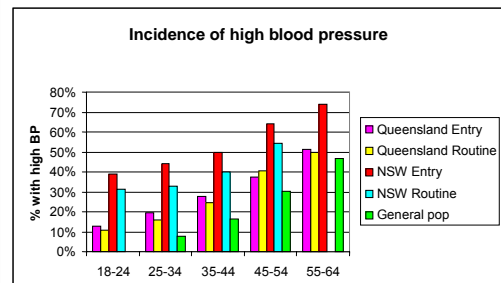
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Results - Incidence of CHD



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Results - Incidence of CHD



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Results – Lifestyle factors Physical activity - inadequate

Population Group	18-29	30-44	45-59	60-75	18-75	
General population (AIHW, 2001)	31.3	46.5	50.0	46.0	43.3	
	18-24	25-34	35-44	45-54	55-64	Overall
Coal Mining – all groups	28	40	45	43	49	42

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Results – Lifestyle factors Alcohol Use

General Population 8%

Based on 5 or more drinks for 5 or more days per week

Population group	18-24	25-34	35-44	45-54	55-64	Overall
Coal mining – all groups	28	6	5	4	3	7

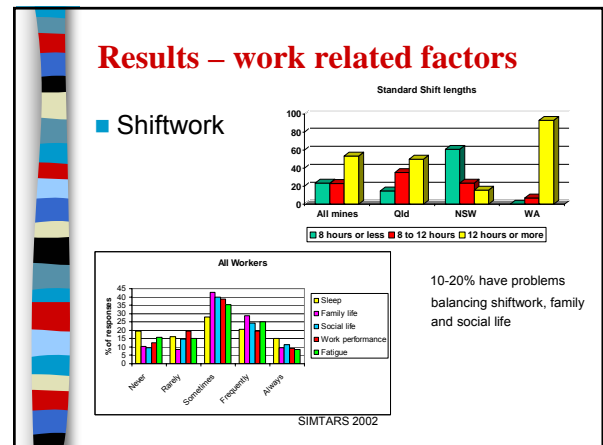
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Results – Lifestyle factors Tobacco smoking

Current or occasional smokers

Population group	18-24	25-34	35-44	45-54	55-64	Overall
General population	39.3	38.3	27.5	28.9	29.3	30.2 (25+)
Coal mining – all groups	21	28	30	26	16	27
Data from QLD medicals	30	32	28	22	15	27

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- ### Results – work related factors
- Noise
 - Underground - >40% exceeding 85 dBA
 - Surface - >20% exceeding 85 dBA
 - Heat
 - Reasonably well controlled
 - Mines rescue at high risk but for short time
 - Cardiotoxic compounds
 - Carbon monoxide
 - Nitrates
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- ### Results – work related factors
- Dust
 - % <2 um = 1-3 % (when no diesel present)
- NSW u/g = 1.5 mg/m³ = 30 um/m³
 NSW surface = 0.6 mg/m³ = 12 um/m³
 Qld u/g = 1.9 mg/m³ = 38 um/m³
 Qld surface = <0.4 mg/m³ = <8 um/m³
- Effects seen at < 30-50 um/m³
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Results – work related factors

- CHD across occupations
 - Inter-relationship of many identified risk factors
- High risk groups
 - Shift workers
 - Psychologically demanding work
 - Low level of authority
 - eg drivers, hospitality workers

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Conclusions – to date

- No increased risk of CHD shown in mortality data
- Increase in major risk factors
 - Body mass index
 - Blood pressure
- No increased risk in lifestyle factors
- Increased risk in work related factors

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Recommendations

- Continued surveillance of risk factors
- Health programs need to target risk factors

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Acknowledgment

- JCB Health and Safety Trust
- State, industry bodies and miners who provided data, replied to questionnaires or contributed in other ways

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