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HEALTH WATCH

The Australian Petroleum Industry Health Surveillance Program

MONASH University

A continuing study of the health of people in the Australian Petroleum Industry

Health Watch follows 19,000 past and present employees in the petroleum industry during their time in the industry, and after they leave or retire. Along the way, *Health Watch* records any occurrence of cancer and, eventually, the cause of death. By evaluating the results for different jobs within the petroleum industry, and comparing them with the general Australian population, *Health Watch* provides information about risks in the job and risks due to lifestyle.

This update of the *Health Watch* study is based on deaths to 30 November 2004 and cancers registered on or before 31 December 2002. The findings here are a summary of the latest results presented in the 13th *Health Watch* report.

Health Watch members

Sex	Number of members	Number of deaths	Number of cancers
Male	16,623	1,473	1,469
Female	1,375	34	58
Total	17,998	1,507	1,527

Death rates are low for men and women

Compared with the general Australian population and after allowing for age differences, the:

- death rate in men and women is significantly lower
- death rate for men in **all** major disease categories (heart disease, cancer, respiratory disease, diseases of the digestive system and external causes such as accidents, violence etc.) is also significantly lower.

Chance of cancer for men and women no different to general population

The chance of developing most types of cancer is no different for men and women in this industry compared with other Australians.

The proportion of women in the Health Watch group remains very small and this prevents detailed analyses.

Cancer among men

Compared with the general population, there are:

Higher rates of

- mesothelioma,
- melanoma
- kidney cancer among drivers

Lower rates of

- cancers of the lip, oral cavity and pharynx
- lung cancer
- death from lung cancer
- death from colon cancer

And a similar rate for most other cancers including:

- leukaemia
- prostate
- colon
- rectum

Risk of leukaemia same as general population

The latest analysis shows the risk of leukaemia – of all types – is no greater than in the general population and has fallen compared to the last report.

Acute non-lymphocytic leukaemia (ANLL)

One leukaemia type known to be associated with benzene exposure is ANLL. There have been no further cases in the last 2 years among the *Health Watch* members. There are 11 cases compared with 12.9 cases which would be expected, based on rates in the Australian population.

Asbestos-related cancers

There were 23 cases of mesothelioma, (5 more since the last report) a cancer strongly associated with asbestos exposure. In the *Health Watch* group, 16 of the 23 cases have occurred in refinery maintenance workers and operators. It is likely that several of these cancers are related to asbestos exposure in refineries before the 1970s, although some could be from asbestos exposure before entering the oil industry.

About 40 members reported other non-cancer conditions arising from asbestos exposure, and 3 members have died from asbestosis.

Asbestos-related lung cancer unlikely in the Australian petroleum industry

Asbestos exposure can also cause lung cancer. Some overseas studies suggest there are asbestos-related lung cancers in refinery maintenance workers but our analysis has failed to find such cases. It appears that very few, if any, asbestos-related lung cancers have occurred from working in the Australian petroleum industry. Overall, the lung cancer rate in the group is very low.

Melanoma rates higher but unlikely to be caused by any workplace factor

The rates of melanoma are raised, although the reason for this is unknown. From the analysis and what is known about the cause of melanoma, it appears unlikely that the increased rates are due to any workplace factor. Most importantly, the *death rate* from melanoma is the same as that of the general population.

Bladder cancer and prostate cancer rates no longer raised

In previous letters to Health Watch members possible increases in the risk of bladder and prostate cancer were reported. These excesses are no longer seen. Most importantly, the death rate from these cancers has not increased.

If workers in the petroleum industry have regular medical checks, this could result in an unusually high number of reported early bladder and prostate cancers.

Such an increase in cases, which then reduces over time, accompanied by no increase in mortality, was also seen with melanomas in Health Watch members. Melanoma is another cancer which is often detected through intensive medical supervision.

Kidney Cancer

The overall incidence of cancer of the kidney in the whole cohort is not raised but analysis of kidney cancer shows increasing incidence with hydrocarbon exposure. Kidney cancer remains in excess among drivers (13 cases vs 7.25 expected) but the excess is no longer statistically significant. The small number of cases does not allow meaningful analyses of possible contributing factors in drivers. We will continue to monitor this.

Cancer and mortality by job group

All job groups have significantly lower all-cause mortality, similar overall cancer incidence and lower cancer mortality compared to the general population.

Alcohol consumption

The overall mortality rate in men with low to moderate alcohol consumption is reduced in comparison with non-drinkers. Beyond five drinks a day, the mortality rate rises to a higher level than in non-drinkers. The effect has become stronger over the last three years. Moderate alcohol use particularly reduces the death rate from heart disease. However, other studies show that alcohol increases the risk of some other diseases, such as chronic liver disease and head and neck cancer; and in women the risk of breast cancer increases even with moderate alcohol use.

Smoking probably played a part in 40% of deaths

Smoking has a powerful influence on mortality. The death rate from all causes increases significantly with increasing tobacco use. The contribution of smoking to ill health is shown even more strongly now than it did in the last report.

Compared to non-smokers, those who smoke 30 or more cigarettes a day show:

- about a four-fold increase in standardised death rate (up from three fold in the 12th report)
- about a five-fold increase in death rate from heart disease
- about a 50-fold increase in incidence of lung cancer (up from about 30-fold in the 12th report)

Altogether it is estimated that smoking has been a contributing factor to about:

- 40% of all male cancer deaths in the *Health Watch* group – about 230 men
- 45% of the deaths from heart disease – about 170 men.

Combining all causes of death, it is estimated that smoking has played a part in about 580, or 40% of the 1473 deaths among Health Watch members. Comparison of the current analyses and those in the 12th report suggests that smoking effects are becoming more pronounced as the cohort ages.

Quitting reduces the risks

Overall mortality, risk of lung cancer and heart disease is clearly reduced by quitting smoking. Compared to non-smokers, those who quit show:

- no significant increase in mortality
- risk of lung cancer remains raised but drops to 6 fold
- the death rate from heart disease is not significantly raised

WANT MORE DETAILS?

The findings here are a summary of the latest results presented in the 13th *Health Watch* report. The complete report is on the following website:

Australian Institute of Petroleum (AIP)
http://www.aip.com.au