

July 2018

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

*Health Watch* includes over 20,000 past and present employees in the petroleum industry who are tracked during their time in the industry, and after they leave or retire. *Health Watch* records any cancers and eventually, the cause of death. By evaluating the results for different jobs within the petroleum industry, and comparing the cancer and death rates with the general Australian population, *Health Watch* provides information about risks in the industry, and for particular jobs and risks due to lifestyle. The existing *Health Watch* cohort includes around 18,000 employees and a new cohort was formed in 2010-2012 by recruiting 2,000 current employees in the industry. The short time since recruitment means that it is too soon to present results for the new cohort.

**Summary**

The *Health Watch* Study continues to show that Australian petroleum industry employees have better health than the general Australian community and are less likely to die from heart, respiratory, digestive diseases and cancer compared to the general population. Their chance of developing most types of cancer is no different from that of other Australians.

**The latest data**

These findings are a summary of the results of the original *Health Watch* cohort presented in the 15<sup>th</sup> *Health Watch* report. This update of the *Health Watch* study is based on deaths to 2015 and cancers registered to 2012. These were the latest dates for which the national cancer and death statistics were available from the Australian Institute of Health and Welfare at the time of the analyses. Around 60% of the existing *Health Watch* cohort members are born between 1940-1960 (i.e. are over 65 years old). Around 1,800 members remain employed by participating companies, however, everybody in the cohort, including retirees, is included in the analyses in *Health Watch* Reports.

*Existing Health Watch members*

Sex	Number of members	Number of deaths	Number of cancers
Male	16,654	3372	3468
Female	1,373	111	135
Total	18,027	3483	3603

**Health Watch death rates are low for men and women**

Compared with the general Australian population and after allowing for age differences, the death rate in the *Health Watch* cohort is about 20% lower for men and women compared to the national rates, and lower for men in **all** major disease categories: heart disease (28% lower), cancer (12% lower), respiratory disease (24% lower), diseases of the digestive system (28% lower) and external causes such as accidents (32% lower).

**Risk of cancer for men and women not increased**

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 *Health Watch* remains small and this prevents detailed analyses.

**The risk of cancer and mortality among men**

The health of male employees does not differ between workers at various workplaces in the industry, and compares favourably with the rates in all Australian men. That is, the chance of dying or of getting cancer or heart disease are similar no matter where *Health Watch* members worked including upstream production sites; refineries, terminals and airports. Drivers had about a 15% higher risk of contracting cancer compared with the national rates, but their risk of dying from any cause was about 15% lower than the general Australian population.

Compared with the national rates, the *Health Watch* cohort members have:

*More:* mesothelioma, melanoma and prostate cancer

*Fewer:* lung cancer, liver cancer and cancers of the lip, oral cavity and pharynx.

*Similar rates of most other cancers including:* leukaemia, colon, stomach and pancreas.

**Mesothelioma risk remains elevated**

There were 49 cases of mesothelioma, 10 more than the last report. This cancer is strongly associated with asbestos exposure. Among *Health Watch* members, 52% of mesotheliomas occurred in those who were either refinery operators or maintenance operators. It is likely that several of these cancers were related to asbestos exposure in refineries before the 1970s, although some could be from asbestos exposure outside the petroleum industry.

**Few asbestos-related lung cancers likely**

Overall, the lung cancer rate in men is 20% lower in the cohort compared to the national rates. This is likely due to smoking rates being lower in *Health Watch* than in the general population. Asbestos exposure can also cause lung cancer. Some overseas studies suggest higher rates of lung cancer in refinery maintenance workers can be due to such workers being exposed to asbestos, such as through asbestos lagging on pipes. In *Health Watch* there was no difference in lung cancer rates among refinery workers compared with those from all other workplaces and no difference in lung cancer rates between maintenance and non-maintenance refinery workers. This suggests that few asbestos-related lung cancers in Australian refinery workers are likely.

### **Risk of leukaemia has reduced**

The latest analysis confirms that the risk of leukaemia is now no greater than that of the general population and has been reducing. One leukaemia type known to be associated with benzene exposure is Acute Myeloid Leukaemia. There are 18 cases of this type of leukaemia in the *Health Watch* cohort, but this is lower than the 25 cases which would be expected, based on rates in the Australian population.

### **Melanoma rates are higher than expected**

Melanoma is one of the commonest cancers in the *Health Watch* cohort and there continues to be a 20% increase in the incidence compared to national rates, particularly in the sunnier states. When compared to relevant state rates, the increase in risk of melanoma is 25-40% higher in the cohort. The rate does not increase with increasing duration of employment, time since first employment or time period of first employment, which suggests that workplace factors are not a likely explanation. Mortality from melanoma is similar to the national rates.

### **Prostate cancer rates are higher than expected**

There continue to be more cases of prostate cancer in *Health Watch* than expected; however, death from prostate cancer is the same as that of the general population. Although the reason for this is unclear, it may mean that *Health Watch* members have higher screening rates than the general population.

### **Bladder cancer risk similar to general population**

In previous letters to *Health Watch* members, a possible increase in the risk of bladder cancer was reported. However, the risk of bladder cancer for the cohort as a whole is now similar to that of the national population. An excess of bladder cancer remains for drivers (22 cases vs 15 expected) when compared to the general population. Bladder cancer is associated with smoking and there is an increased proportion of ever smokers (73%) among the driver group compared with the rest of the male cohort (64%). The excess will be continually monitored.

### **Kidney cancer same as general population**

The overall incidence of cancer of the kidney in the cohort remains similar to the national rates. However, kidney cancer remains in excess among drivers (21 cases vs 16 expected), but the small number of cases does not allow meaningful analysis of possible contributing factors. The rate of kidney cancer in drivers will continue to be monitored.

### **Most smoking-related diseases in men lower than the general population**

Lung cancer, cancer of the lip, oral cavity and pharynx, and deaths from chronic obstructive pulmonary disease (COPD) are significantly lower in men in *Health Watch* than in the general population.

### **Smoking probably played a part in 50% of deaths**

There is a clear pattern that smoking is associated with increased risk of overall mortality and specifically ischaemic heart disease mortality, increasing risk of overall cancer incidence and cancer mortality, and of bladder cancer incidence.

Compared to never-smokers, those who smoke 1-19 cigarettes a day show:

- a 2-fold increase in the death rate
- a 2-fold increase in deaths from heart disease
- a 16-fold increase in cases of lung cancer

Higher rates of these deaths are seen in those who smoke more. Altogether it is estimated that smoking has been a contributing factor to about:

- 50% of all male cancer deaths – about 570 men
- 49% of heart disease deaths – about 240 men.

Combining all causes of death, it is estimated that smoking has played a part in about 1170, or 46% of the 2,563 deaths among smokers in *Health Watch*. Comparison with previous *Health Watch* reports suggests that smoking effects are becoming more pronounced as the cohort ages.

### **Quitting reduces the risks**

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

- only a slight increase in mortality
- heart disease death rate is similar to never smokers
- the risk of lung cancer remains raised but the risk is almost one seventh of the highest smoking group

### **Alcohol consumption**

When compared to moderate drinkers (1-7 per week), total abstainers have a slightly higher death rate. Heavier drinkers (more than 3 drinks per day), have a 44% higher death rate, and those who drink more than 7 drinks/day are more than twice as likely to die.

### **MISSING MEMBERS**

We have lost touch with some of the members of the cohort. If you know of a member who has not received this newsletter please ask them to contact us.

### **WANT MORE DETAILS?**

The findings here are a summary of the latest results presented in the 15<sup>th</sup> *Health Watch* report. The complete report is available on the following websites:

Australian Institute of Petroleum (AIP)

[www.aip.com.au/programs/health-watch](http://www.aip.com.au/programs/health-watch)

Monash Centre for Occupational and Environmental Health

[www.monash.edu/medicine/sphpm/coeh/researchprogram/healthwatch](http://www.monash.edu/medicine/sphpm/coeh/researchprogram/healthwatch)

### **YOUR CONTINUING PARTICIPATION IN HEALTH WATCH IS VITAL**

Ask a question or notify a change of address?  
please ring the free-call number 1800 631 772 or  
email us: [healthwatch@monash.edu](mailto:healthwatch@monash.edu)