

Executive summary

- The aim of this study was to examine the incidence of cancer experienced by the 17,381 Australian male veterans of the Korean War compared with that experienced in the Australian community for the period 1982–1999. These cancer patterns were examined for all Korean War veterans and for each of the Services—Navy, Army and RAAF.
- Work was commissioned by the Department of Veterans' Affairs (DVA) and was undertaken by AIHW under the supervision of the Study Consultative Committee and a Scientific Advisory Committee. The DVA and AIHW Ethics Committees provided approval for the work.
- The outcome of the study showed that Korean veterans experienced a significantly greater overall cancer risk than the Australian community, with an excess of between 13% and 23%, and varying significantly in the pattern across Services.
- At the commencement of the study period (1982), there were 15,041 veterans identified as being alive and eligible for the study. An additional 884 veterans (5%) could not be found after extensive searches of data systems and are referred to as 'veterans whose status is unknown'.
- There were 3,543 cancers identified in the veteran population in the period 1982–1999 using the DVA Korean nominal roll and the AIHW National Cancer Statistics Clearing House. The most common cancers found among the veteran population were cancer of the prostate (21% of the total cancers), lung cancer (19%), colon (8%), melanoma (7%), rectum (6%) and head & neck cancers (5%).
- To ascertain whether veterans experienced cancer at a similar rate to the Australian community, a series of steps were required to calculate the population 'at risk' for each year of the study (i.e. remove deaths). Once this was established the Australian community rate was applied to the 'at risk' population to determine how many cancers would be expected amongst the veterans.
- Deaths of veterans were identified both here in Australia using the AIHW's National Death Index and the state and territory Registrars of Births, Deaths and Marriages databases, and overseas using the New Zealand Registrar of Births, Deaths and Marriages database.
- The 5% of veterans whose status is unknown posed a problem for the study in that they needed to be taken account of, as including them or excluding from the population 'at risk' significantly influenced how many cancers might be expected amongst veterans.
- Two 'at risk' population Scenarios were derived to manage this issue. Scenario 1 excludes veterans whose status was unknown from the at-risk population and Scenario 2 includes this group in the at-risk population. The report presents findings under both Scenarios.
- The study compared cancers in veterans with those expected based on Australian community rates under the two Scenarios, by producing standardised cancer incidence ratios. Where the ratio exceeds one, the actual cases of cancer among veterans are higher than the expected number, and vice versa. However, these results also need to be considered along with the confidence intervals around each ratio, which help indicate statistical significance. The findings reported below only highlight those results that have been found to be statistically significant.

Results

- The incidence of all cancers among Korean War veterans was 23% higher (Scenario 1) and 13% higher (Scenario 2) than expected compared with the Australian community rate.
- Compared to the expected number of cases, veterans experienced higher cancer incidence ratios under Scenario 1 and 2 for head & neck cancers (90% and 76% respectively), larynx cancer (72% and 60%), oesophagus cancer (54% and 42%) and lung cancer (42% and 31%). Smoking is a major risk-factor associated with each of these cancers.
- A further analysis of smoking-related cancers was undertaken to determine if smoking alone could explain all of the elevation in the incidence among veterans. The results indicate that even if 100% of veterans were smokers, the excess number of head & neck cancers would not have been explained by smoking alone, suggesting that there may be other factors influencing the elevation.
- Similarly, smoking prevalence rates would have had to reach 90% and 82% (under Scenario 1 and 2) to explain the cancer of the larynx ratios, 86% and 77% for cancer of the oesophagus, and 64% and 59% for cancer of the lung.
- Other cancers with significantly higher incidence among veterans, but only for Scenario 1, were melanoma and cancers of the prostate, colon and rectum.

Service type

- Cancer incidence among the Korean War veterans was analysed further by type of Service (Navy, Army and RAAF).
- The results showed that the total incidence of cancer among those who served in the Navy was 25% higher (Scenario 1) and 17% higher in Scenario 2. Prostate cancer (30% and 20% higher), head & neck cancer (93% and 81%), and lung cancer (25% and 17%) all showed significantly higher incidence among Navy veterans.
- Army veterans experienced 25% and 13% higher overall cancer incidence (Scenario 1 and 2). Lung cancer (59% and 44% higher), head & neck cancers (91% and 74%), cancer of the larynx (105% and 87%), and liver cancer (78% and 61%) all showed significantly higher incidence among Army veterans.
- Under both Scenarios, veterans who served in the RAAF showed no difference in the incidence of total cancer, but showed statistically significantly higher rates of melanoma (68% and 64%) under both Scenarios.

Duration of service by Service type

An analysis examining the relationship between cancer incidence and duration of service (short, medium and long duration) in Korea was conducted for the Army. There were insufficient numbers of cancer in the Navy and RAAF to provide a statistically reliable comparison.

- The key results from the analysis were that the number of all cancers experienced by Army veterans who served in the Korean War for a short, medium and long duration were 21%, 28% and 26% higher than expected in Scenario 1. Scenario 2 showed 10%, 16% and 13% higher numbers than expected respectively.
- The excess incidence of head & neck cancers, lung and larynx cancers among Army veterans compared with the Australian community increased consistently with duration of service under both population Scenarios, as the duration of their service in Korea increased from short to long duration category.

Mortality

- Of Korean War veterans who had developed cancer between 1982 and 1999, over 58% of veterans had died by 1999. Of these veteran deaths, the underlying cause of death in 71% of cases was the same cancer suffered by the veterans. Particularly notable were lung (89% of those dying with the same cancer), pancreas (89%), oesophagus (80%), liver (85%), brain (93%) and leukaemia (72%) cancers, which contributed greatly to the death toll of the Korean War veterans.
- A more comprehensive analysis of mortality patterns has been undertaken in another volume of the Korean War veterans' studies, examining the comparisons of mortality with the rest of the Australian community.