PCN65

MORTALITY TRENDS IN CANCERS: A NEW MODEL TO VISUALISE THE CONTRIBUTION OF SPECIFIC DISEASES, COHORTS AND CODING CHANGES TO OVERALL MORTALITY IMPROVEMENT.

Crystallise

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Objectives

Identifying the drivers of trends in mortality for disease classes is challenging. We used the *Requiem* model to visualise trends by gender and age in 3-D format to identify cohort and other effects in specific cancers.

Methods

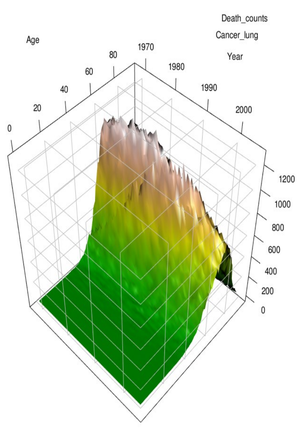
The *Requiem* model analysed and smoothed ONS mortality statistics for England and Wales from 1970 to 2013 by single year of age and gender. Disease codes were mapped at 4-digit level from ICD-8 to ICD-10 by medical modellers. An analysis was run for total cancer mortality and individual malignant diseases within that category. Outputs were displayed in multiple formats, including 3-D images of central mortality and deaths by age over time, and heat maps of absolute mortality improvement per disease and the component each disease contributed to all-cause mortality trends.

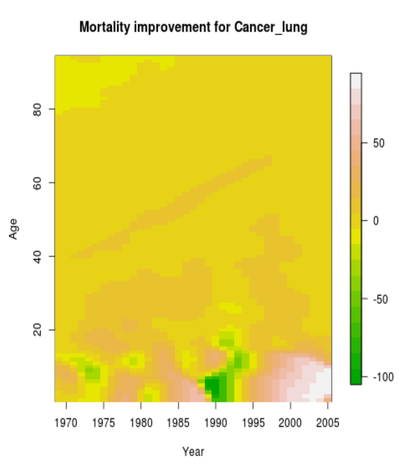
Results

Cancer mortality increased from 1970 to 1990s and has since fallen by up to 4% per year, accounting for a 1-2% of absolute improvement in all-cause mortality, and with evidence from heat maps for cohort effects. Most cancers showed increasing mortality rates to the 1990s, which have now declined. This is seen particularly in men in lung cancer, which saw up to 10% improvement per year in mortality, in breast cancer in women, with a peak in the 1980s and up to 20% annual improvement since then, and in colon cancer in both genders, with a 5-10% annual improvement in mortality per year. Hodgkin's lymphoma mortality has decreased steadily in both genders, while non-Hodgkin's mortality has increased in the over 50s. Mortality continues to worsen for liver, kidney and CNS cancers. Pancreatic cancer has shown little change in mortality since 1970 in either gender.

Trends in lung cancer mortality in men, England & Wales 1970-2013

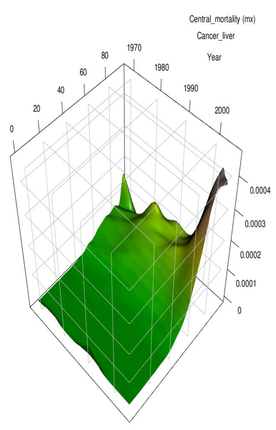
Death counts and mortality improvement heatmap

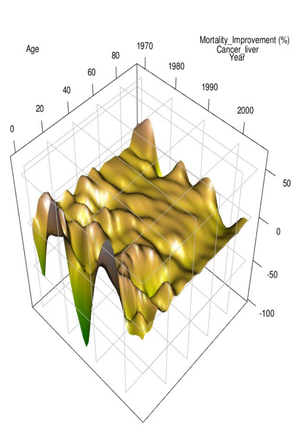




Trends in liver cancer mortality in men, England & Wales 1970-2013

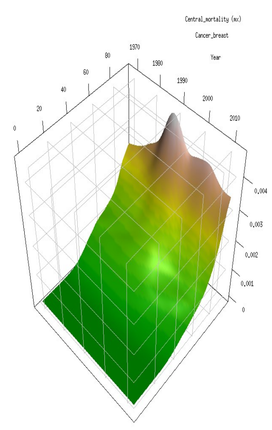
Central mortality and mortality improvement heatmap

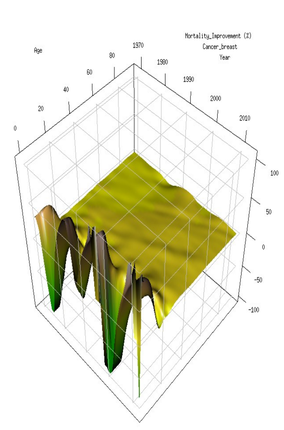




Trends in breast cancer mortality in women, England & Wales 1970-2013

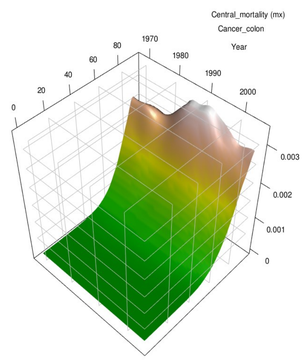
Central mortality and mortality improvement heatmap

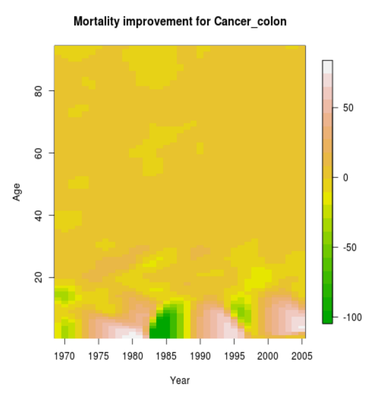




Trends in colon cancer mortality in men, England & Wales 1970-2013

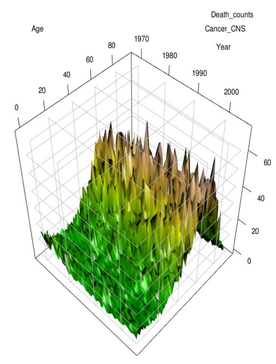
Central mortality and mortality improvement heatmap

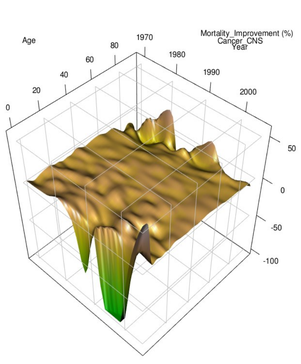




Trends in brain cancer mortality in men, England & Wales 1970-2013

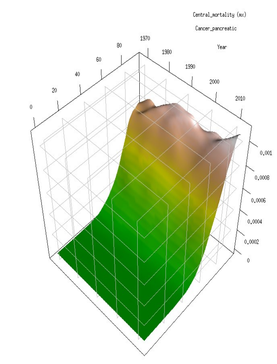
Death counts and mortality improvement heatmap

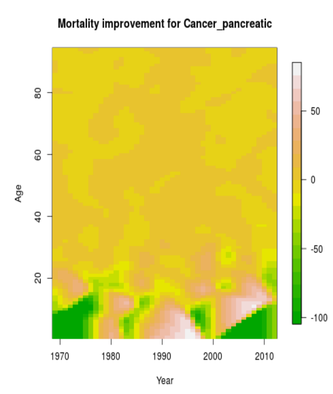




Trends in pancreas cancer mortality in women, England & Wales 1970-2013

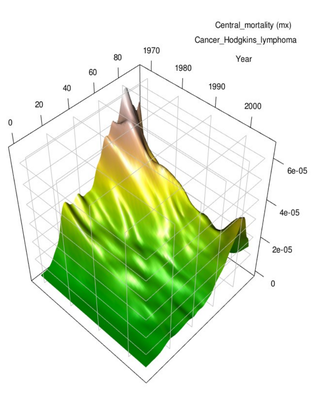
Central mortality and mortality improvement heatmap

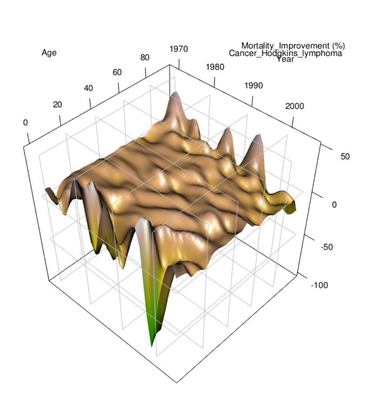




Trends in Hodgkin's lymphoma mortality in men, England & Wales 1970-2013

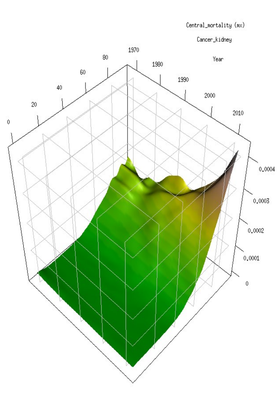
Central mortality and mortality improvement heatmap

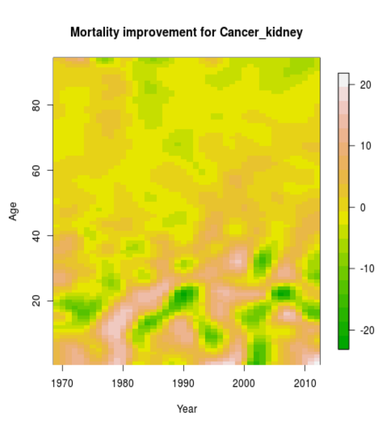




Trends in kidney cancer mortality in women, England & Wales 1970-2013

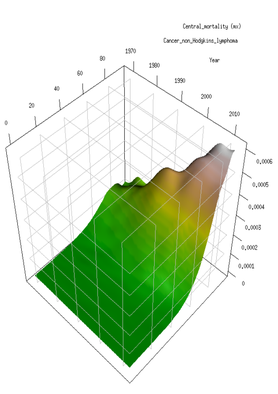
Central mortality and mortality improvement heatmap

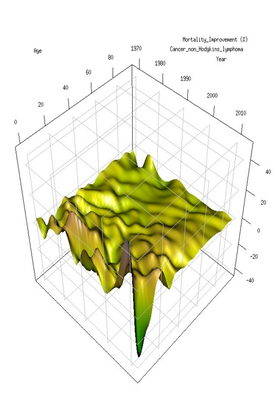




Trends in Non-Hodgkin's lymphoma mortality in women, England & Wales 1970-2013

Central mortality and mortality improvement heatmap





Conclusions

The *Requiem* model 3-D visualisation facilitates the understanding of trends in mortality for different cancers, and shows the impact of cohort effects and risk factors such as smoking and alcohol.

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