Webappendix

Study population

1. Of the 137,199 women with ovarian cancer, 8.2% were ineligible because they had a borderline malignancy (7.6%), or because they did not have a primary, invasive, malignant tumour. Exclusions were made among the 125,881 eligible women if the tumour was registered from a death certificate only (3.3%) or detected only at autopsy (<0.1%), or if the woman's vital status was unknown (0.1%) or she had previously had a primary ovarian malignancy. Further exclusions by calendar period and registry were made for the analyses of survival by stage.

Details of method

2. Net survival compensates for mortality from other causes (background mortality); it is the recommended method for population-based survival analyses because death registration does not capture cancer as the underlying cause of death comparably between countries and over time.

3. Final models were selected using the Akaike Information Criterion[1] and log-likelihood ratio tests, and by examining the Martingale residuals to ascertain goodness of fit[2].

Multiple imputation by chained equations with the *ice* command in Stata: the imputation model included, *a priori*, vital status and the non-linear effects of the log cumulative excess hazard and age at diagnosis. Morphology, sub-site, year of diagnosis and any interaction

between the log cumulative excess hazard and other co-variables were included if they statistically significantly predicted if stage was missing, or the observed stage distribution.

[1] Akaike H. A new look at the statistical model identification. IEEE Transactions on Automatic Control 1974;19(6):716-23.

[2] Therneau TM, Grambsch PM, Fleming TR. Martingale-based residuals for survival models. Biometrika 1990;77(1):147-60.