

D-1 Absolute Gain

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Absolute Gain is a computer programme (to become available on the web) which predicts 10 and 15 year breast cancer specific survivals.

Based on a series of 2225 consecutive cases of primary breast cancer (age ≤ 70 , size < 5 cm) with primary operable therapy at Nottingham City Hospital in 1990-1999. Adjuvant treatment had followed protocols according to prognosis for recurrence and survival and ER status.

Individual prognostic estimation is from the Nottingham Prognostic Index (NPI) score for the individual by application of a formula reflecting a second order polynomial relationship [Blamey et al. Reading the prognosis of the individual with breast cancer. *Eur J Cancer* 2007; 43(9), in press].

Calculations are then made for the absolute effect for the patient on survival of adjuvant systemic therapies, using relative risk reductions demonstrated by the EBCTCG. These allowed polynomial curves and formulae to be produced for the prognosis according to NPI level, with and without treatment to be tested: the prognosis for the individual being read and absolute gain easily calculated. Survival corrections are made for natural life expectancy by age.

Age, grade, size, LN status, ER, LVI, margin status, basal phenotype, HER2neu, operation undertaken, axillary prophylaxis, irradiation are the patient data required.

A demonstration of the programme will be made at a workshop, together with a comparison with Adjuvant and a validation of the method by comparison on predicted and observed outcomes in the ONCOPOOL data set.

D-2 SUPERSTES – Breast cancer survival query and report system

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Traditionally, conventional statistical methods are used for modelling survival in cohorts of cancer patients, in particular, the Kaplan–Meier estimate and the Cox proportional hazard model. In breast cancer, a number of prognostic indices have been developed that utilise covariates. For instance, the Nottingham Prognostic Index (NPI). Biological markers are also prognostic factors including oestrogen receptor (ER) as used in Adjuvant!™ online prognostic tool.

Recently, data mining approaches applied to large data sets have yielded new models for predicting breast cancer survival, employing more covariates and yielding higher accuracy and the availability of large data sets, permits exploration of combinations of prognostic covariates. The Surveillance Epidemiology and End Results Program (SEER) database has over 400,000 cases of breast cancer entered between 1972 and 2002 and 17 prognostic variables.

Our primary goal was to develop an infrastructure that would benefit both clinicians and bioinformaticists. We developed webservice technology that provides a public interface permitting informaticists to: (i) develop novel prognostic research tools that can access the data; (ii) retrieve data as part of a data mining process to develop novel prognostic models.

Secondly, we have developed SUPERSTES: a user-friendly, online multifunction query and report system for correlating patient and clinical data with survival in breast cancer. SUPERSTES permits selection of covariate parameters for one or two cohorts of patients and reports survival data (via Kaplan–Meier curves and the Cox proportional hazard). One of the powerful features of SUPERSTES is the ability to compare the survival rate in patients who have the same clinical profile but have received different treatment regimes (surgery/radiotherapy).

This poster will be used to demonstrate the use of SUPERSTES.