Egret®

Intuitive tools for design and analysis of biomedical and epidemiological studies

Egret is the friendliest statistical package designed specifically for epidemiologists and provides a comprehensive set of regression and other tools for analyzing case-control studies. Egret also offers graphical and tabular diagnostic tools that let you inspect the fitted model and assess it, as well as "delta-beta" plots that tell you how much a regression parameter would change if a given case were omitted from the analysis.

Analysis Models

Egret's regression models include:

- Logistic regression, fixed effects (both conditional and unconditional)
- Logistic regression, random effects
- Poisson regression
- Cox proportional hazards regression
- Exponential regression
- Weibull regression (with separate sets of terms for the scale and shape parameters)

For random effects logistic regression, Egret provides betabinomial, logistic binomial, logistic binomial for distinguishable data, and logistic normal models, and lets you specify risk as additive, relative, or additive-relative. For all logistic and Poisson regression models, Egret offers two automated model selection procedures: stepwise (forward) selection, and backward elimination. Fitting algorithm options include Newton-Raphson, modified Newton-Raphson, quasi-Newton or Nelder-Mead simplex.

For survival data, you can define time dependent covariates using interpolation and step functions and staggered entry times. The output includes deviances, p-value, standard errors, likelihood ratio tests, odds ratios, and conditional odds ratios.

Statistical tests in Egret include Kaplan-Meier procedures for censored survival data, a stratified and unstratified log-rank test, as well as both exact and asymptotic analysis for contingency table data.

Egret's Kaplan-Meier model allows for arbitrary grouping for multiple estimates,

$$P_1(\bar{\mathcal{R}}_j^{opt}) \geq P_1(\bar{\mathcal{R}}_j) \text{ for all}$$

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and gives you both graphical and list-type output. Its plots include KM, -log (KM), log 1 -log (KM), 1-KM, and kernel-smoothed hazards.

For 2xK contingency table analysis Egret provides both asymptotic and exact procedures for various odds ratio and trend tests (including Mantel-Haenszel), as well as asymptotic tests for their stratified counterparts. Up to 100 levels of the exposure variable are permitted.

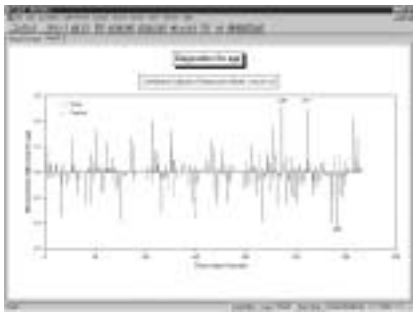
CaseEditor

The Egret CaseEditor is a spreadsheet-like facility for importing, creating or editing case data files. You can import LogXact®, StatXact®, ASCII, Excel, Excel CSV, SPSS, SYSTAT®, and SAS® Transport files. You can have up to 120,000 records and 250 variables. Spreadsheet facilities let you create derived variables, create new categorical variables from existing categorical and continuous variables, add weights to regression variables, and create subsets of the full data set.

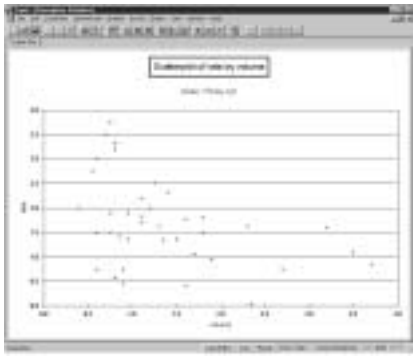
Post-fit Diagnostics and Graphics

For analysis of the fitted model (logistic, conditional logistic, random- effects logistic regression, Cox Proportional Hazards, and Poisson regression), Egret offers both fitted values and delta-betas plotted and in spreadsheet format. You can edit the plots on screen, and plot subsets of data based on delta-betas or fitted values. Observations with extreme delta-betas can be specially flagged. The plots available include:

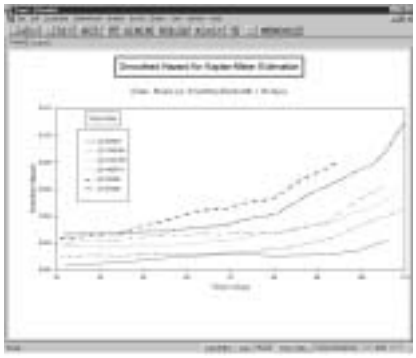
- Histograms
- Scatterplots
- Standardized/unstandardized delta-beta plots
- Fitted value plots
- Kaplan-Meier and post-Cox regression plots
- Survival and failure curves
- Cumulative and log-cumulative hazard curves



Delta-Beta Plot for a Variable in a Conditional Logistic Regression Model



X-Y Scatterplot



Smoothed Kaplan-Meier Hazard Function Plot

User Comments:

Egret is an excellent biostatistical tool. A statistician is allowed to employ a variety of models and diagnostics, many of which are simply unavailable elsewhere. I recommend it for every research unit.

Joseph Hilbe, Director of Research
Transitional Hospitals Corporation, Atlanta, Georgia

Easy to use, powerful and sophisticated. Excellent software for teaching statistical methods in epidemiology.

Alvaro Munoz, Professor, Department of Epidemiology
School of Public Health, Johns Hopkins University

Egret is a first-class package. The provision of easy access to delta-betas makes it very easy to assess local influence, a model checking procedure that is otherwise often overlooked. Egret provides a series of interesting approaches to the modeling of random effects in the setting of logistic regression.

Paul Burton, Senior Biostatistician
Western Australian Research Institute for Child Health

Cytel Software Corporation
675 Massachusetts Avenue
Cambridge, MA 02139-3309

www.cytel.com
Sales@cytel.com
T: +1.617.661.2011
F: +1.617.661.4405

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