Course on Population-Based Cancer Survival Analysis

Selected Reading

In selecting articles to distribute I have considered both the importance of the article and the ease with which it can be obtained (choosing to distribute articles less easily obtained). For example, most articles on period analysis are available in PDF format via the web so I have not listed them here. This does not mean they are less relevant than articles I have chosen.

1. Survival analysis in general

[1] Bull K, Spiegelhalter DJ. Tutorials in biostatistics: Survival analysis in observational studies. *Statistics in Medicine* 1997;**16**:1041–1074. [An introduction to basic methods (not specific to cancer survival) with SPSS commands].

[2] Altman DG, De Stavola BL, Love SB, Stepniewska KA. Review of survival analyses published in cancer journals. *British Journal of Cancer* 1995;**72**:511–518. [Recommendations on how to report a survival study].

[3] Elandt-Johnson RC. Definition of rates: Some remarks on their use and misuse. *American Journal of Epidemiology* 1975;**102**:267–271. [A classic paper on terminology].

2. Reprints from the Encyclopedia of Biostatistics

[1] Andersen PK, Keiding N. Survival analysis, overview. In: Armitage & Colton [7], 2005; .

[2] Seeber GUH. Poisson regression. In: Armitage & Colton [7], 2005; .

[3] Preston DL. Poisson regression in epidemiology. In: Armitage & Colton [7], 2005; .

[4] Hoem JM. Life table. In: Armitage & Colton [7], 2005; .

[5] Sasieni P. Cox regression model. In: Armitage & Colton [7], 2005; .

[6] Hastie T, Tibshirani R. Generalized additive model. In: Armitage & Colton [7], 2005; .

[7] Armitage P, Colton T, eds. *Encyclopedia of Biostatistics*. John Wiley & Sons: Chichester, 2nd edn., 2005.

3. Analysis of cancer patient survival

[1] Berrino F, Micheli A, Sant M, Capocaccia R. Interpreting survival differences and trends. *Tumori* 1997;**83**:9–16.

[2] Gamel JW, Vogel RL. Non-parametric comparison of relative versus cause-specific survival in Surveillance, Epidemiology and End Results (SEER) programme breast cancer patients. *Statistical Methods in Medical Research* 2001;**10**:339–352.

[3] Feinstein AR, Sosin DM, Wells CK. The Will Rogers phenomenon: Stage migration and new diagnostic techniques as a source of misleading statistics for survival in cancer. *New England Journal of Medicine* 1985;**312**:1604–1608.

[4] Sant M, Allemani C, Berrino F, Coleman MP, Aareleid T, Chaplain G, *et al.*. Breast carcinoma survival in Europe and the United States. *Cancer* 2004;**100**:715–722. [An nice example of how to perform, report, and interpret a comparison of cancer patient survival].

[5] Welch HG, Black WC. Are deaths within 1 month of cancer-directed surgery attributed to cancer? *J Natl Cancer Inst* 2002;**94**:1066–70. [See the editorial by Begg and Schrag].

[6] Begg CB, Schrag D. Attribution of deaths following cancer treatment. *J Natl Cancer Inst* 2002; **94**:1044–1045. [Comment on the article by Welch and Black].

[7] Welch HG, Schwartz LM, Woloshin S. Are increasing 5-year survival rates evidence of success against cancer? *JAMA* 2000;**283**:2975–2978. [Critisism (unwarranted in my opinion) of the utility of estimates of patient survival].

[8] Dickman PW, Adami HO. Interpreting trends in cancer patient survival. *J Intern Med* 2006; **260**:103–117.

4. Estimating expected survival and relative survival

[1] Ederer F, Axtell LM, Cutler SJ. The relative survival rate: A statistical methodology. *National Cancer Institute Monograph* 1961;**6**:101–121. [Describes the Ederer I method for estimating expected survival].

[2] Ederer F, Heise H. Instructions to IBM 650 programmers in processing survival computations. Methodological note No. 10, End Results Evaluation Section, National Cancer Institute, Bethesda MD, 1959. [Reprint not available. Describes the Ederer II method for estimating expected survival].

[3] Hakulinen T. Cancer survival corrected for heterogeneity in patient withdrawal. *Biometrics* 1982; **38**:933–942. [Describes the Hakulinen method for estimating expected survival].

[4] Hakulinen T. On long-term relative survival rates. *Journal of Chronic Diseases* 1977;**30**:431–443.

[5] Brenner H, Hakulinen T. Substantial overestimation of standard errors of relative survival rates of cancer patients. *Am J Epidemiol* 2005;**161**:781–786.

[6] Cutler SJ, Ederer F. Maximum utilization of the life table method in analyzing survival. *J Chronic Dis* 1958;**8**:699–712.

5. Period analysis

[1] Brenner H, Gefeller O, Hakulinen T. Period analysis for 'up-to-date' cancer survival data: theory, empirical evaluation, computational realisation and applications. *European Journal of Cancer* 2004;**40**:326–35. [A review of period analysis].

6. Age-standardisation

[1] Brenner H, Hakulinen T. On crude and age-adjusted relative survival rates. *J Clin Epidemiol* 2003;**56**:1185–91.

[2] Brenner H, Arndt V, Gefeller O, Hakulinen T. An alternative approach to age adjustment of cancer survival rates. *Eur J Cancer* 2004;**40**:2317–2322.

[3] Brenner H, Hakulinen T. Age adjustment of cancer survival rates: methods, point estimates and standard errors. *Br J Cancer* 2005;**93**:372–375.

7. Modelling relative survival

[1] Hakulinen T, Tenkanen L. Regression analysis of relative survival rates. *Applied Statistics* 1987; **36**:309–317.

[2] Estève J, Benhamou E, Croasdale M, Raymond L. Relative survival and the estimation of net survival: Elements for further discussion. *Statistics in Medicine* 1990;**9**:529–538.

[3] Dickman PW, Sloggett A, Hills M, Hakulinen T. Regression models for relative survival. *Stat Med* 2004;**23**:51–64.

[4] Remontet L, Bossard N, Belot A, Estève J, French network of cancer registries FRANCIM. An overall strategy based on regression models to estimate relative survival and model the effects of prognostic factors in cancer survival studies. *Stat Med* 2007;**26**:2214–2228.

[5] Nelson CP, Lambert PC, Squire IB, Jones DR. Flexible parametric models for relative survival, with application in coronary heart disease. *Stat Med* 2007;.

[6] Lambert PC, Smith LK, Jones DR, Botha JL. Additive and multiplicative covariate regression models for relative survival incorporating fractional polynomials for time-dependent effects. *Statistics in Medicine* 2005;**24**:3871–85.

8. Modelling cure

[1] Lambert PC, Thompson JR, Weston CL, Dickman PW. Estimating and modeling the cure fraction in population-based cancer survival analysis. *Biostatistics* Jul 2007;**8**:576–594.

[2] Lambert PC, Dickman PW, Osterlund P, Andersson T, Sankila R, Glimelius B. Temporal trends in the proportion cured for cancer of the colon and rectum: A population-based study using data from the finnish cancer registry. *Int J Cancer* Nov 2007;**121**:2052–2059.

9. Software-specific

[1] Dickman PW, Coviello E, Hills M. Estimating and modelling relative survival. *The Stata Journal* 2007;(in press).

[2] Lambert PC. Modeling of the cure fraction in survival studies. *The Stata Journal* 2007;**7**.

[3] Pohar M, Stare J. Relative survival analysis in r. *Comput Methods Programs Biomed* Mar 2006; **81**:272–278.

[4] Pohar M, Stare J. Making relative survival analysis relatively easy. *Comput Biol Med* Dec 2007; **37**:1741–1749.

10. Not distributed but PDF available on request

[1] Kaplan EL, Meier P. Nonparametric estimation from incomplete observations. *Journal of the American Statistical Association* 1958;**53**:457–481.

[2] Cox DR. Regression models and life tables (with discussion). *Journal of the Royal Statistical Society Series B* 1972;**34**:187–220.