Third Printing

Errata as of December 9, 2004

Biostatistical Methods: The Assessment of Relative Risks John M. Lachin

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The following errors have been detected to date in the third printing. The printing of your copy of the book can be determined by the lowest number on the line at the bottom of the copyright page (iv, not numbered).

I apologize to the reader for this inconvenience. In order to keep the cost down, I agreed to prepare the final camera ready copy, both typing and page layouts. This detracted from carefully proofing the text. All errors are mine. Since publication I and a graduate student have carefully re-read the entire text. Corrections are noted by page and line number, or relative to a referenced equation, example or problem number. Negative line numbers are counted from bottom of the page

Dedication page (missing): To my family.

- p. 18. line 3 after (2.20). Change "Section 2.7.6" to "2.6.6".
- p. 22, Example 2.2: Add group numbers 1 and 2 to the column headings in the right 2x2 table.
 - p. 30, line 1: change "p =" to "p =".
 - p. 37, line -3: change "a consistent" to "an efficient".
 - p. 44, line 1: Interchange X_u^2 and X_c^2 .
 - p. 64, line 1 of text: remove "and".
 - p. 66. line 4: Change " $\mu_1 \mu_0 \neq 0$ " to " $\mu_1 \mu_0 > 0$ ".
- p. 74, first line after (3.42) replace entire line with "Since the marginal constraints are the same for the η_{ij} and the η_{0ij} , then"
 - p. 84, line 4 of 3.3.3: change "2.0" to "1.5" and change "2.5" to "2.0".
 - p. 84, last line of 3.4.2: change " ξ_j " to " ξ_i ".
 - p. 85, 3.5.2: change "Z" to " $\widehat{\lambda}_1 \widehat{\lambda}_2$ ".
 - p. 101, line 4: change " θ_S " to " θ_K ".
 - p. 102, line -4 of Table 4.3: In stratum 3 change "1.000" to "1.001".
- p. 103, line 11 of program: Change "K=" to "*K=" at the beginning of the line.
 - p. 108, line 5 above (4.42): change " p_{xy} " to " ρ_{xy} ".
 - p. 121, line 2: Change "1x(K-1)" to "(K-1)x1".
- p. 123, Example 4.10, second table: Change "log risk difference" to "risk difference".
 - p. 132, in the expression for $\widehat{w}_{(RD)1}$, change 0.40440 to 0.40449.
 - p. 134, line 9: Change "(4.49)" to "(4.48)".
 - p. 136, in (4.112) change " $E(T_r|\theta_s)$ " to " $E(T_r)$ "
- p. 148, third para beginning "A test of homogeneity". On line 2 change \neq to >.
 - p. 152, Table 4.9. In column headings, change " $\widehat{\mu}_{\theta}$ " to " $\widehat{\mu}_{\theta}^{(1)}$ ".

- p. 152, Table 4.9, change the log Odds Ratio in Stratum 3 from 1.000 to 1.001. Also change the $\widehat{\omega}_{i}^{(1)}$ in stratum 1 from 0.489 to 0.409.
- p. 159, in (4.179) denominator change $\sum_{j=1}^{2}$ to \sum_{j} p. 164, problem 4.8.4, at the end of the sentence, add the phrase "for the log odds ratio."
 - p. 179, line 1 below (5.26), delete "joint".
 - p. 182, Table 5.1: In the program, change "x=f" to "x=g" and vice versa.
 - p. 190, line -2: change " $[\log \widehat{OR}]$ " to " $[\log \widehat{OR}_C]$ ".
 - p. 197, in (5.83): change " $\widehat{RR}_{C(MH)}$ " to " $\widehat{RR}_{A(MH)}$ ".
 - p. 205, Problem 5.10.1, all the subscripts should read "12|z" and "21|z".
 - p. 206, last line, change "four strata" to "three strata".
 - p. 211, second equation from top, change " $\mathcal{N}[\pi]$ " to " $\mathcal{N}[n\pi]$ ".
 - p. 221, paragraph 2, line 1: Change "Section A.6.2" to "Section A.6.5".
- p. 227, there is a minor notation conflict. The π_{i1} on p. 227 has a different meaning from the π_{11} on page 226.
 - p. 235, (6.135): change " $\widetilde{\theta}_1$ " to " $\widehat{\theta}_1$ ".
 - p. 236, paragraph 2 line 3: delete "values".
 - p. 243, in 6.8.2 change "stratum specific" to "pair specific".
 - p. 261. Line -3, replace "exp" with "int".
 - p. 262, line -6, change "since it the" to "since it is the".
 - p. 262, line -10: change "-0.0895" to "-0.8905".
 - p. 266, line 2 of paragraph 2, change "x" to "X" in three places.
 - p. 272, line 4 of 7.3.1.2: change " $(p \le q + r)$ " to "(p = q + r)"
 - p. 274, (7.60): change "x" to "X" in two places.
 - p. 274, line -1: change "x" to "X".
 - p. 275, (7.61): change "x" to "X" in two places.
 - p. 281, (7.69) and (7.70): change " π " to " $\hat{\pi}$ "
 - p. 303, line 15: Change "54 (69%)" to "54 (31%)".
 - p. 305, 7.1.5: Change "with elements in" to "has elements as in".
 - p. 311, Problem 7.14.4, change A.193 to A.195.
 - p. 314, 7.16, line 1: change "Section 7.5" to "Section 7.6".
 - p. 326, line 2 after (8.38): change " $\widehat{\overline{r}}$ " to " \overline{r} ".
 - p. 331, line 4 above Example 8.4: Change "(8.26)" to "(8.25)".
 - p. 341, line below (8.55): Change "x" to "X".
 - p. 345, in Problem 8.2, replace A.8 with A.9.
 - p. 350, 8.8.3: Change "(8.26)" to "(8.25)".
 - p. 365, line -1: change "proportions, is" to "proportions, such as".
 - p. 366, the group labels in the table should be reversed.
- p. 369, 4 lines after (9.42): change "through the ith interval" to "through the *jth* interval".
- p. 394. A point of clarification is necessary. For an event time, the interval should be closed right, so that on line 5 of Section 9.4.6.1, change $A_i = [\tau_{i-1}, \tau_i)$ to $A_j = (\tau_{j-1}, \tau_j]$. Thus an observation at $t_i = \tau_j$ has the associated value $a_i = j$. The problem then arises as to the appropriate interval for a censored observation. The convention is that a censored observation tied with the time of

an event is considered to be at risk at that time, and then censored thereafter. Thus if an observation is censored at $t_i = \tau_j$, then that observation should have the associated value $a_i = j + 1$. This implies that the intervals for censored observations should be closed left $A_j = [\tau_{j-1}, \tau_j)$, so that the expression at the bottom of the page for A_{K+1} applies. Then the likelihood in (9.98) results. Note that the distinction is irrelevant if no censored observations occur at the boundary of any intervals.

- p. 417, line above (9.131): change "hazard" to "intensity".
- p. 421, 2 lines above Example 9.11: change "hazard" to "intensity".
- p. 465, 4 lines above (A.77): change "values θ_0 " to "value θ_0 ".
- p. 466, in (A.82) change $\mathbf{U}_i(\theta)$ to $\mathbf{U}_i(\theta)$.
- p. 469, 1 line after (A.97), change "A.96" to "A.95".
- p. 471, line -2 above (A.111): change " ∂ " to "d" in two places.
- p. 478: The expression in (A.150) is repeated in the preceding text. Delete the expression from text.
 - p. 479, line -2 above A.7.3: change "test." to "tests.".
- p. 482, line 4 above Example A.12: change "also be shown" to "also been shown".
- p. 485, (A.184): change " $y|\mathbf{x}$ " to " $y_i|\mathbf{x}_i$ " in 3 places in the right two expressions.
- p. 486, line -1 above A.8.2: change "for observations" to "for all observations".
 - p. 491, line -3 above (A.218): change "defined as" to "defined by".
 - p. 493, line -8: change " $C(\alpha)$ test subset" to " $C(\alpha)$ test for a subset".
 - p. 500, line -3 above A.10.4: change "N = 100" to "df = 100".
 - p. 501, line -3: change "Section 6.5" to "Section A.6.5".

Web Supplement: Chapter 9 Programs. Some programs, such as nepha1c use arrays within PROC PHREG. Older versions of SAS used expressions like "Array mhba (9)" and statements like "lmhba=log(mhba(j))". In later versions of SAS the (9) and (j) must be changed to {9} and {j}.