Table 2.10 Tabulated values of 95% confidence limit factors for estimating a Poisson-distributed variable[a]

Observed number on which estimate is based (n)	Lower limit factor (L)	Upper limit factor (U)	Observed number on which estimate is based (n)	Lower limit factor (L)	Upper limit factor (U)	Observed number on which estimate is based (n)	Lower limit factor (L)	Upper limit factor (U)
1	0.0253	5.57	21	0.619	1.53	120	0.833	1.200
2	0.121	3.61	22	0.627	1.51	140	0.844	1.184
3	0.206	2.92	23	0.634	1.50	160	0.854	1.171
4	0.272	2.56	24	0.641	1.48	180	0.862	1.160
5	0.324	2.33	25	0.647	1.48	200	0.868	1.151
6	0.367	2.18	26	0.653	1.47	250	0.882	1.134
7	0.401	2.06	27	0.659	1.46	300	0.892	1.121
8	0.431	1.97	28	0.665	1.45	350	0.899	1.112
9	0.458	1.90	29	0.670	1.44	400	0.906	1.104
10	0.480	1.84	30	0.675	1.43	450	0.911	1.098
11	0.499	1.79	35	0.697	1.39	500	0.915	1.093
12	0.517	1.75	40	0.714	1.36	600	0.922	1.084
13	0.532	1.71	45	0.729	1.34	700	0.928	1.078
14	0.546	1.68	50	0.742	1.32	800	0.932	1.072
15	0.560	1.65	60	0.770	1.30	900	0.936	1.068
16	0.572	1.62	70	0.785	1.27	1 000	0.939	1.064
17	0.583	1.60	80	0.798	1.25			
18	0.593	1.58	90	0.809	1.24			
19	0.602	1.56	100	0.818	1.22			
20	0.611	1.54						

[a] From Haenszel *et al.* (1962)

CI = [D× lower, D× upper]

Somewhat less accurate but more easily remembered approximate limits for the SMR may be derived from analogues to the other statistics (2.10) and (2.12) used to test the null hypothesis. Specifically, denoting by θ the unknown value of the SMR, we solve the equation $(D - \theta E)^2/\theta E = Z^2_{\alpha/2}$ (ignoring the continuity correction) to find

$$\mathrm{SMR}_L = \theta_L = \mathrm{SMR}\left[1 + \frac{1}{2D} Z^2_{\alpha/2}\{1 - (1 + 4D/Z^2_{\alpha/2})^{1/2}\}\right] \qquad (2.14)$$

and

$$\mathrm{SMR}_U = \theta_U = \mathrm{SMR}\left[1 + \frac{1}{2D} Z^2_{\alpha/2}\{1 + (1 + 4D/Z^2_{\alpha/2})^{1/2}\}\right]$$

as the limits derived from the standard chi-square test. We have not used a continuity correction for this calculation, since to do so gives less accurate limits empirically. Alternatively, limits based on the square-root transform are obtained by solving the equation $2\{D^{1/2} - (\theta E)^{1/2}\} = Z_{\alpha/2}$, which gives

$$\mathrm{SMR}_L = \mathrm{SMR}\left(1 - \frac{Z_\alpha}{2D^{1/2}}\right)^2$$