

OpenEpi, Version of December 1, 2003

Test Results for TwoByTwo Module

Dataset #	Left Side	a,b,c,d	Compared with	Result
1	Disease	20,6,0,5	ExactBB	Exact limits and p-values OK
2	Disease	2,2,4,6 6,4,2,0 3,0,1,1 8,4,1,1 19,10,8,8	Martin, Austin, Epidemiology 1991; 2; p. 361	CMLE odds ratio, Fisher and mid P results agree. MH chi is 0.374 vs. Mantel-Haenszel Summary Chi Square in OpenEpi of 0.1399.
3	Exposure	27,95,44,443	SAS proc FREQ	Agreement
4	Exposure	23,74,20,134 4,21,24,309	SAS	Agreement except that method of calculating 2-sided confidence limits from 1-sided seems to be different.
5	Exposure	451,39,1729,636	ATFRAC	Agreement for OR based etiologic fraction and CLs.
6	Disease	451,1729,39,636	Stat22	Agreement, but OpenEpi unable to calculate Fisher and midP
7	Disease	Same as 6	ExactMA	Same result as 6
8	Disease	39,451,636,1729	ExactMA	Calculations agree and OpenEpi can compute, but p values "mostly zeroes".
9	Disease	Same as 6	Stats Direct	Same as 6
10	Disease	Same as 8	Stats Direct	Same as 8. Prevented fraction not available from Stats Direct.
11	Disease	72,20,684,553	Walter, IJE 1978;7;2. Table 2	Good agreement
12	Disease	4,386,4,1250	Rothman, EpiSheet, Downloaded Nov 2003	Good agreement. 2-sided confidence intervals calculated the same way as OpenEpi (doubling the minimum of the one-sided exact), and agree.
13	Disease	3,9,104,1059 1,3,5,86	Rothman, EpiSheet, Downloaded Nov	Rothman values labeled RR and mhRR are actually odds ratios, and agree with OpenEpi odds ratios.

			2003	
14	Disease	8,5,98,115 22,16,76,69	Rothman, EpiSheet, Downloaded Nov 2003	ok
15	Disease	32,2,52407,18790 104,12,43248,10673 206,28,28612,5710 186,28,12663,2585 102,31,5317,1462	Rothman, EpiSheet, Downloaded Nov 2003	Rothman's RR and mhRR are really odds ratios. RDs and other parameters agree.
16	Exposure	27,95,44,443	Epi Info 2002, Ver 2	Good agreement
17	Exposure	1,2,3,4	Epi Info, Ver 3	Good agreement
18	Exposure	22,6,3,16 20,5,0,2	Epi Info, Ver 3	Good agreement
19	Exposure	43,11,3,18	Epi Info, Ver 3	Good agreement
20	Exposure	27,4,3,10 16,7,0,8	Epi Info, Ver 3	Good agreement
21	Exposure	1,0,2,3	Epi Info, Ver 3	Agreement.
22	Exposure	66,28,36,32 139,61,93,54	Sullivan, Unpublished chapter, with hand-calculated results, downloadable with OpenEpi. Click HELP in TwoByTwo.	Agreement.

By Andy Dean with a great deal of help from Ray Simons, who kindly sent printouts of comparison materials, and Kevin Sullivan, whose excellent unpublished chapter on 2 x 2 tables and Person Time statistics is the source of the equations and the test examples for many of the functions. Agreement is considered satisfactory if the first two significant figures agree, when a number, such as a p-value, is small.

Conclusions: There are some issues to resolve about terminology for upper and lower one-sided exact confidence limits, and concerning whether to add 0.5 to each cell if a cell is 0, but otherwise TwoByTwo seems ready to release for serious use, although it is always a good idea to check important conclusions with more than one program.