



Excel add-ins

Introduction

Excel users can create functions and provide them to other users using add-ins. Functions have been created to calculate Directly Standardised Rates (DSRs), along with their confidence intervals and also confidence intervals for rates and proportions using Byar's and Wilson's methods respectively. These add-ins are available on the Fingertips sites, on the [Technical Guidance page](#).

Loading add-ins to Excel

1. Open Excel
2. File
3. Options
4. Add-ins (on the left)
5. Manage Excel Add Ins (at the bottom)
6. Go
7. Browse (then locate add in)

Note: you might be asked if you want to move the add-in into your directory. This will store the add-in locally on your machine. You might have a policy within your organisation for storing the add-ins centrally, and if they are then updated, they only need to be updated once and everyone will be using the same add-in

Using the Wilson's add-in

The syntax to use the Wilson's add in is:

- “=wilson(Numerator,Denominator,0)* 100” for lower confidence interval expressed as a percent
- “=wilson (Numerator,Denominator,1)*100” for upper confidence interval expressed as a percent

The examples below show how these functions would look in Excel:

	A	B	C
4			
5	Wilson examples		
6			
7			
8	Numerator	12	
9	Denominator	1537	
10			
11		Wilson (percent)	
12	Value	0.781	
13	Lower CI	=WILSON(\$B\$8,\$B\$9,0)*100	
14	Upper CI	1.360	
15			
16			

Figure 1 Wilson lower confidence intervals

	A	B	C	D
4				
5	Wilson examples			
6				
7				
8	Numerator	12		
9	Denominator	1537		
10				
11		Wilson (percent)		
12	Value	0.781		
13	Lower CI	0.447		
14	Upper CI	=WILSON(\$B\$8,\$B\$9,1)*100		
15				
16				

Figure 2 Wilson upper confidence intervals

Using the Byar's add-in

The syntax to use the Byar's add in is:

- “=rateci(Numerator,Denominator,0)*100000” for lower confidence interval per 100,000 population
- “=rateci(Numerator,Denominator,1)*100000” for upper confidence interval per 100,000 population

The examples below show how these functions would look in Excel:

The image shows an Excel spreadsheet with columns A, B, and C. The title "Byar examples" is in cell B5. In row 8, cell B8 contains "12" and is labeled "Numerator". In row 9, cell B9 contains "1537" and is labeled "Denominator". In row 11, cell B11 contains "Byar (per 100,000)". In row 12, cell B12 contains "780.742" and is labeled "Value". In row 13, cell B13 contains the formula "=rateci(\$B\$8,\$B\$9,0)*100000" and is labeled "Lower CI". In row 14, cell B14 contains "1363.881" and is labeled "Upper CI".

	A	B	C
4			
5		Byar examples	
6			
7			
8		Numerator 12	
9		Denominator 1537	
10			
11		Byar (per 100,000)	
12		Value 780.742	
13		Lower CI =rateci(\$B\$8,\$B\$9,0)*100000	
14		Upper CI 1363.881	
15			
16			

Figure 3 Byar's lower confidence intervals

The image shows an Excel spreadsheet with columns A, B, C, and D. The title "Byar examples" is in cell B5. In row 8, cell B8 contains "12" and is labeled "Numerator". In row 9, cell B9 contains "1537" and is labeled "Denominator". In row 11, cell B11 contains "Byar (per 100,000)". In row 12, cell B12 contains "780.742" and is labeled "Value". In row 13, cell B13 contains "402.961" and is labeled "Lower CI". In row 14, cell B14 contains the formula "=rateci(\$B\$8,\$B\$9,1)*100000" and is labeled "Upper CI".

	A	B	C	D
4				
5		Byar examples		
6				
7				
8		Numerator 12		
9		Denominator 1537		
10				
11		Byar (per 100,000)		
12		Value 780.742		
13		Lower CI 402.961		
14		Upper CI =rateci(\$B\$8,\$B\$9,1)*100000		
15				

Figure 4 Byar's upper confidence intervals

Using the DSR add-in

The syntax to use the DSRa add-in is as follows (in a cell in excel):

`"=DSRa(Data,Pop,RefPop,Stat,Multiplier,Confidence)"`

Note: when writing the function, if you have forgotten the inputs you can press Ctrl+Shift+A to reveal all of them or press the f_x button next to the formula bar

Where:

- Data = a range containing the observed data – no default value
- Pop = a range containing the local population – no default value
- RefPop = a range containing the standard population (eg, European Standard Reference Population) – no default value
- Stat = 0 for Lower confidence interval, 1 for upper confidence interval, 2 for DSR – default is 0
- Multiplier = number you want to multiply output by (eg, rate per 100,000) – default is 100000
- Confidence = Confidence Interval (between 0 and 100) – default is 95

The figures below give examples of how these functions would look in Excel.

	A	B	C	D	E	F
16						
17		DSR example				
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Age band	Obs	LocalPop	RefPop
0-4	36	9397	5000
5-9	78	8877	5500
10-14	40	8549	5500
15-19	77	9416	5500
20-24	25	8490	6000
25-29	66	9439	6000
30-34	63	8620	6500
35-39	51	8486	7000
40-44	81	10816	7000
45-49	38	11857	7000
50-54	46	11842	7000
55-59	26	10972	6500
60-64	42	11881	6000
65-69	44	13198	5500
70-74	99	9810	5000
75-79	56	8119	4000
80-84	95	6037	2500
85-89	23	3664	1500
90+	63	2015	1000

DSR	=dsra(\$C\$21:\$C\$39,\$D\$21:\$D\$39,\$E\$21:\$E\$39,2)
Lower CI	565.912
Upper CI	640.711

Figure 5 DSR example

	A	B	C	D	E	F
16						
17		DSR example				
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44						

Age band	Obs	LocalPop	RefPop
0-4	36	9397	5000
5-9	78	8877	5500
10-14	40	8549	5500
15-19	77	9416	5500
20-24	25	8490	6000
25-29	66	9439	6000
30-34	63	8620	6500
35-39	51	8486	7000
40-44	81	10816	7000
45-49	38	11857	7000
50-54	46	11842	7000
55-59	26	10972	6500
60-64	42	11881	6000
65-69	44	13198	5500
70-74	99	9810	5000
75-79	56	8119	4000
80-84	95	6037	2500
85-89	23	3664	1500
90+	63	2015	1000

DSR	602.457
Lower CI	=dsra(\$C\$21:\$C\$39,\$D\$21:\$D\$39,\$E\$21:\$E\$39,0)
Upper CI	640.711

Figure 6 DSR lower confidence interval

	A	B	C	D	E	F
16						
17		DSR example				
18						
19						
20						
21		Age band	Obs	LocalPop	RefPop	
22		0-4	36	9397	5000	
23		5-9	78	8877	5500	
24		10-14	40	8549	5500	
25		15-19	77	9416	5500	
26		20-24	25	8490	6000	
27		25-29	66	9439	6000	
28		30-34	63	8620	6500	
29		35-39	51	8486	7000	
30		40-44	81	10816	7000	
31		45-49	38	11857	7000	
32		50-54	46	11842	7000	
33		55-59	26	10972	6500	
34		60-64	42	11881	6000	
35		65-69	44	13198	5500	
36		70-74	99	9810	5000	
37		75-79	56	8119	4000	
38		80-84	95	6037	2500	
39		85-89	23	3664	1500	
40		90+	63	2015	1000	
41		DSR	602.457			
42		Lower CI	565.912			
43		Upper CI	=dsra(\$C\$21:\$C\$39,\$D\$21:\$D\$39,\$E\$21:\$E\$39,1)			
44						
45						

Figure 7 DSR upper confidence interval

References

See [Technical Guide – Confidence Intervals](#) for full documentation of these methods.