Public Health England

Protecting and improving the nation's health

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:

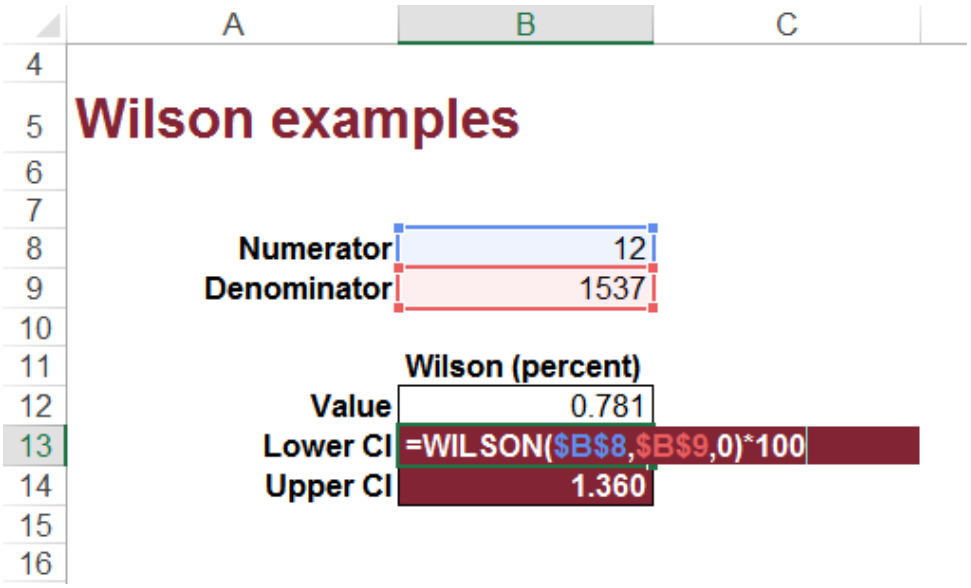


Figure 1 Wilson lower confidence intervals

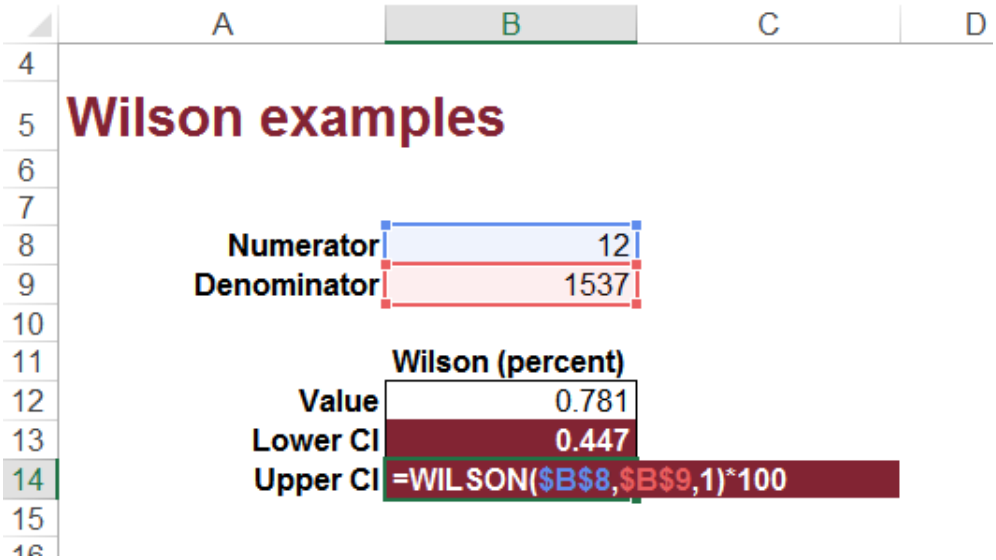


Figure 2 Wilson upper confidence intervals

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:

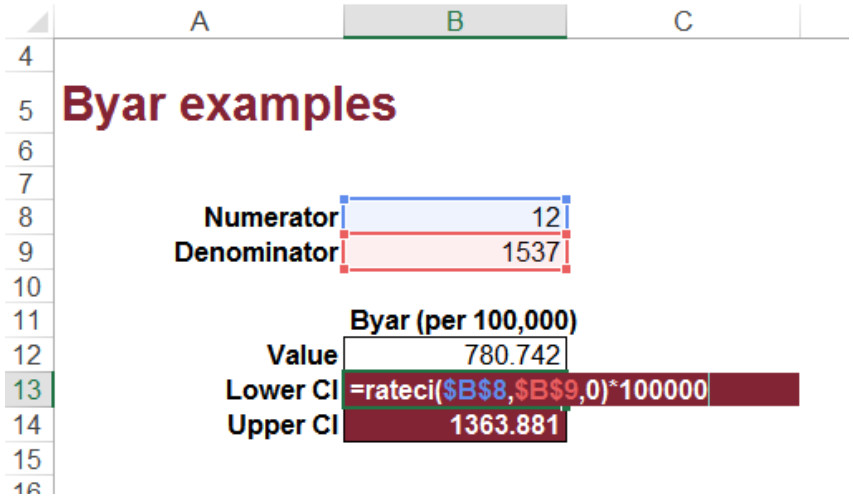


Figure 3 Byar's lower confidence intervals

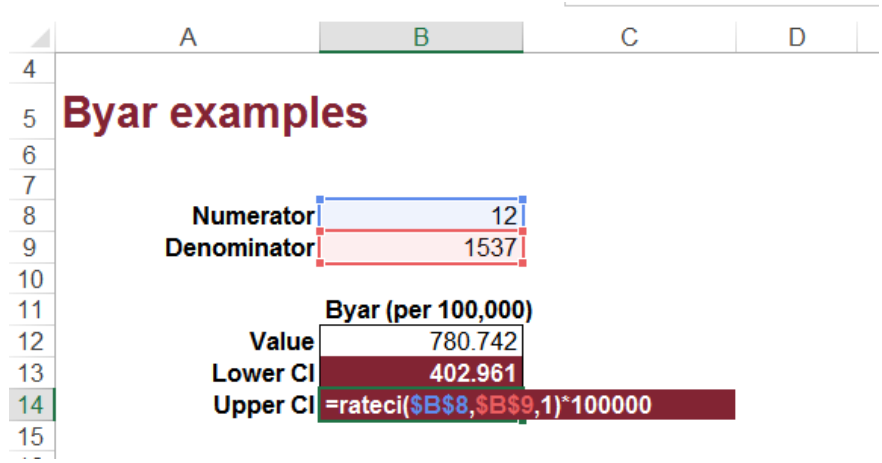


Figure 4 Byar's upper confidence intervals

Using the DSR add-in

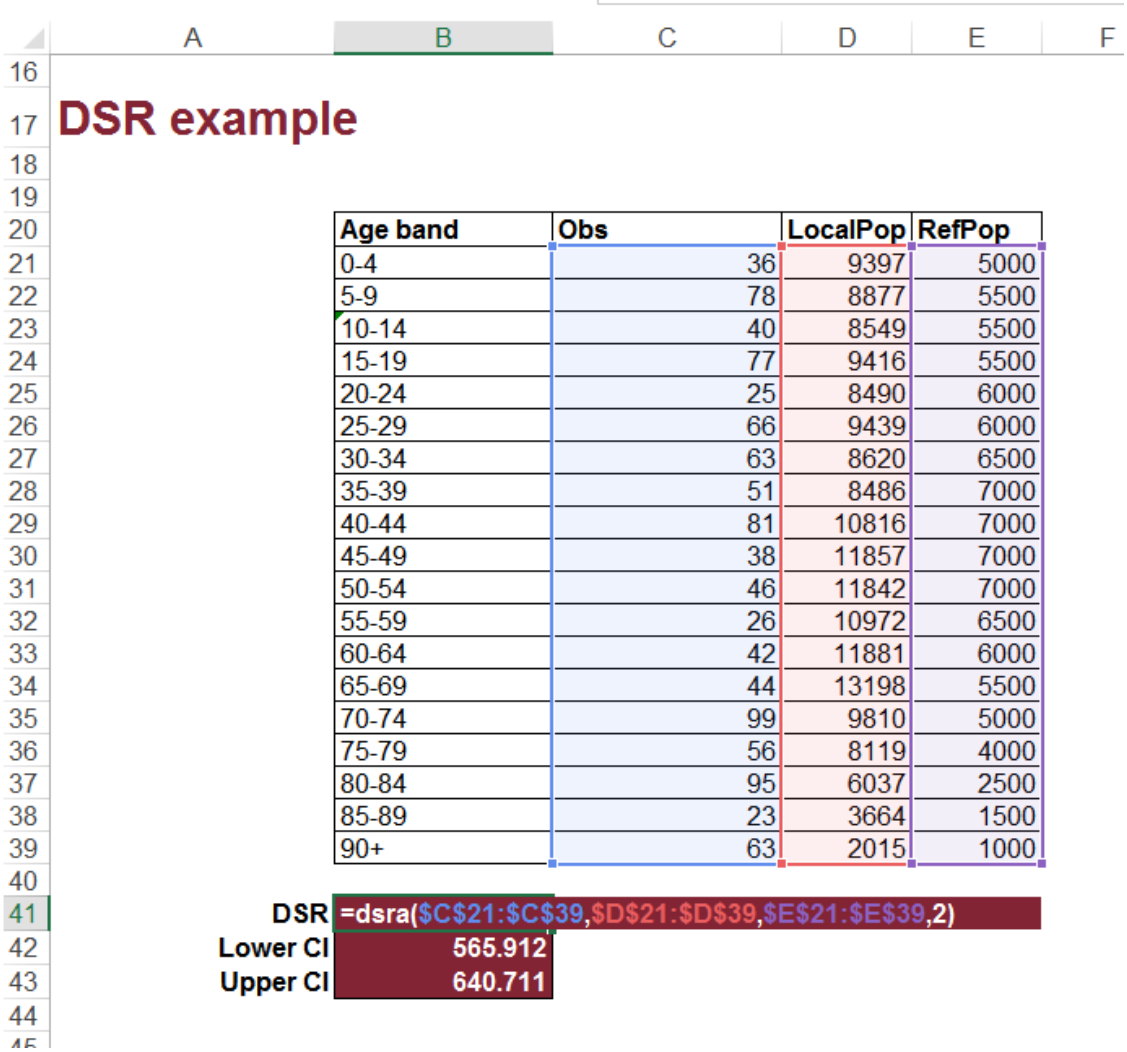
The syntax to use the DSRa add-in is as follows (in a cell in excel):
"=DSRa(Data,Pop,RefPop,Stat,Multiplier,Confidence)"

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.

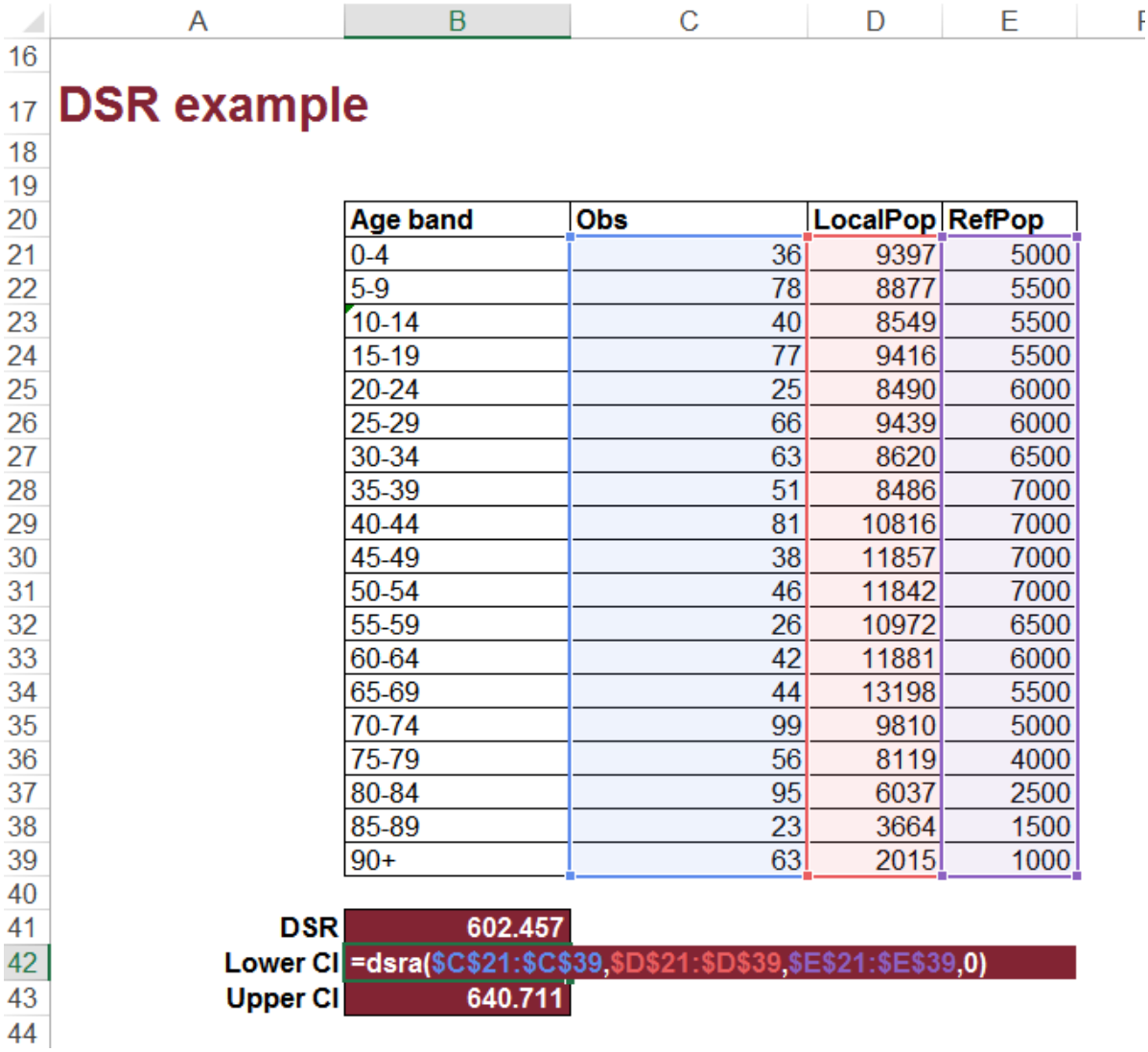


DSR example

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



DSR example

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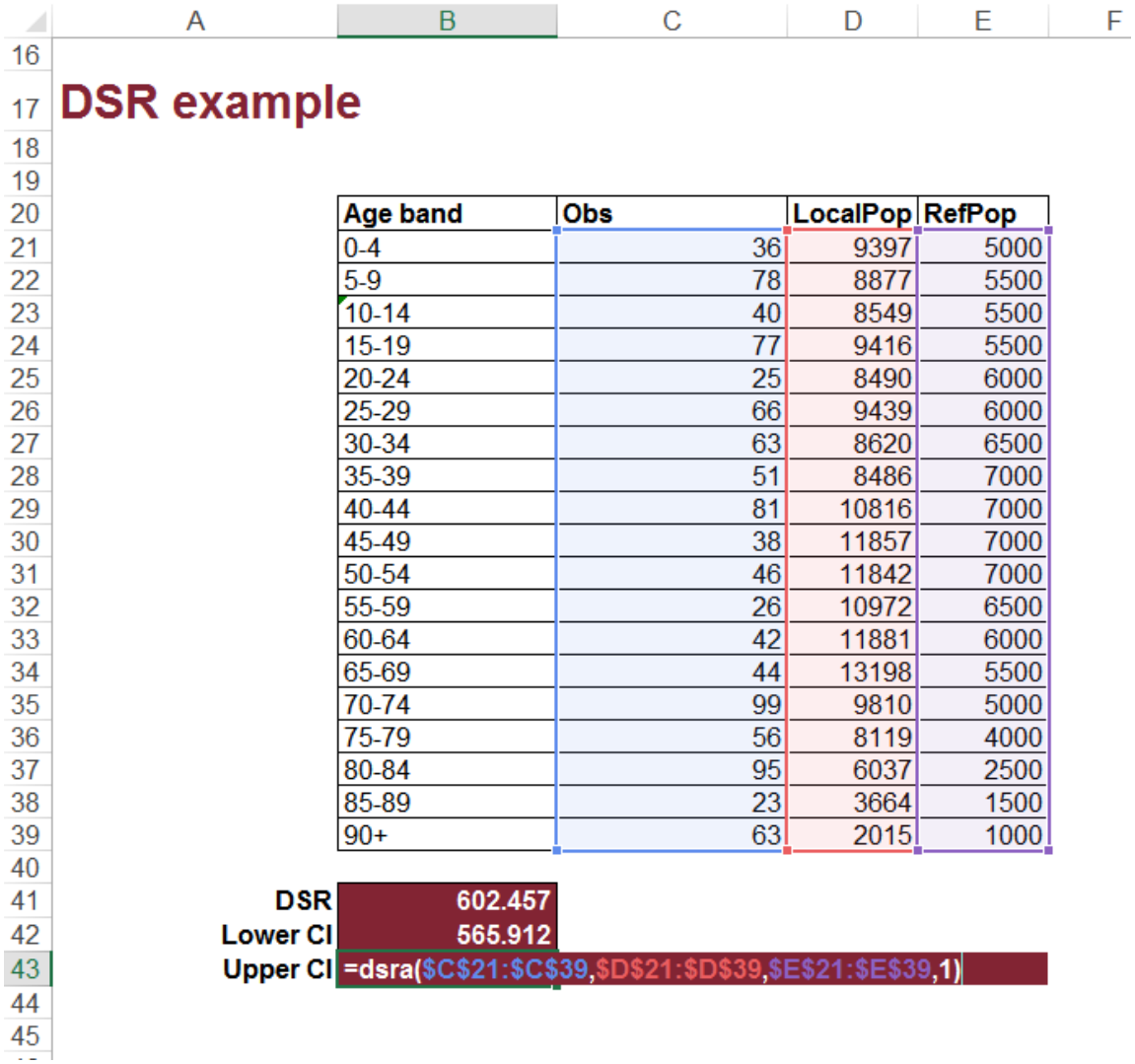
70-74	99	9810	5000
75-79	56	8119	4000
80-84	95	6037	2500
85-89	23	3664	1500
90+	63	2015	1000

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



DSR example

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10-14	40	8549	5500
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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	565.912
Upper CI	=dsra($C$21:$C$39,$D$21:$D$39,$E$21:$E$39,1)

Figure 7 DSR upper confidence interval

References

See Technical Guide – Confidence Intervals for full documentation of these methods.