

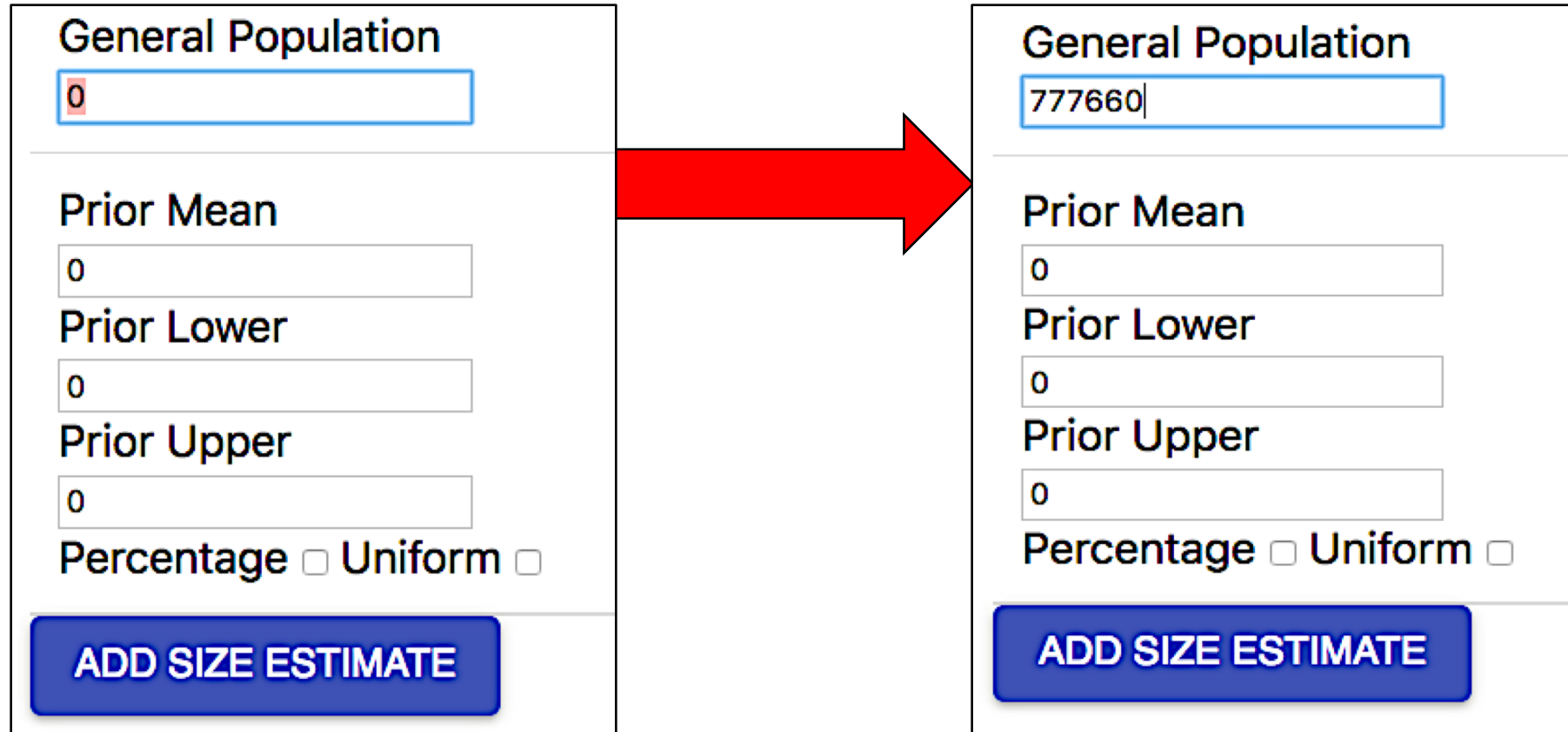
Using the Anchored Multiplier calculator to synthesize multiple population size estimates

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Begin by entering a value in the field under “General Population” to specify the size of the general population for which your target population is a subset. For example, if you are estimating the number of female sex workers in City X, your general population size may be the number of adult females in City X.



The diagram illustrates a two-step process for entering data into a form. A red arrow points from the initial state on the left to the final state on the right. In the initial state, the 'General Population' field contains the value '0'. In the final state, the 'General Population' field contains the value '777660'. All other fields, including 'Prior Mean', 'Prior Lower', 'Prior Upper', and the 'Percentage' and 'Uniform' checkboxes, remain unchanged and contain the value '0'. A blue button labeled 'ADD SIZE ESTIMATE' is present at the bottom of both form panels.

Field	Initial Value	Final Value
General Population	0	777660
Prior Mean	0	0
Prior Lower	0	0
Prior Upper	0	0
Percentage	<input type="checkbox"/>	<input type="checkbox"/>
Uniform	<input type="checkbox"/>	<input type="checkbox"/>

General Population

Prior Mean

Prior Lower

Prior Upper

Percentage Uniform

ADD SIZE ESTIMATE

Specify the Prior. Priors are estimates external to the data in your study. They can come from the literature, estimates from stakeholders, or estimates from previous studies.

Point estimates (e.g., Mean), Lower bound estimates and Upper bound estimates can be given as either percentages of the general population or as raw counts. If data is entered as a percentage, be sure to click the box next to “Percentage”.

Click the box next to “Uniform ” if you have limited prior information and wish to use a uniform distribution as your prior. Then only enter a value for “Prior Lower” and “Prior Upper”. This will assign equal weight to all values spanning this range.

Click “ADD SIZE ESTIMATE” when done entering the Prior information.

Enter population size estimates from your study on this screen. You will enter each one separately.





(3) When done, click “ADD SIZE ESTIMATE” to continue to add population size estimates.

(1) Use this field to enter the name of the method used to calculate the population size estimate (e.g., Service multiplier) or the data source (e.g., Surveillance data).

(2) If the data is entered in the form of a population percentage, click the box next to “Percentage”. If the data is entered in the form of a population count, leave this box unchecked.

The form contains the following fields and elements:

- Name:** Input field containing "Method 1".
- Mean:** Input field containing "62000".
- Lower:** Input field containing "18976".
- Upper:** Input field containing "134312", highlighted with a blue border.
- Percentage:** Label with an unchecked checkbox.
- ADD SIZE ESTIMATE:** A blue button with white text.
- Trash icon:** A small black trash can icon at the bottom.

Name	Method 1	Name	Method 2	Name	Method 3	Name	Method 4
Mean	62000	Mean	8057	Mean	22500	Mean	4332
Lower	18976	Lower	3450	Lower	265	Lower	589
Upper	134312	Upper	12667	Upper	500000	Upper	19960
Percentage	<input type="checkbox"/>	Percentage	<input type="checkbox"/>	Percentage	<input type="checkbox"/>	Percentage	<input type="checkbox"/>
							
ADD SIZE ESTIMATE							
SUBMIT							

When you have finished entering all of your population size estimates, click the "Submit" button.

3.3
Percentage Uniform

Name	Mean	Lower	Upper	Percentage
Method 1	62000	18976	134312	<input type="checkbox"/>
Method 2	8057	3450		
Method 3	22500	265		
Method 4	4332	589	19960	<input type="checkbox"/>

ADD SIZE ESTIMATE

SUBMIT

DOWNLOAD CSV **DOWNLOAD PNG** **RESET**

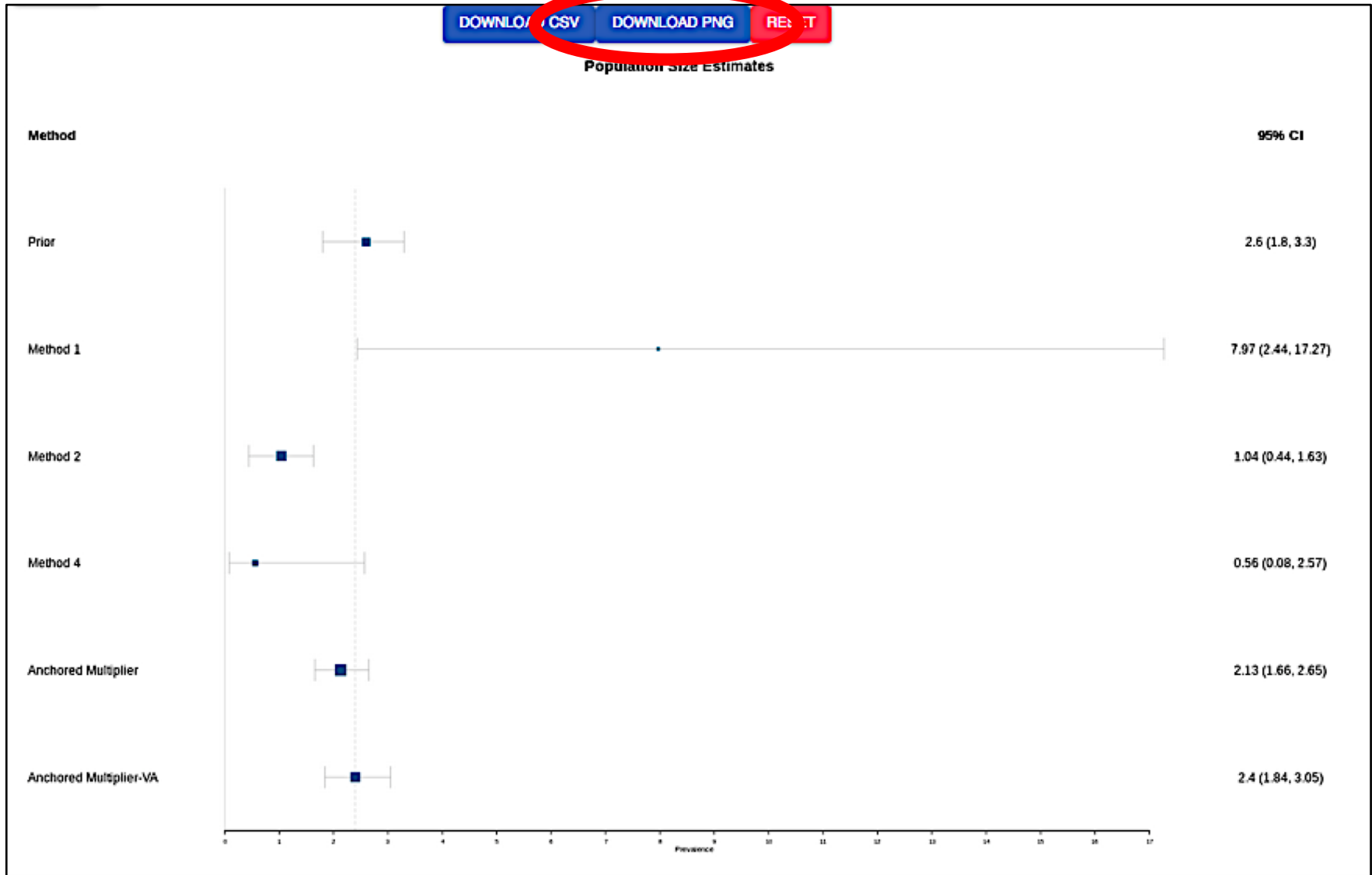
Name	Mean	Lower	Upper	Population Count (Mean)	Population Count (Lower)	Population Count (Upper)
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Error calculating Anchored Multiplier

Error running bayesian analysis with multiplier: Method 3

OK

If there is a problem with the data synthesis, the program will identify which estimate is causing the error. Often the error is the result of the program being unable to fit the data to a beta distribution. Double check your estimates and how the lower and upper bounds were calculated. If the problem persists, you may need to drop this data point from your data synthesis. Estimates may be deleted by using the trash can icon.



The forest plot displays the data you entered on the previous screen.

The calculator will always display the “Anchored Multiplier” estimate.

When there is additional variance between the estimated population sizes you entered that needs to be taken into account, the calculator will also provide the variance adjusted estimate (“Anchored Multiplier-VA”). We recommend you use the variance adjusted estimate to be conservative.

The forest plot can be downloaded as a .PNG file.

The same information from the forest plot is also displayed in tabular form and can be downloaded as a .csv file.

The table also displays information on the beta distribution shape parameters for each of the data points entered. “Probability Mass” refers to the the proportion of the beta distribution that is contained within the lower and upper bounds. In order to be included in the data synthesis, each data point must have a probability mass of at least 0.7.

Name	Mean	Lower	Upper	Population Count (Mean)	Population Count (Lower)	Population Count (Upper)	Alpha	Beta	Probability Mass
Anchored Multiplier	2.13	1.66	2.65	16557	12948	20636	67.22	3090.16	0.95
Anchored Multiplier Variance Adjusted	2.4	1.84	3.05	18665	14279	23715	57.13	2322.96	0.95
prior	2.6	1.8	3.3	20219	13998	25663	51.59	1932.81	0.96
Method 1	7.97	2.44	17.27	62000	18976	134312	2.52	29.08	0.87
Method 2	1.04	0.44	1.63	8057	3450	12667	11.6	1108.26	0.95
Method 4	0.56	0.08	2.57	4332	589	19960	0.54	62.01	0.71