

Nevada Suppression Rule

There are two levels of suppression used by the Office of Analytics, within the Nevada Department of Health and Human Services, to maintain confidentiality on aggregate data.

The first suppression rule affects the display of the cells within the inner table (i.e. the individual cells) of a report. This occurs when the individual cell size is less than 5 and the risk for re-identification is greater than 5%, where the risk for re-identification is calculated as the individual cell size divided by the total number of events (see appendix).

If the value of a cell is zero, that cell does not initiate suppression.

If there is only one number suppressed and the row and/or column totals are present, such that the suppressed value could be back calculated, then the entire row and/or column is suppressed.

The following example illustrates the confidentiality rule for suppression.

AIDS Deaths in County A, Age 15-24			
	Male	Female	Total
White	5	1	6
Black	3	1	4
Other	0	0	0
Total	8	2	10

Total Deaths in County A, Age 15-24			
	Male	Female	Total
White	45	40	85
Black	9	22	31
Other	5	4	9
Total	59	66	125

In this case, there are five cells that should be considered for suppression because the individual cell size is less than five but greater than 0. These are:

- White Females: Re-identification Risk = $(1/40) = 2.5\%$, no suppression needed
- Black Males: Re-identification Risk = $(3/9) = 33.3\%$, suppression needed
- Black Females: Re-identification Risk = $(1/22) = 4.5\%$, no suppression needed
- Black Total: Re-identification Risk = $(4/31) = 12.9\%$, suppression needed
- Total Female: Re-identification Risk = $(2/66) = 3.0\%$, no suppression needed

Since the risk of re-identification for black males is $3/9 = 33.3\%$ and for black total is $4/31 = 12.9\%$, and these are both greater than 5%, the suppression rule is invoked, and the inner table cell is suppressed. The small numbers in the other cells of the AIDS death table do not invoke suppression because there are enough total deaths with similar characteristics to protect the identity of the persons with AIDS.

After employing the first suppression rule for confidentiality, the table of results for AIDs Deaths in County A for those aged 15-24 would be displayed as:

AIDS Deaths in County A, Age 15-24			
	Male	Female	Total
White	5	1	6
Black	-	1	-
Other	0	0	0
Total	8	2	10

AIDS Deaths in County A, Age 15-24			
	Male	Female	Total
White	5	1	6
Black	-	-	-
Other	-	-	-
Total	8	2	10

However, since this allows back-calculation of the suppressed numbers, as $8-5=3$ and $10-6=4$, in this case we need to further suppress.

The next step is to suppress other values in the corresponding row(s) and/or column(s) that allow for back calculation which fall within $[0,5]$.

In this example, we choose to suppress the rows for black and other race/ethnicities for all genders as well as their totals.

Note: This example is for illustrative proposed only and is mock data. These numbers do not represent the true burden of AIDS deaths in Nevada.

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Appendix: Re-Identification Risk Reference Table

Denominator	Numerator = 1	Numerator = 2	Numerator = 3	Numerator = 4
20	5.0%	10.0%	15.0%	20.0%
21	4.8%	9.5%	14.3%	19.0%
22	4.5%	9.1%	13.6%	18.2%
23	4.3%	8.7%	13.0%	17.4%
24	4.2%	8.3%	12.5%	16.7%
25	4.0%	8.0%	12.0%	16.0%
26	3.8%	7.7%	11.5%	15.4%
27	3.7%	7.4%	11.1%	14.8%
28	3.6%	7.1%	10.7%	14.3%
29	3.4%	6.9%	10.3%	13.8%
30	3.3%	6.7%	10.0%	13.3%
31	3.2%	6.5%	9.7%	12.9%
32	3.1%	6.3%	9.4%	12.5%
33	3.0%	6.1%	9.1%	12.1%
34	2.9%	5.9%	8.8%	11.8%
35	2.9%	5.7%	8.6%	11.4%
36	2.8%	5.6%	8.3%	11.1%
37	2.7%	5.4%	8.1%	10.8%
38	2.6%	5.3%	7.9%	10.5%
39	2.6%	5.1%	7.7%	10.3%
40	2.5%	5.0%	7.5%	10.0%
41	2.4%	4.9%	7.3%	9.8%
42	2.4%	4.8%	7.1%	9.5%
43	2.3%	4.7%	7.0%	9.3%
44	2.3%	4.5%	6.8%	9.1%
45	2.2%	4.4%	6.7%	8.9%
46	2.2%	4.3%	6.5%	8.7%
47	2.1%	4.3%	6.4%	8.5%
48	2.1%	4.2%	6.3%	8.3%
49	2.0%	4.1%	6.1%	8.2%
50	2.0%	4.0%	6.0%	8.0%
51	2.0%	3.9%	5.9%	7.8%
52	1.9%	3.8%	5.8%	7.7%
53	1.9%	3.8%	5.7%	7.5%
54	1.9%	3.7%	5.6%	7.4%
55	1.8%	3.6%	5.5%	7.3%
56	1.8%	3.6%	5.4%	7.1%
57	1.8%	3.5%	5.3%	7.0%
58	1.7%	3.4%	5.2%	6.9%
59	1.7%	3.4%	5.1%	6.8%
60	1.7%	3.3%	5.0%	6.7%
61	1.6%	3.3%	4.9%	6.6%
62	1.6%	3.2%	4.8%	6.5%
63	1.6%	3.2%	4.8%	6.3%
64	1.6%	3.1%	4.7%	6.3%
65	1.5%	3.1%	4.6%	6.2%
66	1.5%	3.0%	4.5%	6.1%
67	1.5%	3.0%	4.5%	6.0%
68	1.5%	2.9%	4.4%	5.9%
69	1.4%	2.9%	4.3%	5.8%
70	1.4%	2.9%	4.3%	5.7%
71	1.4%	2.8%	4.2%	5.6%
72	1.4%	2.8%	4.2%	5.6%
73	1.4%	2.7%	4.1%	5.5%
74	1.4%	2.7%	4.1%	5.4%
75	1.3%	2.7%	4.0%	5.3%
76	1.3%	2.6%	3.9%	5.3%
77	1.3%	2.6%	3.9%	5.2%
78	1.3%	2.6%	3.8%	5.1%
79	1.3%	2.5%	3.8%	5.1%
80	1.3%	2.5%	3.8%	5.0%
81	1.2%	2.5%	3.7%	4.9%

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