VERMONT
DEPARTMENT OF HEALTH

Data Suppression Rules

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Under the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule, institutions reporting or releasing data are required to protect personally identifiable health information in their reports being shared with the public. Thus, various data suppression rules are applied in the Vermont Department of Health Vaccine Data to limit publicly sharing health information about individuals.

Suppression Rules

The data team almost always needs to apply a combination of rules to effectively protect identifiable health information from disclosure. The following are the factors that are often considered in deciding what suppression rule will be applied in that situation. The rules presented below are examples. The specific rules often change depending on the situation.

1. When almost everyone is vaccinated or almost everyone is not vaccinated in a population

For example, if a nursing home has 100 residents and 100% of residents in that nursing home had a vaccination rate of 100%, that would reveal every resident's vaccination status. In this instance, some of the following suppression rules would be considered:

- ***Minimum number of people vaccinated:*** when the number of people vaccinated in a sub-group are less than 6, the percentages or numbers will be suppressed, meaning that they will not be shared. Sometimes an * may be shown with a note explaining that the * means the data are not shared because fewer than 6 people have been vaccinated.
- ***Percentage of people vaccinated:*** when vaccination rates in a sub-group are over 95%, they are reported as 95%.
- ***Minimum number of people unvaccinated:*** when fewer than 6 people are unvaccinated in a population of 100 or less, the numbers will be capped, meaning the percentage will be calculated as the population minus 6 divided by the total population ($\frac{population-6}{population}$) and will not be greater than this.

Instead of showing 100% of the 100 nursing home residents have been vaccinated, one would show that 95% or more of the nursing home residents have been vaccinated, as long as the nursing home has at least 100 residents.

If a nursing home has 30 residents and 95% of residents in that nursing home had been vaccinated, that would mean 28 or 29 out of 30 residents were vaccinated. From this information, someone would likely identify individuals' health information. The chance that someone could identify someone's vaccination status from this information is too high. To avoid that, one would cap the percentage by calculating the percentage as $\frac{30-6}{30}$ = 80%. The percentage would be shown as 80% or higher instead of the actual percentage of 95%.

2. When populations or groups are small

When groups are very small, sharing data increases the chance that someone's protected health information may be revealed accidentally. For example, if a nursing home has only 10 residents, releasing any percentage increases the chance one's protected health information could become known. To avoid that, some suppression rules may be applied in this instance:

- ***Population size:*** data is suppressed for groups that have less than 25 people.

For any nursing homes that have fewer than 25 people, percentages would not be shown.

3. When other available information can reveal suppressed information

Sometimes releasing data means someone can calculate the suppressed numbers, or the information *not* included, through simple calculations of the data that *is* shared.

- ***Secondary suppression:*** some reports require suppressing a second data point to prevent the possibility of discovering the first suppressed data point through calculations.

For example, if the percentage for one county is suppressed, but the percentage for the state is shared, one could use the state total and the other county data to calculate the percentage for the one county with suppressed data. To avoid that, a percentage for a second county is also suppressed.

The specific rules can change from situation to situation. The objective is to provide data that is as informative as possible with minimal risk of revealing an individual's identity.

Example

Consider the following hypothetical data to illustrate some of the suppression rules described above. Please note that these are hypothetical numbers created for an illustration purpose and do not represent any actual data. Examples of a specific setting may be a nursing home or grocery store.

Table 1: Hypothetical vaccinations numbers in a specific setting by county.

County	Number of people in a specific setting	Number of people in a specific setting vaccinated	Vaccination rate
a	150	113	75%
b	260	205	79%
c	98	70	71%
Total	508	388	76%

Data Source: Hypothetical data created for illustration purposes.

Table 2: Vaccination rates by county and specific setting *before* suppressing values

County	Specific setting	Number of people in a specific setting	Number of people in a specific setting vaccinated	Vaccination rate
a	SSA1	34	31	91%
a	SSA2	93	72	77%
a	SSA3	23	10	43%
b	SSB1	110	107	97%
b	SSB2	72	48	67%
b	SSB3	46	35	76%
b	SSB4	32	15	47%
c	SSC1	60	50	83%
c	SSC2	38	20	53%
Total		508	388	76%

Data Source: Hypothetical data created for illustration purposes.

Releasing the data in Table 2 would elevate the risk of revealing individual's health information. Therefore, various suppression rules need to be applied prior to releasing this data, as shown in Table 3.

Table 3: Vaccination rates by county and specific setting *after* suppressing values

County	Specific setting	Number of people	Number of people vaccinated	Vaccination rate
a	SSA1	34	28£	82£%
a	SSA2	93	72	77%
a	SSA3	23	*	*
b	SSB1	110	105€	95€%
b	SSB2	72	48	67%
b	SSB3	46	35	76%
b	SSB4	32	**	**
c	SSC1	60	50	83%
c	SSC2	38	20	53%

Data Source: Hypothetical data created for illustration purposes.

* Value is suppressed, or not shown, due to small population size (<25) to protect individuals' health information

** An additional value is suppressed since the county-level values include the true totals.

€ Number of people vaccinated, and vaccination rates are capped at 95%.

£ The number of people vaccinated is calculated as (34-6) and the corresponding percentage is calculated as 100* (34-6)/34.