NHSN Guidance for Missing Device-associated Denominator Data

September, 2013

The following guidance has been developed in order to assist facilities during situations in which denominator data were not collected on one or more days during a given month. Note that there are four scenarios described below, each with prescribed guidance on imputing values for that specific scenario.

Scenario 1) Missing 1 or 2 days within a month: take the average of the day before and the day after and impute this value for the missing day(s);

Date	Patient days	Urinary catheter days
1/25/2013	11	4
1/26/2013	12	5
1/27/2013	*11*	*6*
1/28/2013	X **10.5**	X **5**
1/29/2013	X **10.5**	X **5**
1/30/2013	*10*	*4*

Example: data are missing for 1/28 and 1/29 (marked with X in above table), and the days before and after the missing days are 1/27 and 1/30. For patient days, the average of the day before and the day after the two missing days is: 11 + 10 / 2 = 10.5, and for urinary catheter days it is: 6 + 4 / 2 = 5 (shown in bold). The calculated value for the missing two days are 21 (2 x 10.5) and 10 (2 x 5), which are included in total for patient days and urinary catheter days, respectively. If the denominator data total for the month does not sum to a whole number, round to the nearest whole number.

Scenario 2) Missing denominator data for 3 to 14 days within a month: calculate the average denominator value for the known days of data, and use this to calculate values for the missing days.

Example: In our SICU unit, about half of our January 2013 data for central line days are missing and data were only collected for 17 of the 31 days in the month. The number of central line days was 137 and the number of patient days was 325. What do we do about the missing data?

Step a) Count up the number days with denominator data collected (17 days denominator data was collected). Then divide this by the sum for the denominator for that time period (137 central line days)

- 137 central line days / 17 days data were collected = 8.1 average central line days per day
- 325 patient days / 17 days data were collected = 19.1 average patient days per day

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Step b) Determine the number of days for which denominator data are missing (January has 31 days, data collected for 17 days, so data was missing for 14 days). Multiply the number of missing days by the average number of central line days for when data were collected (calculated in step a) to calculate the total central line days for the missing days.

- 14 days x 8.1 average central line days per day = 113.4
- 14 days x 19.1 average patient days per day = 267.4

Step c) Sum the known denominator data and the calculated value for the missing days (137 + 113.4 = 250.4 central line days; and 325 + 267.4 = 592.4 patient days) to obtain a value for the month. Rounding to the nearest whole number, 250 for central line days and 592 for patient days are the calculated values for the month.

Scenario 3) Missing denominator for 15 or more days within a month: Take the average value for the prior 3-months.

Month/year	Number of patient days	Number of ventilator days
November 2012	159	53
December 2012	165	59
January 2013	176	48
February 2013	164	58
March 2013	X	X

Example: Denominator data are missing for March 2013 (as indicated by the X). Using data from the three prior months (December 2012, January 2013, and February 2013) the following values are calculated

- For the number of patient days: 165 + 176 + 164 = 505 / 3 = 168.3
- For the number of ventilator days: 59 + 48 + 58 = 165 /3 = 55.0

With rounding to the nearest whole number, the number of patient days would be 168, and the number of ventilator days would be 55 for March.

Scenario 4) If your facility is missing more than one month of denominator data, please contact the NHSN helpdesk at nhsn@cdc.gov .

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