

Cardiac Care Mortality Reporting Methodology (EXAMPLE)



Note: This EXAMPLE only uses 2 risk of mortality levels for the sake of brevity. Actually, there are 4 risk of mortality levels assigned to APRDRGs. The APRDRG number in the example does not correspond to an actual APRDRG for this report. The risk of mortality level is assigned during data processing using grouping software provided by 3M. The calculations below are performed by VHI.

1) This step calculated at the STATE-level

<u>APRDRG (1601)-Risk of Mortality Level 1</u>	<u>Adjusted Volume*</u>	<u>Adjusted Total Deaths**</u>
Patient 1	1	1
Patient 2	1	0
Patient 3	1	0
Patient 4	1	0
Patient 5	1	0
Patient 6	1	0
Patient 7	1	0
Patient 8	1	1
Patient 9	1	0
Patient 10	1	0

Expected Mortality Rate for severity level 1 or 2/10

Total 10 2 0.20

<u>APRDRG (1601)-Risk of Mortality Level 2</u>	<u>Adjusted Volume*</u>	<u>Adjusted Total Deaths**</u>
Patient 1	1	1
Patient 2	1	0
Patient 3	1	0
Patient 4	1	0
Patient 5	1	0
Patient 6	1	0
Patient 7	1	0
Patient 8	1	0
Patient 9	1	0
Patient 10	1	0
Patient 11	1	1
Patient 12	1	0
Patient 13	1	0
Patient 14	1	1
Patient 15	1	1

Expected Mortality Rate for severity level 2 or 4/15

Totals 15 4 0.27

2) This step calculated at the HOSPITAL-level

<u>APDRG (1601)-Risk of Mortality Level 1</u>	<u>Adjusted Volume*</u>	<u>Adjusted Total Deaths**</u>
Patient 1	1	1
Patient 2	1	0
Patient 3	1	0
Patient 4	1	0
Patient 5	1	0
Patient 6	1	0
Total	6	1

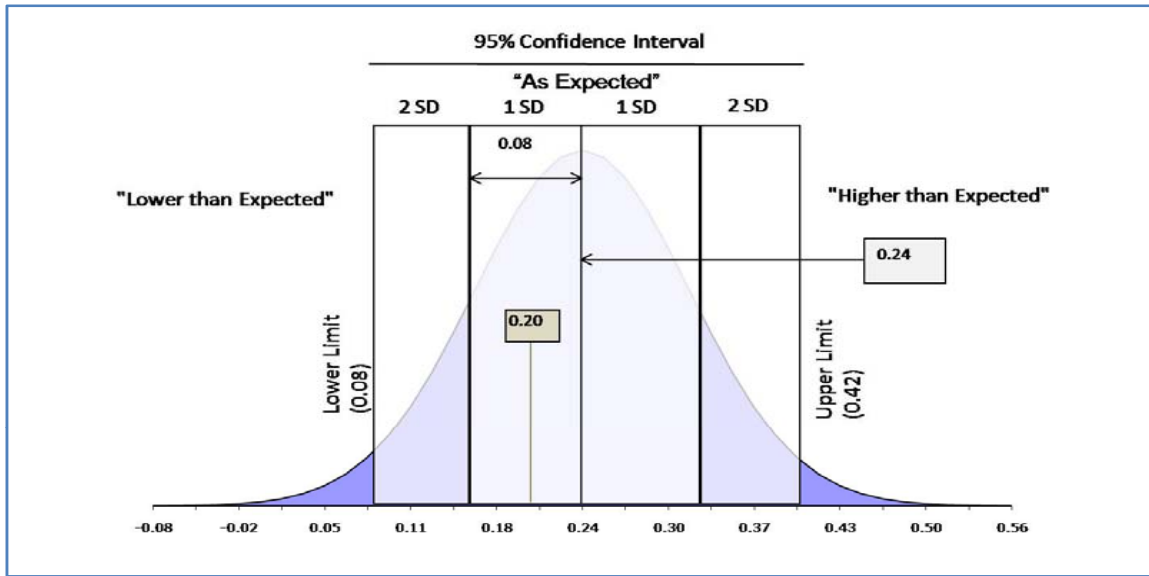
<u>APDRG (1602)-Risk of Mortality Level 2</u>	<u>Adjusted Volume*</u>	<u>Adjusted Total Deaths**</u>
Patient 1	1	1
Patient 2	1	0
Patient 3	1	1
Patient 4	1	0
Patient 5	1	0
Patient 6	1	0
Patient 7	1	0
Patient 8	1	0
Patient 9	1	0
Total	9	2

3) Calculating Hospital Mortality Rates and Expected Hospital Mortality Rates

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
	<u>Adjusted Volume*</u>	<u>Hospital Adjusted Total Deaths</u>	<u>Hospital Mortality Rate (B/A) or 3/15</u>	<u>Expected Mortality Rate (from STATE-level above)</u>	<u>Expected Hospital Mortality Rate (D*A)</u>	<u>Expected Hospital Mortality Rate (E/A or 3.63/15)</u>
APDRG (1601)-Risk of Mortality Level 1	6	1		0.20	1.2	
APDRG (1601)-Risk of Mortality Level 2	9	2		0.27	2.43	
Service Line Totals	15	3	0.20		3.63	0.24
		↓			↓	
		(This figure represents number of adjusted deaths)	Hospital Actual Mortality Rate		(This figure represents number of adjusted deaths)	Hospital Expected Mortality Rate

4) Statistical Testing

C (from step 3 above)	F (from step 3 above)	G	Confidence Interval (CI)****	
<u>Hospital Actual Mortality Rate</u>	<u>Hospital Expected Mortality Rate</u>	Standard Deviation***	LOWER (F-G)	UPPER (F+G)
0.20	0.24	0.08	0.08	0.42



Interpretation: The hospital actual rate falls within the confidence interval [0.08,0.42] so, although it has a lower rate (C) than the expected rate (F), the difference is not statistically significant. The hospital's rating would be "AS EXPECTED."

Technical Notes:

* Adjusted volume is all inpatient hospital discharges excluding 1) hospice patients 2) patients transferred to another facility and 3) patients transferred in with severe risk of mortality and died within 24 hours.

** Please refer to the "2006 Cardiac Care Mortality Report" for details on how VHI calculates adjusted total deaths

*** Standard deviation is defined as $\text{SQRT}([\text{Expected Rate} \cdot (1 - \text{Expected Rate}) / \text{Adjusted Volume}])$ or $\text{SQRT}([F \cdot (1 - F)] / B)$

Please note that the adjusted volume is very low in this example. In actuality, VHI requires at least $n=30$ for the adjusted volume to calculate. The SD calculations presented here uses $n=30$ for illustration.

**** The confidence interval is defined as $\text{Expected Rate} \pm (1.96 \cdot \text{Standard Deviation})$ or $F \pm (1.96 \cdot G)$