

All Cause Readmission Risk Adjustment Method

Risk-adjusted (RA) All Cause Readmission (ACR) rate can be interpreted as the rate for a hospital *if that hospital treated an average mix of APRDRG-Severities*. A hospital experiencing below-average readmission rates for the APRDRG-Severities of the patients it actually treated will show the overall statewide readmission rate reduced accordingly. Hospitals of average performance will show RA rates closer to the statewide average (normative) rate.

APRDRG, severity score (1, 2, 3 or 4), numerator and denominator for the ACR measure are provided by Wisconsin Hospital Association Information Center from its discharge data collection. RA rates are calculated as follows:

1. Statewide normative readmission rates are calculated as an aggregate for all hospitals for each APRDRG-Severity combination:

$$\text{Normative Rate} = (\text{sum of numerators}) / (\text{sum of denominators})$$

2. Expected Numerators are calculated for each hospital-APRDRG-Severity combination using the appropriate normative rate:

$$\text{Hospital Expected Numerator} = (\text{Normative Rate} * \text{denominator})$$

3. A hospital's overall *observed* rate for each APRDRG-Severity combination is calculated:

$$\text{Hospital Observed Rate} = \text{numerator} / \text{denominator}$$

4. Expected numerators are summed for each hospital and divided by their observed denominators to calculate an overall hospital *expected* rate:

$$\text{Hospital OA Expected Rate} = (\text{sum of expected numerators}) / (\text{sum of denominators})$$

5. An overall normative rate is calculated for all APRDRG-Severity combinations:

$$\text{OA Normative Rate} = (\text{sum of numerators}) / (\text{sum of denominators})$$

6. Overall RA hospital rate is then calculated by scaling it for each hospital according to their performance:

$$\text{Hospital RA Rate} = (\text{Hospital OA Observed Rate} / \text{Hospital OA Expected Rate}) * \text{OA Normative Rate}$$

7. The confidence interval computed for a hospital's observed rate is applied to its RA rate by adding and subtracting the difference between the observed rate and its upper and lower confidence limits.