

## Additional file 2: Description of comparison metrics

Metric	Equation	Explanation
Positive Predictive Value	$PPV = \frac{TP}{TP + FP}$	Proportion of positive test results that are true positives (correct diagnoses)
Partial Chance-Corrected Concordance [15]	$PCCC(k) = \frac{C - \frac{k}{N}}{1 - \frac{k}{N}}$ <p>*C is the fraction of deaths for which the true cause is in the top k assigned causes</p>	Used for probabilistic methods that assign probabilities of multiple causes of death for each VA case
CSMF Absolute Error [15]	$\sum_{j=1}^k  CSMF_j^{true} - CSMF_j^{pred} $	Sum of the amount by which the estimated CSMF deviates from the true CSMF, for each of cause of death
CSMF Accuracy [15]	$CSMFAccuracy = 1 - \frac{\sum_{j=1}^k  CSMF_j^{true} - CSMF_j^{pred} }{2(1 - \text{Minimum}(CSMF_j^{true}))}$	Similar to CSMF error, but adjusts for a correct diagnosis made by chance; results are relative to the worst possible performance (where each death is incorrectly diagnosed)