ACCOUNTING FOR THE SAMPLING VARIABILITY OF THE RANKING OF MORTALITY RATIOS

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Comparisons of health care organizations to evaluate their performance are increasingly common. In intensive care, one method frequently used is the ranking of their adjusted mortality ratios. These adjusted mortality ratios accounts for the differences attributed to clinical case mix. Regularly, these ranks are presented without any indication of uncertainty. In order to account for the instability of the ranks when making comparisons between institutions, we evaluated the statistical sampling variability of the mortality ratio ranks by simulating the random effects rank intervals under a binomial count data distribution. We use data for 20 Colombian intensive care units to illustrate the generic methodological issue. Monte Carlo simulations were carried out by selecting randomly and iteratively draws of mortality ratios for each intensive care unit under the specified model. Median estimates and 95% confidence intervals for the ranks were generated using the WinBUGS software. Our analysis has shown that when uncertainty intervals around the ranking of mortality ratios are estimated by repeated simulations, considerable overlap exists. Therefore great caution is warranted in interpreting the results of the ranking of mortality ratios.