Calculating waiting times retrospectively

Boris Sobolev and colleagues used prospectively collected data on waiting times for vascular surgery and compared waits calculated both prospectively and retrospectively.[1] They argue that mean and median waiting times are underestimated with retrospective analysis because this method does not include patients who were on the waiting list but did not receive surgery. The retrospective method is similar to estimation methods that use administrative data, as we have done in Manitoba.[2]

Of relevance in this issue are the patients who did not receive surgery, but should have done. This would no doubt include the 14 patients, of 1084, who were still waiting 6 months after being listed for surgery.[1] Of the 85 patients who were removed from the list, 38 became too ill to risk surgery and 3 died; because their condition might have deteriorated or they might have died for reasons relating to their surgical condition, it can be argued that they too should have been included in the waiting time analysis.

Patients who were removed from the list either because their condition improved or because they decided not to have surgery speak more to the issue of list inflation. These patients should not have been included in the estimate of waiting times.

Even though all patients were included, the median waits were 6 (95% confidence interval [CI] 5–6) weeks for retrospective analysis and 7 (95% CI 6–7) weeks for prospective analysis. Because the confidence intervals overlapped, there appears to be no statistically significant difference. Medians, rather than means, are often preferred in measuring waiting times because of the tendency for the distribution to be skewed, with a long tail to the right of the distribution, with the result that most patients receive service in less time than the mean wait.

The ability to compare the results of prospective and retrospective methods of estimating waits adds a valuable dimension to the debate. The fact that the median waits calculated by the 2 methods were not significantly different supports arguments that retrospective methods of estimation are valid.

Carolyn De Coster
Manitoba Centre for Health Policy and Evaluation
University of Manitoba
Winnipeg, Man.

References

1. Sobolev B, Brown P, Zelt D, Shortt S. Bias inherent in retrospective waiting-time studies: experience from a vascular surgery waiting list. *CMAJ* 2000;162(13):1821-2.
2. De Coster CA, Carriere KC, Peterson S, Walld R, MacWilliam L. Waiting times for surgical procedures. *Med Care* 1999;37(6 Suppl):JS187-JS205.

In their study of the bias inherent in retrospective waiting-time studies, Boris Sobolev and colleagues showed that median and mean waiting times are underestimated in retrospective design, a phenomenon they attributed to patients being removed from the list but included in prospective assessment.[1]

However, there is another, more important bias, which may help at least in part to explain the results presented by Sobolev and colleagues: waiting lists are not managed as perfect queues. In theory, patients receive treatment in the order in which they were placed on the waiting list, but in practice, treatment may be provided in a nonchronological order. This may lead to underestimation of real queuing times measured prospectively because waiting time in the queue-jumping subpopulation lowers mean foreseeable waiting times. This is possible in practice because those providing the services tend to keep some spots open, i.e., programmed productivity is slightly less than maximal service availability (and slightly less than actual service productivity).

Aldo Mariotto
Head
Health Community Service
Pordenone, Italy

Reference

1. Sobolev B, Brown P, Zelt D, Shortt S. Bias inherent in retrospective waiting-time studies: experience from a vascular surgery waiting list. *CMAJ* 2000;162(13):1821-2.