



QUALITY OF SURGICAL CARE

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When we think about surgical quality, we usually think about the care given by individual doctors or hospitals. But what are the health consequences of different rates of surgery? Are there unnecessary deaths or readmissions as a result of one area having a higher surgical rate than another? MCHPE Researchers recently published a paper in the journal *Medical Care* that explores these questions.

Hospitals and physicians regularly review their practices to maintain quality and avoid mistakes. Yet very few patients--only 1% according to one review--have bad hospital outcomes due to negligence or poor quality. So traditional quality review seems to have a limited potential for improving outcomes.

Different areas have different rates of surgery that have never been shown to be caused by differences in the rate of disease in the population. We have found, for example, that over a period of five years (1989 to 1993), tonsillectomy rates in children varied from 46.0 to 82.4 per 10,000 population in different health regions of Manitoba. In Ontario's 97 hospitals, Caesarean section rates varied from 6.6 to 30.3 per 100 deliveries in 1991/92, and the highest rates were not at the tertiary or secondary care hospitals. In the United States, rates of coronary artery bypass surgery have been found to vary almost six-fold from 0.86 to 4.97 per 1,000 Medicare patients.

The rate of surgical complications and deaths depends not only on technical quality, but also on the number of procedures that take place. Any surgical procedure will produce some complications, regardless of the technical skill of the surgeon. Thus, areas that have higher rates of surgery are also at risk for higher rates of complications.

We studied two procedures: hysterectomy in Manitoba and coronary artery bypass surgery (CABS) in the United States. We compared the potential for reducing the rate of surgical complications by (a) improving the technical quality of care and (b) decreasing the rate of surgery in high rate areas.

Hysterectomy in Manitoba

Ten years of Manitoba data were analysed to make sure that rates were stable. Technical quality was measured by readmission within 30 days of surgery: the higher the readmission rate, the lower the technical quality. The provincial average was used as the standard. There were significant differences in both surgical and readmission rates, and one region, the North, had the highest surgical rate and the next to poorest technical quality ([figure](#)). In that region, improving the technical quality to the provincial average would prevent 27 readmissions per 1 million women, whereas reducing the surgical rate to the average would prevent 77 readmissions per 1 million women--almost three times as many.

Lower rates of hysterectomy did not seem to indicate poor access to surgery. The second lowest rate was in Winnipeg, the area with the highest concentration of specialists.

Bypass surgery in the United States

In the U.S. analysis, coronary artery bypass surgery (CABS) in elderly residents of 150 cities was examined. Death following bypass surgery was the measure of technical quality. The rate of death after CABS varied 14-fold, from 0.028 per 1000 persons to 0.389. Five cities were analysed in more detail.

In the city with the poorest technical quality, 48 fewer deaths per 1 million elderly could be achieved by improving the technical quality. In the city with the highest surgical rate, bringing the rate down to the U.S. average would have led to 99 fewer deaths. Twice as many people could be saved.

The rate of CABS did not appear to be influenced by the rate of angioplasty, an alternative that is less costly and presumably less dangerous. One might expect that high rate surgical areas would have lower rates of angioplasty. However, three of the five cities had higher-than-average rates of both, and one city had lower rates of both.

Conclusion

Attempts to reduce poor surgical outcomes should not be limited to reviewing quality at specific institutions. It is necessary to expand the focus to include the rates at which populations are

exposed to treatments. The deaths and complications produced by high surgical rates are as real as, and deserve just as much attention as, adverse outcomes at an "outlier" hospital with poor technical quality.

For the complete paper see: "A population-based approach to monitoring adverse outcomes of medical care", by Noralou P Roos, Charlyn D Black, Leslie L Roos and others in *Medical Care*: 1995, Volume 33, Number 2, pages 127-138.



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