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Surgical perspectives

Benchmarking in surgery: how to compare with the best



Benchmarking en cirugía: como compararnos con los mejores

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Improving the quality of care is an absolute priority for healthcare systems. Better patient care also reduces costs, while always maintaining efficiency and accessibility.^{1–3} Increased quality can only be achieved by systematically analyzing results to improve healthcare processes and outcomes, and several assessment tools currently exist.^{2–6} Patients, healthcare providers and, of course, surgical professionals need to know the results of the care we provide in order to compare them with other units, services or hospitals with the aim to make improvements. However, this requires standardized outcome measurements with which to compare, since optimal postoperative outcomes are currently speculative.^{3,4,7}

Benchmarking (BM) is one of the possible systems for analyzing results and one of the most popular tools for continual improvement processes used in industry.^{8,9} It is a method that entails market-based learning, in which a specific company seeks to identify the best practices of the competition (meaning those that produce better results than their own) and apply them to improve competitiveness.^{1,7,8,10}

In healthcare systems, and particularly in surgery, its use is much more recent, and it consists of the process of measuring and striving for the best postoperative results, which makes it possible to compare the results of a specific hospital with indicators that are considered “ideal” (benchmark values).^{3,4,9} BM has recently been used in several surgical procedures (liver transplantation, pancreatoduodenectomy [PD], ALPPS, distal pancreatectomy, hepatectomy, esophagectomy or bariatric surgery).^{2–4,7,9–11}

The concept of surgical BM has evolved from the initial idea where a single parameter used to be compared to the current one in which several indicators of a surgical process are studied (postoperative complications, pathological and oncological results, etc),^{1–4,9–11} while always defining an optimal lower and upper limit for a BM result.⁴

A methodology has been proposed to establish the steps to prepare and implement BM: select the process that we want to study; then, determine the low-risk patients and key outcome indicators, how to proceed with their measurement, how to find and contact a sufficient number of suitable hospital centers; and then identify the methods to collect data and carry out the calculations to obtain the benchmark values.^{1,4,10–13} If these steps are followed, BM results obtained in the studies can be considered as similar as possible to real life.^{1,9}

In addition, the characteristics have been defined for medical centers included in BM studies: high-volume centers from at least 3 continents, availability of a prospective database at each medical center, use of a system to measure complications and morbidity based on severity, postoperative follow-up and 90-day readmissions, and oncological results for patients with cancer.⁴ This selection of hospitals opens several very interesting debates, including whether international BM can be applied nationally, since the health characteristics of each country (hospital stay, regional organization, application of ERAS protocols, etc) can affect

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certain parameters. Furthermore, if BM studies are only conducted at reference centers, can the results obtained be extrapolated to all hospitals?

Once BM values have been defined, we will be able to determine whether our hospital results are within or outside the BM limits and then be able to take measures to improve the parameters that are out of range.⁴ In addition, we will be able to identify how many cases we have treated within BM criteria and how many do not meet BM criteria, which are important data to determine whether our indications are similar to those of the centers used to create the BM reference values.¹⁰

In surgery, BM should be determined for very specific procedures. In contrast, if it is too generic (for example, BM for liver surgery), the information obtained may hardly be valid; for instance, the results obtained after a minor laparoscopic resection are not comparable to those obtained from a complex major hepatectomy.¹¹ A possible area for improvement of BM is that it should also consider the specific characteristics of each patient (such as the degree of fragility) or characteristics of the resected organ (cirrhosis or previous chemotherapy in liver surgery), which directly influence postoperative results.^{4,10} Therefore, risk-adjusted BM for both patient and procedure would further improve the evident usefulness of BM.³

Several possible applications for BM values in surgery have been suggested, including: case-mix of a specific hospital to detect the number of complicated cases treated; comparison of results between different risk populations that undergo the same surgical procedure; estimation and comparison of costs; assessment of patients outside BM ranges in morbidity and mortality committees; correlation between BM and postoperative quality of life; and implementation of new techniques and surgical strategies.¹¹ In addition, published studies about BM have confirmed the importance of measuring results not in the short term (30 days) but in the longer term, as the differences obtained are substantial.

The limitations of BM are: the values defined are not comparable with previous series and require subsequent validation; when obtained from multicenter studies, there may be a lack of standardization of medical actions; data from low-risk patients are measured, although some publications have measured BM values in high-risk patients (ASA > 3) without observing large differences in the results obtained; BM has still not been established for many processes; and, lastly, an audit method must be established to guarantee the reliability of the results of each participating center.^{6,9-11,14}

In conclusion, BM is an interesting measure of care quality that describes multiple postoperative and oncological parameters, which is applicable in many areas of surgery. Similar

to any new tool, BM can still be improved with further adjustments, which we will witness in coming years.

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