

Key Performance Indicators Of Anesthetic Practice: A Clinical Audit

Aamir Bashir, Imran Aslam, Aamir Waseem, Itrat Hussain Kazmi, Muhammad Mubeen

IMPORTANCE Anesthesia is one of the essential requirement before most of surgical procedure. This perioperative medicine practice require skill, training and implementation of standards. Various tools have been used for monitoring of clinical practice standards. These practice standards and performance indicators could be either from pre-anesthesia optimization, perioperative management, or post-operative outcome. This clinical audit was carried out at a tertiary care teaching hospital. Three key performance indicators were selected including incidence of 1) postoperative nausea & vomiting, 2) post-operative pain and 3) hypothermia. This audit highlighted requirement of improvement in practice for optimum pain management in general surgery and orthopedic cases as well as adequate management of hypothermia in elderly patients.

KEY WORDS Key Performance Indicators; KPI; Anesthesia; Post-operative Care

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Clinical Audit

Author Affiliations: Author affiliations are listed at the end of this article.

Corresponding Author: Dr Amir Bashir, Consultant Anesthetist Shalamar Medical & Dental College, Lahore
dr.aasi@gmail.com
092-333-8078705
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Anesthetic practice and protocols have been much improved in recent times. Safe delivery of anesthesia, early recovery and prevention of complications are desired in clinical setting.¹ This can be carried out by clinical training, monitoring of the practice standards and improvement where required. Multiple key performance indicators have been used in anesthetic practice including incidence of post-operative nausea & vomiting, post-operative pain, incidence of hypothermia and many others.² Enhanced recovery from anesthesia and surgery has been implicated as an important indicator for valuation of clinical practice. Above mentioned indicators are important components of enhanced recovery program. Their results can be helpful in implementation of enhanced recovery program in clinical practice.³

OBJECTIVES

To evaluate the outcome of different key performance indicators of anesthesia in surgical patients.

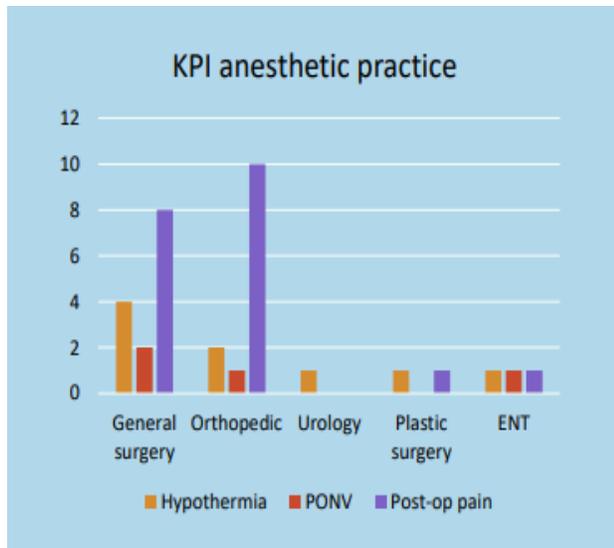
METHODS

This clinical audit was carried out in recovery room of the operation theatre at Shalamar Hospital Lahore, Pakistan. Three indicators were selected keeping in view their importance in patient care and management. These

included 1) incidence of post-operative nausea & vomiting, 2) post-operative pain and 3) incidence of hypothermia. Data were collected from the files of 100 surgical patients in the month of November 2020 in the recovery room with the help of recovery staff and documented in prescribed Performa.

RESULTS

A total of 100 surgical patients including pediatric, adults and elderly were included in audit. Age range was about 1 years to 89 years. Overall, 85% cases were conducted under general anesthesia while 15% under spinal anesthesia. Considering gender, 48% cases were male and 52% were female. Percentages of different surgical specialties were also noted. Regarding key performance indicators results, incidence of post-operative nausea & vomiting remained less than 5% in all types of surgeries. Considering post-operative pain, around 10% of the patients of orthopedic surgery experienced moderate to severe pain and about 8% of general surgical patients experienced moderate to severe pain, however, patients suffering pain from ENT and plastic surgery remained around 1% while patients of urology surgery were pain free. Regarding hypothermia, it remained less than 5% overall where general surgical patients suffered more hypothermia as compared to orthopedic, urology, ENT or plastic surgery. Also, hypothermia was noted more in patients of advanced age.



Graph 1: Key performance indicators of anesthesia practice

DISCUSSION

Clinical practice cannot be improved unless we can find areas of improvement. Completing an audit is only the beginning. While it can be relatively simple to perform an initial audit, taking the next step and improving care quality is much harder and labor intensive. NICE Guidelines, Royal College or other professional societies in form guidelines, or the findings of various confidential enquiries provide a chance to re-examine our existing practice and to ensure auditing leading to quality improvement projects.⁴ Audit provides an evidence to design and contemplate future quality assurance projects. The sources of such evidence and data are from randomized controlled trials, smaller non-randomized studies or even expert opinion and guidance from bodies such as NICE, as described above. Audit provides an evidence that we have an issue and we need to work on them. Audit defines the gaps for quality improvement projects.⁵ Generally, simply exhorting people to 'do better' does not work at enhancing quality. Introduction of process facilities and is more productive than trying to change the minds. Designing and

implementing such programs facilitates the process of improvement. This is a continuous process of managing, survey, implementing and re-examining.^{6,7} Different bench marks have been decided for these quality indicators. For example, generally accepted bench mark for post-operative nausea & vomiting is that it should be less than 30%, our results remained quite well. As for example, Paul and colleagues found incidence of postoperative nausea and vomiting up to 11% in low risk patients while up to 27% in high risk patients.⁸ With reference to incidence of postoperative pain, ideally should be no pain, so we can say that we need to improve our practice especially in general surgical and orthopedic surgical procedures. Joshi and colleagues have previously highlighted the importance of pain control as inadequate pain management has consequences for the health and care resources.⁹ Considering postoperative hypothermia, its usually accepted bench mark is less than 10%, we remained well, but still it should be improved especially in elderly patients. Vural and colleagues found incidence of hypothermia around 11%. They concluded that adequate measures of temperature control could help in prevention of inadvertent hypothermia.¹⁰

The improvement in practice need continues monitoring, quality improvement meetings and training of staff. This is followed by regular audits to find the areas of improvement and the results of interventions done and to find further areas of improvement. Our audit has certain limitations as it was a limited sample size. We can have larger sample size to get more authentic results to implement changes. However, implementing adequate management measures can help to reduce the incidence of above mentioned clinical problems and it can lead to improved patient outcome helping also in implementing enhanced recovery from anesthesia and surgery program.

CONCLUSION

This audit highlighted requirement of improvement in practice for optimum pain management in general surgery and orthopedic cases as well as adequate prevention and management of hypothermia in elderly patients.

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Author Affiliations: Department of Anesthesia, Shalamar Medical & Dental College, Lahore, Pakistan

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REFERENCES

- Haller G, Stoelwinder J, Myles PS, McNeil J. Quality and safety indicators in anesthesia: a

systematic review. *Anesthesiology* 2009 May ;110(5):1158-75. doi: 10.1097/ALN.0b013e3181a1093b.

- Peden CJ. Emergency surgery in the elderly patient: a quality improvement approach. *Anaesthesia* 2011;66:440-445. doi: 10.1111/j.1365-2044.2011.06769.x.
- Pędzwiatr M, Mavrikis J, Witowski J, Adamos A, Major P, Nowakowski M, et al. Current status of enhanced recovery after surgery (ERAS) protocol in gastrointestinal surgery. *Med Oncol*. 2018 May 9;35(6):95. doi: 10.1007/s12032-018-1153-0

4. Perla RJ, Provost LP, Murray SK. The run chart: a simple analytical tool for learning from variation in healthcare processes. *BMJ Quality & Safety* 2011;20:46–51. doi: 10.1136/bmjqs.2009.037895.
5. Trebble TM, Hansi N, Hydes T, Smith MA, Baker M. Process mapping the patient journey: an introduction. *BMJ* 2010 Aug 13;341:c4078. doi: 10.1136/bmj.c4078.
6. Lau H, Litman KC. Saving Lives by studying deaths: using standardised mortality reviews to improve patient safety. *Joint Commission J Qual Patient Safety* 2011; 37:400-8. doi: 10.1016/s1553-7250(11)37050-x.
7. Weiser TG, Haynes AB, Lashoher A, Dziekan G, Boorman DJ, Berry WR, et al. Perspectives in quality: designing the WHO Surgical Safety Checklist. *Int J Qual Health Care* 2010; 22:365-70. doi: 10.1093/intqhc/mzq039.
8. PF, Sacan O, Nuangchamnon N, Sun T, Eng MR. The relationship between patient risk factors and early versus late postoperative emetic symptoms. *Anesth Analg*. 2008 Aug;107(2):459-63. doi: 10.1213/ane.0b013e31817aa6e4.
9. Joshi GP, Ogunnaike BO. Consequences of inadequate postoperative pain relief and chronic persistent postoperative pain. *Anesthesiol Clin North Am*. 2005 Mar;23(1):21-36. doi: 10.1016/j.atc.2004.11.013
10. Vural F, Çelik B, Deveci Z, Yasak K. Investigation of inadvertent hypothermia incidence and risk factors. *Turk J Surg*. 2018 Dec 1;34(4):300-305. doi: 10.5152/turkjsurg.2018.3992.