

ORIGINAL RESEARCH

PERIOPERATIVE MEDICINE

Clinical audit on quality of preanesthesia evaluation

Salman Shahzad, FCPS, MSc (Pain Medicine)¹, Tahira Younas, FCPS²,
Eitzaz-ud-Din Khan, DA, MCPS, FCPS³

Author affiliations:

1. Senior Registrar; E-mail: doctorsalmanshahzad@hotmail.com; Phone: +92-333-4590374
2. Senior Registrar; E-mail: tahira_younas@hotmail.com; Phone: +92-321-9628023
3. Consultant Anesthesiologist / Chairman, Department of Anesthesiology; E-mail: eitzaz1@gmail.com; Phone: +92-331-7674446

Department of Anesthesiology, Pakistan Kidney and Liver Institute & Research Center, One PKLI Avenue, DHA, Phase-6, Lahore, Pakistan

Correspondence: Dr. Salman Shahzad, Senior Registrar, Department of Anesthesiology, Pakistan Kidney and Liver Institute & Research Center, One PKLI Avenue, DHA, Phase-6, Lahore, Pakistan; E-mail: doctorsalmanshahzad@hotmail.com; Phone: +92-333-4590374

Abstract

Background: Preoperative evaluation (PAE) gives in-depth view of patient's clinical condition and helps match mode of anesthesia accordingly. This study was planned to assess the quality of documentation in pre-anesthesia assessment form (PAAF) completed during preoperative assessment.

Methodology: This descriptive study was conducted at Pakistan Kidney and Liver Institute and Research Center (PKLI & RC) Lahore. Pre-Anesthesia assessment forms of patients operated from 1st January to 31st December 2019 were reviewed. A 22-components modified Global Quality Index (GQI) was used to assess the quality of PAAF. Descriptive statistical analysis was performed using SPSS version 25.

Results: Completion was excellent (100 %) in only one indicator; eighteen indicators had an acceptable completion rate (90-99 %) while three indicators were completed in < 90 % PAAF. Consent was the only component complete in 100% PAAF. Documentation of age (25%), past medical history (89.4%) and fasting status (88.4%) were the least documented aspects of PAAF. The average completion rate was 93.5 ± 5.2 % and all 22 indicators of GQI were completed in 14.3% PAAF.

Conclusion: Our audit shows that majority of PAAF are complete and all its components have been well documented. Only few elements were not recorded in some PAAS. Further education and audit will be required to achieve complete documentation.

Key words: Preanesthesia assessment; Preoperative evaluation; Documentation; Global Quality Index

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1. Introduction

Pre anesthesia evaluation (PAE) is an essential component of patients undergoing anesthesia for various surgical reasons.¹ PAE gives anesthesiologists an in-depth view of the patient's current medical condition, past adverse events due to anesthesia or surgery and expected anesthesia challenges in the upcoming surgery.² It enhances patient safety, operation theater resource utilization, reduces delays and cancellation on the day of surgery.³ Optimum preoperative assessment

enhances communication among healthcare professionals and ensures the continuity of the care.⁴ Presence of PAE and informed consent in the patient's chart is essential for both medico-legal purposes and quality assurance. Ethical guidelines of The American Society of Anesthesiologists (ASA) states that "it is an ethical responsibility of anesthesiologists to provide a preoperative evaluation to their patients and should be accessible in the patient record."⁵ An Australian incident monitoring study has reported that poor pre-operative evaluation and preparation was directly related to increased morbidity and mortality.⁶

Factors such as workload, availability of information, practitioners' experience, interest and availability of standard assessment policy can affect the preoperative documentation.⁷ Presence of a standardized PAE tool can improve the quality of information and enhance patient's outcome.⁸

Pakistan Kidney and Liver Institute and Research Center (PKLI & RC) maintains a policy of pre-anesthesia assessment as well as a standard Pre-Anesthesia Assessment Form (PAAF) which is based on current international standards as well as Punjab Healthcare Commission (PHC) standards. The objective of this study was to assess the quality of pre-anesthesia evaluation by checking the documentation in pre-anesthesia assessment form completed during the preoperative assessment at PKLI & RC.

2. Methodology

This hospital-based descriptive study was carried out at Pakistan Kidney and Liver Institute & Research Center (PKLI & RC), Pakistan. After permission from the Institutional Review Board, PAAF used at PKLI & RC (ANAES-F0001-V3) for preoperative assessment of patients before surgery was reviewed. The identities of the anesthesiologists and patients were kept confidential. Patients operated the operation theater of PKLI & RC were included in this audit. Patients operated under local anesthesia were excluded from this study.

A checklist based on the Global Quality Index (GQI) with 22 indicators was used to assess the quality of assessment which has been used previously.⁹ Each component was labeled as "complete" if it had full or adequate information documented, "incomplete" if inadequate or partial documentations, "illegible" for Information not clear enough to read and understand or "blank" if a component had no documentation (Table I). The primary outcome of this audit was to determine the percentage completion of individual GQI indicators and the overall percentage of complete PAAF which was calculated by dividing the number of complete indicators by total GQI. A total of 1230 patients were operated from 1st January till 31st December

2019. A sample size of 293 cases was calculated taking a population of 1230, a confidence interval of 95% and 5% margin of error. The sample was collected through a random number table. Data were checked, coded and analyzed by SPSS V.25 (IBM Corporation, New York, United States). Descriptive analysis was performed for individual GQI indicators and results were presented as frequency and percentage while overall PAAF completion rate was presented as means and SD. A completion rate of 100% was rated as excellent for all indicators. A completion rate of 90-99% was marked as acceptable. A completion rate of < 90% was marked as a critical area needing further improvement.

Table I: Modified GQI indicators and criteria

Indicator	Predefined Components For Completeness
Name of Patient	First and last name present
Age	Value & unit present
Gender	Mentioned
Date of visit	Date/month/year mentioned
Anesthesiologist's Name	Name present
Past medical history	Previous or coexisting illness with duration & treatment mentioned
Preoperative diagnosis	Diagnosis present
Surgical procedure	Surgical procedure present
Anesthetic history	Surgical procedure, anesthesia type, time and any complication mentioned
Medications	Type, dose, and route
Allergies	Trigger and extent of reaction mentioned
Fasting Status	Either fasting status mentioned or advised
Preoperative Vitals	At least heart rate, BP, O ₂ Saturation and temperature
Weight	Value with unit
Airway assessment	At least mallampati view, thyromental distance, jaw slide, and neck movement
Dental status	Status documented (healthy, non-natural, broken, loosen or lost or artificial)
Cardiovascular examination	At least auscultation note
Respiratory examination	At least auscultation note
ASA class	ASA Class mentioned
Pre-medication advice	Type, dose, and route
Anesthesia Plan	Anesthesia plan mentioned
Consent	Signed and available

Table 2: Completion of Individual GQI Indicators

Indicators n (%)	Complete	Incomplete	Illegible	Absent	Assessment
Name of Patient	289 (98.7)	3 (1.0)	1 (0.3)		Acceptable
Gender	290 (99.0)			3 (1.0)	Acceptable
Age	74 (25.3)		1 (0.3)	218 (74.4)	Needs Improvement
Preoperative diagnosis	290 (99.0)			3 (1.0)	Acceptable
Surgical procedure	291 (99.3)			2 (0.7)	Acceptable
Date of Visit	292 (99.7)			1 (0.3)	Acceptable
Anesthesiologist name	292 (99.7)			1 (0.3)	Acceptable
Past medical history	262 (89.4)	30 (10.2)		1 (0.3)	Needs Improvement
Anesthetic history	289 (98.6)			4 (1.4)	Acceptable
Medication history	272 (92.8)	1 (0.3)		20 (6.8)	Acceptable
Allergies	290 (99.0)			3 (1.0)	Acceptable
Fasting status	259 (88.4)			34 (11.6)	Needs Improvement
Preoperative vitals	287 (98.0)	5 (1.7)		1 (0.3)	Acceptable
Weight	288 (98.3)		2 (0.7)	3 (1.0)	Acceptable
Airway assessment	265 (90.4)	25 (8.5)	Intubated 2 (0.7)	1 (0.3)	Acceptable
Dentation	286 (97.6)			7 (2.4)	Acceptable
CVS examination	284 (96.9)			9 (3.1)	Acceptable
Respiratory examination	284 (96.9)			9 (3.1)	Acceptable
ASA class	291 (99.3)			2 (0.7)	Acceptable
Premedication	276 (94.2)			17 (5.8)	Acceptable
Anesthesia plan	283 (96.6)			10 (3.4)	Acceptable
Consent	100 (100.0)				Excellent

3. Results

Out of 22 indicators, documentation of only one was marked as excellent, 18 were acceptable while 3 were marked as critical. Consent was complete in 100% of PAAF, whereas age, past medical history and fasting status were documented in < 90% of cases. Details of individual indicators are given in Table 2.

The average completion rate of PAAF was $93.5 \pm 5.2\%$. Forty-two (14.3%) PAAF were 100% complete while a significant number (67) of PAAF were <80% complete. (Figure 1)

4. Discussion

A standard pre-anesthesia assessment is key for efficient and safe anesthesia practice.¹⁰ Inadequate preoperative assessment can lead to poor communication and can be a contributing factor for unplanned high dependency and intensive care unit admissions.^{11,12} Moreover, good medical practice demands a physician to document all essential aspects of a patient's medical history as a standard

of care.¹³ Therefore, it is essential to fully document accurate information in the preoperative assessment.

The mean completion rate for our sample of 293 PAAF was $93.5 \pm 5.2\%$ with a minimum of 68.2%.

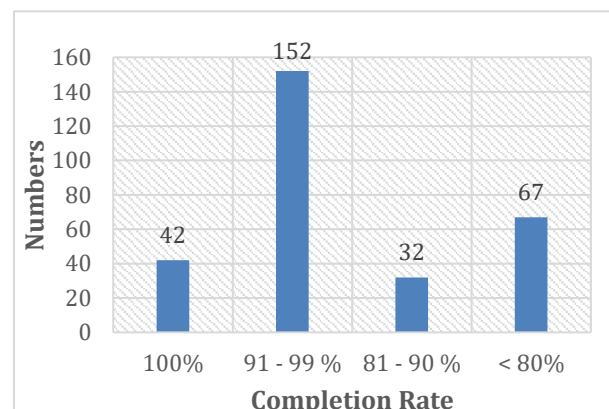


Figure 1: Overall PAAF Completion Rate

These results go beyond the previous report by Mokgwathi et al.¹⁴ who reported a modified GQI score of $72.2 \pm 13.9\%$. He used a 15-item GQI whereas we used 22-components GQI. This

difference could be due to the continuous supervision of junior staff in our pre-anesthesia clinic.

There are several essential components of patient history that need to be documented in the preoperative assessment. These include comorbidities, allergies, routine medication, vitals and most importantly airway assessment.¹⁵ The use of a structured PAE form and health management information system (HMIS) ensures that each component is documented. Edwards et al.¹⁶ have reported a high completion rate in anesthesia information management system (AIMS) technology as compared to a handwritten anesthetic record. Marco et al.¹⁷ concluded that structured forms for preanesthetic evaluation had a higher completion rate than non-structured.

Patient identification is the basic component of PAE and correct patient identification can prevent error and serious harm to the patients.¹⁸ In our study, the patient's name was present in 98.6% of cases. Illegible writing in non-structured handwritten form is a major reason for poor patient identification. Preoperative diagnosis and surgical procedure along with patient's name assist in correct identification.¹⁹

Our results demonstrated that the weight of the patient was mentioned in 98.3% of PAAF. It helps in the determination of drug doses, dose adjustment in case of an obese patient, calculation of perioperative fluid administration, adjustment of ventilatory settings and assessing airway equipment size. Contrary to our finding, Mokgwathi et al. found a very low (34.7%) recording of patients' weight.²⁰

Baseline blood pressure, heart rate, respiratory rate, oxygen saturation and temperature are necessary to document in preoperative assessment.²⁰ Interestingly, in this study, there is a 98.0% completion rate of vital signs. Alteration or deviation from the baseline vital signs especially blood pressure measurement could be due to anxiety or perhaps the patient might skip taking the recommended prescription and must be taken into account before surgery.

Medication history in terms of drug name, doses, routes or any adverse drug reactions should be inquired and documented. This is imperative because of possible drug reactions, interaction and cross-sensitivity with anesthetic drugs could have potentially life-threatening consequences.²¹ Our study revealed that medications were documented in 92.8% of cases. Swart et al.²² estimated about 67.9%

of preoperative assessments had mentioned medication history. In this audit, documentation of allergic history was complete in 99.0% of PAAF. A similar high (92.6%) documentation rate has been reported.²³ Allergic drug reaction accounts for 1:10,000-20,000 in anesthesia, common causative agents include neuromuscular blocking agents, antibiotics and latex.²⁴

Questioning regarding the last oral intake is a compulsory component of preoperative assessment. This determines the risk of pulmonary aspiration, helps to modify the plan of anesthesia accordingly.²⁵ This audit revealed that fasting status or advice was present in 88.4% of cases. This is contrary to previous studies where a very low rate of fasting status was reported.^{22,23} This difference could be due to the format of our PAAF where fasting status is written immediately beside the final clearance. This makes documentation of fasting status easy but despite this, competition is less than the acceptable target of our study.

A preoperative assessment is not considered optimum without airway assessment. Airway assessment tests have variable sensitivity and specificity, hence multiple tests are performed in order to increase the accuracy of difficult airway prediction.²⁶ In our study, airway assessment was present in 90.4% of cases while it was incomplete in 8.5% of PAAF. Some studies have revealed higher airway assessment documentation²⁷ while others have reported a much lower assessment.²² Dental condition and denture assessment were present in 97.6% of PAAF.

Determination of the cardiopulmonary status of the patient is another essential part of preoperative assessment because perioperative cardiovascular complications are the leading cause of perioperative morbidity and mortality.^{28,29,30} In this study, cardiovascular assessment is completed in 96.9% of the cases, which is almost in line with Mokgwathi et al.¹⁴ who determine a 100% documentation rate while Swart et al. reported a lower rate (74.1%).²²

Preoperative assessment results in the patient's categorization into American Society of Anesthesiologists (ASA) classification to quantify the risk associated with surgery and anesthesia and formulation of anesthesia plan which is based on the patient's clinical condition.³¹ In this study, 99.3% of patients were classified according to ASA. Fortunately, 96% of the PAAF had mentioned a proposed anesthesia plan. Consent was taken in

100% of cases after explaining this to the patient. This is because of multi-level checks to ensure complete documentation of patients undergoing surgery.

There are certain factors that affect the adequate preoperative assessment. An assessment usually by junior doctors and residents, limited staff responsible for assessment, time constraint and workload may hinder the efficiency. In addition, there is always a chance that certain essential elements can be missed in the unstructured, especially paper-based assessment. Our study has a relatively high completion rate because patients are assessed in the designated preoperative clinic for elective cases, senior doctors supervise the junior doctors, regular training, and use of a structured PAAF. This audit has highlighted key areas that will be focused on in order to overcome deficient areas.

There are certain limitations to this study. Firstly, the sample size is composed of elective cases. Time constraints and clinical conditions in emergency cases affect the documentation which ultimately affects the quality of assessment. Secondly, premedication details are not always mentioned because PAAF does not specify medication details. Continuation of routine medicine for comorbid conditions and any specifically indicated medication such as aspiration prophylaxis and anxiolytics were not always specified. Despite this, the results of our study are supporting because documentation about the majority of indicators was acceptable.

5. Conclusion

Our study elaborates that consent is the only the component documented in all pre-anesthesia assessment forms whereas the quality of preoperative assessment is acceptable in the majority of pre-anesthesia assessment forms. Documentation of certain indicators such as age, past medical history and fasting status need to be improved.

6. Conflict of interest

The authors declare no conflict of interest. No financial support was involved

7. Authors' contribution

SS: Study conception planning and drafting, acquisition of data and analysis, drafting of manuscript.

TY: Drafting the audit, data collection and analysis, manuscript writing

EK: Planning and facilitation of audit, data collection and analysis, final approval of manuscript

8. References

1. Miller RD. Miller's Anesthesia. 8th ed. Philadelphia: Churchill-Livingstone, Elsevier; 2015.
2. Hemant Kumar VR, Saraogi A, Parthasarathy S, Ravishankar M. A useful mnemonic for pre-anesthetic assessment. *J Anaesthesiol Clin Pharmacol*. 2013;29(4):560–1. [PubMed] DOI: [10.4103/0970-9185.119127](https://doi.org/10.4103/0970-9185.119127)
3. Ferschl MB, Tung A, Sweitzer B, Huo D, Glick DB. Preoperative clinic visits reduce operating room cancellations and delays. *Anesthesiology*. 2005;103(4):855–9. [PubMed] DOI: [10.1097/0000542-200510000-00025](https://doi.org/10.1097/0000542-200510000-00025)
4. Mathioudakis A, Rousalova I, Gagnat AA, Saad N, Hardavella G. How to keep good clinical records. *Breathe*. 2016;12(4):369–73. [PubMed] DOI: [10.1183/20734735.018016](https://doi.org/10.1183/20734735.018016)
5. American Society of Anesthesiologists Task Force on Preanesthesia Evaluation. Practice advisory for preanesthesia evaluation: a report by the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation. *Anesthesiology*. 2002 Feb;96(2):485-96. [PubMed] DOI: [10.1097/0000542-200202000-00037](https://doi.org/10.1097/0000542-200202000-00037)
6. Kluger MT, Tham EJ, Coleman NA, Runciman WB, Bullock MFM. Inadequate pre-operative evaluation and preparation: a review of 197 reports from the Australian incident monitoring study: Pre-operative evaluation and preparation. *Anaesthesia*. 2000;55(12):1173–8. [PubMed] DOI: [10.1046/j.1365-2044.2000.01725.x](https://doi.org/10.1046/j.1365-2044.2000.01725.x)
7. Vigoda MM, Lubarsky DA. The medicolegal importance of enhancing timeliness of documentation when using an anesthesia information system and the response to automated feedback in an academic practice: *Anesth Analg*. 2006;103(1):131–6. [PubMed] DOI: [10.1213/01.ane.0000221602.90315.49](https://doi.org/10.1213/01.ane.0000221602.90315.49)
8. Naik S, Mohammad B, Dhulkhed V. An audit of comparison of perioperative outcomes with the introduction of standardized preoperative evaluation form at a tertiary care hospital in rural India. *Anesth Essays Res*. 2017;11(2):426–30. [PubMed] DOI: [10.4103/0259-1162.194584](https://doi.org/10.4103/0259-1162.194584)
9. Ausset S, Bouaziz H, Brosseau M, Kinirons B, Benhamou D. Improvement of information gained from the pre-anaesthetic visit through a quality-assurance programme. *Br J Anaesth*. 2002;88(2):280–3. [PubMed] DOI: [10.1093/bja/88.2.280](https://doi.org/10.1093/bja/88.2.280)
10. Zambouri A. Preoperative evaluation and preparation for anesthesia and surgery. *Hippokratia*. 2007;11(1):13–21. [PubMed]
11. Pedersen T, Eliassen K, Henriksen E. A prospective study of mortality associated with anaesthesia and surgery: risk indicators of mortality in hospital. *Acta Anaesthesiol Scand*. 1990;34(3):176–82. [PubMed] DOI: [10.1111/j.1399-6576.1990.tb03066.x](https://doi.org/10.1111/j.1399-6576.1990.tb03066.x)

12. Minto G, Biccard B. Assessment of the high-risk perioperative patient. *Contin Educ Anaesth Crit Care Pain*. 2014;14(1):12–7. DOI: [10.1093/bjaceaccp/mkt020](https://doi.org/10.1093/bjaceaccp/mkt020)
13. Gutheil TG. Fundamentals of medical record documentation. *Psychiatry Edgmont*. 2004 Nov;1(3):26–8. [[PubMed](#)]
14. Mokgwathi G, Baloyi B, Ogunbanjo G. An audit of preoperative evaluation of general surgery patients at Dr George Mukhari Hospital. *South Afr J Anaesth Analg*. 2011;17(2):177–80. DOI: [10.1080/22201173.2011.10872772](https://doi.org/10.1080/22201173.2011.10872772)
15. Becker DE. Preoperative medical evaluation: part 1: general principles and cardiovascular considerations. *Anesth Prog*. 2009;56(3):92–103. [[PubMed](#)] DOI: [10.2344/0003-3006-56.3.92](https://doi.org/10.2344/0003-3006-56.3.92)
16. Edwards K-E, Hagen SM, Hannam J, Kruger C, Yu R, Merry AF. A randomized comparison between records made with an anesthesia information management system and by hand, and evaluation of the Hawthorne effect. *Can J Anesth*. 2013;60(10):990–7. [[PubMed](#)] DOI: [10.1007/s12630-013-0003-y](https://doi.org/10.1007/s12630-013-0003-y)
17. Marco AP, Buchman D, Lancz C. Influence of form structure on the anesthesia preoperative evaluation. *J Clin Anesth*. 2003;15(6):411–7. [[PubMed](#)] DOI: [10.1016/s0952-8180\(03\)00079-5](https://doi.org/10.1016/s0952-8180(03)00079-5)
18. De Rezende HA, Melleiro MM, Shimoda GT. Interventions to reduce patient identification errors in the hospital setting: a systematic review protocol. *JBI Database Syst Rev Implement Rep*. 2019;17(1):37–42. [[PubMed](#)] DOI: [10.11124/JBISRIR-2017-003895](https://doi.org/10.11124/JBISRIR-2017-003895)
19. World Health Organization. WHO guidelines for safe surgery: safe surgery saves lives [Internet]. World Health Organization; [cited 2020 Oct 11]. Available from: https://www.who.int/patientsafety/safesurgery/tools_resources/9789241598552/en/
20. Sims PG. Preoperative, intraoperative, and postoperative anesthesia assessment and monitoring in oral surgery. *Oral Maxillofac Surg Clin N Am*. 2013;25(3):367–71. [[PubMed](#)] [10.1016/j.coms.2013.03.007](https://doi.org/10.1016/j.coms.2013.03.007)
21. Morgan EG. *Clinical Anesthesiology*. 4th ed. USA: McGraw-Hill; 2006.
22. Swart W, Kuhn A. An audit of documented preoperative evaluation of surgery patients at Universitas Academic Hospital, Bloemfontein. *South Afr J Anaesth Analg*. 2015;21(4):107–12. DOI: [10.1080/22201181.2015.1057030](https://doi.org/10.1080/22201181.2015.1057030)
23. Woldegerima Y, Kemal S. Clinical audit on the practice of documentation at preanesthetic evaluation in a specialized university hospital. *Int J Surg Open*. 2019;16:1–5. DOI: [10.1016/j.ijso.2018.10.006](https://doi.org/10.1016/j.ijso.2018.10.006)
24. Antunes J, Kochuyt A-M, Ceuppens JL. Perioperative allergic reactions: Experience in a Flemish referral centre. *Allergol Immunopathol (Madr)*. 2014;42(4):348–54. [[PubMed](#)] DOI: [10.1016/j.aller.2013.08.001](https://doi.org/10.1016/j.aller.2013.08.001)
25. Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures. *Anesthesiology*. 2017;126(3):376–93. [[PubMed](#)] DOI: [10.1097/ALN.0000000000001452](https://doi.org/10.1097/ALN.0000000000001452)
26. Crawley S, Dalton A. Predicting the difficult airway. *BJA Educ*. 2015;15(5):253–7. DOI: [10.1093/bjaceaccp/mku047](https://doi.org/10.1093/bjaceaccp/mku047)
27. Cattano D, Killoran PV, Iannucci D, Maddukuri V, Altamirano AV, Sridhar S, et al. Anticipation of the difficult airway: preoperative airway assessment, an educational and quality improvement tool. *Br J Anaesth*. 2013;111(2):276–85. [[PubMed](#)] DOI: [10.1093/bja/aet029](https://doi.org/10.1093/bja/aet029)
28. Auroy Y, Benhamou D, Péquignot F, Bovet M, Jouglé E, Lienhart A. Mortality related to anaesthesia in France: analysis of deaths related to airway complications. *Anaesthesia*. 2009;64(4):366–70. [[PubMed](#)] DOI: [10.1111/j.1365-2044.2008.05792.x](https://doi.org/10.1111/j.1365-2044.2008.05792.x)
29. Meyer HM, Thomas J, Wilson GS, de Kock M. Anesthesia-related and perioperative mortality: An audit of 8493 cases at a tertiary pediatric teaching hospital in South Africa. *Pediatr Anesth*. 2017;27(10):1021–7. [[PubMed](#)] DOI: [10.1111/pan.13214](https://doi.org/10.1111/pan.13214)
30. Arbous MS, Grobbee DE, Kleef JWW, Lange JJD, Spoormans HH a. JM, Touw P, et al. Mortality associated with anaesthesia: a qualitative analysis to identify risk factors. *Anaesthesia*. 2001;56(12):1141–53. [[PubMed](#)] DOI: [10.1046/j.1365-2044.2001.02051.x](https://doi.org/10.1046/j.1365-2044.2001.02051.x)
31. Daabiss M. American Society of Anaesthesiologists physical status classification. *Indian J Anaesth*. 2011;55(2):111-5. [[PubMed](#)] DOI: [10.4103/0019-5049.79879](https://doi.org/10.4103/0019-5049.79879)