

Original article

# An Assessment of Pre-Operative Investigation in An Andrology Department: A Closed Loop Audit

Mohammed Abugilah\* 

**Citation.** Abugilah M. An Assessment of Pre-Operative Investigation in An Andrology Department: A Closed Loop Audit. Libyan Med J. 2024;16(2):189-192.

**Received:** 14-08-2024

**Accepted:** 28-10-2024

**Published:** 01-11-2024



**Copyright:** © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

Department of Urology, Faculty of Medicine, Omar Al-Mukhtar University, Albida, Libya

\*Correspondence. [mohammedbugila@gmail.com](mailto:mohammedbugila@gmail.com)

## Abstract

Clinical audits are crucial for raising the standards and consistency of healthcare services, but they are not generally known in our practice, Laboratory testing has been a key component in our practices for preoperative assessment. Unfortunately, some physicians take these tests out of habit. Our goal was to audit our own preoperative investigation practice and compare it with NICE (National Institute of Clinical Excellence) guidelines for routine preoperative tests for elective surgery in order to minimize the number of unnecessary investigations requested. A two-cycle audit was conducted at albida fertility teaching center. the first cycle involved retrospective review of 68 medical records and analyzing the preoperative investigation ordered. following this intervention was implemented in form of educational workshop. A second audit cycle evaluated the impact if this intervention. In the first cycle there was no rule in ordering preoperative investigation however after intervention there was a 43.20% decrease in the number of investigations requested. The closed loop audit significantly decreased the number of unnecessary investigations performed, the health department along with national anesthesia and surgeries societies should work on establishing clear guidelines for requesting preoperative investigation to guide surgeons how to request such test and reduce burden on the ministry.

**Keywords:** Pre-Operative Investigation, An Andrology Department, A Closed Loop Audit.

## Introduction

Clinical audits are crucial for raising the standards and consistency of healthcare services, but they are not generally known in our profession. By implementing this initiative, we hope to establish the habit of continuously enhancing the quality of our services by comparing existing procedures to best practices and identifying opportunities for improvement [1]. Laboratory testing has been a key component in our practices for preoperative assessment of patient's suitability for surgery. Unfortunately, some physicians take the tests out of habit, others out of venality or fear of lawsuits, and still others are just mindless repetitions of well-established routines. After the COVID-19 pandemic the use of these test has significantly increased. unfortunately, these practices have led to Unnecessary resource waste, significant patient inconvenience, and increased workload for lab technicians [2].

Meanwhile, most of the care that analysts classify as waste does not always result in nothing; rather, it occasionally yields advantages that are deemed to be negligible in comparison to the expense. Interventions considered too expensive may benefit certain patients. For this reason, it is simple to see why physicians can give their patients unnecessary lab tests in addition to their own interests. This means that there is ethical uncertainty surrounding the term "waste" and its basic definition. However, it is worthwhile to make a strong effort to slow the growth of spending by assuming a socially acceptable definition and reducing waste [3]. The financial impact of these investigations on the health industry was not demonstrated by any research conducted at our Centre or other healthcare facilities around the nation.

Since there are no national recommendations established by the Department of Health or national anesthesia or surgeries societies, our goal was to audit our own preoperative investigation practice and compare it with NICE (National Institute of Clinical Excellence) guidelines for routine preoperative tests for elective surgery [1], identify our existing deficiencies address them through corrective actions followed by reevaluation to ensure improvements were sustained .the first step involved reviewing medical records for preoperative patients to gain a comprehensive understanding of the established process for requesting preoperative investigation [4].

## Methods

The study adopted a closed loop audit design to assess and improve the practice of requesting preoperative investigations. Ethical approval for the study was obtained from the institutional board review. We collected data related to preoperative tests conducted prior to surgeries carried out in an andrology unit at the Albida National Fertility Centre. All procedures were under spinal anesthesia and all operations involved testicular biopsy procedures, whether they were [TESE] or [TESA] procedures.

The studies carried out to identify and treat the infertility cause were not included. The essential information was documented in a pro-forma document including the name and kind of operation, the patient's ASA grade, comorbid variables, and laboratory test. All procedures were rated as minor. Following data collection, every case was evaluated against the NICE recommendations. All data collected were anonymized to protect patient confidentiality, this closed loop audit design ensured that the intervention was effective, and the process of assessment, intervention and reevaluation provided a framework for continuous quality improvement within our fertility center.

The audit was conducted from October 2017 to August 2023, data collection was carried out retrospectively by reviewing 68 andrology operation medical records from the first audit cycle covering the period from October 1, 2017, to October 15, 2022, data were recorded in a systematic and structured format to facilitate analysis. The data collected provided a baseline measurement of compliance rates with guidelines and identifying areas of deficiency requiring intervention.

For this audit cycle data were collected retrospectively by reviewing 68 medical records for patients who underwent testicular biopsy procedures. Based on findings from first cycle, intervention was implemented to address identified issues. Our main tool of intervention was conducting an educational session for surgical and anesthesia staff to improve their understanding of guidelines for requesting preoperative investigation. Educational workshops were held at our center targeting surgical and anesthesia staff to clarify the overuse of lab test and explain NICE guidelines and how to adhere to them.

The second audit cycle was conducted from 16 October 2022 to August 2023, following the same methodology to maintain consistency and comparability of results. Another set of 50 operation medical records were reviewed using the same criteria to evaluate the impact of implemented interventions. The data collected during the second cycle were analyzed to review improvements made in comparison with the first audit cycle and indicated an increase in physician's adherence to NICE guidelines for requesting investigations.

## Results

During the first audit cycle, 68 procedures were performed under spinal anesthesia. Sixty-two patients were in the ASA I group. One patient fell into the ASA III group, while five patients were in the ASA II range. All operations were minor.

PT/INR was performed as part of the preoperative assessment in 21 individuals; however, the purpose was unclear. Fifteen individuals received unnecessary chest x-rays. Twelve patients had an unclear ECG, sixty-eight had a complete blood count, sixty-five had a kidney function test, 68 had serology tests and sixty-two had a blood sugar level (Table 1). Still, 4 of the 68 patients in this group had an elevated fasting blood sugar (FBS) level, therefore further testing for diabetes mellitus was conducted on them.

**Table 1. Number of unnecessary investigations performed in first audit cycle.**

Investigation	Number considered unnecessary
PT/INR	21
CHEST X RAY	15
ECG	12
FBP	68
Kidney function tests	65
FBS	62
serology	68

Based on the results from the first cycle, intervention was taken, and educational workshop were held for surgical and anesthesia staff to adhere to NICE guidelines regarding preoperative assessment and laboratory test to be requested.

**Table 2. Number of unnecessary investigations performed in 2nd audit cycle.**

Investigation	Number considered unnecessary
PT/INR	0
CHEST X RAY	0
ECG	0
FBP	50
Kidney function tests	4
FBS	20
Serology	50

The second audit cycle conducted immediately one week after implementing the intervention, involved reviewing a set of 50 preoperative medical records. forty-seven patients were in ASA I group and the other three were all in ASA II group. all procedure were also minor and the same as in 1st audit cycle.

PT/INR was not performed as part of the preoperative assessment in any case. no patient received a chest x-ray. Also, no patient had an ECG and No patient had a kidney function test or fasting blood sugar except for diabetic patients. all patients had a complete blood count which is not recommended in such procedures so the reason for requesting by anesthesiologists remains unclear in such minor operation. Also, all patients had a preoperative serology test (table 2), this may be due to an established protocol from center embryology lab before receiving testicular biopsy samples.

By analyzing the number of preoperative tests performed in the second audit cycle there is an 43.20% decrease in the number of investigations requested. This is marked improvement in the center staff adherence to the guidelines in requesting such tests even though there are no clear national guidelines in such matter.

### Discussion

Thirty percent of postoperative mortality following non-cardiac surgery are attributable to preoperative cardiac problems alone. This increases the long-term mortality rate and lengthen hospital stays [3]. Thus, the objectives of preoperative evaluation are to determine which patients should avoid surgery and who may benefit from interventions, as well as to predict the perioperative risk of morbidity and mortality. Preoperative investigations are necessary for additional reasons as well. Some do preoperative investigations to prevent anesthesiologists from cancelling cases. This is because various anesthetic teams have varied indications for preoperative investigations. Some others request needless investigations as a part of practicing defensive medicine. On the other hand, we must try to minimize these standards and try to be responsible and scientific in our work [5].

In most of the cases in the audit first cycle no participants followed the NICE (National Institute of Clinical Excellence) criteria. However, after implementation of intervention in the form of educational workshop there was a significant decrease in the number of unnecessary investigations requested.

Hospitals and units may have different care practices, therefore extrapolating findings from one to all the nation's units could be inaccurate and misleading. As a result, it's critical to do audits in as many units as feasible before suggesting strategies. It is important to motivate the next generation of professionals to conduct routine audits in their different units.

### Conclusion

The health department along with national anesthesia and surgeries societies should work on establishing clear guidelines for requesting preoperative investigation to guide surgeons how to request such test and reduce burden on the ministry. these guidelines should be published and audited in real practice settings and modified from time to time. Therefore, the department of health should allocate resources for such activities.

**Reference**

1. NICE. (2016, April 5). Recommendations | Routine preoperative tests for elective surgery | Guidance | NICE. <https://www.nice.org.uk/guidance/ng45/chapter/Recommendations#recommendations-for-specific-surgery-grades-minor-intermediate-and-major-or-complex-and-asa>
2. Chamika A, De Silva C, Nanayakkara M, Abeygunasekera A. An audit of preoperative investigations in a urology unit. Sri Lanka Journal of Surgery/Sri Lanka Journal of Surgery. 2011;28(1):5. <https://doi.org/10.4038/sljs.v28i1.3048>
3. Ford M, Beattle W, Wijesundera D. Systemic review: predictors of perioperative-cardiac complications and mortality by the revised cardiac risk index. Annals of Internal Medicine. 2010;152:26-36.
4. Firde M, Yetneberk T. Preoperative investigation practices for elective surgical patients: clinical audit. BMC Anesthesiol. 2024;24(1):184. doi: 10.1186/s12871-024-02557-y.
5. Billings P, Davies J, Richards R, Aubrey D. An audit of the preoperative investigation of surgical patients. Ann R Coll Surg Engl. 1993 May;75(3):205-10.