

Proportion of Surgical Patients Prescribed VTE Prophylaxis Upon Admission

INTRODUCTION

Venous thromboembolism (VTE), which includes both deep vein thrombosis (DVT) and pulmonary embolism (PE), remains a significant cause of morbidity and mortality among hospitalized patients, particularly those undergoing surgery.¹ Postoperative patients are at an increased risk of developing VTE due to multiple factors, including immobility, endothelial damage, and changes in coagulation. Guidelines from international bodies such as the American College of Chest Physicians (ACCP) and the National Institute for Health and Care Excellence (NICE) recommend the use of pharmacological and mechanical prophylaxis for VTE in surgical patients, tailored to their risk profiles.²

Surgical patients, especially those undergoing major surgeries, are at heightened risk for thromboembolic events, leading to recommendations for risk assessment and timely prescription of thromboprophylaxis. Inadequate VTE prophylaxis in surgical settings can result in preventable complications. It has been shown that timely administration of prophylactic measures, including low molecular weight heparin (LMWH), unfractionated heparin (UFH), and mechanical methods such as graduated compression stockings, can significantly reduce the risk of VTE development.³

The ACCP guidelines suggest the use of pharmacological VTE prophylaxis in patients undergoing surgery who are at moderate to high risk for VTE, without contraindications such as active bleeding or history of recent cerebrovascular accidents (CVA). NICE guidelines recommend that all patients undergoing surgical procedures, particularly those who will have reduced mobility for a period postoperatively, should receive a risk assessment and appropriate VTE prophylaxis.⁴ Studies have demonstrated that approximately 40-60% of hospital-acquired VTEs are preventable through appropriate prophylaxis, but there remains a considerable gap in practice, as evidenced by audits in various healthcare institutions.³ Compliance with VTE prophylaxis guidelines often faces challenges related to preoperative planning, patient-specific contraindications, and breakdowns in communication between clinical teams.

BACKGROUND AND AIM

VTE is a significant medical concern, especially for patients undergoing surgical procedures. According to global health guidelines, patients admitted for surgery are at a higher risk for developing VTE due to factors such as reduced mobility, surgical trauma, and changes in blood clotting mechanisms. The audit's main aim is to evaluate the proportion of surgical patients at

Mater Dei Hospital prescribed VTE prophylaxis upon admission. The specific objectives of this audit are to assess compliance with established guidelines, specifically the NICE NG89,⁴ identify barriers, enhance patient safety, develop recommendations and possibly monitor and review if these recommendations were adhered to in subsequent audits. By achieving these objectives, the audit aims to enhance the overall quality of care provided to surgical patients at Mater Dei Hospital and to align the hospital's practices with international standards for VTE prophylaxis.

METHODS

The audit employed a retrospective approach, examining data between June and August 2024, for patients older than 18 years. Information was collected from electronic records, specifically focusing on admission notes from the Emergency Department and subsequently, patient treatment charts. Each patient's record was meticulously reviewed to determine whether VTE prophylaxis was prescribed appropriately and in a timely manner. Although no formal proforma was used, data collection was guided by recommendations from the ACCP (9th edition) and NICE NG89 guidelines, which both advocate for VTE risk stratification upon admission using validated tools, followed by timely pharmacological and/or mechanical prophylaxis based on the individual's risk and contraindications.

RESULTS

A total of 23 patients were admitted for elective surgery, with 5 not receiving VTE prophylaxis. Additionally, 107 patients were admitted through the emergency department (ED), with a subset of patients not receiving VTE prophylaxis. The audit primarily focused on those patients who did not receive VTE prophylaxis, and these patients were grouped accordingly.

The reasons for the omission of prophylaxis were then documented:

- **Total patient cohort:** 130 patients
- **Elective admissions:** 23 patients were direct admissions for elective surgery (DAF); only 5 of these did not receive VTE prophylaxis. The omission in these cases may be due to the type of surgery planned, and was deemed justified.
- **Emergency admissions:** 107 patients were admitted via the emergency department.
- **VTE prophylaxis given:** 76 patients (58%)
- **VTE prophylaxis not prescribed:** 54 patients (42%)

Breakdown of the 54 patients not prescribed VTE prophylaxis:

- **Emergency Surgery Cases (22 patients):** These patients underwent emergency surgical procedures, and the omission of VTE prophylaxis was justified based on the clinical context at the time of admission.
- **Contraindications (10 patients):** These included per rectal (PR) bleeding, hematuria, and intracranial haemorrhage or cerebrovascular accidents (CVA), where administering VTE prophylaxis could have worsened the condition. These were therefore considered justified omissions.
- **Elective Surgery Admissions (5 patients):** These direct elective admissions did not receive VTE prophylaxis initially; this was also justified in context.
- **No Reason Documented (17 patients):** 17 patients were not prescribed VTE prophylaxis despite no recorded contraindications or documented rationale. These patients did not undergo surgery, and some were later initiated on VTE prophylaxis 3 - 4 days after admission. The audit highlighted these cases as key areas for improvement, particularly in the documentation at the point of admission.



Prophylaxis Prescribed:

- A total of **76 patients (58%)** were prescribed VTE prophylaxis upon admission.
- Conversely, **54 patients (42%)** did not receive VTE prophylaxis at the time of admission.

DISCUSSION

These findings highlight a substantial proportion of surgical patients not receiving VTE prophylaxis upon admission, either due to valid clinical reasons or a lack of proper documentation and adherence to guidelines.

To address these findings, the following recommendations are proposed:

1. **Enhanced Education and Training:** Reinforce the importance of VTE prophylaxis among surgical teams, including education on identifying patients at risk and contraindications to VTE prophylaxis.
2. **Process Improvements:** Introduce systematic checks within the admission process to ensure VTE prophylaxis is considered and prescribed when appropriate.

3. **Regular Audits:** Implement regular follow-up audits to monitor adherence to guidelines and assess the impact of interventions on compliance rates.

4. **Interdepartmental Communication:** Strengthen communication channels between the emergency department, surgical teams, and pharmacy to ensure timely and accurate prescription of VTE prophylaxis.

5. **Documentation Improvements:** Improve documentation practices to ensure that all reasons for withholding VTE prophylaxis are clearly stated in patient records.

6. **Further Investigation into Contraindicated Prescriptions:** Although this audit focused on patients who did not receive VTE prophylaxis, we noted that a few patients were prescribed prophylaxis despite having documented contraindications. While this was outside the scope of our current analysis, it highlights a potential area of concern. Future audits should investigate such cases in greater detail to ensure that prophylaxis is not administered inappropriately, thereby enhancing patient safety and adherence to clinical guidelines.

By implementing these recommendations, Mater Dei Hospital can significantly enhance the quality of care for surgical patients and align its practices with international standards. Continuous monitoring and review will be crucial to ensuring sustained compliance and further improvements in patient safety.

CONCLUSION

The audit on the proportion of surgical patients prescribed VTE prophylaxis upon admission at Mater Dei Hospital reveals a need for significant improvement in adherence to established guidelines. Notably, 17 from 130 patients did not receive VTE prophylaxis without any documented justification. These findings may suggest inconsistencies in guideline implementation and documentation practices, warranting further evaluation and quality improvement measures.

Several barriers contributing to the under-prescription of VTE prophylaxis have been identified. These include incomplete documentation or omission of VTE risk assessments in the preoperative checklist, particularly for patients undergoing elective or emergency surgeries, where prophylaxis planning was either overlooked or delayed.

NICE GUIDELINE RESEARCH RECOMMENDATIONS

As highlighted in NICE guideline NG89, there are key areas where evidence is lacking and further research is essential to enhance patient safety and optimise prophylaxis strategies:

1. **Risk Assessment Tools:** The National VTE Risk Assessment Tool, although widely adopted across the NHS, has not been validated against other tools. Further studies are needed to assess its accuracy in identifying patients at risk of VTE or bleeding and compare it with alternative tools.

2. **LMWH Dosing in Obese Patients:** There is uncertainty about whether fixed-dose or weight-based dosing of LMWH is more effective in obese patients (BMI >35). Evidence based on clinical outcomes, not just biological markers, is needed to guide dosing and reduce unnecessary risks.
3. **Oral Anticoagulants for Lower Limb Immobilisation:** VTE is a known risk in patients with lower limb immobilisation. However, there is a lack of comparative evidence between oral anticoagulants and injectable options. Research into the safety and efficacy of oral anticoagulants in this group could improve outpatient care.
4. **Aspirin for Fragility Fractures:** Some studies suggest aspirin may be as effective as LMWH or fondaparinux for VTE prevention after fragility fractures, but evidence remains inconclusive. High-quality trials are needed to evaluate this low-cost alternative.
5. **Prophylaxis Duration Post-Hip Replacement:** Current recommendations for 28-day prophylaxis after hip replacement are based on limited evidence. Research should evaluate if shorter durations are equally effective, which may improve patient compliance and reduce healthcare costs.

Including these research priorities in future audits and clinical planning can support better VTE risk stratification, more effective prophylaxis, and enhanced patient outcomes.

REFERENCES

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