

# Retrospective Evaluation of Perioperative Venous Thromboembolism Prophylaxis in a Community Teaching Hospital

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## Introduction

- Venous thromboembolism (VTE) has been identified as the second most common medical complication among postoperative patients in the US
- There is variability at our institution in VTE prophylaxis practice regarding dosing and timing in the perioperative setting
- We aim to describe current VTE prophylaxis prescribing and the incidence of missed VTE prophylaxis doses in surgical patients

## Methods

- Retrospective, single-center, chart review
- Patients  $\geq 18$  years who underwent surgery in August 2022 who received prophylactic enoxaparin (LMWH) or heparin (UFH) perioperatively were included
- Patients who did not stay for at least 48 hours post op or those on therapeutic anticoagulation on admission were excluded
- Results were analyzed using descriptive statistics

## Results

Table 1. Baseline Demographics (n = 51)

Age in years, mean $\pm$ SD	61.9 $\pm$ 14.8
Female sex, n (%)	26 (51)
Serum creatinine in mg/dL, mean $\pm$ SD	1.3 $\pm$ 1.5
CrCl in mL/min, median (IQR)	76 (52 – 106.5)
Weight in kg, median (IQR)	85 (73.5 – 100.9)
BMI in kg/m <sup>2</sup> , mean $\pm$ SD	31.2 $\pm$ 8.3
Type of Surgery, n (%)	
Cardiothoracic	18 (35.3)
General	13 (25.5)
Urology	7 (13.7)
Vascular	7 (13.7)
Colorectal	4 (7.8)
Ortho	1 (2.0)
Otolaryngology	1 (2.0)
Elective surgeries, n (%)	22 (43.1)
Antiplatelet use day of surgery, n (%)	11 (21.6)
Aspirin	10 (91.0)
Clopidogrel	1 (9.0)
Length of Stay in days, median (IQR)	5 (3 - 9)

Table 2. Primary Objective – Timing in hours, mean  $\pm$  SD

Time between pre-op dose and surgery start	3.4 $\pm$ 6.1
Surgery duration	3.2 $\pm$ 1.6
Time between surgery end and post-op dose	7.1 $\pm$ 4.0
Patients who received heparin	6.6 $\pm$ 4.1
Patients who received enoxaparin	8.5 $\pm$ 3.5

- Post-op doses of **heparin** were missed more than doses of enoxaparin
- Further education is needed to promote appropriate enoxaparin use
- Additional research is needed to determine the association between VTE rates and missed doses

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Figure 1. Post-op Regimens in Patients  $\geq 100$ kg, n = 13

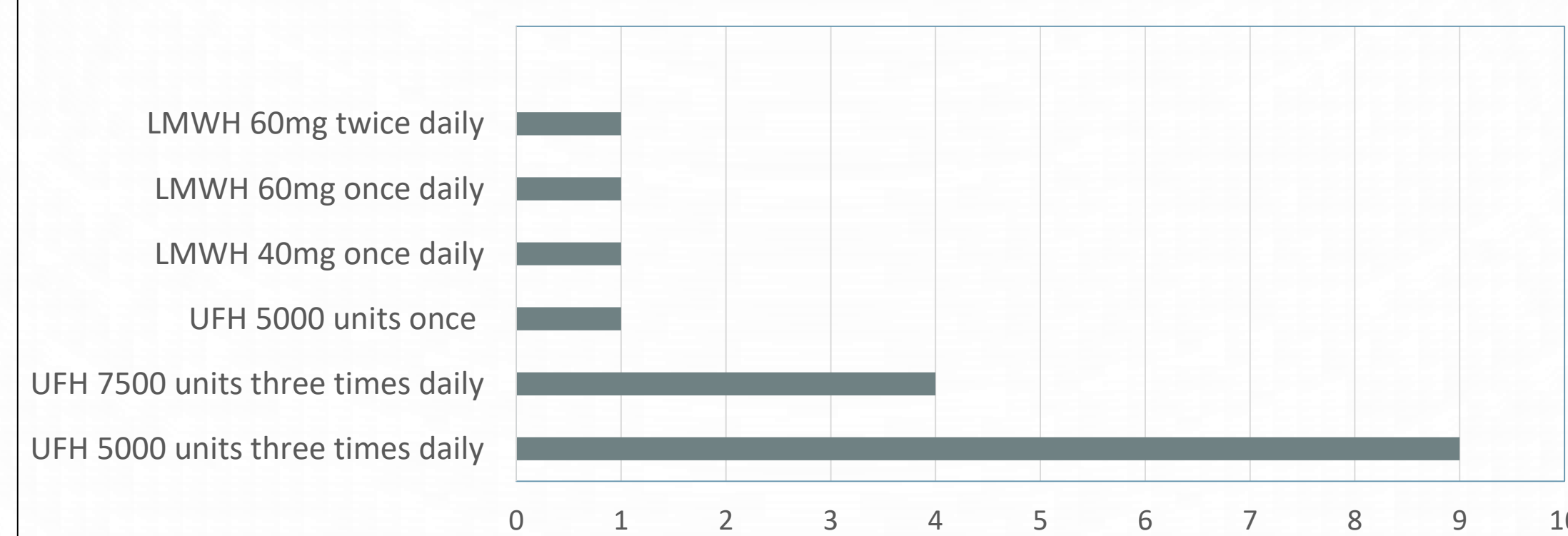
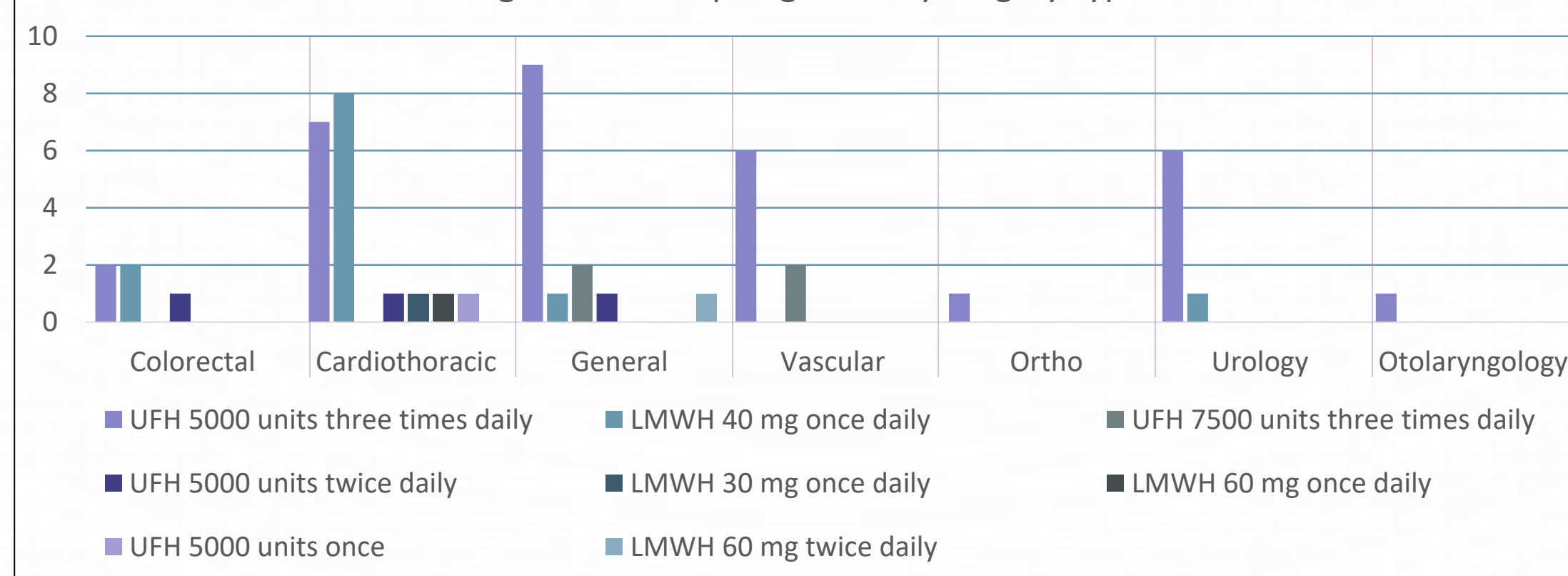


Figure 2. Post-op Regimens by Surgery Type



## Results

Table 3. Primary objective – Pre-op Dose, n (%)

None	15 (29.4)
Heparin 5000 units	29 (56.9)
Heparin 7500 units	4 (7.8)
Enoxaparin 40 mg	2 (3.9)
Enoxaparin 60 mg	1 (2.0)

Table 4. Primary objective – Post-op Regimen, n (%)

Heparin 5000 units three times daily	32 (57.1)
Enoxaparin 40 mg once daily	13 (23.2)
Heparin 7500 units three times daily	4 (7.1)
Heparin 5000 units twice daily	3 (5.4)
Heparin 5000 units once	1 (1.8)
Enoxaparin 30 mg once daily	1 (1.8)
Enoxaparin 60 mg once daily	1 (1.8)
Enoxaparin 60 mg twice daily	1 (1.8)

Table 5. Secondary objective – Missed Doses

Total post-op anticoagulation doses ordered	484
Anticoagulation doses missed, n (%)	25 (5.2)
Heparin missed doses	23 (92)
Enoxaparin missed doses	2 (8)
Reason for missed dose, n (%)	
Patient/family refused	14 (56)
Patient unavailable	6 (24)
Other, unspecified	5 (20)

## Discussion

- Variable prescribing practices were observed, prompting the need for guidance on appropriate perioperative VTE prophylaxis
- The most common post-op regimen was heparin 5000 units three times daily
- The majority of post-op missed doses were with heparin and the most common reason was patient/family refusal
- On average, there was approximately 10 hours between pre-op and post-op doses of heparin
- Almost half of patients over 100 kg were given weight based prophylaxis post-op

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