

Conversion of Enoxaparin to Dalteparin In a Community Hospital

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Background

Low molecular weight heparins (LMWH) continue to be one of the top expenditures utilized in our health-care systems today. This utilization continues to expand as more data is published on DVT risk assessment and prevention, optimal use of these agents post-discharge, and continued use for multiple disease states.

Enoxaparin has been a mainstay in a majority of institutions as the LMWH drug of choice despite higher costs and restrictive contractual agreements. Generic enoxaparin was slated to be released in 2009, but continues to be held up in legal proceedings. Taking both of these previous factors into consideration, institutions have begun to evaluate methods to reduce costs in this class.

This poster will detail our process of evaluation and conversion from enoxaparin to dalteparin in January of this year.

Process of Conversion



Agent Comparison

Low Molecular Weight Agents	Enoxaparin (Lovenox®)	Dalteparin (Fragmin®)	
Dosing Based on Type of Surgery or Medical Condition (off label use of dalteparin)			
Ortho	Hip Replacement	30 mg SQ q12h or 40mg SQ q24h	2500 units SQ 4-8h post-op, then 5000 units SQ daily
	Knee Replacement	30 mg SQ q12h	2500 units SQ 4-8h post-op, then 5000 units SQ daily
General or Abdominal Surgery	High Risk (including malignancy)	Patients with malignancy 30 mg SQ q12h for 7-10 days	For patients with malignancy 2500 units SQ 1-2h pre-op and 12h post-op, then 5000 units daily for 5-10 days
Medically ill with decreased mobility		40 mg SQ daily	5000 units SQ daily
Treatment of DVT/PE		1 mg/kg q12h or 1.5 mg/kg daily	200 units/kg SQ q24h or 100 units/kg q12hr
Unstable Angina/NQWMI		1 mg/kg q12h for 2-8 days	120 units/kg SQ q12h (max 10,000 units/dose) for 6 days
STEMI		30 mg IV x1, then start 1 mg/kg SQ q12h 15 min. after initial IV dose	120 units/kg x 1, then 120 units/kg SQ q12h (max 10,000 units/dose) for 6 days
Pharmacokinetics			
Peak Response (SQ)	4 hours	3-5 hours	
Half-Life	3-5 hours	4.5 hours	
Excretion	Renal	Renal	
Product Availability			
Available Products	Syringes: 100 mg/mL concentration: Prefilled syringes: 30 mg, 40 mg Graduated prefilled syringes: 60 mg, 80 mg, 100 mg Multiple-dose vial: 300 mg 150 mg/mL concentration: Graduated prefilled syringes: 120 mg, 150 mg	Syringes: Single-dose prefilled syringes 2500 IU, 5000 IU, 7500 IU Single-dose graduated prefilled syringe: 10,000 IU Single-dose prefilled syringes 12,500 IU, 15,000 IU, 18,000 IU Vials: Multiple-dose vial 10,000 IU/mL, 25,000 IU/mL	

Special Populations

OBESITY

VTE prophylaxis: Fixed doses of dalteparin may not be sufficient. In morbidly obese patients (BMI ≥ 40 kg/m²), consider a 25-30% dalteparin dose increase

VTE treatment: Setting a maximum dalteparin dose (dose capping) is NOT recommended and may result in under-dosing. If patient is above 95 kg, consider BID dosing.

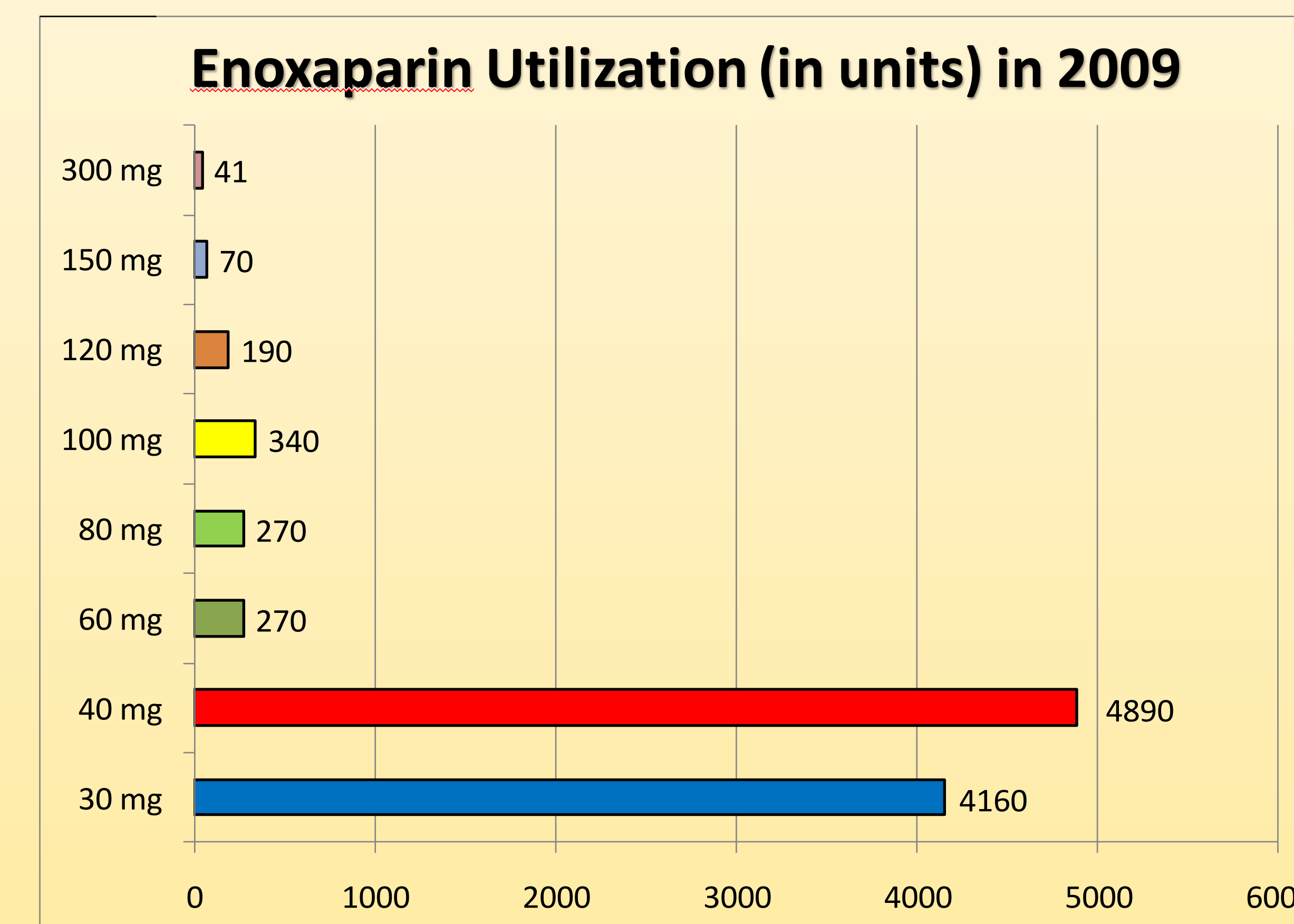
RENAL IMPAIRMENT

CrCl 30-50 mL/min : No dalteparin accumulation noted (prophylaxis or treatment) with no dose adjustment needed

CrCl < 30 mL/min: No accumulation ≤ 1 week (prophylaxis or treatment) noted in several studies.

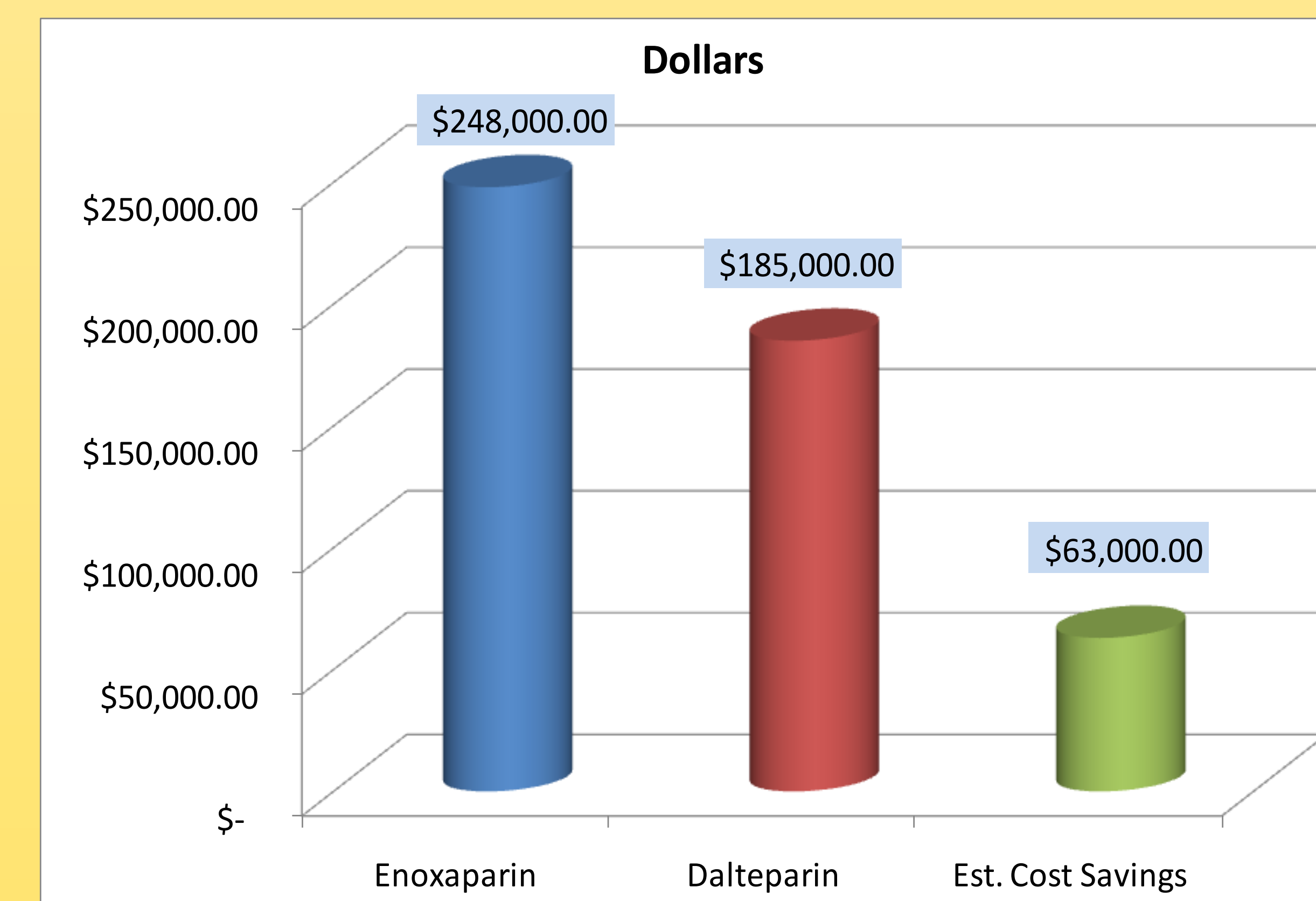
If use > 7-10 days, consider monitoring anti-Xa levels. Based on certain clinical conditions, consider unfractionated heparin as an alternative

Enoxaparin Utilization



Cost Savings Estimation

A comparison was done utilizing the best contractual price offered for each product. Based on 2009 utilization and extrapolating the available literature for equivalent dosing, a cost savings estimate was generated.



Results

	1st Quarter Costs	Estimated Yearly Costs
Enoxaparin 1 st QTR 2009	\$ 83,000.00	\$ 332,000.00
Dalteparin 1 st QTR 2010	\$ 60,000.00	\$ 240,000.00
Cost Savings	\$ 23,000.00	\$ 92,000.00

To date, there has been no reports of treatment failure on dalteparin. Also, adverse events related to enoxaparin and dalteparin have been similar, with no reports of serious adverse events occurring with either agent during audit period.

Conclusion

Based on initial results, the conversion of enoxaparin to dalteparin has resulted in significant cost savings. Clinical efficacy and reported serious adverse events have been similar between the two agents during this period. Long term conclusions cannot be made at this time.

References

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Disclosures

Authors have no conflict of interest to disclose in relation to this presentation.



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