

# COMPLIANCE OF ARTHROPLASTY SURGEON PROTOCOLS WITH AUSTRALIAN GUIDELINES FOR PREVENTING VTE

Naylor JM, Badge H, Harris IA, Fletcher  
J, Xuan W, Gray L, Lin C, Armstrong E

Funding: HCF Research Foundation 2013-2015



# Background

- Over 80,000 primary TKA or THA surgeries were performed in 2014
- These surgeries are considered high risk for venous thromboembolism (VTE)
- NHMRC Guidelines exist to inform VTE prevention strategies
- Unknown whether arthroplasty providers comply with guidelines (eg concerns regarding bleeding?)

# Summary of NHMRC Guideline for VTE prophylaxes for TKA and THA surgeries

## Chemoprophylaxes:

- i) Daily dose of low molecular weight heparin (Enoxaparin 40mg, Dalteparin 5000IU), Fondaparinux 2.5mg, Rivaroxaban 10mg, or Dabigatran etexilate 150-220 mg
- ii) up to 14 (TKA) or 35 days (THA)

Note: The recommended durations include anywhere from 1 to 14 days, and 1 to 35 days for TKA and THA recipients respectively. These durations may not reflect best practice.

## Mechanoprophylaxes:

- i) Graded compression stocking (GCS) (THA only) or intermittent pneumatic compression (IPC)(calf or foot pump) whether or not chemoprophylaxis is used
- ii) Use until fully mobile

Note: What is meant by 'fully mobile' is not defined and no recommendation is provided regarding the use of stockings for TKA.



# Aim

- To establish the level of compliance of arthroplasty VTE prevention protocols with the NHMRC guidelines



# Method

- A part-random, part-convenience sample of high-volume providers (> 275 surgeries/year)
- Written survey regarding VTE prevention protocols of each surgeon
- Completed by a site co-ordinator
- Data clarification and completion of any missing fields was undertaken via telephone and email follow-up with the sites.



# Method

- Protocols assessed against the NHMRC Guideline as well as manufacturer recommendations for drug dosages when required
- Due to the broadness of the recommendation around 'duration' of prophylaxes, full compliance (ie compliance with chemo- and mechanoprophylaxis recommendations) was rated via three methods varying in level of strictness for chemoprophylaxis whilst applying a constant (and generous) interpretation of 'fully mobile' (until discharge from acute-care) for mechanoprophylaxis



# Method

## Compliance ratings based on duration of prophylaxes

1	Chemoprophylaxis (right drug, right dose) from 1 to 15 (TKA) or 1 to 35 days (THA); Mechanoprophylaxis (any) until discharge from acute-care
2	Chemoprophylaxis (right drug, right dose) for a minimum of 10 (TKA) or 28 (THA) days; Mechanoprophylaxis (any) until discharge from acute-care
3	Chemoprophylaxis (right drug, right dose) for exactly 10 to 15 (TKA) or 28 to 35 days (THA); Mechanoprophylaxis (any) until discharge from acute-care



# Method

## *Other rating rules:*

- A switch from 1 recommended drug to another was rated 'compliant'
- Use of GCS for TKA recipients was rated 'compliant'
- The use of aspirin on its own at any point in time was rated 'non-compliant'
- Weight-adjustment of dose was rated 'non-compliant' if not recommended by the Guidelines or manufacturer.





# Results

- 148 TKA and 135 THA protocols from 11 public and 8 private hospitals across five states were included
- Regardless of rating method applied, full compliance was **50% or less** for TKA and THA protocols

## Profile of full compliance with chemo- and mechanoprophylaxes

Rating method	1 – least strict	2	3 – most strict
TKA, n = 148 protocols, (% )	50% 1-15 days	44% Min 10 days	28% 10-15 days
THA, n = 135 protocols, %	38% 1-35 days	21% Min 28 days	17% 28-35 days

## TKA, n = 148 protocols

	Prescribed	Recommended dose	Duration (ignoring dose prescribed)		
			1	2	3
Enoxaparin	36%	32%	25%	28%	18%
Dalteparin	11%	5%	7%	11%	5%
Rivaroxaban/ Apixaban	3%	3%	3%	2%	2%
Combinations of above	13%	10%	10%	11%	10%
Total	63% (93/148)	50% (n = 74)	45%	52%	53%
(Aspirin)	(36%)	(100-300 mg)	(43% of users , 42 days)		

## THA, n = 135 protocols

	Prescribed	Recommended dose	Duration (ignoring dose prescribed)		
			1	2	3
Enoxaparin	34%	27%	34%	20%	16%
Dalteparin	10%	6%	10%	1%	1%
Rivaroxaban/ Apixaban	2%	2%	2%	2%	2%
Combinations of above	15%	12%	15%	9%	9%
Total	61% (81/135)	47% (n = 62)	61%	32%	28%
(Aspirin)	(39%)	(100-300 mg)	(52% of users, 42 days)		



# Conclusion

- Low compliance with the recommended Australian guideline is (allegedly) apparent
- Multiple factors contribute to this. Notably, aspirin use is a common variant and is permitted or recommended in guidelines elsewhere
- Studies are needed to determine if better patient outcomes are associated with care that complies with guidelines that are more or less prescriptive