VTE Prophylaxis Duration · Total Joint Arthroplasty

FAST & FRUGAL TREE · POST-OPERATIVE DECISION AID · 3-CUE MAXIMUM

FFT · GIGERENZER FRAMEWORK

THA & TKA · Primary + Revision

Walsh / OrthoScenius · 2026

DECISION TREE — THREE CUES, FOUR EXITS

CUE 1 · HIGHEST VALIDITY

Prior VTE (any history) OR confirmed thrombophilia / hypercoagulable state?

Validity anchor: OR 10.0 (DVT) | OR 9.2 (PE) — Paul et al., 2026 · OR 5.94 — 2023 cohort N=29,264

▲ YES

EXIT 1 · EXTENDED + INTENSIVE

42-day DOAC course

Apixaban 2.5 mg BID + mechanical IPC

Upgrade aspirin → apixaban (preferred DOAC; lower bleeding vs. rivaroxaban). Continue IPC until discharge; outpatient compression stocking × 6 weeks.

Prior VTE ≤3 mo: OR 32.2 DVT, OR 28.4 PE (Paul 2026) · Thrombophilia: OR 2.64 (2023 cohort) · Apixaban safety advantage: 2025 narrative review

▼ NO

CUE 2 · PROCEDURE VALIDITY

Total Hip Arthroplasty (THA)?

Validity anchor: ACCP 9th ed. extended out-of-hospital prophylaxis mandate for THA · TKA OR 1.65 higher DVT; THA higher PE burden

▲ THA

EXIT 2 · STANDARD-EXTENDED

35-day ASA course

Aspirin 81 mg BID + mechanical IPC

ACCP-mandated extended out-of-hospital duration for THA. PE risk persists beyond hospital discharge.

ACCP 9th ed. (2012) grade 1B: extend to 35 days for THA · Aspirin ≈ DOAC for VTE (OR 1.14, 95% CI 0.82–1.59), lower bleed (OR 1.36 for DOAC excess) — 2023 cohort

▼ TKA

CUE 3 · RISK BURDEN

≥2 additional modifiers?

Age ≥75 · BMI ≥40 · Active cancer · Revision / bilateral · Immobility >72 h

Additive: hypercoagulable OR 2.64; male OR 1.34 · Caprini ≥10 → DOAC threshold (2025 review)

▲ YES

EXIT 3 · STANDARD-EXTENDED

35-day ASA

± upgrade to DOAC if Caprini ≥10

Aspirin 81 mg BID. Recalculate Caprini score; if ≥10, switch to apixaban.

BMC VTE score: BMI>35, bilateral → high risk (2025 review) · Nam 2016: warfarin for high-risk; modern equivalent = DOAC

▼ NO

EXIT 4 · STANDARD-MINIMAL

14–21 day ASA

Aspirin 81 mg BID · ERAS-aligned

Standard-risk TKA. IPC until ambulatory. Early mobilisation is mandatory.

Nam 2016: 70% of TJA → routine risk; symptomatic VTE 0.7% with ASA+MCD · Aspirin non-inferior to DOAC, bleeding superior — 2023 cohort

ALWAYS: IPC during hospital stay · Early mobilisation Day 0/1 · GI protection (PPI) if aspirin + NSAIDs · Re-evaluate if new VTE symptoms at any duration · Shared decision-making documented

CUE VALIDITY RANKING — QUANTIFIED EFFECT SIZES

RANK	CUE	EFFECT SIZE (OR, 95% CI)	SOURCE · N
1	CUE 1 Prior VTE (any timing)	OR 10.0 (8.9–11.2) DVT OR 9.2 (6.7–12.5) PE	Paul et al. 2026 TKA · N=22,447 matched
1a	CUE 1 Prior VTE ≤3 months	OR 32.2 DVT OR 28.4 PE	Paul et al. 2026
1b	CUE 1 Hereditary hypercoagulability	OR 2.64 (VTE composite)	2023 retrospective N=29,264 TJA
2	CUE 2 TKA vs. THA (DVT risk)	OR 1.65 higher DVT in TKA (THA → higher PE burden)	2023 cohort · N=29,264
2a	CUE 2 Extended duration for THA	Guideline Grade 1B ACCP 9th ed. 35-day mandate	ACCP 2012 · AAOS 2011 (aligned; multi-source)
3	CUE 3 Male sex	OR 1.34 (VTE risk)	2023 cohort · N=29,264
3	CUE 3 Caprini score ≥10	Threshold for DOAC upgrade (mixed validation in TJA)	Maximillian et al. 2025 Narrative review · LoE V

ERROR COST ASYMMETRY · THRESHOLD RATIONALE

MISS (FALSE NEGATIVE)

Under-prophylax a high-risk patient → **Fatal PE: mortality 4–10%**

Irreversible. No rescue for sudden death.

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FALSE ALARM (FALSE POSITIVE)

Over-prophylax standard-risk patient → Major bleed: **mortality ≈1–2%**

Reversible agents; surgical haemostasis available.

Asymmetry Rule: At Cues 1 & 2 — error cost heavily asymmetric → set threshold *low*; accept false alarms to eliminate misses. The ACCP 9th edition formally treats major bleed as equivalent to thromboembolism for *policy* purposes ("disutility" principle), but this

only holds at the population level. For the *individual high-risk patient*, the mortality gradient (10% vs. 2%) justifies extending duration and escalating the agent even at the cost of increased bleeding events. Conversely, at Cue 3 exit (standard-risk TKA): DOACs add bleeding OR 1.36 (95% CI 1.13–1.62) with *no VTE benefit* over aspirin — asymmetry **reverses**; choosing aspirin is the error-minimising strategy.

THRESHOLD CHOICES · JUSTIFICATION

- **42 days (Exit 1):** Prior VTE risk peaks at 0–3 months (OR 32.2); 35-day standard course falls inside this window — a 42-day course clears it for all but the most proximate events.
- **35 days (Exits 2 & 3):** ACCP Grade 1B for THA; matches the hypercoagulable state duration modelled in prospective cohort data. Symptomatic VTE in TJA peaks at 10–30 days; 35-day coverage provides a safety buffer past the hazard hump.
- **14–21 days (Exit 4):** Standard-risk TKA. Nam 2016 (N=3143): 0.7% symptomatic VTE with aspirin+MCD at 6 weeks — identical to anticoagulated cohort but with 5× lower major bleed rate. ERAS protocol: early mobilisation substantially lowers the effective biological hazard period.
- **Caprini ≥10 as DOAC trigger:** Modified cutoff above the standard ≥7 (Caprini 2013); necessary to maintain specificity in TJA populations where nearly all patients score ≥7 due to surgery alone.

Sources (Vault-grounded): Paul et al. J Arthroplasty 2026 · 2023 Retrospective Cohort N=29,264 (THA/TKA) · Nam et al. 2016 N=3143 · Maximillian et al. 2025 (Risk Stratification Review) · ACCP 9th Ed. 2012 · AAOS CPG 2011 · Lieberman 2021 (Current Concepts) · Graham et al. 2025 (Aspirin Safety Review) · Barlow et al. 2019 (Antithrombotics in Arthroplasty)