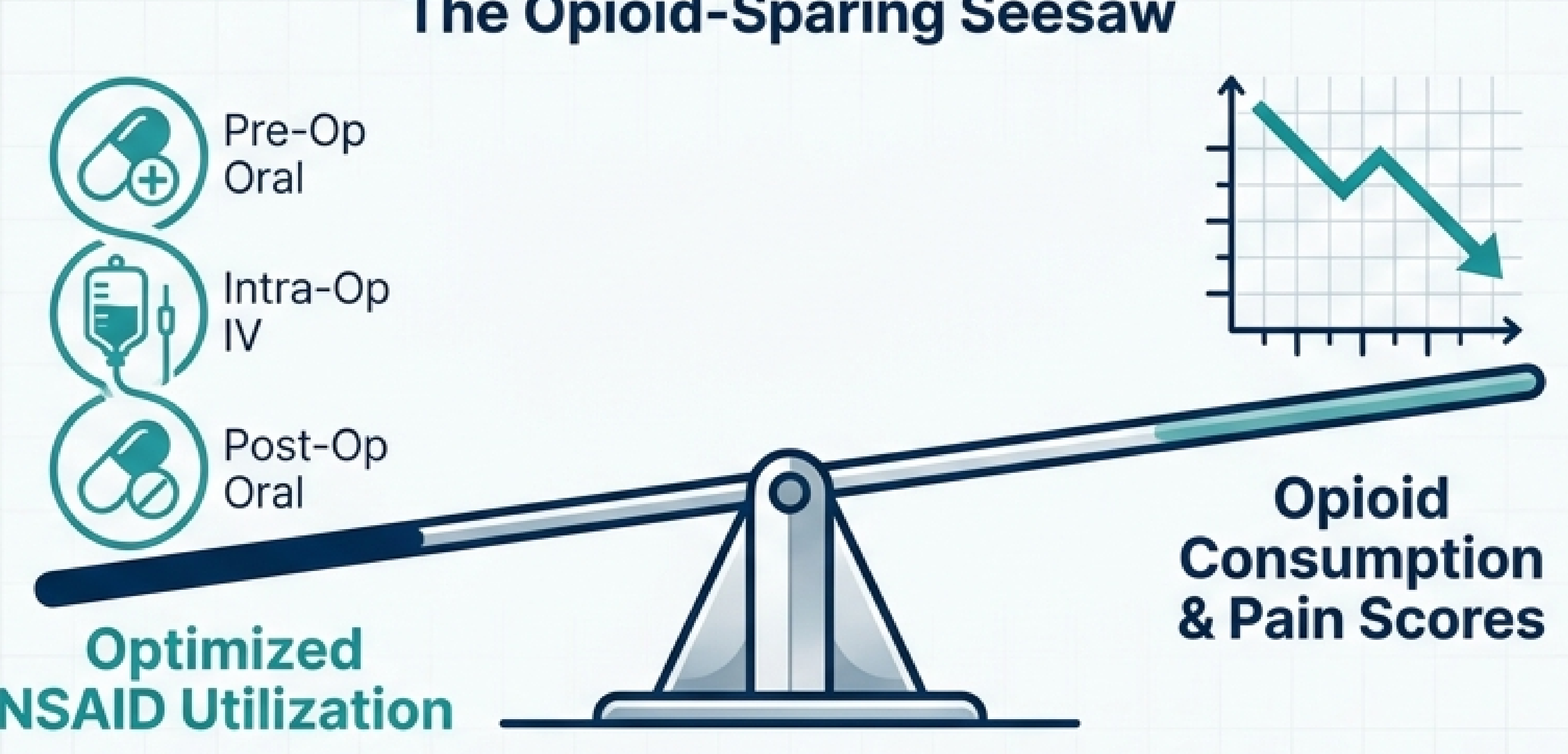
Clinical Practice Blueprint: NSAIDs in Total Joint Arthroplasty

An actionable protocol to reduce practice variation, improve postoperative pain control, and minimize opioid consumption.

BASED ON THE COMBINED CLINICAL PRACTICE GUIDELINES OF AAHKS, ASRA, AAOS, THE HIP SOCIETY, AND THE KNEE SOCIETY (MARCH 2020).

NotebookLM

Maximizing perioperative NSAIDs directly drives down postoperative opioid dependency



The multidisciplinary consensus is clear: incorporating selective and non-selective NSAIDs across the surgical timeline significantly reduces the need for postoperative opioids, lowering the risk of respiratory depression, nausea, sedation, and urinary retention.

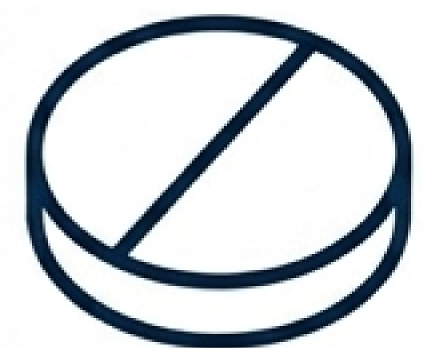
NotebookLM

The NSAID Master Recommendation Dashboard

Phase / Question	Intervention & Outcome	Evidence Strength	
Q1: Perioperative Oral	Oral NSAIDs (Pre/Early Post-Op) yield reduced pain & opioids.	**Strong 1A**	**Moderate 1B** (Pre-Op COX-2)
Q2: Post-Discharge Oral	Selective COX-2 yields reduced pain & opioids (up to 6 weeks).	**Moderate 2A** (TKA)	**Consensus 2B** (THA)
Q3: IV Ketorolac	IV Ketorolac yields reduced pain & opioids (first 48 hrs).	**Strong 3A**	**Moderate 3B** (15mg dose equivalence)
Q4: Safety Profile	NSAID administration shows no increased risk of routine complications.	**Limited** (Requires patient screening)	

NotebookLM

The Protocol Arsenal: Comparing the three primary NSAID interventions.

Oral Selective COX-2 (e.g., Celecoxib, Meloxicam)	Oral Non-Selective (COX-1 & 2)	IV Ketorolac (Intravenous)
		
Key Attribute: Preferred for pre-operative loading and extended post-discharge use due to its proven efficacy and favorable safety profile over longer durations.	**Key Attribute:** Highly effective for acute perioperative use, but currently lacks the robust evidence needed to support extended post-discharge safety and duration.	**Key Attribute:** Rapid systemic onset designed strictly for intra-operative or early post-operative administration to crush acute pain within the first 48 hours.

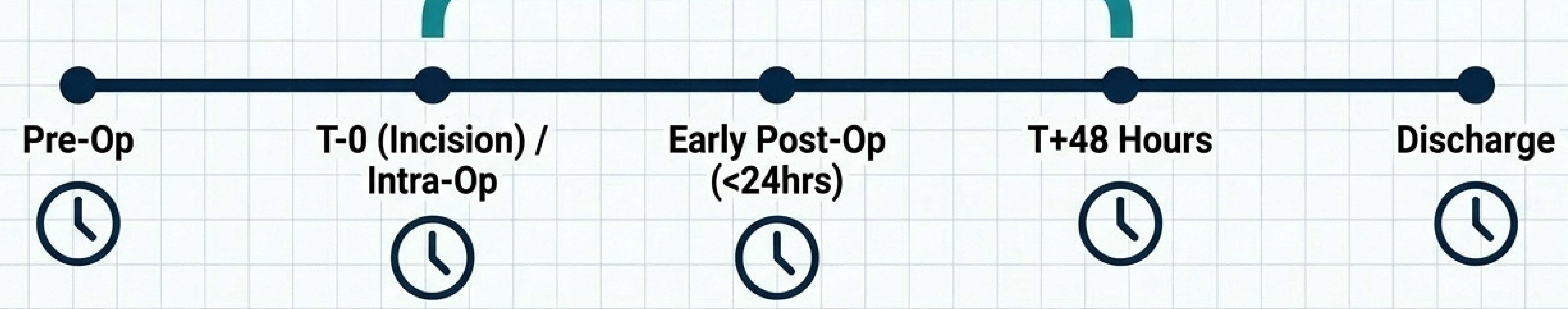
NotebookLM

Pre-operative COX-2 administration yields a superior pain control envelope.

Key Insight: (Recommendation 1B) Administration of an oral selective COX-2 NSAID immediately preoperatively provides measurably improved postoperative pain control and reduced opioid consumption compared to early postoperative administration (Moderate Evidence).

NotebookLM

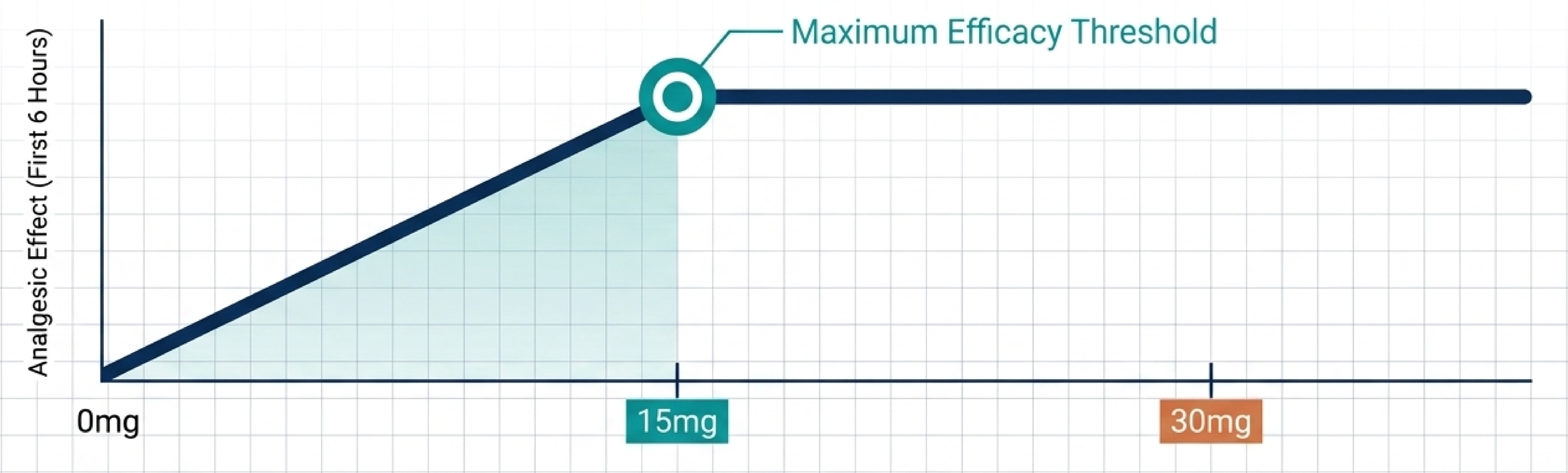
IV Ketorolac provides a critical 48-hour postoperative analgesic window.



(Recommendation 3A - Strong Evidence) Administration of IV ketorolac preoperatively, intraoperatively, or within 24 hours postoperatively significantly reduces pain and opioid consumption during the first 48 hours following primary TJA, with no significant increase in blood loss or adverse events.

NotebookLM

The **Dose-Response Ceiling**: Efficacy plateaus at 15mg for IV Ketorolac.



Key Insight:

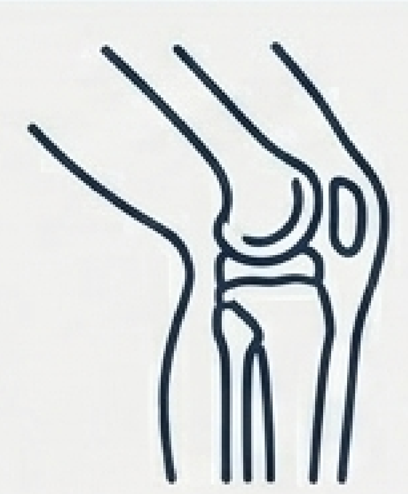
(Recommendation 3B) Low-dose (15 mg) and high-dose (30 mg) immediately postoperatively are strictly equivalent at reducing pain and opioid consumption in the first six hours.

Clinical Directive:

Use minimally effective doses (15mg) to diminish the risk of medical complications, specifically acute kidney failure, as total literature dosages range wildly from 15mg up to 150mg over 24 hours.

NotebookLM

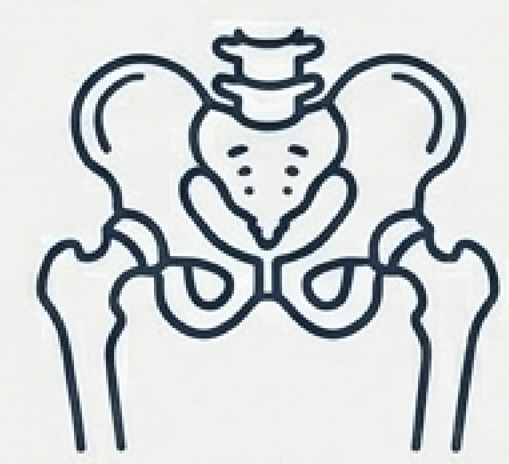
Post-discharge selective **COX-2 protocols** diverge by joint type.



TOTAL KNEE ARTHROPLASTY (TKA)

Moderate Evidence

Administration of an oral selective COX-2 NSAID reduces pain and opioid consumption during the six-week period following primary TKA. Backed by **high-quality RCTs.**



TOTAL HIP ARTHROPLASTY (THA)

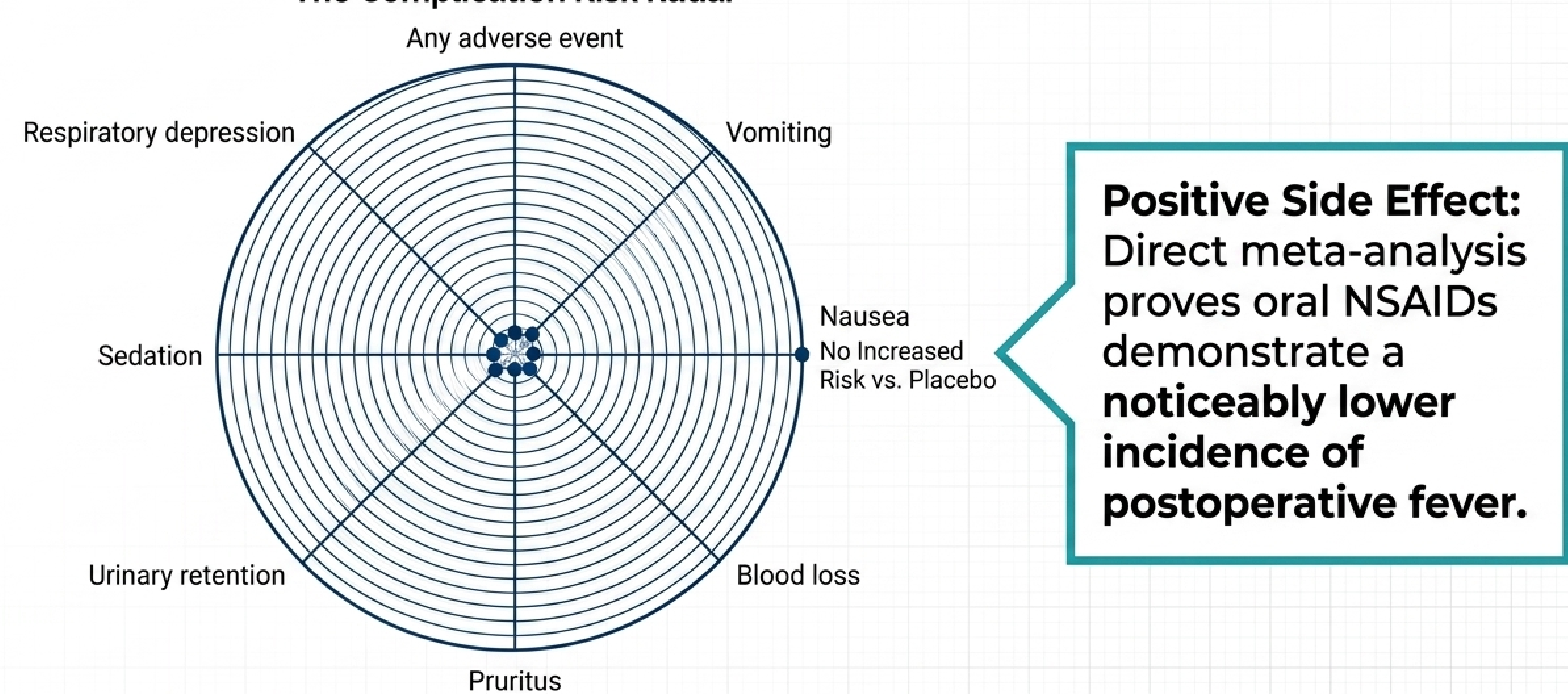
Consensus Opinion

Due to a lack of targeted studies, it is the opinion of the workgroup that selective COX-2 NSAIDs **may be used after discharge** as part of a multimodal regimen.

WARNING: Non-selective oral NSAIDs are NOT currently recommended for extended post-discharge duration due to safety concerns.

NotebookLM

Perioperative NSAIDs show no significant increase in routine medical complications.

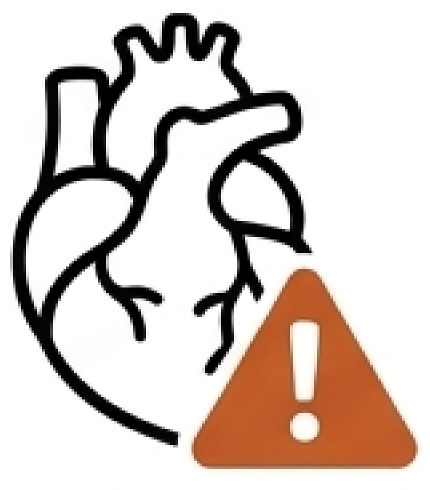


(Recommendation 4 - Limited Evidence). Extensive meta-analysis of high-quality RCTs proves perioperative oral and IV NSAIDs do not inherently increase routine surgical complications.

NotebookLM

Absolute contraindications and FDA Black-Box guardrails mandate active patient screening

Cardiovascular Thrombotic Events



Warning regarding increased risk of myocardial infarction and stroke for all NSAIDs

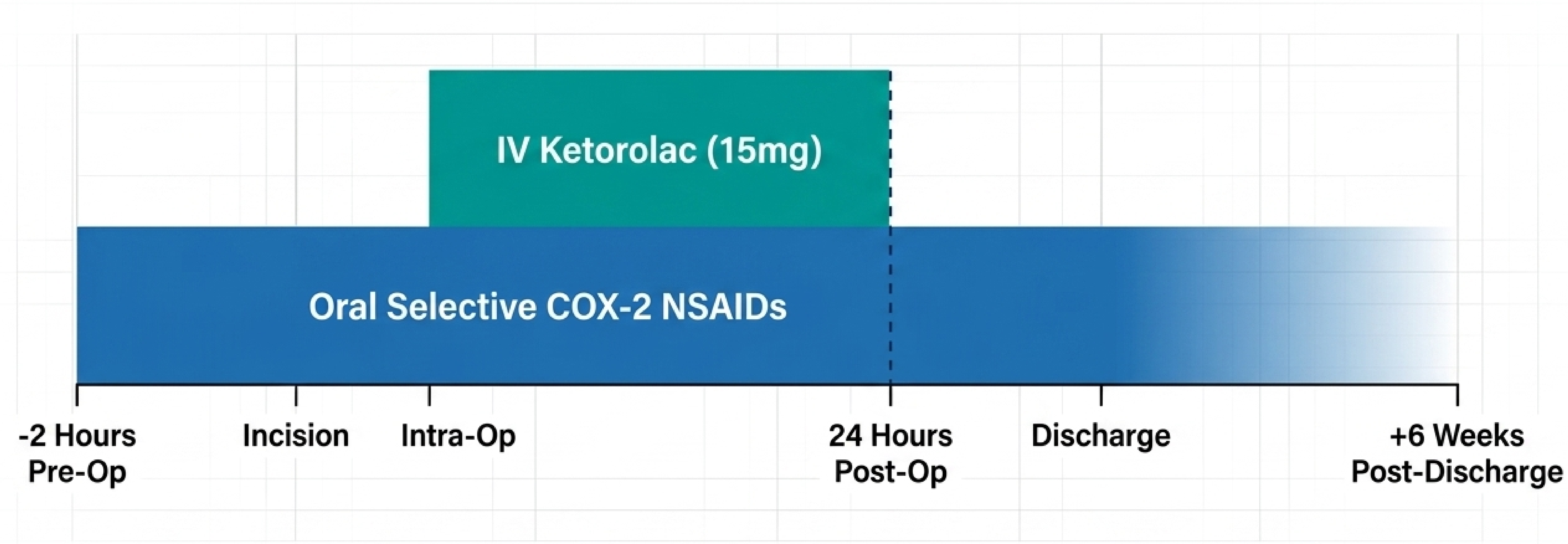
Serious Gastrointestinal Events

Warning regarding bleeding, ulceration, and perforation of the stomach or intestines

CRITICAL: Severe complications like upper GI bleeding and acute renal failure were rare/unreported in the TJA studies, but clinicians must weigh patient comorbidities, dose, duration, and specific NSAID type prior to administration.

NotebookLM

The Multimodal Pain Regimen Blueprint



The ultimate opioid-sparing protocol does not rely on a single drug. It leverages the immediate systemic impact of low-dose IV Ketorolac layered over the sustained, safe baseline of selective COX-2 inhibitors to protect the patient entirely through their surgical journey.

NotebookLM