

# Opioid Reduction and Enhanced recovery in Orthopedic Surgeries: A pilot randomized control trial in knee arthroplasty

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## INTRODUCTION

Despite successful total knee arthroplasty (TKA), Chronic Post-Surgical Pain (CPSP) occurs in ~20% of patients.

CPSP is associated with psychological factors, preexisting pain, opioid use and acute post-surgical pain. Existing studies focussed on single interventions have limited or no effect.

Knee osteoarthritis is a leading cause of pain, limited function, and long-term disability

Opioids can work for pain but have important side effects

A multicomponent team-based approach, with patient engagement has been advocated but not well studied. Our vanguard trial evaluates the feasibility of a multicomponent intervention compared to standard care for improving opioid free pain control (OFPC) at 8 weeks after surgery.

OREOS: Opioid Reduction and Enhanced recovery in Orthopedic Surgeries

## RESULTS

| SUMMARY OF MAIN RESULTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |
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| Feasibility Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
| <ul style="list-style-type: none"><li>100% recruited (56% female) from 3 centres<ul style="list-style-type: none"><li>Modifications to recruitment strategy during COVID-19 pandemic</li></ul></li><li>51/98 randomized to intervention</li><li>46% of those randomized to intervention were high risk</li><li>80% participated in at least 3 of the 4 intervention components</li><li>92% follow-up at 3 months<ul style="list-style-type: none"><li>Data collection modified to include paper and electronic form</li></ul></li></ul> |  |  |
| Clinical Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| <ul style="list-style-type: none"><li>67% achieved OFPC (51/76; 95% CI 55-76%)</li><li>At 3 months, 45 patients (50%) reported pain in the week before</li><li>CPSP noted in 17% (95% CI 10-26%)</li><li>Average pain intensity (movement and rest)<ul style="list-style-type: none"><li>CPSP group 6 and 3</li><li>non-CPSP group 1.5 and 1</li></ul></li><li>Mean satisfaction score was 64% (CPSP) and 87% (non-CPSP)</li></ul>                                                                                                      |  |  |

## DISCUSSION

|                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nearly 1/3 patients can report increased pain after TKA, with 17% qualifying as CPSP                                                                                                             |
| A significant number of patients not achieving OFPC at 8 weeks improved before 3 months                                                                                                          |
| We demonstrate that a large-scale trial is feasible for multicomponent interventions                                                                                                             |
| Multicomponent interventions can decrease CPSP and improve satisfaction and will be evaluated in our larger trial of 500 patients                                                                |
| Although the need to include high-risk patients have been recognized and considered, no published randomized controlled trials exist to support models such as transitional pain services (TPS). |
| By including high risk patients and focusing on functionally important pain, our study findings have better external validity and clinical applicability                                         |

## METHODS

- Multicentre parallel group pilot RCT (Trial Registration Number: NCT04968132)
- Population:** Adults undergoing unilateral TKA
- Intervention group:** Multicomponent intervention facilitated using a dedicated intervention coordinator
- Control group:** Standard of care as per site

- Study sites**
- St. Joseph's Hospital, Hamilton. ON. Canada
  - Juravinski Hospital, Hamilton. ON. Canada
  - Oakville Trafalgar Hospital, Oakville. ON. Canada

### Components of Interventional Pathway

- patient education and expectation setting;
- preoperative risk stratification and mitigation\*;
- personalized post-discharge analgesic prescriptions;
- postoperative check-in meetings up to 8 weeks

\*Risk identification using:

anxiety, depression, kinesiophobia, daily opioid use

\*Cognitive behavioural therapy-based skill sessions for risk reduction in high-risk patients

### Study Outcomes

- Feasibility:** Rate of recruitment, retention, and participation in intervention components
- Primary clinical outcome:** proportion achieving OFPC
  - (≥3 days of average pain intensity of <4/10 [0-10 NRS]) with no opioid used by 8 weeks
- Secondary clinical outcomes:** CPSP, pain intensity at rest and movement, and satisfaction with pain control
- Data are reported descriptively without comparative analysis (feasibility study)

## REFERENCES

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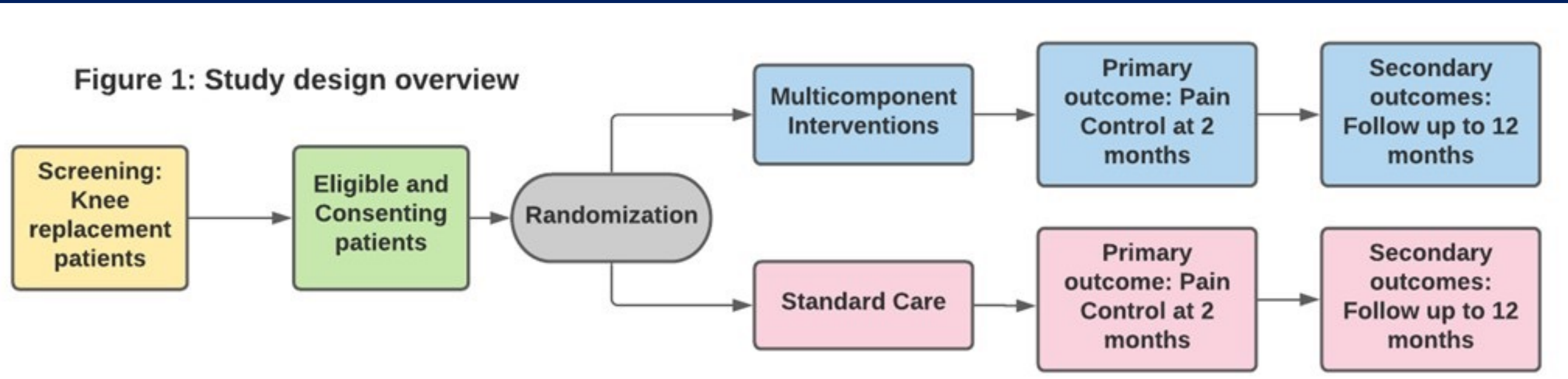


Figure 1: Study Design Overview

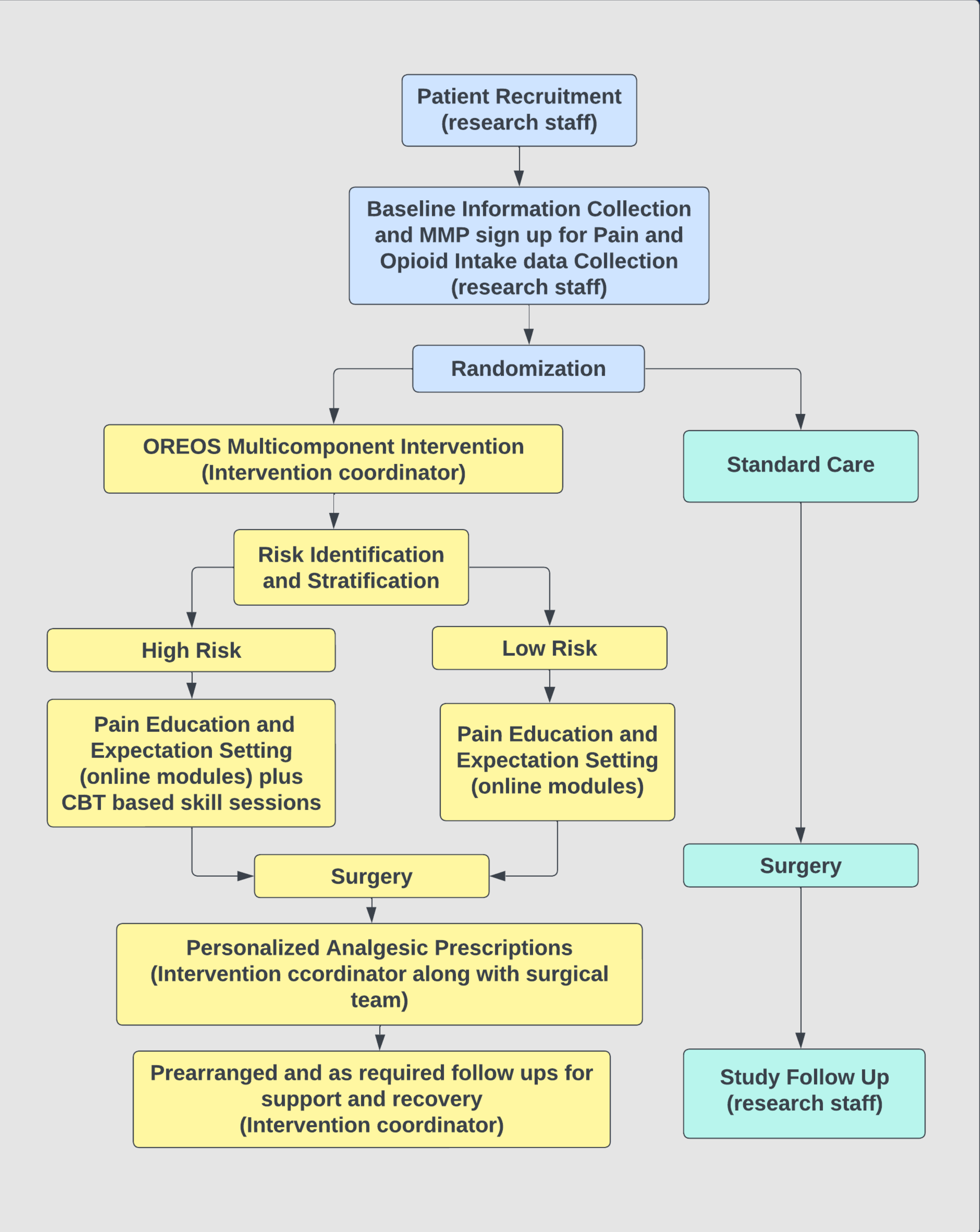


Figure 2: OREOS multicomponent interventional pathway