Comparative Effectiveness of Multi-Modal Pain Management Versus Standard Post-Operative Analgesia: Randomized Controlled Clinical Trial to Reduce Post-Operative Pain and Opioid Use Among Patients Undergoing Lumbar Spine Surgery
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Patients presenting for lumbar spine surgery experience pain related to their spine condition. Following surgery, these patients also experience surgical pain resulting from disruption of skin, muscle tissue, vertebrae, intervertebral discs, and facet joints. Proper pain management is necessary to reduce pain-related and medicate side effects and to promote rehabilitation. This pain is often treated with opioid medications—with roughly 40% of patient experiencing sub-optimal pain management. Adequate pain control has become a top priority among professional societies, healthcare systems, and accrediting agencies. This is for good reason, as poorly controlled pain leads to delayed discharge from hospital, limited mobility and decreased quality of life with resultant medical complications, increased risk of developing a chronic pain syndrome, and prolonged use of opioid medication. Prolonged use of opioid medications may lead to medical complications.

Multi-modal pain management strategies have been proposed to (1) control pre-operative pain related to spine pathology; (2) employ non-opioid medication peri-operatively to pre-empt post-operative surgical pain; and (3) monitor and control pain intensity before and after surgery. In a systematic review, Devin, et al. reported fair evidence that pre-emptive pain management and non-steroidal anti-inflammatory drugs lead to reduced post-operative pain. However, this review demonstrated a lack of evidence regarding optimal post-operative protocols and pathways. We have planned a randomized clinical trial to compare the effectiveness of two methods of peri-operative pain management to reduce post-operative pain and opioid use among patients undergoing lumbar spine surgery.

Prior to submission to NIH, AHRQ, or PCORI, it is necessary to demonstrate the feasibility and acceptability of the trial protocol. The current proposal will provide this critical evidence of feasibility and acceptability of a multi-modal pain management plan for patients undergoing lumbar spine surgery. Additionally, this study will provide critical preliminary data to compare the effectiveness of protocol-driven multi-modal pain management to control post-operative pain, reduce opioid medication use, and improve physical activity, sleep, and health.