

# Comprehensive Acute Pain Management in the Perioperative Surgical Home

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## KEYWORDS

- Perioperative surgical home • Perioperative pain service • Chronic postsurgical pain
- Preventative analgesia • Multimodal analgesia • Opioid epidemic • Neuraxial opioids

## KEY POINTS

- Establishing a perioperative surgical home (PSH) framework can lead to improved analgesic treatment of surgical patients through careful coordination of care.
- Perioperative administration of a multimodal analgesic plan, including nonopioid modalities and regional and neuraxial anesthesia techniques, can minimize postsurgical pain.
- Severe postoperative pain along with other patient- and surgery-specific factors can lead to chronic postsurgical pain.
- A preoperative assessment by a physician anesthesiologist can identify patients with behavioral risk factors for persistent postoperative opioid usage and address concerns before surgery.

## INTRODUCTION

Perioperative care in the United States is plagued by fragmented care and high costs, which has spurred innovative solutions across many specialties.<sup>1</sup> One model is the perioperative surgical home (PSH). PSH is defined by the American Society of Anesthesiologists as “A patient-centered and physician-led multidisciplinary and team-based system of coordinated care that guides the patient throughout the entire surgical experience.”<sup>1</sup> The Triple Aim Goals of the PSH are as follows:

1. Improve the individual experience of care
2. Improve the health of populations
3. Reduce the capita cost of care

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Perioperative analgesia also suffers from heterogeneity of care and high costs.<sup>2</sup> In the current system, the surgeon is responsible for the analgesic management of most patients after they leave the postanesthesia care unit (PACU). Certain institutions have a dedicated acute pain service to treat special populations, such as opioid-tolerant patients and those receiving continuous regional or neuraxial analgesia. Within the PSH, a comprehensive perioperative analgesic plan can be coordinated before surgery with the aim of providing effective multimodal analgesia, avoiding prolonged postoperative opioid use, and mitigating the risk of transitioning from severe acute postsurgical pain to chronic postsurgical pain (CPSP).

### CONSEQUENCES OF UNCONTROLLED ACUTE PAIN

Patients with uncontrolled acute pain can incur significant psychological distress, such as anxiety, depression, and impaired sleep.<sup>3</sup> In addition, refractory acute pain may correlate with the development of CPSP after surgery. Intense acute postsurgical pain is a risk factor across a multitude of surgeries.<sup>4,5</sup> Despite the reported risks associated with uncontrolled acute pain, more than 80% of patients undergoing surgery continue to report moderate to severe postsurgical pain.<sup>5</sup>

Although most patients will undergo surgery and return to baseline, the biopsychosocial consequences of uncontrolled acute pain are associated with dramatic economic costs. First, excessive postsurgical pain not only increases the length of hospital stay but is also one of the most common reasons for hospital readmission after discharge. In a study involving more than 20,000 patients undergoing same-day surgery, 38% of the patients who returned to the hospital reported pain as the main reason for readmission, with the average cost per patient estimated at more than \$1800.<sup>6</sup>

Further, the development of chronic persistent pain after surgery can incur additional economic burden via lost productivity and wages in the workforce, subsequent clinic visits, and truncated reimbursement from poor patient satisfaction scores via the Hospital Consumer Assessment of Healthcare Providers and Systems survey. Pain disability that ensues as a result of CPSP has been estimated to incur the United States \$43,000 annually per patient.<sup>7</sup> A study out of Toronto, Canada demonstrated 27% of patients reporting pain 3 months after surgery remained on opioids to manage their CPSP, thereby perpetuating the opioid epidemic.<sup>8</sup>

Another potential outcome of persistent pain is cognitive decline and increased risk of dementia in the elderly. A recent review of the large Health and Retirement Study database compared Americans older than 65 years who reported pain in 1998 and 2000 (labeled as persistent pain) with those who did not. After 4 biennial follow-up assessments, the group labeled *persistent pain* experienced more rapid memory loss, loss of executive functions, and an increased likelihood of developing dementia.<sup>9</sup>

### THE ACUTE TO CHRONIC PAIN TRANSITION

Whereas many chronic pain conditions are difficult to predict because of the variability of the inciting event, CPSP is initiated after a surgical insult given a set of risk factors.<sup>5</sup> CPSP is pain that lasts for more than 3 to 6 months after surgery.<sup>10</sup> CPSP results not only in significant patient (and family) suffering and decreased quality of life but also increased health care spending and reduced functionality and work performance.<sup>11–13</sup> Of the many existing risk factors for CPSP, some may be modifiable and some are unmodifiable (**Table 1**). As perioperative physicians, it is imperative that we seek to identify and mitigate these risk factors throughout the perioperative continuum to reduce the development of CPSP.

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