

A Systematic Review of Care Needs for Surgical Patients with Chronic Opioid Use

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Patients with chronic opioid use represent a growing surgical population. The primary objective of this systematic review is to identify salient care needs of surgical patients with chronic opioid use and determine nurses' role in meeting these needs. Results of this review will support nurses as they address the complex needs of affected persons (Jackman, 2019).

Statement of the Problem

Nearly one in four patients presenting for surgery in the United States reports current opioid use, and more than 75% of surgical patients fill a prescription for opioids following surgery (Jackman, 2019; Ladha et al., 2019). Many patients presenting for surgery with chronic opioid use have some combination of chronic pain, opioid tolerance, opioid dependence, and complex social needs. Despite the increase of opioid use among surgical patients over the past decade, knowledge regarding optimal deliv-

An understudied aspect of the opioid crisis with implications for nursing is care of hospitalized surgical patients with chronic opioid use. Care needs of these patients are not well understood. This systematic review identified salient care needs and explored the role of nursing in meeting these needs.

ery of care for these patients is lacking (Dewan et al., 2019). Answering the clinical question about their care needs will support care delivery and inform future research to leverage nursing care delivery and improve patient outcomes.

Relevant Literature

People with chronic opioid use may require surgery for health needs; however, surgical patients with chronic opioid use present unique challenges for care providers (Jackman, 2019). During and after surgery, patients who use opioids are

at increased risk for tolerance due to opioids' analgesic effects, inadequate pain management, readmission, and costs compared to those who do not use opioids (Jain et al., 2018; Menendez et al., 2015). Surgical patients with chronic opioid use may require greater nursing surveillance to identify risks and avoid complications (Jones & Terplan, 2018). Literature is lacking on the role of nurses in caring for surgical patients with chronic opioid use, though nurses are the care providers most often at the bedside of these patients (Finney, 2010; Jackman, 2019).

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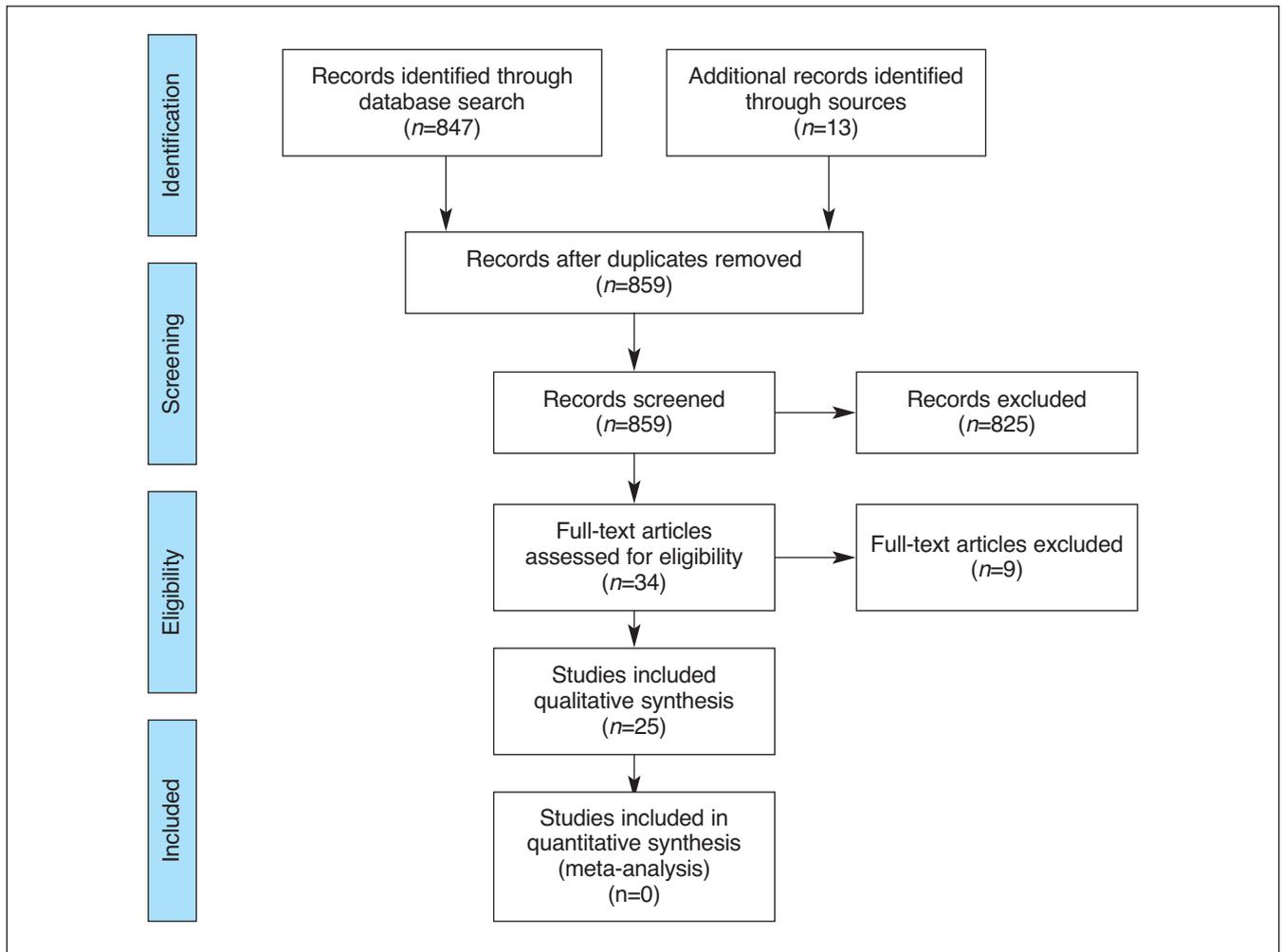
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FIGURE 1.
PRISMA Flow Diagram



The term *chronic opioid use* includes people who appropriately use prescribed opioid medication, misuse a prescribed opioid medication, misuse street drugs, or are maintained on an opioid agonist treatment (e.g., methadone, buprenorphine) (Mahoney et al., 2019). It does not specify if a patient is addicted currently, only if a patient is currently using and has a history of using opioids. This systematic review identifies documented literature addressing care needs for surgical patients with chronic opioid use and highlights implications for nursing care delivery. It also highlights opportunities for future research to improve outcomes for affected persons.

Methods for Conducting the Systematic Review

Studies were identified using the following databases: Embase, CINAHL, and PsycARTICLES. Search terms included *chronic opioid use, opioid use disorder, drug-addicted patient, surgery, recovery from surgery, and postoperative care*. Articles were published since 2009 to encompass literature from the last decade. They had to be available in full-text, peer-reviewed, in English, and about surgical patients with chronic opioid use. Snowballing was used to identify additional relevant literature from reference lists.

The search resulted in 847 articles. From the snowballing method,

13 additional articles were included. Title and abstract screening resulted in exclusion of 825 articles, most often because articles were not about surgical patients with chronic opioid use. After authors read the remaining 34 full-text articles, nine were excluded because they addressed topics such as the pharmacology of opioid medications during surgery. The remaining 25 reports were appraised according to the Study Quality Assessment Tools from the National Institutes of Health National Heart, Lung, and Blood Institute as done previously (Shah et al., 2018). The PRISMA diagram (see Figure 1) depicts the flow of information throughout this review. One member of the review

team extracted the data, which were appraised by two other members.

Study characteristics were extracted and tabulated. Extracted data included title, publication year, study design, population, and relevant care needs. Detailed below are synthesized results from the 25 articles that led to the identification of four salient care needs for surgical patients with opioid use: pain management, collaboration, patient assessment, and patient teaching.

Results

See Table 1 for a brief description of each study’s characteristics and a critical appraisal of study findings. While 25 articles were included in the systematic review, the eight articles rated at the highest level of evidence and the four articles that mentioned nursing were selected to be part of the Evidence Table. The Jackman (2019) article met both criteria, resulting in 11 articles displayed in Table 1.

Narrative Synthesis

Results of this systematic review suggest pain management, collaboration, patient assessment, and patient teaching are especially relevant for surgical patients with chronic opioid use. Ten articles were non-systematic reviews of literature, four were case-control studies, three were cohort studies, three were cross-sectional studies, three were case reports, one was a randomized controlled trial, and one was an editorial. Of the 25 articles reviewed, according to an assessment with the Study Quality Assessment Tools (National Institutes of Health, 2014), eight had *good* quality, five had *fair* quality, and 11 had *poor* quality. This quality assessment tool helps determine the risk of bias in the study due to flaws in study design or implementation. The editorial was not assessed for quality, as it was inherently biased.

Pain management. Various articles found pain management for surgical patients with chronic opioid use is especially important because they have a tolerance to the analgesic

TABLE 1.
Evidence Table for Selected Articles

Author & Date	Type of Study	Study Quality Assessment	Setting, Sample, & Size	Opioid Identification	Nursing Included?	Identified Care Need(s)	Limitations
Anderson et al., 2017	Non-systematic review	Poor	48 articles	Buprenorphine use	Yes Recommended pain management strategy involving entire perioperative team of surgeons, nurses, anesthesiologists, addiction specialists, patient to be assembled as early as possible.	Collaboration Patient assessment	No defined approach to review Significant risk of bias
Barelli et al., 2019	Case report	Good	1 case report 50-year-old male	Methadone maintenance	No	Pain management Patient assessment Patient teaching	Single case report about hypothetical patient

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TABLE 1. (Continued)
Evidence Table for Selected Articles

Author & Date	Type of Study	Study Quality Assessment	Setting, Sample, & Size	Opioid Identification	Nursing Included?	Identified Care Need(s)	Limitations
Dewan et al., 2019	Retrospective population-based cohort study	Good	1998-2013: Authors used data from the Health-care Cost and Utilization Project NIS (representing 20% of all-payer inpatient discharges from previous year) for patients undergoing isolated CABG, valve surgery, aortic surgery, or combination. Of 5.7 million patients, 11,359 met criteria for OUD (average age 48). More patients with OUD are Black or Hispanic, and are more likely to receive Medicaid.	OUD (ICD-9 coding)	No	Pain management Patient assessment	ICD-9 coding may not capture all patients with chronic opioid use.
Finney, 2010	Non-systematic review	Fair	25 articles	OUD	Yes Focus was nursing care for patients with chronic opioid use.	Pain management Patient teaching	Limited evidence-based recommendations Susceptible to some bias

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TABLE 1. (Continued)
Evidence Table for Selected Articles

Author & Date	Type of Study	Study Quality Assessment	Setting, Sample, & Size	Opioid Identification	Nursing Included?	Identified Care Need(s)	Limitations
Hansen et al., 2016	Prospective matched cohort	Good	Chart review of 51 patients Intervention group: 17 patients receiving methadone or buprenorphine; 76% male, average age 52 Control group: 34 patients; 76% male, average age 53	Methadone or buprenorphine for prior heroin addiction	No	Collaboration Patient assessment	Only involved patients cared for by single surgeon
Jackman, 2019	Case report	Good	Single case report about a surgical patient with chronic opioid use Race considered	Chronic opioid use	Yes Reviewed how nurses can meet care needs of patients with chronic opioid use before, during, and after surgery.	Pain management Collaboration Patient assessment Patient teaching	Single case report about hypothetical patient only
Jain et al., 2018	Cross-sectional	Good	Commercial insurance data 24,610 patients (75% White; average age 66) 22% had chronic opioid use (74% White; average age 63)	Chronic opioid use (>6 months before surgery) (ICD-9)	No	Patient assessment	ICD-9 coding may not capture all patients with chronic opioid use. Commercial insurance data do not capture public insurance patients (e.g., Medicaid).

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TABLE 1. (Continued)
Evidence Table for Selected Articles

Author & Date	Type of Study	Study Quality Assessment	Setting, Sample, & Size	Opioid Identification	Nursing Included?	Identified Care Need(s)	Limitations
Jonan et al., 2018	Non-systematic review	Good	12 articles	Buprenorphine use	No	Collaboration	Only addressed surgical patients who received buprenorphine, so did not capture other forms of chronic opioid use.
Menendez et al., 2015	Cross-sectional	Good	2002-2011 NIS across institutions (ICD-9) 9,307,348 total patients 9,291,447 patients without OUD (41% male; 64% White) 15,901 patients with OUD (51% male; 62% White)	OUD (ICD-9)	No	Pain management Patient assessment Patient teaching	ICD-9 coding may not capture all patients with chronic opioid use.
Sayal et al., 2018	Cross-sectional	Good	2002-2011 NIS across institutions (ICD-9) 1,548,970 total patients 1,547,609 patients without OUD (24% male; 63% White) 1,361 patients with OUD (31% male; 62% White)	OUD (ICD-9)	No	Patient assessment	ICD-9 coding may not capture all patients with chronic opioid use.

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TABLE 1. (Continued)
Evidence Table for Selected Articles

Author & Date	Type of Study	Study Quality Assessment	Setting, Sample, & Size	Opioid Identification	Nursing Included?	Identified Care Need(s)	Limitations
Wyman et al., 2014	Randomized controlled trial	Fair	All participants have risk of substance use. Intervention group: 107 patients (95% male; 59% White; average age 57) Control group: 67 patients (91% male; 73% White; average age 51)	At-risk substance use identified using alcohol use disorders. Identification test: Condensed plus self-report of illicit drug use.	Yes Nurses conducted intervention, called patients before surgery/some weeks after surgery, and made referrals to specialty substance use disorder treatment.	Patient teaching	Single institution Susceptible to bias

CABG = coronary artery bypass graft, NIS = National Inpatient Sample, OUD = opioid use disorder

effects of opioids, therefore requiring larger medication doses and a multimodal approach to obtain adequate postoperative pain management (Barelli et al., 2019; Dewan et al., 2019; Jackman, 2019; Menendez et al., 2015). The multimodal approach to pain management may include some combination of regional nerve blocks, ketamine infusions, nonsteroidal anti-inflammatory drugs, acetaminophen, dexamethasone, lidocaine, and mindfulness relaxation, all of which have been shown to decrease postoperative pain and reduce chronic opioid use (Barelli et al., 2019; Dewan et al., 2019; Jackman, 2019). In a case report, Barelli and colleagues (2019) concluded the increase in surgical patients with chronic opioid use has led to more challenges regarding postoperative pain management. They recommended use of a multimodal approach that includes ketamine for surgical patients receiving methadone maintenance therapy. According to the retrospective population-based cohort study by Dewan and coauthors (2019), surgical patients with chronic opioid use have higher rates of prolonged postoperative pain compared to surgical patients without chronic opioid use undergoing cardiac surgery. Finally, in a case report by Jackman (2019), pain management was found to be challenging for surgical patients with chronic opioid use because of the stigma surrounding them, which may lead to underestimating and undertreating their pain.

Collaboration. For surgical patients with chronic opioid use, inter-professional collaboration among the patient, surgeons, nurses, anesthesiologists, addiction and pain management specialists, and primary care providers is essential (Anderson et al., 2017; Jonan et al., 2018; Sen et al., 2016). Such an approach helps address analgesia requirements, social complexities, and follow up after discharge (Hansen et al., 2016; Jones & Terplan, 2018). In their review of 12 articles, Jonan and coauthors (2018) found the decision to resume buprenorphine postoperatively for

patients who took it for chronic opioid use disorder before surgery should be made collaboratively by the primary prescriber, surgeon, and anesthesiologist, ideally after the patient's acute postoperative pain has subsided. Similarly, in their examination of 34 matched patient controls and 17 patients who were taking methadone or buprenorphine preoperatively, Hansen and colleagues (2016) found collaboration between members of the treating care team and the acute pain service was more frequent and more necessary for patients who took methadone or buprenorphine preoperatively than for patients who did not have preexisting chronic opioid use (53% vs. 3%).

Patient assessment. Thorough patient assessment throughout the surgical course, and especially postoperatively, is essential (Menendez et al., 2015; Vadivelu et al., 2014) as surgical patients with chronic opioid use are at higher risk for adverse events, including infection and pulmonary complications (Barelli et al., 2019; Dewan et al., 2019; Kim et al., 2016; Menendez et al., 2015; Sayal et al., 2018) and therefore need more frequent assessments and continuous oximetry monitoring (Barelli et al., 2019; Chan et al., 2017; Jackman, 2019). In her review of literature on surgical patients with chronic opioid use, Jackman (2019) found these patients are at higher risk for having their pain undertreated and therefore benefit from care team members who are skilled in the assessment of acute pain. Furthermore, Menendez and colleagues (2015) noted the increased odds of respiratory compromise, mechanical ventilation, and mortality for surgical patients with chronic opioid use, which can be mitigated through assessments of postoperative patients with chronic opioid use.

Patient teaching. Best practice when caring for surgical patients with chronic opioid use includes extensive patient teaching about their unique needs to enhance the patient experience and optimize care delivery (Finney, 2010); these needs include pain management,

social support, and heightened awareness of adverse events (Bauer et al., 2017; Kim et al., 2016; Menendez et al., 2015; Wyman et al., 2014). In her review of literature, Finney (2010) noted the importance of educating patients about the significance of pain in the context of chronic opioid use to keep expectations about pain management realistic. In a review of 436 surgical patients, 78 of whom were current intravenous drug users, Kim and associates (2016) found rates of reoperation were significantly higher for surgical patients with intravenous drug use. This finding highlights the importance of patient education, especially during discharge, about preventing reoperation for these patients. Such education should include teaching about effective addiction treatment if necessary, as the high rate of reoperation is likely due to complications associated with sustained opioid misuse (Kim et al., 2016).

General summary of evidence. Patient characteristics, such as age, gender identity, race, and insurance status, were included in some studies. Of the 25 articles reviewed, only seven mentioned race or ethnicity. Those researchers found a smaller percentage of surgical patients with chronic opioid use were White than surgical patients without chronic opioid use. Two articles found surgical patients with chronic opioid use were more likely to receive Medicaid (Dewan et al., 2019; Menendez et al., 2015). While 10 of the 25 articles presented information about the gender identity of study participants, no consistent finding addressed the more common gender identity for surgical patients with chronic opioid use. Of articles that included information on the age of study participants, 80% reported an average age of 48-64. Articles that included information about surgical patients with and without chronic opioid use found those with chronic opioid use were generally younger, with an average difference between the groups of 9 years (Hansen et al., 2016; Jain et al., 2018; Kim et al., 2016). Only six articles captured

information from more than one institution. Four of the eight articles rated as good based on the Study Quality Assessment tool included pain management, four included collaboration, seven included patient assessment, and three included patient teaching. Despite 10 years of literature reviewed, 60% of studies were published 2017-2019.

Discussion and Implications for Practice, Education, and Research

The literature has minimal emphasis on nursing care of surgical patients with chronic opioid use. It does make clear that salient care needs for these patients include pain management, collaboration, patient assessment, and patient teaching, all of which are needs that nurses address. As such, this work is essential for nurses who may lack guidance on best practices when caring for surgical patients with chronic opioid use.

It is beneficial to explore implications for practice and future research related to nursing care for this patient population. Meeting the care needs of surgical patients with chronic opioid use requires an interprofessional healthcare team. Of 25 articles reviewed, however, only four included the role of nurses in addressing care needs of surgical patients with chronic opioid use (Anderson et al., 2017; Finney, 2010; Jackman, 2019; Wyman et al., 2014). Jackman (2019) and Finney (2010) focused on nursing and are published in nursing journals, while Anderson and colleagues (2017) and Wyman and associates (2014) only briefly mentioned nursing and are published in medical journals. The Jackman (2019) case report helps nurses and other providers to understand the complex challenges in caring for surgical patients with chronic opioid use. Finney (2010) focused on how nursing care can meet the needs of surgical patients with chronic opioid use. Recommendations for practice included developing nursing care strategies around pain management needs, substance misuse treatment, the ethics of managing pain,

and a patient-centered approach (Finney, 2010). Anderson and coauthors (2017) indicated protocols developed for determining the role of buprenorphine during and after surgery are “intended to give guidance and expectations for the patient, nurses, surgeons, anesthesiologists, and pain physicians” (p. 1183). They also stated, “a thoughtful pain management strategy involving the entire perioperative team of surgeons, nurses, anesthesiologists, addiction specialists, and the patient should be assembled as early as possible” (p. 1185). The group format intervention for surgical patients with chronic opioid use suggested by Wyman and colleagues (2014) used nurses to facilitate the 2-hour group sessions based on motivational interviewing and brief intervention principles. The intervention also linked patients as requested to mental health nurses for brief telephone contacts before surgery and some weeks after surgery.

Evidence from this systematic review suggests nurses play an important role in caring for surgical patients with chronic opioid use. However, their role has been underexamined in the current literature. Nurses must know how to deliver optimal care to these complex patients. Nurses are skilled at facilitating pain management, care-team collaboration, patient assessment, and patient teaching. Still, they often do not have sufficient time to deliver all appropriate care due to demanding caseloads (Jones et al., 2015). Knowledge of the four salient care needs of surgical patients with chronic opioid use could provide nurses with an evidence-based way to prioritize care delivery for surgical patients with chronic opioid use.

Research examining psychosocial needs of surgical patients with chronic opioid use, with a focus on addressing provider stigma and implicit bias toward these patients, is essential to provide quality care (Finney, 2010). Their psychosocial needs may be especially profound because the potential for opioid misuse relapse is great (Hansen et

al., 2016) and depression rates are high (Dewan et al., 2019). Provider stigma also can result in suboptimal care, including inappropriate assessment of pain management requirements (Finney, 2010). A great deal of existing literature focuses on biomedical needs of surgical patients with chronic opioid use. In the rare instances in which social context is mentioned, in-depth detail is lacking (Sen et al., 2016). A biomedical approach often fails to address the many social complexities of affected patients. Surgical patients with chronic opioid use are vulnerable. Thus, addressing their social context is important (Brooks Carthon et al., 2019; Jonan et al., 2018), especially as they are more likely to receive Medicaid (Dewan et al., 2019; Menendez et al., 2015).

Future research should examine the role of race and ethnicity of surgical patients with chronic opioid use in the delivery of nursing care, especially regarding pain management. While sizable, persistent pain treatment disparities exist for Black surgical patients (Meghani et al., 2012; Ringwalt et al., 2015); only eight of the 25 reviewed articles mentioned race or ethnicity. Future research should address ways to bolster education about the care of surgical patients with chronic opioid use through curricula and continuing education. Providers, especially nurses and physicians, often are not educated about caring for patients with chronic opioid use, which impacts care delivery and may perpetuate stigma and bias (Hirsh et al., 2015).

A strength of this review is that it synthesizes literature about a topic that represents a public health crisis and is not well understood. It identifies gaps in the literature, especially about the role of nursing in caring for surgical patients with chronic opioid use, and highlights areas for future research. The review provides relevant information for clinical nurses caring for a vulnerable population and ways for nurses to prioritize care for surgical patients with chronic opioid use. Additionally, this review defined chronic opioid use broadly, though people

affected may present in different ways. As a result, care needs of patients taking methadone or buprenorphine, as opposed to injection drug users or patients taking long-term prescribed opioids, may not be the same. Inclusion of poorer-quality articles may limit the validity of this review. Only five articles captured information from more than one institution, which also may limit generalizability.

Conclusion

In caring for surgical patients with chronic opioid use, nurses must address their needs for pain management, collaboration, patient surveillance, and patient education to deliver care optimally. Future research is needed to address gaps in the literature about the role of nurses in the care of this vulnerable population. Such work is essential as chronic opioid use continues to affect many people, including patients hospitalized for surgery. [MSN](#)

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