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## Orthopaedic Nurse Navigators and Total Joint Arthroplasty Preoperative Optimization: Substance Use – Part Two of the Movement is Life Special ONJ Series

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### Abstract

**Background:** Substance use is one of the most common risk factors contributing to complications following TJA. Preoperative optimization programs can help patients modify or stop substance use.

**Purpose:** To provide recommendations and resources that will help nurse navigators standardize and improve preoperative optimization protocols regarding substance use.

**Methods:** In a semi-structured format, we asked nurse navigators how smoking, alcohol use, and opioid use were addressed. We conducted a literature review and combined findings with nurse navigator reports to create practice recommendations.

**Results:** We recommend consistently referring patients who smoke to smoking cessation programs; using validated screening tools to evaluate alcohol use and involving internists in caring for patients at risk for withdrawal; and involving pain specialists and local resources to assist patients who use opioids.

**Conclusion:** There is a breadth of resources for managing substance use that nurse navigators can utilize to support stronger and more consistent preoperative optimization protocols.

### Introduction

This article is part two of an Orthopaedic Nursing Journal (ONJ) series on orthopaedic nurse navigators and patient optimization prior to total joint arthroplasty (TJA) (Figure 1). In this article, we focus on risk factors related to substance use, including smoking, alcohol use,

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and opioid use, and how nurse navigators can manage these risk factors in preoperative optimization.

Substance use is commonly managed as part of preoperative optimization protocols as it is associated with worse patient outcomes after TJA (Best et al., 2015; Duchman et al., 2015; Gold et al., 2020; Keswani et al., 2016; Pivec et al., 2014; Smith et al., 2017; Wall & de Steiger, 2020). Smoking is associated with depressed immune function, impaired wound healing, increased rates of complications such as deep wound infections, and increased rates of discharge to inpatient rehabilitation facilities after TJA (Duchman et al., 2015; Keswani et al., 2016). Alcohol use disorder (AUD) has been identified as a risk factor for increased postoperative complications, greater length of stay, acute postoperative infections, and prosthetic joint infections (Best et al., 2015; Gold et al., 2020). Preoperative opioid use has been linked to poor pain relief or increased experiences of pain after TJA (Pivec et al., 2014; Smith et al., 2017; Wall & de Steiger, 2020).

The reduction of substance use as part of TJA preoperative optimization is of increased importance among racial minorities and socioeconomically disadvantaged patient populations, as studies have demonstrated racial and economic disparities in substance use. Cigarette smoking is more prevalent among those who are socially or economically disadvantaged (Baum & Fisher, 2014). While Black and White patients report smoking at similar rates, the highest rates of smoking are reported among Native American patients, another racial minority (Jones et al., 2018; T. W. Wang et al., 2018). In addition, lower quit rates have been reported among Black patients who smoke (“Cigarette smoking among adults--United States, 2000,” 2002; Jones et al., 2018). Among former smokers, Black patients report smoking for longer and into later ages, regardless of how much they smoked before quitting, and 86% of former smokers are White while only 7.5% are Black (Jones et al., 2018). Studies have found that patients from minority and disadvantaged backgrounds are less likely to be considered eligible for TJA due to smoking (Hinman & Bozic, 2008; A. Y. Wang et al., 2018). Regarding alcohol, patients who are socioeconomically disadvantaged disproportionately suffer from mortality due to alcohol-attributable causes (Probst et al., 2014). Black patients are more likely to be prescribed opioids in advance of TJA (Jin et al., 2019), and Black and Hispanic patients are less likely than white patients to successfully complete SUD treatment at substance use treatment facilities (Grooms & Ortega, 2022). These findings demonstrate a potential for substance use-related interventions within TJA preoperative optimization protocols to exert positive effects on the health and TJA utilization of racial minorities and socioeconomically disadvantaged patient populations (Dlott et al., 2020).

This article uses information gathered from orthopaedic nurse navigators and a review of the current literature to share resources and practical recommendations for optimizing patients using tobacco, alcohol, or opioids before TJA.

## Methods

### Nurse Navigator Perspectives

The methodology for this article series is fully described in the introduction to the series (Kebeh et al. 2023). Members of the National Association of Orthopaedic Nurses (NAON) were contacted via an online forum and asked to specifically describe their protocols and practices for optimizing patients by helping them reduce or cease smoking, alcohol use, or opioid use.

We distinguish alcohol use and opioid use from alcohol use disorder (AUD) and opioid use disorder (OUD), as the use of alcohol or opioids can impact surgical outcomes even without meeting the criteria for AUD or OUD. The term “opioid use” includes the use of opioids for chronic pain managed by a primary care provider (PCP) or pain specialist as well as the use of opioids outside of a provider-supervised regimen. To allow for diversity of responses, we used semi-structured individual discussions, held over the phone or via video conference. Each conversation was recorded to document and review discussion content. Four standard questions were asked to gather perspectives and examples of optimization strategies (Figure 2), followed by open-ended questions based on their responses in order to prompt discussion around the administration of screening questionnaires, laboratory tests, patient education, and connection to outside resources of a medical or social nature. Since conversations were qualitatively focused and semi-structured, there was variation in the discussion of practices to optimize these risk factors.

### Literature Review

For our literature review, we conducted searches in the Scopus and Web of Science databases, which were selected to reflect the perspectives and methodologies of multiple disciplines. We found 8 articles pertinent to smoking, 6 pertinent to alcohol use, and 10 pertinent to opioid use.

## Results

### Smoking

**Nurse Navigator Perspectives**—Nurse navigators reported that smoking was discussed with patients preoperatively and described interventions that they recommended to patients to assist with smoking cessation. Eighty-eight percent of nurse navigators stated that the surgeon, anesthesia team, advanced practice providers (APPs), or the navigator themselves conducted an initial health assessment that included questions pertaining to smoking in their first individual encounter with the patient. Twenty-eight percent of nurse navigators reported that TJA patients were uniformly required to abstain from using any nicotine products for up to 6 weeks prior to TJA. The remainder stated that their institution did not have a uniform policy regarding smoking among TJA patients and individual surgeons’ preferences guided how smoking status was addressed. Interventions included patient education (delivered in an asynchronous online format or in person) regarding the negative effects of smoking on wound healing and recovery from surgery; verbal encouragement and follow-up; smoking cessation commitment letters or non-legally binding contracts;

preoperative provision of nicotine replacement therapies in the form of lozenges or lollipops, patches, and gums; referral to smoking cessation helplines; and referral to structured smoking cessation programs (Table 1). Structured smoking cessation programs included features such as pharmacists who provided medical management of nicotine weaning, a nurse navigator employed by the institution for the specific role of implementing a smoking cessation program, community classes and support groups, guided meditations, and options for telehealth meetings.

**Literature Review**—Smoking has been identified as the most common risk factor for poor outcomes following TJA (Hansen et al., 2012) and cessation prior to TJA is a goal that is frequently included in the literature regarding optimization due to its deleterious effects on wound healing and complication rates (Adie et al., 2019; Bernstein et al., 2018; Hejblum et al., 2009). One study showed that while prior smokers were reported to have a greater risk of complications than never smokers, smoking cessation could reduce their risk relative to that of current smokers (Singh et al., 2011).

Interventions to support smoking cessation, which we collectively refer to as “cessation interventions,” can include pharmacotherapy, counseling, support groups, education, nicotine replacement therapy, or any referral to resources to support patients’ efforts to quit smoking, many of which are low-cost, low-risk, and routinely included in research exploring preoperative optimization protocols. Cessation interventions described in the results of our literature search are described here.

One systematic review found that the lengths of preoperative smoking cessation periods were rarely defined (Theadom & Cropley, 2006). However, when defined, longer preoperative smoking cessation periods demonstrated non-statistically significant but appreciable decreases in postoperative complication risk. Preoperative interventions leading to a decrease or elimination of smoking have been shown to decrease cost and length of hospital stay as well as lower complication rates (Bernstein et al., 2018; Hansen et al., 2012; Hejblum et al., 2009; Lindström et al., 2008; Møller et al., 2002). Varying recommendations in the literature state that TJA patients should stop smoking 4–8 weeks in advance of surgery (Adie et al., 2019; Lindström et al., 2008; Møller et al., 2002). In the literature, cessation interventions consistently included education regarding the increased risks of perioperative complications and weekly counseling sessions, often with nurses (Adie et al., 2019; Lindström et al., 2008; Møller et al., 2002). The provision of nicotine replacement therapy, sometimes including patient-specific schedules for using this therapy, was also reported in the literature (Hansen et al., 2012; Lindström et al., 2008; Møller et al., 2002). Some institutions provided patients with written educational materials (Bernstein et al., 2018) or connection to smoking cessation hotlines (Lindström et al., 2008). A study of patients undergoing TJA implemented a smoking cessation intervention that consisted of weekly meetings with a nurse who provided free nicotine replacement products and instructions on how to properly utilize them, as well as counseling related to avoiding weight gain and managing withdrawal symptoms (Møller et al., 2002). This study found that 64% of patients assigned to the intervention group stopped smoking during the study period, which was 6 to 8 weeks preceding surgery and 10 days following surgery, while 7.7% of patients not participating in the intervention stopped smoking during the same period. The

intervention group experienced a lower rate of overall postoperative complications as well as wound-related complications. Similar results have been found among patients undergoing general surgery (Lindström et al., 2008).

## Alcohol Use

**Nurse Navigator Perspectives.**—Ninety-two percent of nurse navigators reported that alcohol use was discussed with patients by themselves, the surgeon, or in pre-admission testing. Forty-four percent of nurse navigators personally collected an alcohol use history from patients. They did so by utilizing custom interview questions, questions from standardized screening tools such as the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) (Babor et al., 2001; Saunders et al., 1993; van Gils et al., 2021), or by referring to notes in the patients' chart to gain an understanding of their alcohol use history. The nurse navigators we spoke with generally did not focus on a distinction between alcohol use and AUD, nor did they specifically attempt to diagnose and treat AUD. Rather, there was a collective focus on implementing interventions that would reduce the likelihood of postoperative alcohol withdrawal syndromes and associated complications of poor wound healing among TJA patients.

Nurse navigators reported offering to patients multiple interventions to help patients reduce or eliminate their alcohol consumption, including providing education on the effects of alcohol and alcohol withdrawal, coordinating with PCPs regarding medication or counseling, referring patients to local chapters of Alcoholics Anonymous (AA), and ensuring case manager or social work involvement in the patient's care (Table 2). Joint classes served as an opportunity to provide education and resources that patients could access even if they were not required to abstain from alcohol use by their surgeon. When temporary discontinuation of alcohol use was specifically recommended, recommendations for how long patients should abstain were most commonly 48 or 72 hours.

**Literature Review**—Although our discussions with nurse navigators included alcohol use that did not meet the criteria for AUD, the relevant results from our literature review focused on the effects of AUD on TJA outcomes. Studies have demonstrated an increased rate of postoperative complications such as prosthetic joint infections in TJA patients with AUD (Best et al., 2015; Gold et al., 2020) and the negative physiological effects of alcohol on wound healing and surgical recovery (Trevejo-Nunez et al., 2015). These studies reported poorer outcomes for patients with AUD and also identified the need for research on how best to support patients in reducing alcohol intake prior to surgery (Best et al., 2015; Gold et al., 2020). A study of the effect of preoperative optimization on TJA outcomes reported improved outcomes for optimized patients. However, despite including AUD among their screening criteria, they did not specify which interventions were implemented with regard to alcohol use (Bernstein et al., 2018). We found one reference that detailed interventions for decreasing or eliminating alcohol use before arthroplasty. This was an ongoing, unpublished randomized controlled trial for THA patients (Egholm et al., 2018; Tønnesen, 2002), and the trial plan featured pharmacological interventions, vitamin supplementation, treatment of withdrawal symptoms, weekly motivational counseling sessions, and phone support for 3 months after surgery.

## Opioid Use

**Nurse Navigator Perspectives**—Ninety-six percent of nurse navigators stated that there was discussion regarding opioid use with patients preoperatively, including with care providers other than the nurse navigator themselves. Fifty-six percent of nurse navigators personally engaged in screening for or discussion of opioid use in the preoperative period. Nurse navigators detailed the interventions that they employed to help manage both opioid use and OUD (Table 3), such as providing education in joint classes regarding the potential effects of preoperative pain medication on pain after surgery, how to dispose of medication, and potential drug interactions. Nurse navigators also collaborated with pharmacists, anesthesiologists, and physical therapists to teach patients about multimodal pain management and referred patients to outside resources such as intervention programs with behavioral health specialists.

For patients with OUD, nurse navigators discussed resources such as local chapters of Narcotics Anonymous (NA) or non-legally binding letters of commitment to decreasing or discontinuing the use of opioids. For patients with chronic pain, nurse navigators reported that they connected patients to in-house surgical preoperative programs. These included pain management sessions, appointments, or hospitalist-run clinics serving patients with Medicaid. Nurse navigators also connected patients with new pain management specialists, coordinated communication with established pain management providers, or recommended patients receive bedside pain management consultations postoperatively.

**Literature Review**—Previous studies have found that persistent opioid use after surgery was more common in patients that used opioids preoperatively and that patients using opioids preoperatively had lower functional scores postoperatively (Catchpool et al., 2019; Pivec et al., 2014). One study showed that a majority of Medicare beneficiaries received opioids within the year leading up to TJA (Jin et al., 2019). Another study reported that diagnoses of depression in conjunction with SUD were also associated with increased wound complication rates (Gold et al., 2020). While patients with osteoarthritis (OA) may experience severe pain and there is still a lack of consensus on optimal analgesic measures for OA (Xu et al., 2019), successful implementation of opioid-free analgesia after TJA has been reported as part of optimization protocols demonstrating increased home discharge rates and decreased costs, length of stay (LOS), and complication rates (Gray et al., 2018). Our review of the literature revealed preoperative optimization protocols that identified prescription opioid use or unspecified SUD as areas for optimization (Bernstein et al., 2018; Garson et al., 2014; Gray et al., 2018; Hansen et al., 2017; Wall & de Steiger, 2020) but did not include specific descriptions of interventions for reducing opioid use prior to TJA in either context.

## Discussion

Nurse navigators were often directly involved in providing patients with education, encouragement, resources, referrals, and other forms of support for preoperative optimization that addressed smoking, alcohol use, and/or opioid use. Not all of the nurse navigators consulted took part in addressing substance use, indicating the lack of uniformity

of optimization protocols for substance use and potential for these nurse navigators to have a greater role in the optimization process.

Based on our discussions with nurse navigators and our literature searches, we have developed preoperative optimization recommendations that nurse navigators can consider discussing with the surgical care team. Further research regarding the effectiveness of these interventions is warranted to help determine which patients and institutions would most benefit from the implementation of specific interventions. We provide links to resources that can aid nurse navigators in implementing these recommendations (Table 4). While the sample of nurse navigators we contacted was modest in number, it included geographically diverse programs at different stages of developing preoperative optimization protocols. We believe the responses collected are representative of current practices for optimizing patient health by addressing substance use before TJA.

### Recommendations – Smoking

Studies of preoperative optimization and risk management programs for TJA have noted a gap between identifying smoking as a risk factor and implementing smoking cessation efforts for patients (Bernstein et al., 2018; Dlott & Wiznia, 2022; Ryan et al., 2019). Given this trend, our first recommendation (Table 5) is that nurse navigators encourage surgeons, PCPs, or pre-admission testing units to refer all patients who smoke to robust cessation programs involving personalized counseling, options for pharmacotherapy, nicotine replacement therapies such as lozenges, lollipops, patches, and gums, and regular follow-up. Smoking cessation pharmacotherapy options that nurse navigators can be aware of and encourage PCPs to consider include varenicline and bupropion (Sabesan et al., 2022).

Though smoking cessation programs are cost-effective (Hejblum et al., 2009), these resources are not universally available. It may not be feasible to create a resource solely for use by patients receiving TJA. However, the benefits of smoking cessation for patients in other surgical areas are well-established (Theadom & Cropley, 2006), and combining patient pools across surgical specialties may help offset costs. National cessation helplines and organizations such as the American Red Cross may also serve as resources for establishing cessation programs or accessing existing programs outside of the hospital setting. Helplines provide patients with cessation support ranging from counseling to nicotine replacement therapy (*1-800-QUIT-NOW: 15 Years of Helping People Quit*) and we recommend nurse navigators refer patients to this free resource. These programs should be begun at least 4 weeks prior to TJA and progress should be assessed continuously with the use of motivational interviewing and positive reinforcement as nurse navigators follow patients preoperatively. Nurse navigators should advocate for supportive measures discussed in this article to aid patients in smoking cessation and against the use of nicotine or cotinine level testing to disqualify patients from receiving TJA, which results in reduced access to care (O'Connor et al., 2022).

Studies have cited the importance of patient education and information in improving outcomes (Anderson et al., 2021; Bottle et al., 2019; Parsons et al., 2013). We found that nurse navigators often discussed smoking cessation in joint classes attended by patients before surgery and recommend using this strategy. Nurse navigators should address

this topic in classes so that all patients who smoke are aware of the risks associated with smoking and the resources available to help them quit. This should be done in a focused and efficient manner as this information is critical for patients who smoke but not applicable to those who do not. Nurse navigators can provide evidence-based education derived from the resources we reference (Table 4) and inform patients of the risks that are increased by smoking, such as that of infection and delayed wound healing (Duchman et al., 2015). Another way to incorporate education and motivational counseling is using personalized content delivery through online patient education platforms such as Wellbe™, Care Companion, or CareSense. Some of these platforms are customizable, which allows nurse navigators to deliver specific information and motivation to patients who smoke. As some of these platforms also provide messaging services, they may strengthen communication between patients and nurse navigators. However, adoption of these platforms can be expensive, and certain populations such as elderly and low-income patients may have limited access to these resources (Mamedova & Pawlowski, 2018). Nurse navigators should discuss the financial feasibility of these options and ways to make them more cost-effective, such as utilizing them across the institution, with surgeons and medical directors.

### Recommendations – Alcohol Use

The majority of nurse navigators discussed alcohol use with patients in some form, although few imposed strict cutoffs regarding alcohol use prior to TJA. We recommend instituting a standardized and validating screening tool such as the AUDIT-C to identify patients at risk for hazardous drinking during the first contact between the nurse navigator and patient (Babor et al., 2001; van Gils et al., 2021). Health care institutions may choose to implement different interventions for patients with a positive screen or institute a lower threshold for intervention than what is classically used, but utilizing a standard tool will advance the ability of preoperative optimization programs to define a threshold for intervention and later establish a standard of care as more institutions collect and compare data.

Most commonly, alcohol use was discussed during joint classes, and we recommend using this setting to provide education regarding the effects of alcohol on surgical recovery (Table 6). In the outpatient setting, nurse navigators should communicate concerns related to patients' alcohol use with their PCPs and be aware of potential pharmacologic interventions to treat AUD, such as acamprosate, naltrexone, and disulfiram (Egholm et al., 2018; Jørgensen et al., 2011; Rösner, Hackl-Herrwerth, Leucht, Lehert, et al., 2010; Rösner, Hackl-Herrwerth, Leucht, Vecchi, et al., 2010). In addition, surgical care teams, PCPs, and internists may recommend thiamine and multivitamin supplementation to avoid nutrient deficiencies and postoperative benzodiazepines for treatment of withdrawal symptoms (Campbell et al.; Egholm et al., 2018), and nurse navigators should be familiar with these treatment options. In the inpatient setting, we recommend that nurse navigators consult with surgeons and surgical care teams to consider involving inpatient medical providers for management of any alcohol use-related risks in the inpatient setting.

One of the resources nurse navigators most frequently referred to was AA, and we recommend consideration of this resource to connect patients to resources and support beyond the hospital (Find A.A. Near You). Nurse navigators should also access and



connect patients to resources through the Substance Abuse and Mental Health Services Administration (SAMHSA) national hotline (SAMHSA - Substance Abuse and Mental Health Services Administration). We recommend sharing these resources with patients and becoming familiar with available options to help make patients aware of the types of resources available. Motivational counseling on a regular basis and management of withdrawal symptoms were interventions discussed in our literature review and commonly discussed by nurse navigators that may also serve as low-risk, cost-effective ways to facilitate changes related to alcohol use.

### Recommendations – Opioid Use

Qualitative studies have found that patients undergoing TJA benefit from nurse navigator availability and knowledge (Causey-Upton et al., 2020; Teng et al., 2021). However, a perceived lack of information on pain management can contribute to decreased postoperative patient satisfaction (Goldsmith et al., 2017). Our first recommendation (Table 7) is to assess patient understanding regarding pain management and opioid use, which can be done as part of the perioperative calls already made by many nurse navigators or administered via online patient education platforms when available. Sharing results with the surgical care team or providing further education to bridge gaps in patient understanding may improve patients' surgical experiences. Nurse navigators can use the resources available in this article (Table 4) to provide evidence-based education (Pivec et al., 2014; Smith et al., 2017).

For patients with chronic pain treated with opioids, we recommend that nurse navigators confirm patients' management regimen with pain specialists and consider incorporating presentations by specialists on multimodal pain management into joint classes. Chronic pain would be best managed by a pain specialist, so connecting patients to these providers would be an important intervention. However, many nurse navigators will not have access to the necessary resources to do so. We also recommend the inclusion of inpatient providers such as hospitalists, who are likely to be more accessible, in planning perioperative care and pain management.

The most frequently used outside resource among nurse navigators was NA, which lists resources in all 50 states on their website (*Find a Meeting*, 2012), or similar peer support groups for patients with OUD. SAMHSA also provides a national hotline, 1-800-662-4357, that shares resources for patients seeking support for substance use disorders and their providers (SAMHSA - Substance Abuse and Mental Health Services Administration). We recommend nurse navigators share this resource with patients with OUD and familiarize themselves with the resources that the hotline provides for patients. In addition, patients may seek different qualities and methods in support groups, such as a focus on a shared faith or identity among group members. Coordination between nurse navigators and PCPs may help identify the most suitable resources for patients to access on a local level.

### Conclusion

The development of preoperative optimization programs is an area of orthopaedics with the potential to greatly improve patient outcomes. Nurse navigators are critical to the implementation of these programs and are uniquely positioned to identify patients' needs,

implement interventions to address them, and monitor patients' progress in reaching optimization goals. We have provided recommendations for reducing or eliminating substance use among patients seeking TJA. By utilizing strategies that will help patients meet optimization goals, nurse navigators can help improve TJA outcomes, especially among underserved patient populations.

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<p><b>Orthopaedic Nurse Navigators and Preoperative Optimization: The Movement is Life Special ONJ Series – Context Statement</b></p>
<p>Patient comorbidities such as obesity, uncontrolled diabetes, and smoking are common and associated with increased postoperative complications among patients seeking TJA. In addition, social determinants of health, such as socioeconomic status or mental health conditions may contribute to postoperative health complications and can act as barriers to care. While many medical comorbidities and biopsychosocial factors affecting patients are modifiable conditions that can be addressed preoperatively and increasingly popular practices of patient optimization relying on orthopaedic nurse navigators for implementation may prove beneficial to both providers and patients, marginalized patient populations carry an increased comorbidity burden and are at increased risk of exclusion from TJA when eligibility criteria are used in these programs. Nurse navigators can assist in the development and implementation of these programs and thus improving both outcomes and equity of TJA while increasing the ability of patients with comorbidities and risk factors to safely receive treatment.</p>

**Figure 1.**  
Context Statement for Orthopaedic Nurse Navigators and Preoperative Optimization Series

Question 1	Questions 2 and 3	Question 4
<ul style="list-style-type: none"> <li>Describe your role as a nurse navigator and how you interface with patients throughout the preoperative optimization process.</li> </ul>	<ul style="list-style-type: none"> <li>Is [smoking status, alcohol use, opioid use, diabetes, cardiovascular disease, obesity, malnutrition, mental health, housing, payer status and affordability, or medication management] an area that is addressed as part of preoperative optimization at your institution?</li> <li>If so, how is this risk factor managed or optimized? What is your role in its optimization?</li> </ul>	<ul style="list-style-type: none"> <li>Please share any additional resources you use to remain apprised of current guidelines and preoperative optimization strategies for TJA.</li> </ul>

**Figure 2.**  
Standard Questions Asked of Orthopaedic Nurse Navigators.

**Table 1.**

## Interventions for Smoking Reported by Nurse Navigators.

<ul style="list-style-type: none"> <li>• <b>Education through joint classes</b> and asynchronous online or app-based patient education platforms in regard to increased risks of TJA complications associated with smoking and resources for smoking cessation</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Verbal encouragement and follow-up</b> through reinforcement of risk and resource education, continued monitoring of patient progress with cessation efforts leading up to TJA</li> </ul>
<ul style="list-style-type: none"> <li>• Cessation commitment letters/contracts</li> </ul>
<ul style="list-style-type: none"> <li>• Assistance with accessing nicotine substitution therapy (provided by PCP or PAT)</li> </ul>
<ul style="list-style-type: none"> <li>• Referral to publicly-funded smoking cessation helplines, from which patients could connect with further resources</li> </ul>
<ul style="list-style-type: none"> <li>• Referral to smoking cessation programs featuring support groups and other providers (provided by institution, PCP, or outside organizations)</li> </ul>

TJA: total joint arthroplasty, PCP: primary care provider, PAT: pre-admission testing

Interventions in bold can be implemented in-house (without referrals or outside resources).



**Table 2.**

Interventions for Alcohol Use Reported by Nurse Navigators.

<ul style="list-style-type: none"> <li>• <b>Education in joint classes</b> in regard to increased risks of TJA complications associated with alcohol use and resources for managing alcohol use</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Verbal encouragement and follow-up</b> through reinforcement of risk and resource education, continued monitoring of patient progress</li> </ul>
<ul style="list-style-type: none"> <li>• Communication with PCP to identify and address counseling and pharmacotherapy needs</li> </ul>
<ul style="list-style-type: none"> <li>• Referral to support groups (facilitated by outside organizations such as AA)</li> </ul>
<ul style="list-style-type: none"> <li>• Referral to case management or social work for further identification of resources</li> </ul>

TJA: total joint arthroplasty, PCP: primary care provider, AA: Alcoholics Anonymous

Interventions in bold can be implemented in-house (without referrals or outside resources).

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**Table 3.**

Interventions for Opioid Use Reported by Nurse Navigators.

<ul style="list-style-type: none"> <li>• <b>Education in joint classes</b> and online or app-based patient education platforms in regard to risks associated with atypical or inappropriate opioid use and resources for managing opioid use</li> </ul>
<ul style="list-style-type: none"> <li>• Collaborative joint class or online education with pharmacists, anesthesiologists, and physical therapists regarding multimodal pain management with non-opioid analgesics, non-pharmacologic methods, physical therapy exercises</li> </ul>
<ul style="list-style-type: none"> <li>• Coordination with PCP or pain specialist for referral to pain management program featuring behavioral therapy</li> </ul>
<ul style="list-style-type: none"> <li>• Referral to support groups (facilitated by outside organizations such as NA)</li> </ul>
<ul style="list-style-type: none"> <li>• Cessation commitment letters/contracts</li> </ul>

PCP: primary care provider, NA: Narcotics Anonymous

Interventions in bold can be implemented in-house (without referrals or outside resources).

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**Table 4.**

Resources for Implementing Recommendations: Substance Use

Resources
<b>Smoking</b>
• Tobacco treatment resources for providers <sup>1</sup>
• Smoking cessation handout for patients with resources <sup>2</sup>
• Structured smoking cessation programs <sup>3,4</sup>
• Printable handouts and resources on smoking cessation and medication management for patients <sup>5,6</sup>
<b>Alcohol Use</b>
• AA meeting search tool <sup>7</sup>
• AUDIT-C screening questions <sup>8</sup>
<b>Opioid Use</b>
• Pain resources for patients and providers <sup>9</sup>
• Special interest article collections, including pain management <sup>10</sup>
• NA meeting search tool <sup>11</sup>
<b>General</b>
• SAMHSA helpline, provider resources, and patient resources <sup>12</sup>
• Podcasts on orthopaedic surgery, nursing, care coordination, and risk factors <sup>13</sup>
• Webinars on orthopaedic surgery, nursing, care coordination, and risk factors <sup>14</sup>

AA: Alcoholics Anonymous, AUDIT-C: Alcohol Use Disorders Identification Test-Consumption, NA: Narcotics Anonymous, SAMHSA: Substance Abuse and Mental Health Services Administration

List of Resources from Table 4: Resources for Implementing Recommendations

1. *Tobacco Measure Resource Links*. (May 2022). The Joint Commission. [https://www.jointcommission.org/-/media/tjc/documents/measurement/measures/tobacco-treatment/dashboard-resource-links-tob-5\\_22.pdf](https://www.jointcommission.org/-/media/tjc/documents/measurement/measures/tobacco-treatment/dashboard-resource-links-tob-5_22.pdf)
2. *Quit Smoking Before Your Operation*. (2022). American College of Surgeons. <https://www.facs.org/for-patients/preparing-for-your-surgery/quit-smoking/>
3. *Become an EX Smoker*. (2022). Truth Initiative. <https://www.becomeanex.org>
4. *Home - Smokefree*. National Institutes of Health. <https://smokefree.gov>
5. *Operation Brochures for Patients*. (2022). American College of Surgeons. <https://www.facs.org/for-patients/preparing-for-your-surgery/operation-brochures-for-patients/>
6. *Strong for Surgery*. (2022). American College of Surgeons. <https://www.facs.org/for-patients/strong-for-surgery/>

7. *Find A.A. Near You*. General Service Office (G.S.O.) of Alcoholics Anonymous. <https://www.aa.org/find-aa>
8. Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., Monteiro, M. G., & Organization, W. H. (2001). *AUDIT: The alcohol use disorders identification test: Guidelines for use in primary health care*.
9. *How to Safely Manage Pain After Surgery*. American College of Surgeons. <https://www.facs.org/for-patients/safe-pain-management/>
10. *JBJS Article Collections*. (2022). Journal of Bone and Joint Surgery. <https://www.jbjs.org/collections.php>
11. *Find a Meeting*. (2012). Narcotics Anonymous World Services. <https://www.na.org/meetingsearch/>
12. *SAMHSA - Substance Abuse and Mental Health Services Administration*. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov>
13. *Becker's Healthcare Podcasts*. (2022). Becker's Healthcare. <https://www.beckerspocasts.com>
14. *Webinars*. (2022). Becker's Healthcare. <https://www.beckershospitalreview.com/upcoming-webinars.html>

**Table 5.**

Recommendations for Preoperative Optimization: Smoking Status

<b>Smoking</b>	
•	Regularly refer patients to <b>smoking cessation program</b> involving counseling, options for pharmacotherapy such as varenicline or bupropion, and regular follow-up
•	Offer or refer for <b>nicotine substitution therapy</b> with lozenges, lollipops, patches, and gums and <b>pharmacotherapy</b> with varenicline and bupropion
•	Refer to <b>national smoking cessation helpline (1-800-QUIT-NOW)</b> for redirection to local resources
•	Incorporate patient education on effects of smoking <b>into joint classes, online education platforms, and individual counseling</b> conversations
•	Provide patient with <b>direct motivational counseling</b>

PCP: Primary care provider

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**Table 6.**

Recommendations for Preoperative Optimization: Alcohol Use

Alcohol Use	
•	Utilize standard screening tools such as the AUDIT-C to identify concerning alcohol use as defined by institution/preoperative optimization program
•	Incorporate patient education on effects of alcohol and alcohol withdrawal into <b>joint classes, individual counseling</b> conversations
•	Discuss potential <b>outpatient treatment with acamprosate, naltrexone, and disulfiram</b> with PCP and surgeon
•	Coordinate with PCP and surgeon regarding <b>withdrawal-related inpatient care and nutritional supplementation with thiamine and multivitamins</b>
•	Refer to <b>local support groups such as AA</b> or hospital programs
•	Refer to <b>national SAMHSA hotline (1-800-662-HELP)</b> for redirection to local resources
•	Provide patient with <b>direct motivational counseling</b>

AUDIT-C: Alcohol Use Disorders Identification Test-Consumption, SAMHSA: Substance Abuse and Mental Health Services Administration, AA: Alcoholics Anonymous, PCP: Primary care provider

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**Table 7.**

Recommendations for Preoperative Optimization: Opioid Use

<b>Opioid Use</b>	
•	<b>Assess and improve patient understanding</b> of pain management through one-on-one conversations, joint classes, and online patient education platforms
•	Incorporate <b>patient education on effects of opioid use and multimodal pain management into joint classes, individual counseling</b> conversations
•	Refer to <b>local support groups such as NA</b> or internal programs
•	Refer to <b>national SAMHSA hotline (1-800-662-HELP)</b> for redirection to local resources
•	Coordinate with PCP and established pain specialists regarding postoperative pain management by <b>inpatient care providers</b>

PCP: Primary care provider, SAMHSA: Substance Abuse and Mental Health Services Administration, NA: Narcotics Anonymous

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