

Sedations and Fasting Guidelines

Updated 2026 Comprehensive Evidence-Based ASIPP Guidelines for Sedation and Fasting Status of Patients Undergoing Interventional Pain Management Procedures

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Background: Sedation practices for interventional pain procedures vary widely across specialties, practice settings, and geographic regions, ranging from local anesthesia alone to moderate or deep sedation and monitored anesthesia care. Excessive sedation has been associated with masking of neural injury during needle placement, increased cost, and regulatory scrutiny. In contrast, inadequate attention to sedation and monitoring for appropriately selected patients carries its own safety risk. A dedicated, evidence-based, consensus-validated guideline specific to sedation practices in interventional pain management is needed to standardize practice.

Objective: To develop evidence-based, consensus-validated guidelines, following American Society of Interventional Pain Physicians (ASIPP) methodology, addressing patient selection, fasting status, patient- and drug-related factors modifying sedation requirements, levels of sedation, choice and pharmacology of sedative-analgesic agents, and intraprocedural and postprocedural monitoring for adult patients undergoing interventional techniques for chronic pain.

Study Design: Structured scoping review of the literature with best evidence synthesis and development of evidence-based statements and recommendations, followed by a formal Delphi consensus process.

Methods: The methodology conformed to ASIPP's established approach for guideline development, incorporating the Institute of Medicine's (National Academy of Medicine) criteria for trustworthy guidelines, a structured scoping literature search with PRISMA 2020-informed reporting, a modified Grading of Recommendations Assessment, Development, and Evaluation (GRADE)/Agency for Healthcare Research and Quality (AHRQ) evidence-grading framework, best evidence synthesis, and a multi-round Delphi survey among a multidisciplinary panel to achieve formal consensus on each statement and recommendation.

Results: The literature search, together with existing society statements and prior ASIPP guidance, including the 2019 ASIPP sedation/fasting guidelines and the sedation-specific recommendations of the Updated 2026 ASIPP Facet Joint Interventions Guidelines, informed evidence-based statements and recommendations addressing preprocedural patient assessment and fasting status, appropriate levels of sedation by procedure type, choice and dosing of sedative-analgesic

agents, minimum monitoring standards, personnel and equipment requirements, and management of sedation-related adverse events. This update further situates the clinical evidence within the governing Medicare Administrative Contractor Local Coverage Determination (LCD) framework for facet joint, sacroiliac joint, and epidural interventions, which converge on a consistent standard restricting routine moderate/deep sedation, general anesthesia, and monitored anesthesia care for these procedures outside individually documented medical necessity, while permitting moderate sedation for radiofrequency ablation in individual cases with documented medical necessity. Comments are also provided on sedation practice for spinal cord stimulation, peripheral nerve stimulation, percutaneous vertebral augmentation, basivertebral nerve ablation, and minimally invasive spine surgery, for which coverage policy and clinical practice diverge more than for commonly performed spinal injections. The overall body of evidence specific to sedation in interventional pain management is dominated by observational studies, extrapolated evidence from procedural sedation in other specialties, and expert consensus, with few procedure-specific randomized controlled trials; evidence was accordingly graded predominantly as Level III/IV (fair to limited) to Level V (consensus-based) using the modified ASIPP grading scale, with isolated Level I/II evidence available for selected pharmacologic comparisons, monitoring modalities (e.g., capnography), and the ASIPP 2026 facet joint sedation recommendations. Fifteen statements and recommendations were developed by a faculty of 40 authors achieving 100% acceptance after 3 rounds.

Limitations: The evidence base is limited by the paucity of interventional-pain-procedure-specific randomized trials, heterogeneity in sedation practice and outcome reporting, reliance on evidence extrapolated from endoscopic, radiologic, and surgical procedural sedation literature.

Conclusion: For the majority of interventional pain procedures, local anesthesia alone or minimal sedation is sufficient and preferred; moderate sedation or monitored anesthesia care should be reserved for selected patients and procedures based on documented medical necessity, with attention to the risk of masking neural injury. Continuous pulse oximetry, blood pressure, and cardiac rhythm monitoring should be standardized for patients receiving sedation; quantitative capnography should be used for deep sedation, monitored anesthesia care, and general anesthesia and may be considered for moderate sedation, but is not considered mandatory for local anesthesia alone or minimal sedation/anxiolysis, a position offered with the acknowledgment that capnography requirements remain genuinely contested among authorities.

Key words: Capnography, Delphi consensus, dexmedetomidine, evidence-based medicine, fasting, interventional pain management, midazolam, moderate sedation, monitored anesthesia care, practice guidelines, propofol, sedation

Disclaimer: These guidelines are based on the best available evidence and do not constitute inflexible treatment recommendations. Because the evidence continues to evolve, this document should not be interpreted as a “standard of care”.

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SUMMARY OF EVIDENCE AND RECOMMENDATIONS:**Statement 1 (Preprocedural assessment).**

All patients considered for sedation during an interventional pain procedure should undergo a focused preprocedural assessment, including American Society of Anesthesiologists (ASA) Physical Status classification for monitored anesthesia care and general anesthesia, airway assessment, and medication reconciliation with attention to concurrent CNS depressants and opioids.

Evidence: Level IV/V (limited/consensus-based). Recommendation: Strong.

Statement 2 (Patient-specific factors).

Patient-specific factors (including age, obesity and obstructive sleep apnea, relevant medical comorbidities, chronic opioid exposure and other concurrent CNS depressants, GLP-1 receptor agonist therapy, and relevant psychological comorbidities) should be incorporated into individualized sedation planning. Agent selection, dosing, titration, and monitoring intensity should account for patient-specific pharmacokinetic and pharmacodynamic considerations.

Evidence: Level IV/V (limited/consensus-based). Recommendation: Strong.

Statement 3 (Fasting status).

A minimum fasting interval of 2 hours for clear liquids and 6 hours for a light meal is sufficient for patients undergoing moderate sedation for interventional pain procedures; a uniform 8-hour fast is not required in this population in the absence of elevated aspiration risk. No fasting is required for local anesthesia alone or minimal sedation/anxiolysis in patients without elevated aspiration risk.

Evidence: Level III/IV (fair/limited), extrapolated in part from general procedural-sedation fasting literature and evolving GLP-1-specific guidance. Recommendation: Moderate.

Statement 4 (Local anesthesia and anxiolysis as default).

Local anesthesia alone, without sedation or with anxiolysis, should be considered the default approach for the majority of interventional pain procedures, including epidural injections, medial branch blocks, facet and sacroiliac joint injections, and peripheral nerve blocks.

Evidence: Level IV/V (limited/consensus-based), supported by convergent multisociety guidance. Recommendation: Strong.

Statement 5 (Avoidance of deep sedation for cervical interlaminar access).

Deep sedation or general anesthesia should be avoided during cervical interlaminar epidural access in adults, given the reported association between heavily sedated states and inability to report warning symptoms preceding spinal cord injury.

Evidence: Level IV/V (limited/consensus-based, based on case reports and closed-claims analyses). Recommendation: Strong.

Statement 6 (Individualized sedation for select procedures).

Moderate sedation or monitored anesthesia care may be individually indicated, based on documented medical necessity, for radiofrequency ablation and selected neuromodulation procedures. Sedation depth for vertebral augmentation and SCS/DRG implantation should be individualized according to the specific procedure, implant stage, and patient factors, as addressed in Statements 14 and 15.

Evidence: Level III/IV (fair/limited). Recommendation: Moderate.

Statement 7 (Agent selection).

When sedation is indicated, the choice of agent(s) should be individualized based on the desired sedation depth, procedure duration, and patient comorbidity; combined midazolam-fentanyl regimens and dexmedetomidine-based regimens are both reasonable options, with dexmedetomidine associated with relatively preserved respiratory drive but a higher incidence of bradycardia/hypotension and a slower onset and offset less suited for brief procedures, and midazolam-fentanyl associated with a well-documented risk of synergistic respiratory depression requiring vigilant monitoring.

Evidence: Level II/III (moderate/fair), extrapolated substantially from procedural sedation literature outside interventional pain management. Recommendation: Moderate.

Statement 8 (Propofol administration).

When propofol is used, it should be administered only by, physicians, nurse anesthetists, or anesthesia assistants specifically trained in the rescue of patients from a level of sedation deeper than intended, including airway management, consistent with ASA guidance.

Evidence: Level II (moderate), based on multisociety AHRQ-informed guidance. Recommendation: Strong.

Statement 9 (Monitoring standard, including capnography).

Continuous pulse oximetry, blood pressure monitoring at regular intervals, and cardiac rhythm monitoring should be used for all patients receiving sedation for interventional pain procedures. Quantitative end-tidal carbon dioxide monitoring (capnography) may be considered for patients receiving moderate sedation and should be used for patients receiving deep sedation, monitored anesthesia care, or general anesthesia. Capnography is not required as a routine matter for local anesthesia alone or minimal sedation/anxiolysis; for moderate sedation, its use remains reasonable at the individual physician's discretion but should not be treated as mandatory. This item is noted as an area of genuine disagreement among authorities (Section 3.7.2).

Evidence: Level II (moderate) for the deeper-sedation-and-monitored anesthesia care recommendation, based on RCT and meta-analytic evidence from broader procedural sedation contexts; Level V (consensus-based, contested) for the position that capnography is not required for minimal or moderate sedation. Recommendation: Strong (deep sedation and monitored anesthesia care); Weak/Consensus-based, contested (minimal or moderate sedation not required).

Statement 10 (Personnel).

A dedicated individual, distinct from the proceduralist, trained in airway management and resuscitation appropriate to the administered sedation level, should be responsible for monitoring the patient throughout the procedure performed under moderate or deep sedation or monitored anesthesia care. A separate dedicated monitor is not typically required for minimal sedation/anxiolysis.

Evidence: Level IV/V (limited/consensus-based). Recommendation: Strong.

Statement 11 (Recovery and discharge).

Patients should be monitored in a dedicated recovery area and meet validated discharge criteria, with written postprocedural instructions, before discharge; patients receiving sedation should have a responsible adult escort.

Evidence: Level IV/V (limited/consensus-based). Recommendation: Strong.

Statement 12 (Alignment with Medicare LCD policies).

Documentation supporting moderate sedation, deep sedation, general anesthesia, or monitored anesthesia care in conjunction with facet joint, sacroiliac joint, or epidural interventions should explicitly identify the patient- or procedure-specific factor (e.g., documented inability to cooperate, medical contraindication to remaining still, or, for RFA/neurotomy, anticipated procedural duration and requirement for stillness) supporting medical necessity beyond patient anxiety or preference alone, consistent with the governing Medicare Administrative Contractor LCD in the physician's jurisdiction (Section 3.9).

Evidence: Level V (consensus-based; regulatory alignment rather than clinical-outcome evidence). Recommendation: Strong.

Statement 13 (Facet joint interventions — procedure-specific sedation depth).

Consistent with the ASIPP Updated 2026 Facet Joint Interventions Guidelines, selective mild sedation is appropriate and may be utilized for diagnostic and therapeutic facet joint interventions for patient comfort and anxiety control, using a low-dose, short-acting benzodiazepine when needed, avoiding opioids, and discussing possible diagnostic confounding; moderate sedation or monitored anesthesia care may be utilized specifically for RFA/neurotomy based on individualized medical necessity; and routine moderate/deep sedation, general anesthesia, or monitored anesthesia care should not be used for diagnostic or straightforward therapeutic facet joint injections.

Evidence: Level II-III (moderate/fair), per the ASIPP 2026 facet joint guideline. Recommendation: Moderate (diagnostic/therapeutic and RFA).

Statement 14 (Sedation for neuromodulation trials).

Percutaneous spinal cord stimulation (SCS), dorsal root ganglion stimulator (DRG), and peripheral nerve stimulation (PNS) trial lead placement may be performed with local anesthesia, minimal/light sedation, or moderate sedation, individualized according to the

procedure, patient factors, need for patient cooperation and communication, and applicable coverage requirements. Moderate sedation or monitored anesthesia care should not be considered an obligatory or routine requirement for trial lead placement. Permanent SCS, DRG or PNS implantation may require moderate sedation, monitored anesthesia care, or general anesthesia depending on the lead location, procedural complexity, anticipated duration, positioning, and institutional and anesthesia requirements, at the discretion of the implanting physician and anesthesia team.

Evidence: Level IV/V (limited/consensus-based, including coverage-policy evidence). Recommendation: Moderate.

Statement 15 (Sedation for vertebral augmentation and basivertebral nerve ablation).

For percutaneous vertebral augmentation, moderate sedation, monitored anesthesia care, or general anesthesia may be clinically appropriate based on the procedural requirements, including transpedicular or other bony access, positioning, anticipated procedural duration, number of levels treated, patient comorbidity, and need for immobility; however, no single sedation depth should be considered a universal default for all patients. For basivertebral nerve ablation, physicians should confirm the sedation provisions of the applicable governing LCD before assuming that moderate sedation or monitored anesthesia care will be separately reimbursed and should document the procedure-specific rationale (transpedicular bony access, ablation duration) whenever moderate sedation or general anesthesia is used.

Evidence: Level IV/V (limited/consensus-based). Recommendation: Moderate.

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1.0 INTRODUCTION

The National Center for Health Statistics (NCHS) published a report in 2024, evaluating chronic and high-impact chronic pain among US adults during 2023, demonstrating that these conditions were among the primary reasons that adults sought medical care (1). Chronic pain has been associated with reduced quality of life, opioid misuse, increased anxiety and depression, and unmet healthcare needs. According to this report, 24.3% of adults experienced chronic pain, while 8.5% reported high-impact chronic pain during the preceding 3 months in 2023, compared to 20.5% and 7.5% respectively in 2019 (1). To reinforce these findings, in a 2026 publication Zajacova et al (2) reported pain prevalence among US adults during and after the COVID-19 pandemic utilizing NCHS data from 2019 to 2023. These showed that chronic pain and high-impact chronic pain increased by 13% during and after COVID. Overall, they reported that an estimated 60 million Americans experienced chronic pain in 2023, representing the highest prevalence ever reported, suggesting a substantial escalation in the population burden of pain with implications for public health policy.

Among the chronic pain conditions, chronic spinal pain with or without extremity or chest wall pain is one of the leading causes of disability and healthcare expenditures in the United States and worldwide (3-11). Numerous studies evaluating US health and disability trends (4-7,10), along with cost-analysis related to low back pain, neck pain, and other musculoskeletal disorders (8), have demonstrated the increasing burden of disability and escalating healthcare costs. Consequently, these conditions consistently rank among the most expensive disease categories in healthcare spending. Based on the available literature, numerous modalities of treatments are applied. Among modalities beyond conservative management and medical therapy, interventional techniques are commonly applied. Over the years, substantial changes have occurred in the utilization patterns of interventional techniques, initially characterized by exponential growth, but subsequently failing to demonstrate comparable sustained increases. The COVID-19 pandemic exerted a lasting impact on interventional pain management practices (11-19). It is also noted that even before the pandemic, growth patterns of interventional techniques within the Medicare population had begun to change, and, in some instances, declined following implementation of the Affordable Care Act (ACA). In addition to interventional techniques in the

conservative paradigm, a large number of patients also receive opioids. As a continuum, despite interventional techniques and surgical interventions, patients continue opioid therapy as outlined in the American Society of Interventional Pain Physicians (ASIPP) opioid guidelines (13).

Numerous reviews over the years have evaluated opioid use, overuse, abuse, and a broad spectrum of adverse consequences associated with opioid therapy, including opioid-related mortality. In fact, Manchikanti et al (13,20) described the evolution of a fourth wave of opioid-related deaths, representing a modification of the 3 distinct waves previously described by the Centers for Disease Control and Prevention (CDC). Ironically, the relationship between opioid overdoses, opioid treatment admissions, and prescription opioid analgesics in the United States from 2010-2019 has been basically non-existent and unrelated (21). Even so, despite changes in prescribing patterns and a decrease in opioid prescription and maximum doses, opioid-tolerant patients, opioid-dependent patients, and individuals receiving medication for opioid use disorder (OUD) remain a clinically relevant subgroup of patients undergoing a broad range of procedures (22). Further, many patients presenting for interventional techniques have daily regimens of medications including analgesics, muscle relaxants, antidepressants, antianxiety medications, including benzodiazepines, and multiple drugs used in managing various medical problems. All can have significant additive/synergistic effects during the perioperative period.

Procedural sedation is used in a variety of diagnostic and therapeutic settings, including interventional pain procedures in ambulatory facilities (23,24). The core paradigm for procedural sedation is balancing comfort and safety. The fundamental clinical framework prioritizes a conscious, communicative patient. This approach weighs several competing clinical priorities with the preservation of neurological feedback, intraoperative monitoring, complication avoidance, and injury prevention. In addition, it provides diagnostic integrity through pain replication and post-procedural evaluation, preventing misdiagnosis. It is also crucial that patient vulnerability and pharmacokinetics with polypharmacy risks, drug synergism, respiratory depression, and positional dangers be considered when providing sedation. Interventional pain management techniques are defined by the Medicare Payment Advisory Commission (MedPAC) (25) as "minimally invasive procedures including, percutaneous precision needle

placement, with placement of drugs in targeted areas or ablation of targeted nerves; and some surgical techniques such as laser or endoscopic disectomy, intrathecal infusion pumps, and spinal cord stimulators, for the diagnosis and management of chronic, persistent, or intractable pain." Consequently, other than multiple percutaneous procedures including epidural injections, facet joint nerve blocks, sacroiliac joint injections, and peripheral nerve blocks, certain interventional techniques and minimally invasive surgical techniques, and surgical techniques will require higher levels of sedation with deep sedation, monitored anesthesia care, or occasionally general anesthesia.

The current dogmatic perspective of sedation for interventional pain procedures establishes that a vast majority of chronic pain interventions should be performed using local anesthesia alone or minimal sedation to preserve vital patient feedback and guarantee procedural safety (3,26,27).

Many chronic pain patients have co-morbid states, including obesity, obstructive sleep apnea, cardiovascular disease, liver disease, kidney disease, and pulmonary disease. Patients have suffered permanent neurologic injury, hypoxic brain injury, and even death as a result of over-sedation, hypoventilation, and spinal cord injuries (28-34).

ASIPP has developed guidelines for best practice for interventional pain procedures and reviews (3,13-15,26,35-37). In addition, the American Society of Anesthesiologists (ASA) and the International Pain and Spine Intervention Society (IPSIS) share the philosophy that routine deep sedation or general anesthesia is contraindicated for these procedures because of diagnostic and safety hazards, in accordance with Centers for Medicare and Medicaid Services (CMS) recommendations (25) described in multiple local coverage determinations (LCDs) (38-46). However, controversies continue to surround sedation practices. In fact, in July of 2025, the Office of Inspector General (OIG) of the Department of Health and Human Services (DHHS) (47) published a report estimating that Medicare could have saved \$17.7 million if CMS's oversight had prevented at-risk payments for anesthesia administered during spinal pain management procedures. OIG also found that during this period, Medicare Part B paid physicians \$45.7 million for anesthesia administered during selected spinal pain management procedures that were at risk for non-compliance with Medicare requirements. However, this is not the first report from OIG. A prior OIG audit of the Medicare Administrative Contractors

found that the Medicare Administrative Contractor paid physicians for anesthesia administered during 17 of 100 sampled facet joint injection sessions where physicians did not document the need for anesthesia (48).

The proponents of sedation for all procedures argue that sedation and analgesia are essential for all patients to control anxiety, pain, and physical and mental distress. The available literature does not provide definite answers.

A meta-analysis of perioperative α_2 -agonists reported that none of the included randomized trials enrolled patients with chronic pain or hyperalgesia (49). Likewise, a review of dexmedetomidine literature in pain management concluded that clinical trials specifically evaluating chronic pain or hyperalgesic populations are lacking (50-53). A review of pharmacologic treatments for opioid-induced hyperalgesia (OIH) found no randomized controlled trials have been conducted specifically in chronic opioid users or patients with cancer-related pain (54).

Three major potential complications associated with the use of sedation and anesthesia for procedures should be appreciated by every interventional pain practitioner. First, if a needle is inserted incorrectly in a location such as the spinal cord or too close to a peripheral nerve, the patient will not be able to communicate sudden paresthesias, dysesthetic pain, or any other aberrant sensations to the interventional pain practitioner while under deep sedation or general anesthesia. This patient feedback can be vital in reducing the risk of severe and permanent complications during an interventional procedure. Needle penetration into the spinal cord itself may not cause pain or irreversible damage; rather, intramedullary deposition of as little as 0.5-1 mL of injectate will likely result in neurologic deficit related to syrinx formation and to disruption of neuronal pathways (55).

The second potential complication is the requirement for prone positioning in most interventional pain procedures, which may increase risk and complicate the provider's response to adverse events.

Third, the inherent risk with deep sedation and/or general anesthesia should be considered, since they can result in hypoventilation, pulmonary compromise, anoxic brain states, lost airway, respiratory acidosis, bradycardia, cardiovascular collapse, and/or death. In addition to the above complications, physicians should be concerned about aspiration risks and complications related to keeping patients NPO for the required period before the procedure. It should be noted that

under appropriate circumstances, properly managed sedation can improve patient comfort and facilitate the performance of interventional procedures. However, given the inherent hazards, particularly with deep sedation and general anesthesia, the risk-benefit ratio for individual patients should be assessed. It would not seem prudent to use sedation for every patient without appropriate evaluation or solely based on revenue considerations for the practice.

Despite the clinical importance of this question, sedation practice for interventional pain procedures has historically been guided by a patchwork of general procedural-sedation guidance developed for other specialties (anesthesiology, gastroenterology, interventional radiology, oral and maxillofacial surgery), general statements from pain societies, and individual practice preference, rather than by a single, procedure-specific, evidence-based, and consensus-validated guideline.

ASIPP published an initial guideline on sedation and fasting status for interventional pain procedures in 2019 (26). Since that publication, additional primary literature, updated society statements (including the ASA 2018 update to its moderate procedural sedation guideline and 2021 statement on anesthetic care during interventional pain procedures), and evolving payer scrutiny of sedation billing for pain procedures have accumulated, supporting the development of an updated, more comprehensive, methodologically rigorous guideline (6,9,12).

This document describes the methodology, evidence base, pharmacology, and monitoring standards that underlie an updated set of evidence-based statements and recommendations on sedation for interventional pain procedures, developed according to ASIPP's model guideline methodology and through a multidisciplinary Delphi consensus survey.

2.0 METHODS

2.1 Rationale

Interventional pain management has a broad spectrum of diagnostic and therapeutic procedures that vary in complexity, invasiveness, duration, and patient discomfort (3,13-17,26). Procedural sedation can improve patient comfort and facilitate the performance of appropriately selected procedures; however, excessive sedation may impair patient communication, delay recognition of neurologic or other procedure-related complications and increase the risk of cardiopulmonary adverse events (22-35,55). Patients undergoing interventional pain procedures may have chronic pain, opioid exposure, and multiple medical comorbidities that may influence sedation requirements and periprocedural risk (22-35,55). Accordingly, consensus-based recommendations are needed to promote the safe and appropriate use of sedation in interventional pain management.

2.2 Objectives

The objective of the guidelines is to provide an evidence-based approach to the use of procedural sedation in interventional pain management. These guidelines are intended to promote the safe, appropriate, and effective use of sedation while also minimizing the sedation-related risks. The recommendations are based on the best available evidence regarding the safety and effectiveness of procedural sedation. The literature demonstrates the importance and value of evidence-based guidelines for clinical practice and the importance of periodic updates to maintain relevance with the evolving clinical practice (56,57).

2.3 Application

These guidelines are applicable across multiple specialties that perform interventional procedures but are primarily targeted for clinicians practicing interventional pain management. Their purpose is to provide evidence-based recommendations for the safe, appropriate, and medically necessary use of procedural sedation.

2.4 Guideline Development Framework and Trustworthy Standards

This guideline was developed in accordance with the methodology described by ASIPP for evidence synthesis and the development of comprehensive, evidence-based guidelines for interventional techniques in chronic spinal pain, which incorporates the Na-

tional Academy of Medicine's (formerly the Institute of Medicine) standards for developing trustworthy clinical practice guidelines (58,59). These standards require: (a) establishment of transparency in the guideline development process and funding; (b) formal management and disclosure of conflicts of interest among panel members; (c) a multidisciplinary guideline development group inclusive of relevant clinical specialties and, where feasible, patient perspectives; (d) a systematic review of the evidence underlying each recommendation; (e) explicit articulation of the rating system used for the quality of evidence and strength of each recommendation; (f) recommendations articulated in a standardized form that clearly explain the reasoning; (g) external review by individuals not involved in guideline development; and (h) a defined plan for updating the guideline as new evidence emerges.

2.5 Guideline Development Panel

A multidisciplinary panel was convened, consistent with ASIPP methodology used in prior guidelines (e.g., facet joint interventions, epidural interventions, peripheral nerve stimulation), comprising interventional pain physicians (trained in anesthesiology, physical medicine and rehabilitation, internal medicine, radiology, and neurology), an anesthesiologist with expertise in procedural sedation pharmacology, a methodologist, nurse anesthetists, and multiple sedation nurses. All panelists are required to complete standardized conflict-of-interest disclosures before participation; panelists with a significant financial conflict related to a specific sedative agent, monitoring device, or sedation-billing interest are recused from voting on statements directly implicating that conflict, consistent with prior ASIPP guideline practice (3,58).

2.6 Development of Key Questions

Consistent with ASIPP methodology, the panel formulated key clinical questions to structure the evidence review and subsequent statements. The original core questions (1-5) have been expanded to include questions (6-14) to address the 2026 update to the ASIPP facet joint guidelines, the governing LCD framework, and sedation considerations specific to major interventional and minimally invasive procedures.

1. Which patient-specific factors, including opioid tolerance, opioid-induced hyperalgesia, psychological comorbidities, body mass index/obesity, glucagon-like peptide-1 (GLP-1) receptor agonist therapy, age, smoking, and multiple concurrent medical co-

morbidities, meaningfully modify sedation dosing, agent selection, or monitoring intensity, and how should pharmacodynamic and pharmacokinetic principles inform individualized sedation planning in these patients?

2. What preprocedural assessment (including ASA physical status classification) and fasting protocol should be applied before interventional pain procedures are performed with or without sedation?
3. For which interventional pain procedures is local anesthesia alone sufficient, and for which procedures or patient populations is minimal, moderate, or deep sedation indicated?
4. Which sedative-analgesic agents, at what doses and routes, are supported by the available evidence for use during interventional pain procedures, and how do they compare in efficacy, recovery profile, and safety?
5. What intraprocedural and postprocedural monitoring (physiologic parameters, personnel, equipment, and recovery criteria) is required at each level of sedation?
6. What are the reported complications associated with sedation during interventional pain procedures, and what patient- or procedure-specific factors increase risk?
7. What sedation-specific guidance is provided by the ASIPP Updated 2026 Comprehensive Evidence-Based Guidelines for Facet Joint Interventions, and how does it differ for diagnostic versus therapeutic facet joint procedures and radiofrequency ablation (RFA)?
8. What do the governing Medicare Administrative Contractor LCDs specify regarding the medical necessity, documentation, and billing of moderate sedation, deep sedation, general anesthesia, and monitored anesthesia care for facet joint interventions?
9. What do the governing LCDs specify regarding sedation and anesthesia for sacroiliac (SI) joint injections and related procedures?
10. What do the governing LCDs specify regarding sedation and anesthesia for epidural interventions (interlaminar, transforaminal, and caudal epidural injections, as well as percutaneous adhesiolysis)?
11. What sedation practices, coverage criteria, and documentation requirements apply to spinal cord stimulation (SCS), peripheral nerve stimulation (PNS) trials and permanent implantation?
12. What sedation and anesthesia practices apply to

percutaneous vertebral augmentation (vertebroplasty/kyphoplasty), and how does the evidentiary and regulatory approach to sedation for this procedure differ from that for facet, SI joint, and epidural interventions?

13. What sedation and anesthesia practices, and what coverage considerations, apply to intraosseous basivertebral nerve ablation (e.g., the Intracept procedure)?
14. What sedation and anesthesia considerations apply to minimally invasive spine (MIS) surgical procedures (e.g., endoscopic discectomy, interspinous spacers, minimally invasive fusion) performed by or referred from interventional pain practices, and how do these differ from office-based interventional techniques?

2.7 Literature Search Strategy

A structured scoping literature search was conducted across PubMed/MEDLINE, Scopus, Embase, the Cochrane Central Register of Controlled Trials, and Web of Science, supplemented by manual review of reference lists of included studies, prior ASIPP and related society guidelines, and guideline registries (e.g., ECRI Guidelines Trust, National Guideline Clearinghouse archives). Search terms combined controlled vocabulary and free-text terms for interventional pain procedures (e.g., "epidural injection," "facet joint," "medial branch," "radiofrequency ablation," "vertebral augmentation," "spinal cord stimulation," "dorsal root ganglion stimulation," "sacroiliac joint injection," "percutaneous adhesiolysis") combined with sedation-related terms (e.g., "sedation," "moderate sedation," "conscious sedation," "monitored anesthesia care," "procedural sedation," "propofol," "midazolam," "fentanyl," "dexmedetomidine," "ketamine," "capnography," "fasting," "NPO"). The search was limited to studies involving adult human subjects and publications reported in the English language. No randomized-controlled-trial filter was applied a priori, given the anticipated scarcity of trials specific to sedation in interventional pain procedures; observational studies, comparative-effectiveness studies extrapolated from closely related procedural settings (e.g., spine surgery under monitored anesthesia care, endoscopic and interventional radiology sedation), and existing society guidelines and consensus statements were deliberately included to permit best evidence synthesis in a literature-limited field (58,60).

2.8 Study Selection, Eligibility Criteria, and PRISMA Flow

For the scoping search, titles and abstracts were screened against pre-specified eligibility criteria. Inclusion criteria were: (a) study population consisting of adult patients undergoing an interventional pain procedure (or a closely analogous image-guided percutaneous procedure when direct evidence was unavailable); (b) an intervention or comparison involving a specific sedation strategy, sedative-analgesic agent, monitoring modality, or fasting protocol; (c) reporting of at least one outcome relevant to efficacy (e.g., patient/proceduralist satisfaction, procedural conditions, recall/amnesia) or safety (e.g., hypoxemia, hypotension, apnea, aspiration, neurologic injury, recovery time); and (d) publication as a full-text article, systematic review, or society guideline/consensus statement. Case reports, non-systematic narrative reviews without original data or synthesis, and articles without an extractable sedation-specific outcome were excluded from quantitative and qualitative synthesis but were retained where relevant for background and safety-signal discussion (e.g., isolated case reports of neurologic injury under deep sedation).

2.9 Methodological Quality Assessment

Quality assessment of the literature was not feasible.

2.10 Evidence Grading and Best Evidence Synthesis

Since an extensive body of literature specific to interventional pain sedation was unavailable, the panel applied best-evidence synthesis, drawing on available literature, closely analogous procedural sedation literature (e.g., gastrointestinal endoscopy, interventional radiology, minimally invasive spine surgery under monitored anesthesia care) and existing multisociety guidance, with the level of evidence

downgraded accordingly. Following evidence grading, by consensus, the strength of each recommendation was categorized, per AHRQ methodology, as Strong (benefits clearly outweigh risks/burdens, or vice versa; most patients would want this course of action), Moderate (benefits and risks/burdens are more closely balanced, or evidence quality is lower, such that a majority of patients would want this course of action but some would not), or Weak/Consensus-based (evidence is insufficient, of very low quality, or so closely balanced that the recommendation rests primarily on expert consensus). Table 1 shows ASIPP modified approach to grading of evidence (60). Table 2 shows a guide for the strength of recommendations (61).

2.11 Delphi Consensus Process

Following completion of the evidence synthesis, the draft statements and recommendations presented underwent formal validation using a modified Delphi consensus methodology, consistent with ASIPP's approach to guideline validation (63,64). The process was as follows:

- **Panel composition:** A multidisciplinary Delphi panel of approximately 40 experts was assembled, including interventional pain physicians representing multiple parent specialties (anesthesiology, physical medicine and rehabilitation, neurology, radiology), anesthesiologists with procedural sedation expertise, nurse anesthetists, and sedation nurses.
- **Round 1:** Panelists independently rated each draft statement (agree, agree with modifications, or disagree), and free-text comments provided for any statement for which wording changes are suggested.
- **Analysis and feedback:** Consistent with standard Delphi thresholds, consensus is defined a priori as an agreement rate of 80% or greater. Items not

Table 1. *Qualitative modified approach to grading of evidence of therapeutic effectiveness of studies.*

Level I	Strong	Evidence obtained from multiple relevant high-quality randomized controlled trials
Level II	Moderate	Evidence obtained from at least one relevant high-quality randomized controlled trial or multiple relevant moderate or low-quality randomized controlled trials
Level III	Fair	Evidence obtained from at least one relevant moderate or low-quality randomized trial or Evidence obtained from at least one relevant high-quality non-randomized trial or observational study with multiple moderate or low-quality observational studies
Level IV	Limited	Evidence obtained from multiple moderate or low-quality relevant observational studies
Level V	Consensus based	Opinion or consensus of large group of clinicians and/or scientists

Modified from: Manchikanti L et al. A modified approach to grading of evidence. *Pain Physician* 2014; 17:E319-E325 (60).

Table 2. Guide for strength of recommendations as modified for ASIPP guidelines.

Rating for Strength of Recommendation	
Strong	There is high confidence that the recommendation reflects best practice. This is based on: a) strong evidence for a true net effect (e.g., benefits exceed harms); b) consistent results, with no or minor exceptions; c) minor or no concerns about study quality; and/or d) the extent of panelists' agreement. Other compelling considerations (discussed in the guideline's literature review and analyses) may also warrant a strong recommendation. ASIPP Adaptation: Consensus was achieved that there is high certainty that the net benefit is substantial providing strong recommendation. Recommendation: Strong
Moderate	There is moderate confidence that the recommendation reflects best practice. This is based on: a) good evidence for a true net effect (e.g., benefits exceed harms); b) consistent results, with minor and/or few exceptions; c) minor and/or few concerns about study quality; and/or d) the extent of panelists' agreement. Other compelling considerations (discussed in the guideline's literature review and analyses) may also warrant a moderate recommendation. ASIPP Adaptation: Consensus was achieved that there is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. Recommendation: Moderate
Weak	There is some confidence that the recommendation offers the best current guidance for practice. This is based on: a) limited evidence for a true net effect (e.g., benefits exceed harms); b) consistent results, but with important exceptions; c) concerns about study quality; and/or d) the extent of panelists' agreement. Other considerations (discussed in the guideline's literature review and analyses) may also warrant a weak recommendation. ASIPP Adaptation: Consensus was achieved that there is potential improvement in certain individuals or groups of patients based on individual professional judgement and shared decision making. Recommendation: Weak

Adapted and modified from: Manchikanti L, Sanapati M, Albers S, et al. Updated 2026 Comprehensive evidence-based guidelines for facet joint interventions in the management of chronic spinal pain: American Society of Interventional Pain Physicians (ASIPP) Guidelines. *Pain Physician* 2026; 29:S1-S228 (3).

Developed from: National Guideline Clearinghouse Extent of Adherence to Trustworthy Standards (NEATS) instrument (61,62).

- meeting this threshold are flagged as areas of disagreement.
- Round 2 (and subsequent rounds as needed):** Statements not reaching consensus in Round 1 are revised based on feedback and recirculated for re-rating, blinded to individual panelists' prior responses, for three rounds at which time 100% consensus was obtained.
- Reporting:** Finally, 100% consensus was reached for all 15 statements and recommendations.

3.0 RESULTS

3.1 Literature Search

The literature identification and selection process and the resulting composition of the included evidence base are summarized in the PRISMA flow diagram (65) in Fig. 1.

3.2 Characteristics of the Evidence Base

3.2.1 Overview

Consistent with the PRISMA flow summarized in Fig. 1, the evidence base identified to inform this guideline (n = 53 sources from the scoping search) was heterogeneous in design and in the directness of the evidence. Nine randomized controlled trials were identified; however, the majority of these studies were conducted

in procedural-sedation settings closely analogous to, but not identical to, interventional pain management (e.g., minor outpatient surgery, endoscopy, dental sedation, regional-anesthesia-supplemented orthopedic procedures), comparing combinations of propofol, midazolam, fentanyl, remifentanyl, and dexmedetomidine (66-72). Direct comparisons of sedative regimens specifically for spinal injection, radiofrequency ablation, or neurostimulator implantation procedures were rare, reflecting a broader pattern noted in prior ASIPP guideline development: procedure-specific, adequately powered randomized trials remain the exception rather than the rule in interventional pain management, particularly for questions of periprocedural process (sedation, fasting) rather than of therapeutic effectiveness of the procedure itself (3,58).

Nineteen observational or cohort studies were identified, including retrospective case series describing monitored anesthesia care during minimally invasive spine procedures and neurostimulator trials, as well as case-control or registry-based analyses of sedation-related adverse events (e.g., hypoxemia, aspiration) during procedural sedation more broadly. Multiple systematic reviews or meta-analyses and RCTs addressed related questions, including comparative safety and efficacy of sedative agents for procedural sedation outside the operating room and the effect of capnography on detection of respiratory depression

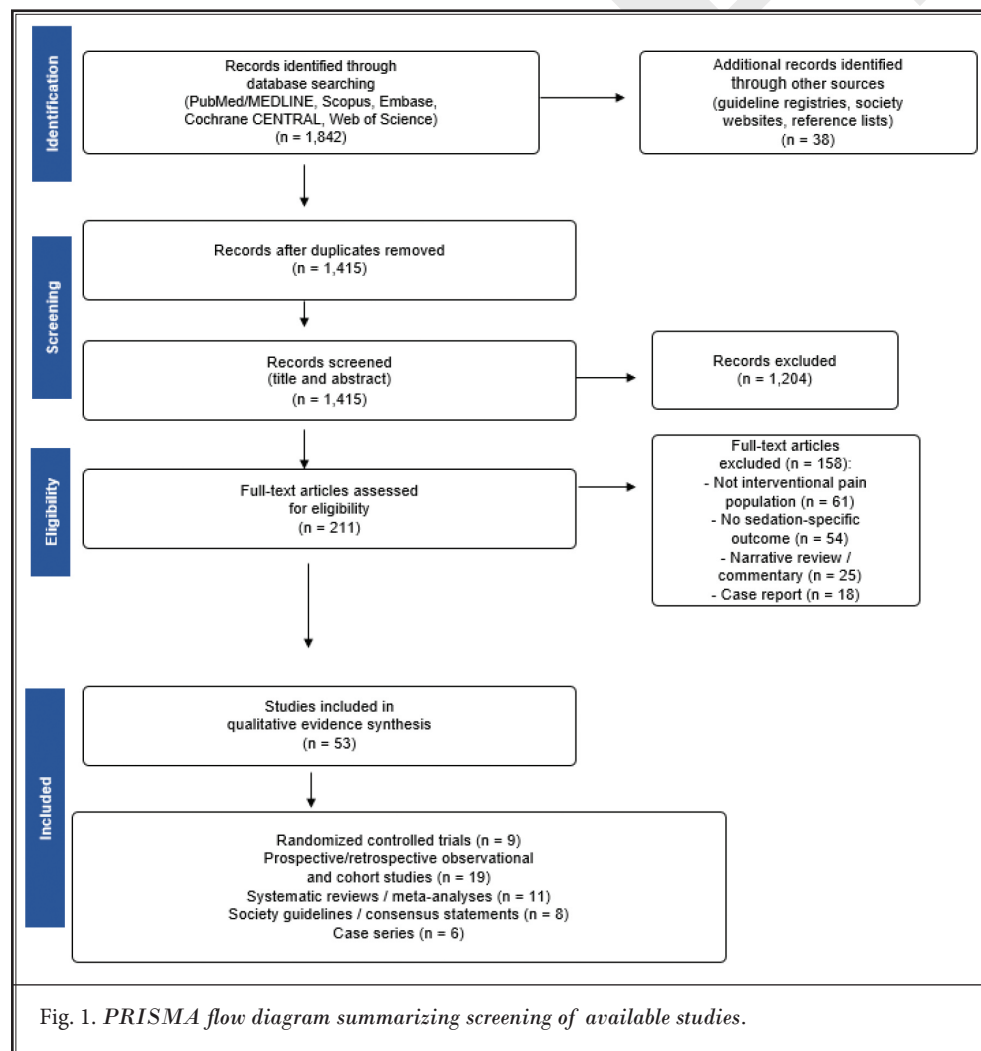


Fig. 1. PRISMA flow diagram summarizing screening of available studies.

(73,74). Eight society guidelines or multisociety consensus statements were identified and are described in detail in Section 3.8. The remaining six sources were case series or safety reports, most relevant to the discussion of rare but serious adverse events (e.g., neurologic injury associated with deep sedation during cervical interlaminar epidural access) (75-77).

3.2.2 Characteristics of the Included Literature

Table 3 shows characteristics of the included literature.

3.2.3 Summary of Evidence Quality

Applying the modified ASIPP grading scale (60), the overall body of evidence addressing sedation-specific

Table 3. *Characteristics of representative included studies.*

Study / Source (design)	Population / Setting	Sedation Comparison or Focus	Key Outcome(s)
Kaye et al, 2019 (ASIPP guideline) (26)	Adults undergoing interventional pain procedures	Fasting status, levels of sedation, monitoring, sedative agent selection	Established prior ASIPP guidance: minimal fasting requirements (2 h clear liquids / 6 h light meal) rather than universal 8-hour fast; monitoring standards
Manchikanti et al, 2026 (ASIPP Updated Facet Joint Interventions Guidelines) (3,75,78)	Adults undergoing diagnostic and therapeutic facet joint interventions and RFA	Procedure-specific sedation depth (mild sedation for diagnostic/therapeutic injections; moderate sedation/monitored anesthesia care for RFA); concurrent antithrombotic management	48-author panel; 37 recommendations, 100% voting-panel acceptance; sedation evidence graded II-V depending on question; diagnostic/therapeutic injection and RFA recommendations both of moderate strength
ASA Statement on Anesthetic Care During Interventional Pain Procedures for Adults, 2021 (79)	Adults undergoing interventional pain procedures	Indications for moderate sedation/ anesthesia care team vs. local anesthesia alone	Most minor procedures (e.g., epidural steroid injection, medial branch block, facet/SI joint injection) do not require moderate sedation or anesthesia care team
ASA Practice Guidelines for Moderate Procedural Sedation and Analgesia, 2018 (80)	Adults/children undergoing moderate procedural sedation across specialties	Preprocedural evaluation, supplemental oxygen, capnography, monitoring, reversal agents	Capnography plus standard monitoring reduces frequency of unrecognized respiratory depression (Category A evidence for supplemental oxygen reducing hypoxemia)
International Pain and Spine Intervention Society (IPSIS; formerly Spine Intervention Society [SIS]) FactFinder on Conscious Sedation, 2018 (81) and Safety Practices for Interventional Pain Procedures (82)	Adults undergoing spinal diagnostic/therapeutic injections and neurostimulation procedures	Case-by-case use of moderate sedation/monitored anesthesia care for SCS/DRG trial and vertebral augmentation; avoidance of deep sedation for interlaminar epidural access	Deep sedation/general anesthesia during interlaminar epidural access associated with spinal cord injury; sedation should be individualized
Multisociety Lumbar Facet Joint Consensus Practice Guidelines, 2020 (83)	Adults undergoing lumbar facet joint procedures	Sedation practice recommendations alongside procedural technique	Local anesthesia generally sufficient for facet joint procedures; sedation individualized
Representative RCTs of propofol/dexmedetomidine/fentanyl-midazolam combinations in analogous procedural sedation (66-72)	Adults undergoing outpatient or minimally invasive procedures under moderate/deep sedation or monitored anesthesia care	Head-to-head comparison of sedative-analgesic regimens	Dexmedetomidine-based regimens associated with less respiratory depression but more bradycardia/hypotension and slower onset than propofol-based regimens; propofol-fentanyl associated with faster emergence
Retrospective case series of monitored anesthesia care in minimally invasive spine surgery/interventional procedures (84,85)	Adults undergoing MISS or interventional procedures under MAC with dexmedetomidine	Feasibility/safety of dexmedetomidine-based monitored anesthesia care	No airway complications or conversions to general anesthesia; hypotension/bradycardia in a minority of patients
Case reports / closed-claims analyses of neurologic injury during sedated cervical interlaminar epidural access (75,76)	Adults undergoing cervical interventional procedures under deep sedation or general anesthesia	Association between sedation depth and inability to report warning symptoms	Reported spinal cord injury temporally associated with heavily sedated/anesthetized state during needle advancement

questions in interventional pain management is best characterized as follows: evidence regarding the general safety benefit of capnography and supplemental oxygen during moderate sedation is Level II (moderate) (80). Evidence regarding comparative pharmacologic strategies (e.g., dexmedetomidine- vs. propofol-based regimens) is Level II-III (moderate to fair), based on studies conducted predominantly outside the interventional pain setting and extrapolated with a corresponding evidence downgrade. Evidence regarding fasting protocols specific to interventional pain procedures, appropriate sedation depth by procedure type, and the specific risk of neurologic injury under deep sedation is Level IV-V (limited to consensus-based), reflecting reliance on one retrospective study, case reports, small case series, and expert/society consensus rather than comparative studies. This distribution is consistent with and mirrors the evidence landscape described in prior ASIPP interventional-technique guidelines, in which procedural and periprocedural process questions are more often addressed through best-evidence synthesis and consensus than through dedicated randomized trials (58,80).

3.2.4. Pharmacology of Sedative-Analgesic Agents

An interventional pain physician overseeing or directing sedation should understand the mechanisms, onset/offset, and adverse-effect profile of the agents commonly used. The following pharmacologic summary reflects agents most frequently referenced in the included evidence-base and existing society guidance (26,27).

3.2.4.1 Benzodiazepines — Midazolam

Midazolam is a short-acting benzodiazepine that potentiates gamma-aminobutyric acid (GABA-A) receptor-mediated chloride channel opening, producing anxiolysis, sedation, and anterograde amnesia without a direct analgesic effect. Administered intravenously, onset occurs within 1-2 minutes, with peak effect at 3-5 minutes and clinical duration of approximately 30-80 minutes. However, this may be prolonged in elderly patients, those with hepatic impairment, or with concurrent opioid or other central nervous system (CNS) depressant use. Typical intravenous titration for minimal-to-moderate sedation is 0.5-2 mg increments, to a usual total range of 1-5 mg in most adults, titrated to effect. Adverse effects include dose-dependent respiratory depression (particularly when combined with opioids), paradoxical agitation (more common in pedi-

atric and elderly patients), and hypotension. Midazolam's effect can be reversed with the benzodiazepine antagonist flumazenil. However, reversal carries a risk of precipitating seizures in benzodiazepine-tolerant patients and re-sedation as flumazenil's duration of action is shorter than that of midazolam (79,80).

3.2.4.2 Opioids — Fentanyl and Remifentanyl

Fentanyl is a synthetic, highly lipophilic mu-opioid receptor agonist commonly combined with midazolam to provide analgesia complementary to the anxiolytic/amnestic effect of the benzodiazepine. Intravenous onset occurs within 1-2 minutes, peak effect at 3-5 minutes, and clinical duration of 30-60 minutes for typical procedural doses (25-100 mcg incremental dosing in most adults). The combination of midazolam and fentanyl produces synergistic, rather than merely additive, respiratory depression, a well-documented safety concern requiring vigilant monitoring (79,80). Remifentanyl, an ultra-short-acting mu-opioid receptor agonist metabolized by nonspecific plasma esterases, offers a more rapid onset/offset profile suited to procedures requiring rapid titration, but requires a continuous infusion and closer monitoring given its potency and rapid onset of respiratory depression. Opioid effects can be reversed with naloxone, though reversal may precipitate acute pain, hypertension, and, rarely, pulmonary edema or arrhythmia.

3.2.4.3 Propofol

Propofol is an intravenous sedative-hypnotic agent acting primarily by potentiating GABA-A receptor activity, producing rapid-onset (30-45 seconds) sedation to general anesthesia in a dose-dependent continuum, with a short, context-sensitive half-life enabling rapid recovery. Because the margin between moderate sedation and general anesthesia with propofol is narrow and can be crossed unpredictably, its administration for procedural sedation is generally restricted, per ASA and specialty society guidance, to practitioners specifically trained in the rescue of patients from a deeper-than-intended level of sedation, including airway management (80,86). Propofol has no analgesic properties and is typically combined with an opioid or administered by an anesthesia professional as part of monitored anesthesia care. Adverse effects include dose-dependent respiratory depression and apnea, hypotension (particularly in hypovolemic or elderly patients), and injection-site pain; there is no specific pharmacologic reversal agent for propofol.

3.2.4.4 Dexmedetomidine

Dexmedetomidine is a highly selective alpha-2 adrenergic receptor agonist producing sedation via hyperpolarization of noradrenergic neurons in the locus coeruleus, yielding a sedative state that has been described as more closely resembling physiologic sleep than benzodiazepine- or propofol-induced sedation, with relative preservation of respiratory drive. Typical dosing involves a loading infusion (0.5-1 mcg/kg over 10 minutes) followed by a maintenance infusion (0.2-1 mcg/kg/h), titrated to the desired sedation level. Compared with propofol- or midazolam-based regimens, dexmedetomidine is associated, in the comparative literature, with less respiratory depression but a higher incidence of bradycardia and hypotension, and a slower onset/offset profile that may be less practical for brief procedures (69,70,87). Dexmedetomidine has an opioid-sparing effect and may reduce postprocedural analgesic requirements, an attribute of particular relevance to interventional pain patients who often have pre-existing opioid tolerance.

3.2.4.5 Ketamine

Ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist, produces a dissociative sedative-analgesic state with relative preservation of airway reflexes and respiratory drive, making it an option for select patients or procedures, particularly when respiratory depression from other agents is a specific concern, or as a low-dose analgesic adjunct. Adverse effects include emergence phenomena (hallucinations, dysphoria), hypertension and tachycardia (of particular relevance in patients with uncontrolled cardiovascular disease), and hypersalivation. Ketamine is used selectively rather than as a first-line agent for most interventional pain procedures.

3.2.4.6 Other Agents and Reversal Agents

Nitrous oxide, administered by inhalation, provides minimal-to-moderate anxiolysis and analgesia with rapid onset/offset and is used in some practices as a low-intensity adjunct. However, nitrous oxide use is not without complications. Through oxidation, nitrous oxide inactivates vitamin B12, rendering it unable to function as a co-factor for methionine synthase and methylmalonyl-CoA mutase. This affects the production of myelin proteins and conversions necessary for DNA synthesis as well as the conversion of methylmalonyl-CoA into succinyl-CoA. Ultimately, B12 deficiency leads to demyelination of both the peripheral and central

nervous systems. Additional complications include agranulocytosis, bone marrow suppression, psychosis, subacute combined degeneration of the spinal cord, myeloneuropathy, polyneuropathy and peripheral neuropathy. Patients present with numbness, weakness, paresthesias, and gait disturbances, with the latter two being most common. Patients also present with elevated homocysteine and methylmalonic acid levels. The classic magnetic resonance imaging (MRI) finding is T2 hyperintensity in the posterior columns, usually over several segments, with or without corticospinal tract involvement (88). Although more common with recreational nitrous oxide use, Hakimoglu et al. (89) demonstrated decreased B12 levels in patients who received anesthesia with nitrous oxide and found that neurologic symptoms and elevation in homocysteine levels were dose dependent.

Etomidate offers hemodynamic stability but carries a risk of adrenal suppression and is infrequently used for outpatient interventional pain sedation. Reversal agents, flumazenil for benzodiazepines and naloxone for opioids, should be immediately available whenever sedative-analgesic agents are administered, regardless of the intended sedation level, given the potential for unpredictable individual sensitivity (26,76).

3.3 Patient Selection, Preprocedural Assessment, and Fasting Status

3.3.1 Preprocedural Assessment

Preprocedural assessment should include a focused history (comorbidities, particularly cardiopulmonary disease, obstructive sleep apnea, and difficult airway history), current medication regimen (with particular attention to other CNS depressants, opioids, and anticoagulants/antiplatelet agents), prior sedation/anesthesia history and any adverse reactions, and assignment of an ASA Physical Status classification. Patients with ASA Physical Status III or greater, a known or suspected difficult airway, morbid obesity, or significant obstructive sleep apnea warrant additional consideration for anesthesia team involvement, consistent with ASA and ASIPP guidance (26,76,80).

3.3.2 Fasting (NPO) Status

Consistent with the 2019 ASIPP sedation and fasting guideline, a minimum fasting period of 2 hours for clear liquids and 6 hours for a light meal is supported by the available evidence for patients undergoing moderate sedation for interventional pain procedures, rather

than a uniform 8-hour fast historically applied by extrapolation from general anesthesia practice (26). This is consistent with ASA fasting guidance more broadly, which the panel notes was developed primarily in the context of general anesthesia and elective surgery aspiration risk, and which multiple sedation-specific analyses have found to be more conservative than necessary for minimal-to-moderate sedation in low-aspiration-risk patients (26,90). More conservative (longer) fasting intervals should be used for patients at elevated risk of aspiration (e.g., gastroparesis, symptomatic gastroesophageal reflux, pregnancy, bowel obstruction) or when deeper sedation or monitored anesthesia care is planned. For patients receiving local anesthesia alone or minimal sedation, fasting is not required.

3.4 GLP-1 Receptor Agonist Use: A Distinct and Evolving Fasting Consideration

Glucagon-like peptide-1 receptor agonists (GLP-1 RAs: semaglutide, tirzepatide, liraglutide, dulaglutide, and related agents), now used widely for both type 2 diabetes and weight management, warrant separate consideration from the general fasting guidance in Section 3.3.2 because their pharmacologic mechanism directly and materially affects gastric emptying, independent of standard fasting duration (91,92). Delayed gastric emptying can leave clinically significant residual gastric contents, solid or liquid, despite adherence to a standard 2-hour clear liquid/6-hour light meal (or even a traditional 6-8 hour) fast and has been associated with case reports of regurgitation and pulmonary aspiration during moderate sedation, monitored anesthesia care, and general anesthesia (91,93,94). This risk is directly relevant to interventional pain sedation practice: in the most recent, evidence-based multidisciplinary analysis of this question, most reported aspiration events occurred specifically during monitored anesthesia care/sedation cases rather than general anesthesia with a secured airway, making this a directly applicable safety consideration for the sedation depths addressed throughout this guideline (94).

Evolution of guidance. The panel notes that formal guidance on this question has evolved substantially within a short interval and should be expected to continue evolving as further evidence accumulates:

- The original ASA consensus-based guidance (June 2023) recommended holding daily-dosed GLP-1 RAs on the day of the procedure and weekly-dosed formulations for one week prior, based on a literature review that the issuing task force itself

characterized as sparse and largely limited to case reports (93). Emergent or urgent procedures were and remain an explicit exception: these should proceed with the patient managed as “full stomach,” regardless of GLP-1 RA timing (93).

- An updated multi-society statement (ASA, jointly with the American Gastroenterological Association, American Society for Metabolic and Bariatric Surgery, International Society of Perioperative Care of Patients with Obesity, and Society of American Gastrointestinal and Endoscopic Surgeons; October 2024) shifted the default recommendation: most patients without significant gastrointestinal symptoms and without other risk factors for delayed gastric emptying may reasonably continue their GLP-1 RA through the procedure, preserving glycemic and other therapeutic benefit, rather than routinely withholding the medication (93). Patients characterized as higher-risk, those in an active dose-escalation phase, on weekly (rather than daily) dosing, on higher doses, or reporting active gastrointestinal symptoms (nausea, vomiting, bloating, early satiety) were instead directed toward a 24-hour clear-liquid diet immediately preceding the procedure as the primary risk-mitigation strategy, used in place of, or in addition to, medication cessation (93).
- The Society for Perioperative Assessment and Quality Improvement (SPAQI) subsequently published a multidisciplinary consensus statement (Oprea et al, British Journal of Anesthesia, 2025) based on a systematic review of both clinical perioperative outcome studies and gastric emptying/gastric ultrasound data, the first GLP-1 RA perioperative guidance the panel is aware of, grounded in a formal systematic evidence review rather than expert opinion alone. This statement similarly recommends a 24-hour solid-food fast with clear liquids permitted for patients without significant GLP-1 RA-associated gastrointestinal symptoms. It reports that reported aspiration pneumonia rates in the available literature (approximately 4.6 per 10,000 cases) do not clearly exceed historical, pre-GLP-1-era baseline rates (approximately 4.8 per 10,000), a reassuring, though not yet definitive, signal (94).
- This evolution has not been without dissent: subsequent commentary (e.g., a published letter from Mizubuti and colleagues) has noted that no study has yet demonstrated a difference in residual gas-

tric content that would justify differential management by dose, dosing interval, or treatment phase as the 2024 multi-society statement proposes, underscoring that this remains a genuinely unsettled, actively debated area rather than a fully resolved question (93).

Practical implications for interventional pain sedation. The panel offers the following pragmatic synthesis rather than a single fixed rule (26): GLP-1 RA use should be specifically elicited during preprocedural assessment (Section 3.3.1), including agent, dose, dosing interval, phase of therapy (initiation/escalation versus long-term stable maintenance dosing), and any associated gastrointestinal symptoms (75). For patients on stable maintenance dosing without gastrointestinal symptoms undergoing minimal-to-moderate sedation, standard fasting per Section 3.3.2 with continuation of the GLP-1 RA is a reasonable, evidence-consistent default (75). When moderate sedation, monitored anesthesia care, or deep sedation is planned for patients in a dose-escalation phase, on weekly dosing, or reporting gastrointestinal symptoms, a 24-hour clear-liquid diet immediately preceding the procedure should be considered in preference to, or in addition to, simple medication cessation, consistent with current multi-society and SPAQI guidance (93). Point-of-care gastric ultrasound, where available and where the proceduralist or anesthesia team has relevant training, is a reasonable adjunct to directly assess residual gastric content in equivocal cases rather than relying on fasting duration or medication timing alone (82). The decision to proceed, modify sedation depth, or delay a procedure in a patient with reported GLP-1 RA non-adherence to a planned fasting or dosing modification should follow the same individualized risk-benefit framework applied to any patient with uncertain aspiration risk, weighed against the clinical consequences of delaying medically necessary pain treatment and, for diabetic patients, against the risk of destabilizing glycemic control by prolonged medication interruption (92-94). Given the pace of change in this area since 2023, the panel recommends that the sedation team confirm the current institutional and specialty society guidance at the time of the procedure rather than relying solely on a fixed interval memorized from prior guidance versions.

Adverse effects relevant to periprocedural planning. Beyond the gastric-emptying/aspiration concern above, GLP-1 RAs carry a broader adverse-effect profile relevant to the sedation encounter: gastrointestinal

symptoms (nausea, vomiting, diarrhea, constipation, and abdominal bloating) are the most common adverse effects of the drug class generally and are also the specific symptom cluster the panel recommends eliciting as a marker of the elevated aspiration risk discussed above. Hypoglycemic risk is increased when a GLP-1 RA is combined with insulin or a sulfonylurea. Hypoglycemia should be considered when a procedure requires a period of altered oral intake. Less commonly, pancreatitis, symptomatic cholelithiasis, and rare reports of ileus have been described with this drug class (91). GLP-1 RAs carry a boxed warning regarding thyroid C-cell tumors observed in rodent studies. They are contraindicated in patients with a personal or family history of medullary thyroid carcinoma or multiple endocrine neoplasia syndrome type 2, a history that should be captured during preprocedural medication reconciliation (Section 3.3.1) independent of the fasting-specific considerations addressed above (91).

3.5 Factors Affecting Sedation for Interventional Techniques

Sedation requirements and sedation-related risk are not uniform across the interventional pain population. A fixed dosing approach applied without regard to patient-specific modifying factors risks both under-sedation (procedural discomfort, poor cooperation, aborted procedures) and over-sedation (respiratory depression, delayed recovery, and masked neurologic warning signs, as discussed in Sections 3.6.2 and 3.7.2). This section describes the principal patient- and drug-related factors that should inform individualized sedation planning, consistent with the preprocedural assessment described in Section 3.3.1. These factors are offered as background clinical context supporting the statements in Section 3.11, rather than as separately numbered statements, given that the underlying evidence is drawn substantially from the broader anesthesia, pain management, and perioperative medicine literature rather than from interventional pain procedure-specific studies.

3.5.1 Opioid Tolerance

Patients on chronic opioid therapy, a finding common among interventional pain patients, particularly those referred for SCS, PNS, or advanced procedures after failing conservative and pharmacologic management, exhibit pharmacologic tolerance, defined as a rightward shift in the opioid dose-response curve such that a larger dose is necessary to achieve the same

analgesic or sedative effect (95,96). Clinically, opioid-tolerant patients typically demand higher procedural sedative-analgesic doses to achieve an equivalent depth of sedation compared with opioid-naïve patients, generate higher rates of inadequate analgesia at standard dosing, and, on average, require more frequent dose titration and closer monitoring (28). Cross-tolerance among opioid agonists is partial rather than complete, so opioid-tolerant patients may still be at increased risk of respiratory depression when a new or additional opioid or sedative-hypnotic is introduced, particularly in combination with benzodiazepines. Preprocedural assessment (Section 3.3.1) should specifically capture the current opioid regimen, morphine milligram equivalent (MME) exposure, and duration of therapy, as this information directly affects the anticipated sedative-analgesic dosing requirements and the selection of agents (Section 3.2.4) that are less reliant on additional opioid administration (e.g., dexmedetomidine-based regimens).

3.5.2 Opioid-Induced Hyperalgesia (OIH)

Distinct from tolerance, opioid-induced hyperalgesia is a paradoxical pronociceptive state in which chronic or high-dose opioid exposure sensitizes the patient to pain, such that the same or an escalated opioid dose produces less analgesic benefit or even increases rather than decreases pain sensitivity (95-97). OIH and tolerance are difficult to distinguish clinically but have opposite management implications. Tolerance is addressed by increasing the opioid dose or rotating agents, whereas OIH may paradoxically improve with opioid dose reduction (68). For sedation planning specifically, the clinical significance of OIH is that a patient reporting disproportionate, diffuse, or poorly localized pain despite substantial opioid dosing during a procedure should prompt consideration of OIH rather than reflexive administration of additional opioids, which may worsen rather than improve procedural comfort and may unnecessarily increase sedation-related respiratory depression risk without a corresponding analgesic benefit. Suspected OIH is also a relevant consideration when selecting adjunct or alternative sedative-analgesic strategies (e.g., dexmedetomidine or low-dose ketamine, Sections 3.2.4.4 to 3.2.4.5), which act through non-opioid mechanisms.

3.5.3 Psychological Comorbidities

Anxiety disorders, depression, post-traumatic stress disorder, somatic symptoms and related disorders, and

unaddressed psychological distress are common among patients presenting for interventional pain procedures and materially affect both sedation requirements and sedation risks. Patients with significant procedural anxiety or needle phobia may have disproportionate sedative-analgesic requirements relative to the procedure's inherent invasiveness and may be more likely to move unpredictably or hyperventilate, complicating both the procedure and monitoring interpretation. Conversely, as discussed in the LCD-derived guidance summarized in Section 3.9, patient anxiety or preference alone is explicitly not considered sufficient justification for moderate or deeper sedation under governing LCD policy; oral anxiolytics, preprocedural counseling, and behavioral strategies should be considered before escalating sedation depth for anxiety-predominant presentations. Psychiatric comorbidity is also directly relevant to major device-implanted procedures. SCS and PNS coverage policy (Sections 3.10.1-3.10.2) requires documented multidisciplinary psychological screening prior to permanent implantation, reflecting evidence that unaddressed psychiatric comorbidity is associated with poorer neuromodulation outcomes independent of sedation technique. Patients with a history of substance use disorder additionally warrant individualized planning given their altered tolerance, potential for drug-seeking behavior around sedative-analgesic agents, and, where applicable, may require intervention with medication-assisted treatment (e.g., buprenorphine, methadone, naltrexone).

3.5.4 Body Mass Index and Obesity

Obesity (and, at the upper range, severe or "super" obesity) is one of the most consistently identified risk-modifying factors in the procedural sedation literature. Physiologically, obesity reduces functional residual capacity and increases oxygen consumption, narrowing the safety margin before desaturation during any period of hypoventilation or apnea. Obesity is also strongly associated with obstructive sleep apnea (OSA), which independently increases the risk of airway obstruction, hypoxemia, and difficult mask ventilation or intubation during deeper sedation approaches (98,99). Pharmacokinetically, many sedative-hypnotic agents are lipophilic, and total body weight-based dosing in obese patients can lead to overdosing relative to lean tissue distribution; current guidance favors dosing induction agents by lean body weight or ideal body weight rather than total body weight for this reason, while maintenance/infusion dosing considerations may

differ by agent (98). Practically, patients with a body mass index (BMI) in the obese range, particularly those with diagnosed or suspected OSA (screened, for example, with a validated tool such as STOP-Bang as part of preprocedural assessment, Section 3.3.1), warrant consideration of a lower sedation depth target, closer ventilatory monitoring (reinforcing the capnography discussion in Section 3.7.2), positioning precautions, and a lower threshold for anesthesia team involvement for procedures where deeper sedation is being considered (e.g., vertebral augmentation, basivertebral nerve ablation, Sections 3.10.3-3.10.4).

3.5.5 Age-Related Factors

Both advanced age and, less commonly in this population, younger/pediatric age, materially affect sedation planning. In older adults, progressive decline in hepatic and renal clearance, altered body composition (relatively increased fat and decreased lean mass and total body water), and diminished cardiovascular and cerebrovascular reserve slow drug distribution and elimination and heighten sensitivity to sedative-hypnotic and opioid agents, increasing the risk of hypotension, bradycardia, respiratory depression, and postprocedural cognitive effects at doses well tolerated by younger patients (91). Age-related polypharmacy further compounds this risk through cumulative CNS-depressant drug interactions (Section 3.5.7). Accordingly, initial sedative-analgesic dosing in older adults should generally be reduced relative to standard adult dosing and titrated more slowly to effect, with an anticipated longer recovery interval. At the other end of the age spectrum, although interventional pain procedures are performed predominantly in adults, adolescent or young adult patients (e.g., for select chronic pain syndromes) may require different weight-based dosing and a lower threshold for pediatric-experienced personnel. This guideline is not intended to address pediatric sedation practice in detail.

3.5.6 Smoking and Tobacco Use

Active tobacco smoking affects sedation planning through several mechanisms. Chronic smoking is associated with increased airway reactivity and secretions, which can complicate airway management if sedation depth exceeds intended levels. Smokers may exhibit relative tolerance to some sedative and analgesic effects due to hepatic enzyme induction (e.g., CYP1A2 induction by polycyclic aromatic hydrocarbons in tobacco smoke, which can accelerate metabolism of

certain benzodiazepines and other substrates), potentially altering the expected drug effect and duration. Elevated carboxyhemoglobin from recent smoking can also artifactually elevate pulse oximetry readings, potentially masking early desaturation. Nicotine withdrawal during a procedure of longer duration may contribute to intraprocedural agitation, tachycardia, and hypertension that can be mistaken for inadequate sedation or analgesia. Smoking history and current use should be captured during the preprocedural assessment (Section 3.3.1) and factored into monitoring vigilance and dose titration expectations, distinct from smoking's separate, well-established causal link to poor wound healing and fusion outcomes in surgical and device-implantation contexts.

3.5.7 Multiple Medical Comorbidities

Beyond the specific factors above, the cumulative burden of medical comorbidity captured most directly by the ASA Physical Status classification (Section 3.3.1) is itself an independent modifier of sedation risk. Cardiopulmonary disease (heart failure, coronary artery disease, chronic obstructive pulmonary disease, pulmonary hypertension), hepatic and renal impairment (which prolong elimination of hepatically or renally cleared sedative-analgesic agents), uncontrolled diabetes and other endocrine disorders, neurologic disease affecting airway protective reflexes, and polypharmacy with other CNS depressants (benzodiazepines, gabapentinoids, muscle relaxants, other opioids) all independently increase the risk of sedation-related adverse events and should individually channel attention to both agent selection (Section 3.2.4) and sedation depth planning (Section 3.6). Patients with multiple concurrent comorbidities (i.e., generally corresponding to ASA Physical Status III or greater) warrant the lower threshold for anesthesia team involvement described in Section 3.3.1, regardless of the specific procedure being performed.

3.5.8 Pharmacodynamic Considerations

Pharmacodynamics, the relationship between drug concentration and physiologic effect, varies across the patient factors described above and directs both agent selection and monitoring intensity. Sedative-hypnotics (midazolam, propofol) and opioids (fentanyl) act on distinct but overlapping receptor systems (GABA-A and mu-opioid receptors, respectively) and, as discussed in Section 3.2.4.2, produce synergistic rather than merely additive respiratory depression when combined, a

pharmacodynamic interaction of particular importance in opioid-tolerant patients (Section 3.5.1), where clinicians may be tempted to escalate both agents simultaneously. Age (Section 3.5.5), hepatic/renal function (Section 3.5.7), and concurrent CNS-depressant medications alter the sensitivity of the target receptor population and the clinical effect produced by a given plasma concentration, independent of how that concentration was achieved, meaning two patients receiving an identical dose may show materially different depths of sedation. Because pharmacodynamic response is not reliably predictable from patient factors alone, all sedation, regardless of anticipated risk category, should be titrated to a validated clinical sedation-depth endpoint (Section 3.6.1) rather than to a fixed target dose.

3.5.9 Pharmacokinetic Considerations

Pharmacokinetic processes (absorption, distribution, metabolism, and elimination) determine the onset, peak effect, and duration of action, and are altered by several of the factors above. Distribution volume for lipophilic agents (propofol, fentanyl, midazolam) is increased in obesity (Section 3.5.4), prolonging context-sensitive half-time with repeated dosing or infusion and supporting lean-body-weight-based dosing (Section 3.5.4). Hepatic metabolism (via cytochrome P450 pathways, particularly CYP3A4 for midazolam and fentanyl) is reduced in older adults and in hepatic impairment (Sections 3.5.5, 3.5.7), prolonging elimination half-life and clinical duration of effect at standard doses. Renal elimination of active metabolites (e.g., midazolam's hydroxylated metabolites) is reduced in renal impairment, which is of particular relevance in the interventional pain population, given the frequent overlap with chronic kidney disease associated with diabetes, hypertension, and long-term nonsteroidal anti-inflammatory drug use. Remifentanyl is a notable exception, undergoing rapid hydrolysis by nonspecific plasma and tissue esterases, largely independent of hepatic or renal function, which can make it a useful choice in patients with significant organ dysfunction in whom a rapidly titratable, rapidly offsetting agent is desired (Section 3.2.4.2). As with pharmacodynamics, the practical implication is that expected onset and duration should be treated as starting estimates rather than fixed values, particularly in patients with the comorbidities and demographic factors described throughout this section, reinforcing the individualized, clinically titrated approach to sedation depth and dosing recommended throughout this guideline.

3.6 Levels of Sedation and Procedure-Specific Considerations

3.6.1 The Sedation-to-Anesthesia Continuum

Consistent with the ASA's Continuum of Depth of Sedation statement, sedation exists on a continuum rather than as discrete categories, and a patient may move between levels unpredictably; practitioners must be able to rescue a patient from a level of sedation deeper than intended (100).

- **Minimal sedation (anxiolysis):** Patient responds normally to verbal commands; cognitive function and coordination may be impaired, but airway reflexes, ventilation, and cardiovascular function are unaffected.
- **Moderate sedation/analgesia ("conscious sedation"):** Purposeful response to verbal or light tactile stimulation; no airway intervention required; spontaneous ventilation and cardiovascular function generally maintained.
- **Deep sedation/analgesia:** Purposeful response only after repeated or painful stimulation; airway intervention may be required; spontaneous ventilation may be inadequate; cardiovascular function generally maintained.
- **General anesthesia:** Unarousable even with painful stimulus; airway intervention often required; spontaneous ventilation frequently inadequate; cardiovascular function may be impaired.

3.6.2 Procedure-Specific Sedation Considerations

Reflecting the consistent position across ASA, ASIPP, SIS/IPSIS, and multispecialty facet joint consensus guidance (26,79,81,83), the majority of interventional pain procedures, including epidural steroid injections, epidural blood patch, medial branch blocks, facet and sacroiliac joint injections, trigger point injections, and peripheral nerve blocks, do not require moderate sedation or an anesthesia care team as a routine matter, and are best performed under local anesthesia alone, or with minimal sedation using anxiolysis while preserving the patient's ability to report paresthesia or pain that signals needle or lead misplacement. Deep sedation or general anesthesia is specifically discouraged for cervical interlaminar epidural access, given the reported association with spinal cord injury when patients cannot report warning symptoms (75,76,82).

Procedures for which moderate sedation or monitored anesthesia care may be individually indicated, based on procedural discomfort, required duration

of stillness, or patient-specific factors, include: radiofrequency ablation (particularly when prolonged positioning or multiple lesion sites are required), vertebral augmentation (vertebroplasty/kyphoplasty), and implantation (trial and implants) of spinal cord stimulation/dorsal root ganglion stimulation/intrathecal drug delivery systems. Even for these procedures, the depth of sedation should be individualized (26,82,84).

3.7 Monitoring Standards

3.7.1 Minimum Monitoring Requirements

Regardless of practice setting (office-based, ambulatory surgery center, or hospital outpatient department), patients receiving sedation for interventional pain procedures should be monitored according to a minimum standard consistent with ASA basic anesthetic monitoring standards and the 2019 ASIPP sedation guideline (26,80,101):

- **Pulse oximetry**, continuous, for oxygen saturation.
- **Blood pressure**, measured at regular intervals (typically every 3-5 minutes once sedation is established).
- **Cardiac rate and rhythm**, via continuous electrocardiographic monitoring, particularly in patients with cardiovascular disease.
- **Ventilatory function**, assessed continuously by observation and, for moderate sedation and deeper, by quantitative end-tidal carbon dioxide monitoring (capnography), as detailed further in Section 3.7.2.
- **Temperature**, when clinically indicated.

3.7.2 Capnography: Rationale, Ongoing Debate, and a Risk-Stratified Recommendation

Capnography has become one of the more actively contested monitoring questions in procedural sedation policy, including for interventional pain procedures.

Physiologic rationale. Quantitative end-tidal carbon dioxide (ETCO₂) monitoring, by detecting a rising ETCO₂ trend, a flattened or absent capnographic waveform, or a fall in respiratory rate below a defined threshold, signals hypoventilation or apnea substantially earlier than pulse oximetry, which depends on a fall in arterial oxygen saturation that can be delayed by several minutes, particularly in patients receiving supplemental oxygen (a near-universal practice during procedural sedation). This physiologic lag underlies capnography's proposed safety benefit. It can flag hypoventilation while the patient is still normoxic, before

oxygen desaturation and, ultimately, hypoxic injury occur (73,74,102).

The case against a blanket mandate. This panel does not endorse extending a capnography requirement to local anesthesia alone or to minimal sedation/anxiolysis (e.g., a low-dose oral or small titrated intravenous anxiolytic with the patient fully verbally responsive throughout), for several reasons. First, the RCT and meta-analytic evidence underlying the ASA's capnography recommendation was generated predominantly in moderate-to-deep sedation and monitored anesthesia care populations (e.g., propofol- or combined benzodiazepine-opioid-based endoscopic sedation), not in minimal-sedation or local-anesthesia-only populations, where ventilatory drive and airway reflexes are preserved by definition and the patient remains a continuous, real-time verbal monitor of their own ventilatory status. Extrapolating a moderate/deep-sedation risk-reduction finding to a materially lower-risk population is evidentially weak. Second, capnography during interventional pain procedures performed with the patient prone, using a nasal cannula, and sometimes verbally engaged with the physician for neurologic feedback (Section 3.6.2) is technically prone to sampling artifact, mouth breathing, and disconnection, which can generate false or unreliable readings and contribute to alarm fatigue that may paradoxically reduce vigilance. Third, mandating capnography for every patient regardless of sedation depth adds equipment, disposables cost, and workflow burden to a large volume of genuinely low-risk, brief, local-anesthesia-only procedures (the majority of facet, SI joint, and epidural interventions per Section 3.9), without a demonstrated marginal safety benefit in that specific population, and in a regulatory environment (Section 3.9) that already discourages routine sedation beyond local anesthesia for these same procedures.

This guideline's position. Consistent with the ASA 2018 guideline's own scope (which specifically addresses moderate sedation and states capnography's evidentiary support in that context) and with the 2019 ASIPP sedation guideline, this panel recommends quantitative capnography for **deep sedation, monitored anesthesia care, and general anesthesia**, where opioid-benzodiazepine synergism, propofol's narrow moderate-sedation-to-general-anesthesia margin, and reduced patient responsiveness meaningfully elevate the risk of unrecognized hypoventilation. The panel does not recommend capnography as a mandatory requirement for local anesthesia alone or for minimal

sedation/anxiolysis, where standard observation, verbal responsiveness, and pulse oximetry remain adequate given the preserved airway reflexes and ventilatory drive inherent to that sedation depth. However, its use in this lower-acuity population is not discouraged. It remains at the treating physician's discretion (e.g., for a specific patient with a respiratory comorbidity, even at a minimal sedation dose).

3.7.3 Personnel and Equipment

At least one individual whose primary responsibility is monitoring the sedated patient, distinct from the proceduralist, should be present for moderate and deeper sedation, consistent with ASIPP, SIS/IPSIS, and ASA guidance (26,80,82). This individual should be trained in airway management and advanced cardiac life support appropriate to the sedation level administered. Age- and size-appropriate resuscitation equipment, supplemental oxygen, suction, and reversal agents (flumazenil, naloxone) must be immediately available. Facilities administering moderate or deeper sedation should have a documented protocol for emergency escalation, including transfer arrangements where deep sedation or airway rescue exceeds the capability of the immediate setting.

3.7.4 Recovery and Discharge

Patients should be monitored in a dedicated recovery area until they meet validated discharge criteria (e.g., stable vital signs, return to baseline mental status, adequate pain control, ability to tolerate oral intake as clinically indicated, and presence of a responsible adult escort when moderate or deeper sedation has been administered). Written postprocedural instructions, including restriction from driving or operating machinery for a defined interval, should be provided.

3.8 Description of Existing Relevant Guidelines

Several existing guidelines and society statements factored into this evidence synthesis and are described below situating the present guideline within the broader regulatory and professional landscape.

ASIPP Guidelines for Sedation and Fasting Status of Patients Undergoing Interventional Pain Management Procedures (Kaye et al, 2019) (26). The prior ASIPP guideline on this topic addressed fasting status, levels of sedation, monitoring, and sedative medication selection, establishing minimum fasting intervals (2 hours clear liquids, 6 hours light meal) rather than a uniform

8-hour fast, and outlining monitoring standards including blood pressure, cardiac rhythm, temperature, pulse oximetry, and continuous quantitative capnography (26). The present guideline is intended as an update and expansion of this document, incorporating additional pharmacologic detail, formal evidence grading, and Delphi-based consensus validation.

ASIPP Updated 2026 Comprehensive Evidence-Based Guidelines for Facet Joint Interventions in the Management of Chronic Spinal Pain (Manchikanti et al, 2026) (3). This is the most directly relevant and most recent ASIPP guideline addressing procedure-specific sedation practice, and it is treated in detail here, both because it postdates the 2019 sedation guideline and because it is the template that this document is intended to follow methodologically. Published June 2026, the guideline was developed by a 48-author multidisciplinary panel (39 of whom participated in formal voting), producing 37 recommendations with 100% voting-panel acceptance, addressing diagnostic and therapeutic facet joint interventions, RFA, and associated special considerations, including sedation, concurrent antithrombotic therapy, and precautions in special clinical circumstances (3,75,78). For diagnostic and therapeutic facet joint interventions, evidence levels ranged from II to III with moderate-to-strong recommendation strength; for special considerations and safety assessments, including sedation, evidence levels ranged more broadly from II to V (3).

The guideline's sedation-specific conclusions, adopted here as directly applicable evidence for this document's Statements, are as follows:

- For **diagnostic** facet joint interventions (intraarticular injections and medial branch blocks performed for diagnostic purposes), the evidence is strong (Level I-II) that mild sedation may be required and utilized, with moderate strength of recommendation.
- For **therapeutic** facet joint interventions (intraarticular injections and therapeutic medial branch blocks), the evidence is strong that mild sedation and analgesia may be required and utilized for patient comfort and anxiety control, with moderate strength of recommendation (evidence graded Level II in the associated guideline summary).
- For **radiofrequency ablation (RFA)/neurotomy**, the evidence is strong that moderate sedation or monitored anesthesia care may be required, with moderate strength of recommendation, reflecting

the longer procedural duration and requirement for the patient to remain motionless during RFA compared with diagnostic or single-level therapeutic injections.

- The updated guideline continues to reflect the position taken in the prior (2020) iteration of this guideline that routine use of moderate/deep sedation, general anesthesia, or monitored anesthesia care is not supported for diagnostic or straightforward therapeutic facet joint interventions except in extremely rare, individually documented circumstances, consistent with the safety rationale discussed in Section 3.6.2 above (i.e., preserving the patient's ability to report pain or paresthesia).
- Regarding safety more broadly, the level of evidence is strong (with moderate strength of recommendation) that antithrombotic therapy may be continued for facet joint interventions based on the ASIPP Antithrombotic Guidelines (14), a consideration that interacts with, but is distinct from, the sedation-specific recommendations.

This guideline is the direct evidentiary anchor for the present document's position (Sections 3.5 and 3.8) that mild sedation is appropriate and evidence-supported for diagnostic and therapeutic facet procedures, that moderate sedation/monitored anesthesia care is evidence-supported specifically for RFA, and that routine deeper sedation is not supported outside these parameters. The panel developing the present sedation guideline treated the facet joint guideline's sedation-specific statements as directly incorporable, rather than requiring independent re-derivation, given the overlap in methodology, panel composition conventions, and ASIPP sponsorship.

ASA Practice Guidelines for Moderate Procedural Sedation and Analgesia (2018). Developed by a multidisciplinary task force including the American Society of Anesthesiologists, American Association of Oral and Maxillofacial Surgeons, American College of Radiology, American Dental Association, American Society of Dentist Anesthesiologists, and Society of Interventional Radiology, this guideline specifically addresses moderate sedation (not minimal or deep sedation) across specialties and practice settings. Key recommendations include preprocedural patient evaluation, use of supplemental oxygen (supported by Category A/meta-analytic evidence for reduced hypoxemia), and continual monitoring of ventilatory function with capnography to supplement pulse oximetry and obser-

vation (80). This guideline provided the primary cross-specialty evidentiary foundation for the monitoring recommendations in Section 3.7.

ASA Statement on Anesthetic Care During Interventional Pain Procedures for Adults (2021). This statement specifically addresses the interventional pain population, noting that procedures such as epidural steroid injection, epidural blood patch, trigger point injection, and joint or medial branch blocks typically do not require moderate sedation or an anesthesia care team. At the same time, significant patient anxiety or medical comorbidity may indicate a need for moderate sedation or anesthesia care team involvement for a subset of patients (79).

Spine Intervention Society / International Pain and Spine Intervention Society (SIS/IPSIS) FactFinder on Conscious Sedation and Safety Practices for Interventional Pain Procedures. The SIS/IPSIS technical guidance addresses sedation practices specific to spinal diagnostic and therapeutic procedures, explicitly cautioning against deep sedation or general anesthesia for interlaminar epidural access given the risk of spinal cord injury when patients cannot report warning symptoms, while acknowledging a case-by-case role for moderate sedation or monitored anesthesia care during SCS/DRG stimulation trials and lead placement, and more routine use of sedation for vertebral augmentation given associated procedural discomfort (81,82).

Multisociety Lumbar Facet Joint Consensus Practice Guidelines (Cohen et al, 2020) (83). Developed by a multispecialty, international working group, this consensus guideline addresses multiple aspects of lumbar facet joint interventions, including a position that local anesthesia is generally sufficient for facet joint procedures, with sedation individualized rather than routine (83).

North American Spine Society (NASS) Evidence-Based Clinical Guidelines. NASS's multidisciplinary spine care guidelines provide complementary guidance on diagnostic and therapeutic spine care pathways, referenced by payers alongside the ASA and ASIPP statements in coverage policy for anesthesia and sedation during pain management procedures (103).

ASRA Pain Medicine Practice Advisory on Neurologic Complications. The American Society of Regional Anesthesia and Pain Medicine's practice advisory on neurologic complications associated with regional anesthesia and pain medicine procedures provides relevant safety context regarding the interaction between sedation depth, patient-reported warning symptoms, and needle-related neurologic injury (77).

Collectively, these existing guidelines converge on two consistent principles that this guideline adopts as foundational: (1) local anesthesia alone or with anxiolysis providing minimal sedation is sufficient for the majority of interventional pain procedures, and (2) when sedation is used, it should be individualized to the patient and procedure, applied at the lowest level of sedation consistent with patient comfort and procedural feasibility, and accompanied by standardized monitoring regardless of the sedation level chosen.

3.9 Regulatory Framework: Local Coverage Determination (LCD) Rules Governing Sedation and Anesthesia

Independent of the clinical evidence base, sedation practice for interventional pain procedures performed on Medicare beneficiaries is directly governed by LCDs issued by the Medicare Administrative Contractors, currently CGS, First Coast, National Government Services (NGS), Noridian, Novitas, Palmetto GBA, and WPS. LCDs are binding coverage policy within their respective jurisdictions and, per their own language, “supplement but do not replace, modify, or supersede” applicable National Coverage Determinations (NCDs) or the underlying statute and regulations (45,46). Because LCD sedation restrictions are typically enforced through post-payment audit and recoupment rather than pre-payment denial, they function as a practical constraint on sedation practice regardless of what the clinical evidence base or a specialty-society guideline independently supports. This guideline panel considers alignment with and explicit acknowledgment of the governing LCD framework to be a necessary component of any sedation guideline intended for real-world implementation and accordingly summarizes the relevant LCD language below (39-48,78). Because LCD language and effective dates vary by jurisdiction and are revised periodically, the citations below should be treated as representative and re-verified against the current LCD in one’s own jurisdiction at the time of clinical or billing application.

3.9.1 Facet Joint Interventions

Multiple Medicare Administrative Contractor LCDs for facet joint interventions (e.g., CGS L38765, Novitas L34892, Palmetto GBA L38765, NGS L38801, WPS L38773/L35936, Noridian L38803, and predecessor/successor versions in other jurisdictions) contain substantively identical sedation-specific limitation language (3,38-41,104-107):

- **“The use of Moderate or Deep Sedation, General Anesthesia, and Monitored Anesthesia Care is not considered medically reasonable and necessary during facet injections”** (i.e., during intraarticular (IA) injections, and medial branch blocks (MBB), whether diagnostic or therapeutic).
- **Moderate sedation for RFA (or cyst rupture/aspiration) “will be considered in individual cases with documentation of medical necessity”**, specifically citing examples such as a longstanding, well-documented history of an inability to cooperate. These medical conditions would preclude the procedure without sedation or the ability to remain motionless. Patient anxiety or preference alone is explicitly stated to be an insufficient justification.
- **“Routine use of Moderate Sedation or use of General Anesthesia or Deep Sedation for RFA is not considered reasonable and necessary.”**
- Facet joint interventions (diagnostic and therapeutic) are limited to **one spinal region per session**, reflecting the LCDs’ position that it is not expected that patients will routinely present with concurrent cervical/thoracic and lumbar facet joint pain.
- Several Medicare Administrative Contractors have separately issued provider education articles (e.g., First Coast Service Options/FCSO) explicitly characterizing anesthesia billing for facet injections outside these parameters as “inappropriate billing,” reflecting active program-integrity attention to this issue (38).

This LCD language is materially more restrictive than the ASIPP 2026 facet joint guideline’s evidence-based position described in Section 3.8 above with respect to diagnostic and straightforward therapeutic injections: where the clinical guideline supports mild sedation for patient comfort with moderate-strength recommendation, most governing LCDs characterize moderate/deep sedation, general anesthesia, and monitored anesthesia care as not medically reasonable and necessary for these same procedures (though “mild” sedation, e.g., a low-dose oral or intravenous anxiolytic short of moderate sedation, is generally not what the LCD sedation-restriction language is targeting). For RFA specifically, LCD and guideline positions are convergent: both support individualized, case-by-case, medical-necessity-documented use of moderate sedation/monitored anesthesia care, and both discourage routine or blanket use. Practices should ensure documentation for any sedation billed alongside facet

procedures that explicitly ties the sedation decision to a patient- or procedure-specific factor recognized by the governing LCD, rather than to anxiety or preference alone.

3.9.2 Sacroiliac Joint Interventions

The current generation of Medicare Administrative Contractor LCDs for sacroiliac joint injections and procedures (e.g., L39383, L39455, L39464, L39474/DL39475, effective in most jurisdictions since 2023) contains the following sedation-relevant provisions (45,108-110):

- **"Use of Moderate or Deep Sedation, General Anesthesia, and Monitored Anesthesia Care is usually unnecessary or rarely indicated for SIJ injections and therapeutic procedures,"** and is not considered medically reasonable and necessary outside individually documented exceptional circumstances.
- It is **not considered medically reasonable and necessary to perform multiple blocks** (epidural steroid injection, sympathetic block, facet block, trigger point injection, etc.) **during the same session** as an SI joint procedure, nor during the post-injection efficacy assessment period.
- **SI joint radiofrequency ablation/neurotomy is not considered reasonable and necessary** (i.e., non-covered/investigational) under these LCDs, distinct from the coverage extended to facet joint RFA.
- Therapeutic SI joint injections are limited to **no more than 4 sessions per rolling 12 months** (unilateral or bilateral; left and right performed in separate sessions, each counts toward this limit) and require documented positive responses to prior diagnostic blocks ($\geq 75\%$ concordant relief) and functional-outcome tracking.
- SI joint injections must be performed under computed tomography (CT) or fluoroscopic image guidance; injections performed without radiographic image guidance are not considered reasonable and necessary.

The practical implication of this guideline's Statement 4 (Section 3.11) is that, specifically for SI joint injections, LCD policy is even more restrictive of routine sedation than for facet joint diagnostic/therapeutic injections. Unlike facet RFA, there is no LCD-recognized "RFA exception" for the SI joint, because SI joint RFA itself is not a covered indication under these policies. Practices should not extrapolate the facet-RFA sedation exception to SI joint neurotomy procedures.

3.9.3 Epidural Interventions

Medicare Administrative Contractor LCDs governing epidural steroid injections and related epidural interventions (e.g., L38994, L39240, L39242, L36920, and predecessor L33906) contain sedation language that is worded slightly differently from, but is substantively aligned with, the facet and SI joint LCDs (42-44,111-113):

- **"Use of Moderate or Deep Sedation, General Anesthesia, or Monitored Anesthesia Care is usually unnecessary or rarely indicated for these procedures and therefore is not considered medically reasonable and necessary".**
- **"Even in patients with a needle phobia and anxiety, typically oral anxiolytics suffice".**
- **"In exceptional and unique cases, documentation must clearly establish the need for such sedation in the specific patient".**
- Several LCDs explicitly incorporate the ASA's Continuum of Depth of Sedation definitions (minimal/moderate/deep/general anesthesia, and monitored anesthesia care as a distinct anesthesia service rather than a discrete sedation depth) directly into the policy language, reinforcing that this guideline's Section 3.6.1 terminology is the terminology auditors and Medicare Administrative Contractor medical directors will apply.
- LCDs explicitly state that the epidural procedures they cover **"do not constitute anesthesia services"** and that evaluation, methods, and techniques specified **are not considered routine for surgical or perioperative anesthesia** (i.e., epidural steroid injection for chronic pain is coded and billed as a distinct service from any anesthesia/sedation component, and the two should not be conflated in documentation or billing).
- As with facet and SI joint LCDs, performance of multiple, distinct interventional procedures in the same session is restricted, and separate provider-education articles (e.g., Noridian, FCSO) have specifically flagged anesthesia billing for epidural steroid injections as an area of "inappropriate billing" subject to audit (38,114).

Collectively, the epidural, facet, and SI joint LCDs converge on a single operative standard directly reinforcing this guideline's Statement 4 (Section 3.11): **local anesthesia alone, supplemented by oral anxiolytics (may be modified to intravenous anxiolytics for minimal sedation) where needed, is the default and**

Medicare-recognized standard for the great majority of spinal injection procedures, and moderate/deep sedation, general anesthesia, or monitored anesthesia care require individualized, procedure- and patient-specific documentation of medical necessity that goes beyond patient anxiety or preference, regardless of what a treating physician's independent sedation preference might otherwise be.

3.10 Comments on Sedation for Other Major Interventional and Minimally Invasive Procedures

The LCD framework described in Section 3.9 applies specifically, and with materially consistent restrictive language, to facet joint, SI joint, and epidural interventions. Sedation practice and coverage policy for several other major procedures performed by interventional pain physicians follow substantially different logic, reflecting differences in procedural invasiveness, duration, positioning requirements, and the extent to which patient responsiveness during the procedure itself functions as a safety check. The panel offers the following comments on these procedures, which are outside the primary diagnostic/therapeutic-injection scope of Sections 3.6 and 3.9 but are frequently performed within interventional pain practices and were raised as a priority by guideline stakeholders.

3.10.1 Spinal Cord Stimulation (SCS)

SCS is governed nationally by NCD 160.7 (Electrical Nerve Stimulators) rather than by a uniform sedation-specific LCD provision, and individual Medicare Administrative Contractor LCDs for SCS (e.g., L35136, L36035, L36204, L37632, and associated billing/coding articles) focus principally on patient-selection, multidisciplinary psychological screening, and trial-to-permanent-implant documentation requirements rather than on restricting sedation (115-117). Notably, several SCS LCDs explicitly describe the percutaneous trial phase as capable of being performed "under light sedation in an office setting if all the sterility, equipment, professional training and support personnel required for the proper surgery and follow-up of the patient are available", consistent with this guideline's procedure-specific discussion in Section 3.6.2, which recognizes that trial lead placement may be performed with light/minimal or moderate sedation. Permanent implantation, typically performed in an ASC or hospital setting, is more commonly performed under monitored anesthesia care for percutaneous lead placement and general anesthesia

for paddle leads, at the discretion of the implanting physician and anesthesia team, given the surgical dissection, subcutaneous generator pocket creation, and (for paddle leads) laminotomy involved. Physicians billing separately for anesthesia/sedation services during SCS trials should ensure that the level of sedation documented in the record matches the services actually furnished and the governing coverage requirements.

3.10.2 Peripheral Nerve Stimulation (PNS)

PNS/peripheral nerve field stimulation LCDs (e.g., L34328, L37360) closely mirror the SCS framework. A percutaneous trial is a prerequisite for permanent implantation, and, as with SCS, is suitable for light or moderate sedation or monitored anesthesia care (118,119). Permanent PNS implantation, like permanent SCS implantation, is typically performed in an ambulatory surgery center (ASC) or hospital setting and may involve moderate sedation, monitored anesthesia care, or general anesthesia depending on lead location (e.g., occipital, peripheral limb nerve) and anticipated procedural duration. The panel notes that PNS coverage policy is less uniform across Medicare Administrative Contractor jurisdictions than SCS coverage policy, and sedation-related billing should be individually verified against the governing local PNS LCD.

3.10.3 Percutaneous Vertebral Augmentation (Vertebroplasty/Kyphoplasty)

Vertebral augmentation LCDs (e.g., L34228, L35130, L38737, and jurisdiction-specific analogs such as NGS L33569) are structured almost entirely around fracture-specific medical necessity criteria—acuity/subacuity of the osteoporotic or malignant vertebral compression fracture, imaging confirmation (bone marrow edema on MRI or increased uptake on bone scan/SPECT-CT), symptom severity, and, in some policies, quantitative criteria such as vertebral body height loss or Roland-Morris Disability Questionnaire score and do not contain the blanket sedation-restriction language found in the facet, SI joint, and epidural LCDs described in Section 3.9 (120-123). This is consistent with the clinical reality that vertebral augmentation involves bone-cement injection under continuous fluoroscopic or CT guidance, positioning-related discomfort, and cement-related monitoring requirements that commonly justify moderate sedation, monitored anesthesia care, or, particularly in more complex multi-level or malignant-fracture cases, general anesthesia, at the performing physician's and institution's discretion. Physicians should not assume the

absence of an explicit vertebral-augmentation sedation restriction means sedation documentation requirements are relaxed; general Medicare medical-necessity and documentation standards continue to apply, but the procedure-specific rationale for moderate sedation/monitored anesthesia care is more readily self-evident for vertebral augmentation than for the injection-only procedures addressed in Section 3.9.

3.10.4 Intraosseous Basivertebral Nerve Ablation (Basivertebral Nerve/BVN Ablation, e.g., the Intrasept Procedure)

Basivertebral nerve ablation presents the most heterogeneous sedation guidance among the procedures reviewed. Some current Medicare Administrative Contractor LCDs (e.g., certain Noridian versions, L39642/L39644) state explicitly that **“local anesthesia is considered appropriate for the region treated,”** that **“the performing physician or staff may administer mild sedation under his direction but should not be coded separately,”** and that **“the rationale for the use of higher levels of sedation or general anesthesia should be documented in the patient’s record, without which denial of claim reimbursement may be made”** (124,125). This LCD framing is directly analogous to the restrictive posture applied to facet, SI joint, and epidural interventions. By contrast, the clinical and manufacturer procedural literature, including the pivotal INTRASEPT randomized trial protocol and several review articles, describes the procedure as commonly **“performed under general anesthesia or a moderate conscious sedation protocol per the operator’s preference,”** reflecting the transpedicular or extrapedicular bony access, cannulation, and radiofrequency ablation steps involved, which some operators find more comfortable to perform with the patient under moderate sedation than under local anesthesia alone (126-128). Given this divergence between restrictive LCD language in some jurisdictions and permissive clinical/procedural literature describing moderate sedation as standard practice, the panel recommends that physicians performing basivertebral nerve ablation confirm the specific sedation provisions of their governing local LCD before assuming moderate sedation or monitored anesthesia care will be separately reimbursed, and, where moderate sedation or general anesthesia is used, ensure the medical record documents the procedure-specific rationale (e.g., bony transpedicular access, radiofrequency energy delivery duration, positioning) regardless of jurisdiction.

3.10.5 Minimally Invasive Spine (MIS) Surgery

MIS procedures increasingly performed by, or in close referral coordination with, interventional pain physicians, including endoscopic discectomy, interspinous/interlaminar spacer placement, and minimally invasive SI joint fusion, are not governed by the injection-specific LCDs discussed in Section 3.9, but by separate surgical coverage policies (where LCDs exist) focused on the medical necessity of the surgical indication itself rather than on sedation. Clinically, sedation practice for MIS procedures varies by technique and is informed by considerations distinct from those governing office-based injections: transforaminal endoscopic discectomy is frequently performed under local anesthesia with light-to-moderate sedation, or monitored anesthesia care, specifically to preserve the patient’s ability to report paresthesia during working-channel advancement near neural structures, an extension of the same rationale underlying this guideline’s caution regarding deep sedation for cervical interlaminar epidural access (Section 3.6.2), whereas interspinous spacer placement and MIS fusion more commonly employ monitored anesthesia care with a dexmedetomidine- or propofol-based regimen, or general anesthesia, given greater soft-tissue dissection and instrumentation (84,85). The panel does not extend the office-based-injection LCD framework in Section 3.9 to MIS surgical procedures, which fall under separate surgical benefit categories, but notes that the underlying clinical principle articulated throughout this guideline (that sedation depth should be individualized to the specific procedure’s need to preserve patient-reported warning symptoms versus its need for patient stillness and comfort) applies with equal force to MIS surgery.

3.11 Evidence-Based Statements and Recommendations

The following statements and recommendations are presented as a consensus based on Delphi panel review and rating, as described in Section 2.11. Each is accompanied by its evidence level and strength of recommendation.

Summary of Evidence and Recommendations:

Statement 1 (Preprocedural assessment). All patients considered for sedation during an interventional pain procedure should undergo a focused preprocedural assessment, including American Society of Anesthesiologists (ASA) Physical Status classification for monitored anesthesia care and general anesthesia,

airway assessment, and medication reconciliation with attention to concurrent CNS depressants and opioids.

Evidence: Level IV/V (limited/consensus-based).
Recommendation: Strong.

Statement 2 (Patient-specific factors). Patient-specific factors (including age, obesity and obstructive sleep apnea, relevant medical comorbidities, chronic opioid exposure and other concurrent CNS depressants, GLP-1 receptor agonist therapy, and relevant psychological comorbidities) should be incorporated into individualized sedation planning. Agent selection, dosing, titration, and monitoring intensity should account for patient-specific pharmacokinetic and pharmacodynamic considerations.

Evidence: Level IV/V (limited/consensus-based).
Recommendation: Strong.

Statement 3 (Fasting status). A minimum fasting interval of 2 hours for clear liquids and 6 hours for a light meal is sufficient for patients undergoing moderate sedation for interventional pain procedures; a uniform 8-hour fast is not required in this population in the absence of elevated aspiration risk. No fasting is required for local anesthesia alone or minimal sedation/anxiolysis in patients without elevated aspiration risk.

Evidence: Level III/IV (fair/limited), extrapolated in part from general procedural-sedation fasting literature and evolving GLP-1-specific guidance. **Recommendation:** Moderate.

Statement 4 (Local anesthesia and anxiolysis as default). Local anesthesia alone, without sedation or with anxiolysis, should be considered the default approach for the majority of interventional pain procedures, including epidural injections, medial branch blocks, facet and sacroiliac joint injections, and peripheral nerve blocks.

Evidence: Level IV/V (limited/consensus-based), supported by convergent multisociety guidance. **Recommendation:** Strong.

Statement 5 (Avoidance of deep sedation for cervical interlaminar access). Deep sedation or general anesthesia should be avoided during cervical interlaminar epidural access in adults, given the reported association between heavily sedated states and inability to report warning symptoms preceding spinal cord injury.

Evidence: Level IV/V (limited/consensus-based, based on case reports and closed-claims analyses). **Recommendation:** Strong.

Statement 6 (Individualized sedation for select procedures). Moderate sedation or monitored anesthesia care may be individually indicated, based on documented medical necessity, for radiofrequency ablation and selected neuromodulation procedures. Sedation depth for vertebral augmentation and SCS/DRG implantation should be individualized according to the specific procedure, implant stage, and patient factors, as addressed in Statements 14 and 15.

Evidence: Level III/IV (fair/limited). **Recommendation:** Moderate.

Statement 7 (Agent selection). When sedation is indicated, the choice of agent(s) should be individualized based on the desired sedation depth, procedure duration, and patient comorbidity; combined midazolam-fentanyl regimens and dexmedetomidine-based regimens are both reasonable options, with dexmedetomidine associated with relatively preserved respiratory drive but a higher incidence of bradycardia/hypotension and a slower onset and offset less suited for brief procedures, and midazolam-fentanyl associated with a well-documented risk of synergistic respiratory depression requiring vigilant monitoring.

Evidence: Level II/III (moderate/fair), extrapolated substantially from procedural sedation literature outside interventional pain management. **Recommendation:** Moderate.

Statement 8 (Propofol administration). When propofol is used, it should be administered only by physicians, nurse anesthetists, or anesthesia assistants specifically trained in the rescue of patients from a level of sedation deeper than intended, including airway management, consistent with ASA guidance.

Evidence: Level II (moderate), based on multisociety AHRQ-informed guidance. **Recommendation:** Strong.

Statement 9 (Monitoring standard, including capnography). Continuous pulse oximetry, blood pressure monitoring at regular intervals, and cardiac rhythm monitoring should be used for all patients receiving sedation for interventional pain procedures. Quantitative end-tidal carbon dioxide monitoring (capnography) may be considered for patients receiving moderate sedation and should be used for patients receiving deep sedation, monitored anesthesia care, or general anesthesia. Capnography is not required as a routine matter for local anesthesia alone or minimal seda-

tion/anxiolysis; for moderate sedation, its use remains reasonable at the individual physician's discretion but should not be treated as mandatory. This item is noted as an area of genuine disagreement among authorities (Section 3.7.2).

Evidence: *Level II (moderate) for the deeper-sedation-and-monitored anesthesia care recommendation, based on RCT and meta-analytic evidence from broader procedural sedation contexts; Level V (consensus-based, contested) for the position that capnography is not required for minimal or moderate sedation. Recommendation: Strong (deep sedation and monitored anesthesia care); Weak/Consensus-based, contested (minimal or moderate sedation not required).*

Statement 10 (Personnel). A dedicated individual, distinct from the proceduralist, trained in airway management and resuscitation appropriate to the administered sedation level, should be responsible for monitoring the patient throughout the procedure performed under moderate or deep sedation or monitored anesthesia care. A separate dedicated monitor is not typically required for minimal sedation/anxiolysis.

Evidence: *Level IV/V (limited/consensus-based). Recommendation: Strong.*

Statement 11 (Recovery and discharge). Patients should be monitored in a dedicated recovery area and meet validated discharge criteria, with written postprocedural instructions, before discharge; patients receiving sedation should have a responsible adult escort.

Evidence: *Level IV/V (limited/consensus-based). Recommendation: Strong.*

Statement 12 (Alignment with Medicare LCD policies). Documentation supporting moderate sedation, deep sedation, general anesthesia, or monitored anesthesia care in conjunction with facet joint, sacroiliac joint, or epidural interventions should explicitly identify the patient- or procedure-specific factor (e.g., documented inability to cooperate, medical contraindication to remaining still, or, for RFA/neurotomy, anticipated procedural duration and requirement for stillness) supporting medical necessity beyond patient anxiety or preference alone, consistent with the governing Medicare Administrative Contractor LCD in the physician's jurisdiction (Section 3.9).

Evidence: *Level V (consensus-based; regulatory alignment rather than clinical-outcome evidence). Recommendation: Strong.*

Statement 13 (Facet joint interventions — procedure-specific sedation depth). Consistent with the ASIPP Updated 2026 Facet Joint Interventions Guidelines, selective mild sedation is appropriate and may be utilized for diagnostic and therapeutic facet joint interventions for patient comfort and anxiety control, using a low-dose, short-acting benzodiazepine when needed, avoiding opioids, and discussing possible diagnostic confounding; moderate sedation or monitored anesthesia care may be utilized specifically for RFA/neurotomy based on individualized medical necessity; and routine moderate/deep sedation, general anesthesia, or monitored anesthesia care should not be used for diagnostic or straightforward therapeutic facet joint injections.

Evidence: *Level II-III (moderate/fair), per the ASIPP 2026 facet joint guideline. Recommendation: Moderate (diagnostic/therapeutic and RFA).*

Statement 14 (Sedation for neuromodulation trials). Percutaneous spinal cord stimulation (SCS), dorsal root ganglion stimulator (DRG), and peripheral nerve stimulation (PNS) trial lead placement may be performed with local anesthesia, minimal/light sedation, or moderate sedation, individualized according to the procedure, patient factors, need for patient cooperation and communication, and applicable coverage requirements. Moderate sedation or monitored anesthesia care should not be considered an obligatory or routine requirement for trial lead placement. Permanent SCS, DRG or PNS implantation may require moderate sedation, monitored anesthesia care, or general anesthesia depending on the lead location, procedural complexity, anticipated duration, positioning, and institutional and anesthesia requirements, at the discretion of the implanting physician and anesthesia team.

Evidence: *Level IV/V (limited/consensus-based, including coverage-policy evidence). Recommendation: Moderate.*

Statement 15 (Sedation for vertebral augmentation and basivertebral nerve ablation). For percutaneous vertebral augmentation, moderate sedation, monitored anesthesia care, or general anesthesia may be clinically appropriate based on the procedural requirements, including transpedicular or other bony access, positioning, anticipated procedural duration, number of levels treated, patient comorbidity, and need for immobility; however, no single sedation depth should be considered a universal default for

all patients. For basivertebral nerve ablation, physicians should confirm the sedation provisions of the applicable governing LCD before assuming that moderate sedation or monitored anesthesia care will be separately reimbursed and should document the

procedure-specific rationale (transpedicular bony access, ablation duration) whenever moderate sedation or general anesthesia is used.

Evidence: *Level IV/V (limited/consensus-based).*
Recommendation: *Moderate.*

DRAFT

4.0 LIMITATIONS

This guideline is subject to several limitations. First, the literature search reported in Sections 2.7-2.8 and Fig. 1 reflects a scoping search rather than an exhaustive, date-limited, dual-reviewer systematic search. Second, the evidence base specific to sedation in interventional pain management remains limited, with most procedure-specific questions supported by Level III-V evidence and substantial reliance on extrapolation from procedural sedation literature in other specialties;

this is an inherent limitation of the topic area rather than of the search strategy and is consistent with the evidence landscape described in prior ASIPP guideline development efforts. Finally, sedation practice is also shaped by regulatory, payer, and medico-legal considerations that vary by jurisdiction and are outside the scope of a purely evidence-based synthesis; where relevant, these considerations should be addressed as accompanying commentary rather than embedded within the evidence-graded statements themselves.

5.0 CONCLUSION

Sedation for interventional pain procedures should be approached as an individualized, procedure- and patient-specific decision rather than a routine default, guided by the principle that preserving the patient's ability to report pain or paresthesia during needle or lead placement is itself a safety mechanism. For the majority of interventional techniques, local anesthesia alone is sufficient; moderate sedation or monitored anesthesia care should be reserved for selected patients and procedures with documented indication, and deep sedation or general anesthesia should be specifically avoided for cervical interlaminar epidural access. Continuous pulse oximetry, blood pressure, and cardiac rhythm monitoring should be

standardized for patients receiving sedation; capnography should be used for deep sedation, monitored anesthesia care, and general anesthesia and may be considered for moderate sedation, but, in this panel's interim consensus position, should not be treated as mandatory for local anesthesia alone or minimal sedation/anxiolysis. The evidence base specific to this topic remains limited, dominated by observational data, extrapolation from related procedural-sedation literature, and expert consensus; the statements and recommendations presented here are accordingly offered as an interim draft, being refined and formally validated through the ongoing multidisciplinary Delphi survey before adoption as a final ASIPP evidence-based guideline.

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Conflicts of Interest

Dr. Kaye has published multiple articles on sedation guidelines. He has not participated in identification, quality assessment or grading for any of the articles authored by himself.

Dr. Soin has several patents in non-opioid pain pharmaceuticals and neuromodulation (SCS and PNS) and artificial intelligence, has leadership roles: OHSIPP-CEO and ASIPP- Director, has stock options with Neuros Medical, has received equipment, materials, drugs, medical writing, gifts or other services from Avanos for research, and has other financial or nonfinancial interests with Alyea Therapeutics, Neuros Medical, Neuronoff, and Avanos.

Dr. Robinson receives consulting fees from Theranica, Stratus Medical, Apex Biologics, Augmend Health, Doc2Doc, 168 Ventures, Cambridge Health Analysis and GLG; receives payment from Celeri Health, and leader-

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Dr. Simopoulos is a consultant for Nevro, Boston Scientific and Spectra Medical.

Dr. Abd-Elseyed is a consultant for Medtronic, Curonix, Avanos, Tonix, Vertex, and Averitas. He has published sedation articles. He has not participated in identification, quality assessment or grading for any of the articles authored by himself.

Dr. Latif receives consulting fees from Vertex Pharmaceuticals

Dr. Dennis received consulting fees from Abbott for physician and device representative education.

Dr. Gupta receives payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or education from Vertex Pharmaceuticals; Participation on a Data Safety Monitoring Board or Advisory Board for Semnur Pharmaceuticals.

Dr. Manchikantis is involved in the development of multiple guidelines and systematic reviews with relation to sedation and interventional techniques. He has not participated in identification, quality assessment or grading for any of the articles authored by himself.

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