Medical Policy

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Populations	Interventions	Comparators	Outcomes
Individuals: • With planned endoscopy and certain risk factors or significant medical conditions	Interventions of interest are: • Monitored anesthesia care	Comparators of interest are: • Sedation or analgesia without monitored anesthesia care	Relevant outcomes include: • Overall survival • Morbid events • Hospitalizations • Treatment-related mortality • Treatment-related morbidity
Individuals: • With a planned bronchoscopy and certain risk factors or significant medical conditions	Interventions of interest are: • Monitored anesthesia care	Comparators of interest are: • Sedation or analgesia without monitored anesthesia care	Relevant outcomes include: • Overall survival • Morbid events • Hospitalizations • Treatment-related mortality

Populations	Interventions	Comparators	Outcomes
			• Treatment-related morbidity
Individuals: •With planned interventional pain management procedure and certain risk factors or significant medical conditions	Interventions of interest are: •Monitored anesthesia care	**Comparators of interest are:** •Sedation or analgesia without monitored anesthesia care	Relevant outcomes include :•Overall survival •Morbid events •Hospitalizations •Treatment-related mortality •Treatment-related morbidity

DESCRIPTION

Adequate sedation and analgesia are important parts of many diagnostic and therapeutic procedures. Various levels of sedation and analgesia (anesthesia) may be used, depending on the patient's condition and the procedure being performed. Monitored anesthesia care (MAC) refers to a set of physician services, not a particular level of sedation. The services include the ability to convert a patient to general anesthesia (if needed) and to intervene in the event a patient's airway becomes compromised.

OBJECTIVE

The objective of this evidence review is to evaluate in which situations outpatient monitored anesthesia care should be used during diagnostic or therapeutic procedures involving outpatient endoscopy, bronchoscopy, or interventional pain management.

BACKGROUND

Monitored Anesthesia Care

Monitored anesthesia care (MAC) is a set of anesthesia services defined by the type of anesthesia personnel present during a procedure, not specifically by the level of anesthesia needed. The American Society of Anesthesiologists (ASA) defined MAC,[1,2,] and the following is derived from the ASA's statements:

"Monitored anesthesia care is a specific anesthesia service for a diagnostic or therapeutic procedure. Indications for monitored anesthesia care include the nature of the procedure, the patient's clinical condition and/or the potential need to convert to a general or regional anesthetic.

Monitored anesthesia care includes all aspects of anesthesia care- a preprocedure visit, intraprocedure care, and postprocedure anesthesia management. During monitored anesthesia care, the anesthesiologist provides or medically directs a number of specific services, including but not limited to:

- Diagnosis and treatment of clinical problems that occur during the procedure
- Support for vital functions
- Administration of sedatives, analgesics, hypnotics, anesthetic agents or other medications as necessary for patient safety
- Psychological support and physical comfort

- Provision of other medical services as needed to complete the procedure safely.

Monitored anesthesia care may include varying levels of sedation, analgesia, and anxiolysis as necessary. The provider of monitored anesthesia care must be prepared and qualified to convert to general anesthesia when necessary. If the patient loses consciousness and the ability to respond purposefully, the anesthesia care is a general anesthetic, irrespective of whether airway instrumentation is required."

Sedation Depth
In 2004 (amended in 2019), the ASA defined 4 levels of sedation and analgesia, as shown in Table 1.

Table 1. ASA's Definitions of General Anesthesia and Levels of Sedation and Analgesia

Terms	Minimal Sedation (Anxiolysis)	Moderate Sedation or Analgesia (Conscious Sedation)	Deep Sedation or Analgesia	General Anesthesia
Responsiveness	Normal response to verbal stimulation	Purposeful response[a] to verbal or tactile stimulation	Purposeful response[a] following repeated or painful stimulation	Unarousable even with painful stimulation
Airway	Unaffected	No intervention required	Intervention may be required	Intervention often required
Spontaneous ventilation	Unaffected	Adequate	May be inadequate	Frequently inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired

[a]Reflex withdrawal from a painful stimulus is NOT considered a purposeful response.
Adapted from American Society of Anesthesiologists (2013).[3,]
ASA: American Society of Anesthesiologists.

Because sedation is a continuum, it is not always possible to predict how a patient will respond. Hence, practitioners intending to produce a given level of sedation should be able to rescue patients whose level of sedation becomes deeper than initially intended. Individuals administering moderate sedation or analgesia (conscious sedation) should be able to rescue patients who enter a state of deep sedation or analgesia, while those administering deep sedation or analgesia should be able to rescue patients who enter a state of general anesthesia.

Sedation for Diagnostic and Therapeutic Procedures
Multiple diagnostic and therapeutic procedures performed in the outpatient setting (e.g., endoscopy, colonoscopy, bronchoscopy, interventional pain management procedures) rely on some degree of sedation for anxiolysis and pain control. Regardless of sedation depth, sedation and anesthesia services provided in outpatient settings should be administered by qualified and appropriately trained personnel. Moderate sedation is generally sufficient for many diagnostic and

uncomplicated therapeutic procedures. Moderate sedation using benzodiazepines, with or without narcotics, is frequently administered under the supervision of the proceduralist.

According to the ASA's standard for monitoring, MAC should be provided by qualified anesthesia personnel, including physicians and nurse specialists.[2,1,] By this standard, the personnel must be, in addition to the proceduralist, present continuously to monitor the patient and provide anesthesia care. For patients at high-risk of an unsuccessful procedure under moderate sedation, this allows for the safe continuation of the procedure under deep sedation or general anesthesia by trained personnel.

Moderate sedation can be achieved using pharmacologic agents for sedation, anxiolysis, and analgesia. A frequently used combination is an opioid and benzodiazepine (e.g., fentanyl with midazolam) at doses individualized to obtain the desired sedative effect. Other combinations have also been used. While benzodiazepines and opioids can cause respiratory depression, effective reversal agents exist for both.

Propofol has increasingly been used to provide sedation for procedures. It is associated with a rapid onset of action and fast recovery from sedation. However, there are concerns about potential adverse effects and safety when used by nonanesthesiologists. Propofol has the potential to induce general anesthesia, and there is no pharmacologic antagonist to reverse its action. When used as moderate sedation, propofol may be administered by anesthesia personnel or under the direction of the proceduralist. The American Society of Anesthesiologists has offered practice guidelines for the provision of sedation by nonanesthesiologists, stating that personnel must be prepared to respond to deep sedation and loss of airway protection should these complications inadvertently occur during sedation.[4,]

Risk Factors Associated with Anesthesia Outcomes

The ASA has recommended that any location providing MAC has the capability of cardiopulmonary resuscitation and monitoring equipment.[5,6,] Whippey et al (2013) published a case-control study of risk factors for unanticipated hospitalization following an outpatient procedure.[7,] They retrospectively identified 20,657 outpatient procedures and randomly selected 200 patients with an unanticipated hospitalization. These patients were compared with 200 randomly selected control patients without an unanticipated hospitalization. Predictors of unanticipated hospitalization included procedures lasting longer than 1 hour, high ASA physical status classification, older age, and higher body mass index (BMI). Fleisher et al (2004) performed a retrospective claims data review on 564,267 outpatient surgical procedures (360,780 at a hospital outpatient department, 175,288 at an ambulatory surgical center, 28,199 at a physician's office).[8,] The rates of all-cause death, emergency department visits, and inpatient admissions (within 7 days of the procedure) were compared. The highest rates were seen among patients in the hospital outpatient surgery department, suggesting that patients evaluated to be at the highest risk had their procedure in the location of lowest anesthesia risk. Multivariate analysis noted that increasing patient age, increasing procedural risk, and medical history of inpatient admissions were all independently predictive of adverse outcomes.

Pregnancy

Concerns about procedures and sedation during pregnancy are twofold: (1) there is a sensitivity of the fetus to the anesthetic and/or procedural hypotension; and (2) there are maternal factors that increase sensitivity to sedation and make intubation more difficult in an emergency situation.

In a large (N=720,000) Swedish registry of pregnant patients from the 1970s and 1980s, 5405 surgeries took place.[9,] Congenital malformations and stillbirths were not increased in the offspring of women having surgery. The incidence of low birth-weight infants was increased as a result of both prematurity and intrauterine growth retardation. Neonatal death was also increased in patients who had surgery. No specific types of anesthesia or surgery were associated with these outcomes. The contribution of the underlying condition that led to the need for surgery could not be separated from the effects of the surgery or sedation/anesthesia.

Fetal heart rate monitoring is considered a more sensitive indicator of placental perfusion and fetal oxygenation than observations of maternal hemodynamic stability alone. In 2003, the American College of Obstetricians and Gynecologists recommended that use of intermittent or continuous fetal monitoring during surgery be individualized.[10,]

Physiologic changes in pregnancy may require changes in standard doses of anesthetic or sedative agents. However, propofol does not generally require a change in loading dose for induction.[11,] Physiologic changes in pregnancy may warrant MAC when airway protection becomes necessary, due to additional difficulties noted with emergent intubation in pregnant patients and the urgency to restore full oxygenation to the maternal and fetal patients.

REGULATORY STATUS

In 1989, propofol (Diprivan®; AstraZeneca) was approved by the U.S. Food and Drug Administration (FDA) through the premarket approval process for the induction and maintenance of anesthesia. The current FDA approved label for Diprivan states that it is indicated for initiation and maintenance of MAC sedation, combined sedation, and regional anesthesia; the label also states that Diprivan is indicated for the sedation of adults in the intensive care unit who have been intubated or mechanically ventilated. Moreover, Diprivan is also approved for the induction of general anesthesia in patients 3 years of age and older and maintenance of general anesthesia in patients 2 months of age and older.

Many other FDA approved medications for pain relief, anxiolysis, and sedation may be used in outpatient sedation.

POLICY

A. Use of monitored anesthesia care may be considered **medically necessary** for, bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs when there is documentation by the proceduralist and anesthesiologist that specific risk factors or significant medical conditions are present. Those risk factors or significant medical conditions include any of the following:

1. Increased risk for complications due to severe comorbidity (American Society of Anesthesiologists P3* or greater)
2. Morbid obesity (BMI [body mass index] >40 kg/m^2)
3. Documented sleep apnea
4. Inability to follow simple commands (cognitive dysfunction, intoxication, or psychological impairment)
5. Spasticity or movement disorder complicating the procedure
6. History or anticipated intolerance to standard sedatives, such as:
   a. Opioid dependent
   b. Benzodiazepine dependent
7. Patients with active medical problems related to drug or alcohol abuse
8. Patients younger than 13 years or 70 years or older
9. Patients who are pregnant
10. Patients with increased risk for airway obstruction due to anatomic variation, such as:
    a. History of stridor
    b. Dysmorphic facial features
    c. Oral abnormalities (e.g., macroglossia)
    d. Neck abnormalities (e.g., neck mass)
    e. Jaw abnormalities (e.g., micrognathia)
11. Acutely agitated, uncooperative patients

*American Society of Anesthesiologists' physical status classification system for assessing a patient before surgery:

P1 – A normal, healthy patient
P2 – A patient with mild systemic disease
P3 – A patient with severe systemic disease
P4 – A patient with severe systemic disease that is a constant threat to life
P5 – A moribund patient who is not expected to survive without the operation
P6 – A declared brain-dead patient whose organs are being harvested

policy only addresses anesthesia services for diagnostic or therapeutic procedures involving gastrointestinal endoscopy, bronchoscopy, and interventional pain procedures performed in the outpatient setting.

B. Use of monitored anesthesia care is considered **not medically necessary** for bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs in patients at average risk related to use of anesthesia and sedation.

POLICY GUIDELINES

This policy only addresses anesthesia services for diagnostic or therapeutic procedures involving bronchoscopy, and interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs performed in the outpatient setting.

Monitored Anesthesia Care

Monitored anesthesia care can be provided by qualified anesthesia personnel with training and experience in:

- Patient assessment
- Continuous evaluation and monitoring of patient physiological functions
- Diagnosis and treatment (both pharmacologic and nonpharmacologic) of any and all deviations in physiological function.

Procedural and Patient Risks

The Mallampati score is considered a predictor of difficult tracheal intubation and is routinely used in preoperative anesthesia evaluation. The score is obtained by having the patient extend the neck, open the mouth, and extend the tongue while in a seated position. Patients are scored from classes I through IV, as follows:

Class I: The tonsils, uvula and soft palate are fully visible
Class II: The hard and soft palate, uvula and upper portion of the tonsils are visible
Class III: The hard and soft palate and the uvula base are visible
Class IV: Only the hard palate is visible

Patients with class III or IV Mallampati scores are considered to be at higher risk of intubation difficulty. While the Mallampati score does not determine a need for monitored anesthesia care, it may be considered in determining risk for airway obstruction. Other tests to predict difficult tracheal intubation include the upper lip bite test, the intubation difficulty scale, and the Cormack-Lehane grading system.

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RATIONALE

This evidence review has been updated regularly with searches of the PubMed database. The most recent literature update was performed through September 14, 2021.

Evidence reviews assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are the length of life, quality of life, and ability to function, including benefits and harms. Every clinical condition has specific outcomes that are important to patients and to managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of a technology, 2 domains are examined: the relevance and the quality and credibility. To be

relevant, studies must represent 1 or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Many recommendations for the indications for monitored anesthesia care (MAC) derive from narrative reviews and expert opinion.

MONITORED ANESTHESIA CARE

Monitored Anesthesia Care With Endoscopy

Clinical Context and Therapy Purpose
The purpose of MAC in patients with a planned endoscopy and certain risk factors or significant medical conditions is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does the use of MAC improve the net health outcome in patients with planned endoscopy and certain risk factors or significant medical conditions?

The following PICO was used to select literature to inform this review.

Populations
The relevant population of interest is patients with planned endoscopy and certain risk factors or significant medical conditions.

Interventions
The therapy being considered is MAC.

Comparators
The following therapy is currently being used to manage patients with planned endoscopy: sedation or analgesia without MAC.

Outcomes
The general outcomes of interest are overall survival (OS), morbid events (e.g., vomiting, nausea), hospitalizations, treatment-related mortality, and treatment-related morbidity. This mild level of sedation wears off within minutes after the sedative is discontinued, so short-term follow-up is of interest.

Study Selection Criteria
Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse effects, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

REVIEW OF EVIDENCE

Systematic Reviews

A review of the literature assessing sedation for gastrointestinal (GI) tract endoscopy, conducted by Cohen et al (2007), was published through the American Gastroenterological Association Institute (AGAI), portions of which are relevant for this evidence review.[12,] The AGAI review recommended that the use of an anesthesia professional should be strongly considered for the American Society of Anesthesiologists (ASA) physical status ASA III, IV, and V patients. Reviewers noted that other possible indications for an anesthesia specialist include patients with pregnancy, morbid obesity, neurologic or neuromuscular disorders, a history of alcohol or substance abuse, and patients who are uncooperative or delirious. Reviewers also noted endoscopic procedures that may require an anesthesia specialist include endoscopic retrograde cholangiopancreatography, stent placement in the upper GI tract, and complex therapeutic procedures (e.g., plication of the cardioesophageal junction). The AGAI review was used to formulate the initial conclusions on MAC in endoscopy.

McCarty et al (2021) completed a comparative systematic review and meta-analysis of safety and sedation-associated adverse events among 1,899 patients undergoing endoscopic cholangiopancreatography who had deep sedation with MAC (n=1284) versus general endotracheal anesthesia (n=615).[13,] Five studies were included (1 RCT, 2 prospective studies, and 2 retrospective studies). Outcomes included procedure success, all-cause and anesthesia-associated adverse events, and post-procedure recovery time. Results revealed that total anesthesia-associated adverse events were not different between the groups (odds ratio [OR], 1.33; 95% confidence interval [CI], 0.27 to 6.49). When evaluating anesthesia-associated events by type, MAC resulted in fewer episodes of clinically significant hypotension (OR, 0.32; 95% CI, 0.12 to 0.87), increased hypoxemic events (OR, 5.61; 95% CI, 1.54 to 20.37), and no difference in cardiac arrhythmias (OR, 0.48; 95% CI, 0.13 to 1.78). Additionally, the groups were similar with regard to all-cause total adverse events (OR, 1.16; 95% CI, 0.29 to 4.70) and time to recovery from anesthesia; however, mean procedure time was reduced with MAC. The procedure success rate was similar between the groups (OR, 1.16; 95% CI, 0.51 to 2.64). The authors noted there was significant heterogeneity among included studies (e.g., differences in patient population with regard to age, gender, body mass index (BMI), and ASA status; indications for endoscopic cholangiopancreatography) and concluded that MAC may be a safe alternative in endoscopic cholangiopancreatography; however, MAC may not be appropriate in all patients due to its increased risk of hypoxemia.

Prospective and Retrospective Studies

Enestvedt et al (2013) retrospectively reviewed 1,318,495 patients who underwent 1,590,648 endoscopic procedures and found the risk for serious adverse events with endoscopy increased with higher ASA physical status classification, especially class ASA III to V.[14,] These findings

supported the use of ASA physical status class as a predictor of periendoscopic adverse events and as a tool for risk stratification.

Agostoni et al (2011) evaluated a prospective database of 17,999 GI endoscopies performed under MAC from 2001 to 2009.[15,] The authors identified 6 variables predicting any sedation-related complication using multivariate logistic regression models: age (1-year OR, 1.02; 95% CI, 0.01 to 1.02), BMI (1-point OR, 1.03; 95% CI, 0.02 to 1.05), ASA score (ASA III-IV vs. ASA I-II; OR, 1.69; 95% CI, 1.44 to 1.99), Mallampati score (ASA III-IV vs. ASA I-II; OR, 1.33; 95% CI, 1.04 to 1.70), emergency nature of the procedure (OR, 1.48; 95% CI, 1.13 to 1.94), and length of the procedure (OR, 2.00; 95% CI, 1.78 to 2.24). The authors noted the Mallampati score is used to assess potential difficulty in tracheal intubation, and it is unclear why this score was predictive of any complication.

In a prospective cohort study of 470 endoscopic retrograde cholangiopancreatography patients receiving MAC, Berzin et al (2011) reported that adverse respiratory events were strongly associated with higher BMI using multivariate regression models (OR, 1.08; p<.001).[16,] Patients with obesity experienced respiratory events almost twice as often as patients who were not obese (p=.03). Higher ASA class was not associated with adverse respiratory events under MAC (OR, 1.2; p=.25) but was associated with cardiovascular events (OR, 2.88; p<.001).

Coté et al (2010) reported on another prospective observational study of 766 patients undergoing advanced endoscopic procedures (e.g., endoscopic retrograde cholangiopancreatography, endoscopic ultrasound, small-bowel enteroscopy) who received propofol.[17,] These procedures are notable for their duration and complexity compared with diagnostic esophagogastroduodenoscopy. The primary outcome measure was airway modifications, with a comparison of defining characteristics of the group requiring at least 1 airway modifications (e.g., chin lift, nasal airway), to those requiring no modification. No patients in the study required endotracheal intubation. Body mass index, male sex, and ASA class III or above were associated with a need for airway modification. Patients received anesthesia from a certified registered nurse anesthetist and generally had a level of deep sedation.

Propofol in Endoscopy

Given the interest in the use of propofol, additional details are provided on its use in GI endoscopy.

Systematic Reviews

A Cochrane review by Singh et al (2008) summarized the results of RCTs comparing the use of propofol with traditional agents for sedation during colonoscopy.[18,] The Cochrane review did not address MAC. Outcomes of interest included the technical performance of colonoscopy, patient satisfaction, and complication rates. Twenty-two studies met reviewers' inclusion criteria. Eight studies evaluated propofol as a single agent; 7 trials were published in abstract-only format, including the largest trial from 2000 (N=7,286 patients), which reported on different rates of colonic perforation. Only 1 trial (published in 2006) was double-blind. The agents administered in the control arms included benzodiazepines alone (diazepam, midazolam) or a combination of a benzodiazepine and a narcotic (pethidine, fentanyl, remifentanil, or alfentanil). Doses of agents used varied across trials. The intended level of sedation when stated was defined in most studies as that needed for patients' tolerance of the procedure. Many studies had a potential of

moderate-to-high risk of bias; moreover, combining data for some of the outcomes for meta-analysis was problematic.

Recovery time (reported in 11 studies; 776 patients) was shorter with propofol than with the control arm (weighted mean difference, -14.2 minutes; 95% CI, -17.6 to -10.8 minutes), with no significant heterogeneity (p=.41). Discharge time (7 studies; 542 patients) was also reported as shorter with propofol (weighted mean difference, -20.9 minutes; 95% CI, -30.9 to 10.8 minutes); however, there was significant heterogeneity among studies (p<.001). There was higher patient satisfaction (10 studies, 819 patients) with the use of propofol (OR for dissatisfaction, 0.35; 95% CI, 0.23 to 0.53). There was no difference in procedure time (9 studies; 736 patients) or complication rates. There was also no difference in pain control with non-patient-controlled sedation (5 studies; 396 patients) between propofol and the control arm (OR, 0.90; 95% CI, 0.58 to 1.39). Reviewers found only a single RCT (2011),[19,] reported in abstract format, for the secondary objective, comparison of propofol administration between anesthesiologists and endoscopists.

Randomized Controlled Trials

A RCT published by Shen et al (2015) evaluated the safety, complication rates, and patient and examiner satisfaction with 2 different sedation regimens in patients aged 60 to 80 years undergoing outpatient diagnostic gastroscopy.[20,] The trial included 720 patients randomized to etomidate-remifentanil (n=360) or propofol-remifentanil (n=360). Five subjects in the etomidate-remifentanil group were excluded from the analysis. Patients in the propofol-remifentanil group demonstrated decreases in their systolic and diastolic blood pressures and heart rates during and after the gastroscopy compared with baseline (p<.05). For subjects in the propofol-remifentanil group, average systolic blood pressure dropped from 125 mm Hg preprocedure to 95 mm Hg during the gastroscopy; average diastolic blood pressure dropped from 67 to 52 mm Hg; and average heart rate dropped from 75 to 70 bpm (data extrapolated from graphs). The authors stated that "the decrease of these cardiopulmonary function parameters led to adverse effects in older patients," but the adverse events are not specified. Compared with those in the etomidate-remifentanil group, patients in the propofol-remifentanil group were more likely to have hypoxemia (21.39% vs. 12.68%; p=.002), injection pain (22.5% vs. 0.85%; p<.001), and body quiver (43.06% vs. 19.15%; p<.001). Those in the etomidate-remifentanil group were more likely to have myoclonus (4.51% vs. 0.83%; p=.002). There were no significant differences between groups for duration time, recovery time, and time to leave the recovery room.

In a small-block RCT, Treeprasertsuk et al (2014) allocated 48 patients undergoing double-balloon enteroscopy to sedation with propofol or meperidine plus midazolam.[21,] Twenty-eight patients were randomized to meperidine plus midazolam, 1 of whom was excluded from the study due to hemodynamic instability preprocedure. Twenty-eight patients were randomized to propofol, but 5 were excluded due to hemodynamic instability; 2 more were later excluded for refusing treatment. Among included patients, recovery times and patient satisfaction scores did not differ significantly between groups. However, the trial's small size and high rates of dropout after randomization might have limited the ability to detect significant between-group differences.

In the single RCT included in the Cochrane review previously described, Poincloux et al (2011) randomized 90 adults (from a university center in France) undergoing colonoscopy to propofol administration by anesthesiologists (group A) or endoscopists (group B).[19,]The goal of propofol administration among anesthesiologists was anesthesia; the goal of propofol

administration among endoscopists was sedation. There was no difference in procedure time (16.7 minutes for group A vs. 17.7 minutes for group B) or patient satisfaction (average visual analog scale score, 90.8 vs. 89). Subjects in group A indicated greater willingness to undergo further colonoscopies under the same conditions (95% vs. 79%; p=.02). A higher proportion of patients administered propofol by an anesthesiologist experienced hypoxia, but no patient required an intervention.

Observational Studies

Representative observational studies assessing outcomes when propofol was administered by anesthesiologists or by nonanesthesiologists or large studies evaluating propofol administration by nonanesthesiologists are described next.

De Paulo et el (2015) published a comparative observational study of 2,000 outpatients undergoing GI endoscopy at a tertiary care hospital.[22,] A total of 1,000 patients underwent MAC with propofol and 1,000 had nonanesthesiologist administration of propofol (NAAP) administered by endoscopists. To comply with local regulations, an anesthesiologist was in the room when propofol was administered by endoscopists. Compared with the MAC group, the NAAP group had a greater proportion of patients who received fentanyl in addition to propofol (50.5% vs. 61.1%, p<.05), and fewer patients who underwent deep sedation (66.1% vs. 44.7%, p<.05). The proportion of patients experiencing hypoxemia did not differ significantly between groups, but when hypoxemia occurred, it lasted significantly longer in the NAAP group (mean, 7.26 seconds) than in the MAC group (mean, 4.22 seconds). The rate of bag-mask ventilation (3 [0.3%] in the NAAP group vs. 6 [0.6%] in the MAC group) did not differ significantly between groups. Only 4 (0.4%) patients in the NAAP group and 3 (0.3%) in the MAC group expressed dissatisfaction (e.g., stated they would not repeat the procedure in the same manner).

Sieg et al (2014) reported on outcomes from a prospective, multicenter study of endoscopist-directed sedation with propofol in 53 German outpatient gastroenterology practices.[23,] The study included 24,441 subjects who underwent 13,793 colonoscopies, 6,467 esophagogastroduodenoscopies, and 4,181 combination procedures. Propofol monosedation was used in 52% of the patients, while 48% received a combination of midazolam and propofol. Major adverse events occurred in 4 (0.016%) patients, including 3 requirements for mask ventilation and 1 laryngospasm. Minor adverse events included hypoxemia in 93 (0.381%) patients, intestinal bleeding in 12 (0.049%) patients, bradycardia in 7 (0.029%) patients, and persistent hypotension requiring intravenous fluids in 5 (0.02%) patients. Propofol monosedation was associated with a higher probability of hypoxemia (0.50%) compared with propofol-midazolam sedation (0.5% vs. 0.25%; p<.000). Patient questionnaires were available for 15,690 subjects. Of those, patients sedated with propofol had higher scores on a scale from 1 (very bad) to 9 (very good) describing how they felt compared with the previous day than those sedated with propofol-midazolam (mean, 7.225 vs. 7.216, p<.02).

Section Summary: Monitored Anesthesia Care With Endoscopy

The evidence comparing different anesthetic methods is not robust, consisting primarily of nonrandomized comparisons and observational studies. A RCT comparing propofol administration by anesthesiologists with that by nonanesthesiologists for sedation during colonoscopy did not show any differences in procedure time or patient satisfaction, and it reported a higher rate of hypoxia in patients treated with propofol. However, a Cochrane review of randomized studies concluded that recovery time, discharge time, and patient satisfaction were all improved with

propofol compared with alternative agents. Reviewers did not find evidence of increased complications. However, the current evidence base does not rule out increased complication rates with propofol, because there were low complication rates in general, thus making it difficult to discern between-group differences in the absence of large RCTs.

MONITORED ANESTHESIA CARE WITH BRONCHOSCOPY

Clinical Context and Therapy Purpose

The purpose of MAC in patients with a planned bronchoscopy and certain risk factors or significant medical conditions is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does the use of MAC improve the net health outcome in patients with planned bronchoscopy and certain risk factors or significant medical conditions?

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is patients with planned bronchoscopy and certain risk factors or significant medical conditions.

Interventions

The therapy being considered is MAC.

Comparators

The following therapy is currently being used to manage patients with planned bronchoscopy: sedation or analgesia without MAC.

Outcomes

The general outcomes of interest are OS, morbid events (e.g., vomiting, nausea), hospitalizations, treatment-related mortality, and treatment-related morbidity. This mild level of sedation wears off within minutes after the sedative is discontinued, so short-term follow-up is of interest.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse effects, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Review of Evidence

No RCTs or nonrandomized comparative studies evaluating MAC and nonanesthesiologist-administered sedation for bronchoscopy were identified. One RCT addressed sedation in

bronchoscopy but did not specifically address MAC. This trial, by Silvestri et al (2009), compared 2 doses of the sedative agent fospropofol in patients undergoing diagnostic bronchoscopy; sedatives were administered by pulmonologists without anesthesia supervision.[24,] Patients (N=252) were randomized to induction doses of fospropofol 2 mg/kg or 6.5 mg/kg, followed by additional doses per protocol. All patients received a preprocedural dose of fentanyl. The primary endpoint was sedation success using the Modified Observer's Assessment of Alertness/Sedation. The higher dose group had greater sedation success (88.7% vs. 27.5%, respectively; p<.001). Treatment success also favored the higher dose group (91.3% vs. 41.25%, respectively; p<.001). Adverse events were higher for the higher dose group (e.g., the number of patients requiring any type of airway assistance; 33 [21.5%] vs. 14 [13.6%], respectively). The trial did not compare alternative sedation approaches; that comparison would be necessary to evaluate the clinical value of the fospropofol sedation strategy for bronchoscopy procedures.

Section Summary: Monitored Anesthesia Care With Bronchoscopy
There is a lack of published evidence on MAC in bronchoscopy procedures; no RCTs, nonrandomized comparative studies, or large case series were identified.

MONITORED ANESTHESIA CARE WITH INTERVENTIONAL PAIN MANAGEMENT

Clinical Context and Therapy Purpose
The purpose of MAC in patients with a planned interventional pain management procedure and certain risk factors or significant medical conditions is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does the use of MAC improve the net health outcome in patients with planned interventional pain management procedures and certain risk factors or significant medical conditions?

The following PICO was used to select literature to inform this review.

Populations
The relevant population of interest is patients with a planned interventional pain management procedure and certain risk factors or significant medical conditions.

Interventions
The therapy being considered is MAC.

Comparators
The following therapy is currently being used to manage patients with planned interventional pain management procedures: sedation or analgesia without MAC.

Outcomes
The general outcomes of interest are OS, morbid events (e.g., vomiting, nausea), hospitalizations, treatment-related mortality, and treatment-related morbidity. This mild level of sedation wears off within minutes after the sedative is discontinued, so short-term follow-up is of interest.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse effects, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Review of Evidence

Bernards et al (2008) published a literature review on neurologic complications of regional anesthesia in anesthetized or heavily sedated patients.[25,] Some experts have postulated that the inability of a sedated patient to express atypical symptoms during a regional block may lead to an increased risk of injury. No comparative studies have been done, and limited information is available from registries. In 2008, the American Society of Regional Anesthesia and Pain Medicine acknowledged the scarce and conflicting literature on the topic and recommended carefully weighing the risks and benefits of performing those procedures while the patient is heavily sedated or anesthetized.[26,]

Section Summary: Monitored Anesthesia Care With Interventional Pain Management

There is a lack of published evidence on MAC in interventional pain management procedures; no RCTs, nonrandomized comparative studies, or large case series were identified.

Summary of Evidence

For individuals who have planned endoscopy and certain risk factors or significant medical conditions who receive MAC, the evidence includes systematic reviews, a RCT, and observational studies. Relevant outcomes are OS, morbid events, hospitalizations, and treatment-related mortality and morbidity. A literature review for the AGAI identified potential indications requiring an anesthesia specialist. However, the evidence from RCTs is sparse. A RCT comparing propofol administration by anesthesiologists for the purpose of anesthesia with propofol administered by nonanesthesiologists for sedation during colonoscopy reported that patients receiving propofol from anesthesiologists indicated greater willingness to undergo further colonoscopies under the same conditions. This trial did not show any differences in procedure time or patient satisfaction and reported a higher rate of hypoxia in patients treated by anesthesiologists with propofol. However, this trial may have been underpowered to detect differences in complication rates. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have planned bronchoscopy and certain risk factors or significant medical conditions who receive MAC, the evidence includes no studies that directly address this issue. Relevant outcomes are OS, morbid events, hospitalizations, and treatment-related mortality and morbidity. There is a lack of published evidence on MAC for bronchoscopy procedures; no RCTs, nonrandomized comparative studies, or large case series were identified. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have planned interventional pain management procedures and certain risk factors or significant medical conditions who receive MAC, the evidence includes no studies that

directly address this issue. Relevant outcomes are OS, morbid events, hospitalizations, and treatment-related mortality and morbidity. There is a lack of published evidence on MAC for interventional pain management procedures; no RCTs, nonrandomized comparative studies, or large case series were identified. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Society of Anesthesiologists

In 2019, the American Society of Anesthesiologists (ASA) updated its statement on the safe use of propofol:

"The Society believes that the involvement of an anesthesiologist in the care of every patient undergoing anesthesia is optimal. However, when this is not possible, non-anesthesia personnel who administer propofol should be qualified to rescue patients whose level of sedation becomes deeper than initially intended and who enter, if briefly, a state of general anesthesia."[27,]

"Rescue" was defined as correcting "adverse physiologic consequences of the deeper-than-intended level of sedation (such as hypoventilation, hypoxia, and hypotension) and returns the patient to the originally intended level."

In 2016, the ASA updated its statement on anesthetic care during interventional pain procedures.[28,] The ASA indicated that:

"Many patients can undergo interventional pain procedures without the need for supplemental sedation in addition to local anesthesia. For most patients who require supplemental sedation, the physician performing the interventional pain procedure(s) can provide moderate (conscious) sedation as part of the procedure. For a limited number of patients a second provider may be required to manage moderate or deep sedation or, in selected cases other anesthesia services….

Significant anxiety may be an indication for moderate (conscious) sedation or anesthesia services. In addition, procedures that require the patient to remain motionless for a prolonged period of time and/or remain in a painful position may require sedation or anesthesia services. Examples of such procedures include but are not limited to sympathetic blocks (celiac plexus, paravertebral and hypogastric), chemical or radiofrequency ablation, percutaneous discectomy, trial spinal cord stimulator lead placement, permanent spinal cord stimulator generator, and lead implantation, and intrathecal pump implantation. Major nerve/plexus blocks are performed less often in the chronic pain clinic, but the Committee believes that these blocks may more

commonly require moderate (conscious) sedation or anesthesia services (e.g., brachial plexus block, sciatic nerve block, and continuous catheter techniques)."

In 2019, the ASA updated its statement on respiratory monitoring during endoscopic procedures.[29,] The statement advised that "Monitoring for exhaled carbon dioxide should be conducted during endoscopic procedures in which sedation is provided with propofol alone or in combination with opioids and/or benzodiazepines, and especially during these procedures on the upper gastrointestinal tract."

American Society for Gastrointestinal Endoscopy

In 2018, guidelines on sedation during gastrointestinal endoscopy were released by the American Society for Gastrointestinal Endoscopy (ASGE).[30,] The guidelines stated that anesthesia provider assistance during gastrointestinal endoscopy should be considered in the following situations: prolonged or therapeutic endoscopic procedures requiring deep sedation, anticipated intolerance to standard sedatives, increased risk for adverse event because of severe comorbidity (ASA class IV or V), and increased risk for airway obstruction because of anatomic variant. The guidelines made the following recommendations for the use of propofol during endoscopies:

- "A sedation team with appropriate education and training [including] at least 1 person....qualified in advanced life support skills....
- Trained personnel [for] uninterrupted monitoring of patient's clinical and physiologic parameters….
- Physiologic monitoring must include pulse oximetry, electrocardiography, and intermittent blood pressure measurement. Monitoring oxygenation by pulse oximetry is not a substitute for monitoring ventilatory function. Capnography should be considered because it may decrease the risks during deep sedation…
- Personnel should have the ability to rescue a patient who becomes unresponsive or unable to protect his or her airway or who loses spontaneous respiratory or cardiovascular function.
- Age-appropriate equipment for airway management and resuscitation must be immediately available.
- A physician should be present throughout propofol sedation and remain immediately available until the patient meets discharge criteria."

In 2015, the ASGE published quality indicators for all gastrointestinal endoscopic procedures.[31,] Specific to this evidence review, ASGE stated: "Individuals administering moderate sedation should be able to rescue patients who enter a state of deep sedation, whereas those administering deep sedation should be able to rescue patients who enter a state of general anesthesia."

In 2013, the ASGE published guidelines for endoscopic modification for geriatric patients.[32,] Specific to this evidence review, ASGE recommended "standard monitoring procedures in the elderly during moderate sedation with heightened awareness of this population's increased response to sedatives."

In 2014, the ASGE issued guidelines on the safety of the endoscopy unit, which made several recommendations on procedural sedation.[33,]:

"Staff Recommendations for intra-procedure care based on level of sedation

- No sedation - One assistant....other than the physician performing the procedure should be present to assist with the technical aspects of the procedure.
- Moderate sedation (also known as conscious sedation): Sedation should be directed by a physician who is credentialed and privileged to do so and can be administered by an RN. During the period in which the patient is sedated, the RN must monitor the patient for vital sign changes, hypoxemia and comfort. The RN may assist with minor, interruptible tasks. In the event that more intense technical assistance is required, a second assistant (RN, LPN, or UAP [unlicensed assistive personnel]) should be available to join the care team for the technical aspects of the procedure.
- Deep sedation: Most institutions require that deep sedation be administered by an anesthesia professional such as an anesthesiologist, Certified Registered Nurse Anesthetist (CRNA), or Anesthesiologist Assistant who is credentialed and privileged to do so. In this situation, the anesthesia provider should be responsible for administering sedation and monitoring the patient. A second staff person (RN, LPN, or UAP) is required to assist with technical aspects of the procedure."

"Recommendations for Patient Monitoring

- All patients undergoing endoscopy should be monitored, the frequency of which depends on procedural and patient factors (e.g., type of sedation, duration and complexity of procedure, patient condition). At a minimum, monitoring should be performed before the procedure, after administration of sedatives, at regular intervals during the procedure, during initial recovery, and just before discharge.

- Units should have procedures in place to rescue patients who are sedated deeper than intended.

- When the target level is moderate sedation (also known as conscious sedation):
    - The individual assigned responsibility for patient monitoring may perform brief, interruptible tasks.
    - Minimal monitoring requirements include electronic assessment of blood pressure, respiratory rate, heart rate, and pulse oximetry combined with visual monitoring of the patient's level of consciousness and discomfort.
    - Currently, there are inadequate data to support the routine or required use of capnography during endoscopic procedures in adults when moderate sedation is the target.

- When deep sedation is targeted:
    - The individual responsible for patient monitoring must be dedicated solely to that task and may not perform any other function during the procedure.
    - The use of capnography in EUS [endoscopic ultrasound], ERCP [endoscopic retrograde cholangiopancreatography], and colonoscopy to assess the adequacy of ventilation may reduce the incidence of hypoxemia and apnea, but its impact on the frequency of other sedation-related adverse events such as bradycardia and hypotension is unknown. As such, capnography may be considered for the performance of endoscopy under deep sedation. However, there is no safety data to date to support the universal use of capnography in such cases.
    - Documentation of the clinical assessments and monitoring data during sedation and recovery is required."

In 2009, the ASGE-along with the American Association for the Study of Liver Diseases, American College of Gastroenterology, and American Gastroenterological Association issued a joint position statement on nonanesthesiologist administration of propofol (NAAP) for gastrointestinal endoscopy.[34,] The Societies found that NAAP was as safe and effective as anesthesiologist-administered propofol. They asserted that proper training and proper patient selection were necessary for the safe practice of NAAP sedation.

U.S. Preventive Services Task Force Recommendations
Not applicable.

Ongoing and Unpublished Clinical Trials
Some currently ongoing and unpublished trials that might influence this review are listed in Table 2.

Table 2. Summary of Key Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date (status)
Ongoing			
NCT02046590	A Randomized Controlled Trial (RCT) of Efficacy and Safety of Sedation Compared to General Anesthesia for Endoscopic Retrograde Cholangio-pancreatography	132	Jun 2022 (recruiting)
Unpublished			
NCT02226328	Nurse Administered Propofol Sedation vs Midazolam With Fentanyl-sedation for Flexible Bronchoscopy: A Randomized, Single-Blind, Controlled Study of Satisfaction and Safety	128	Apr 2016 (unknown)
NCT02174588	Moderate Sedation for Elective Upper Endoscopy With Balanced Propofol Versus Propofol Alone: a Randomized Clinical Trial	22	Feb 2015 (completed)

NCT: national clinical trial.

CODING

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. This may not be a comprehensive list of procedure codes applicable to this policy.

Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

The code(s) listed below are medically necessary ONLY if the procedure is performed according to the "Policy" section of this document.

CPT/HCPCS	
01920	Anesthesia for cardiac catheterization including coronary angiography and ventriculography (not to include Swan-Ganz catheter)
01922	Anesthesia for non-invasive imaging or radiation therapy

- For reference, the add-on code for anesthesia for patient of extreme age is 99100 – Anesthesia for patient of extreme age, younger than 1 year and older than 70 (List separately in addition to code for primary anesthesia procedure).
- For other medical conditions increasing the risk in requiring monitored or general anesthesia services for these procedures such as behavioral, dysmorphic, and neurological conditions, please attach Modifier-22 and submit medical records.

ICD-10 DIAGNOSES	
C15.3-C26.9	Malignant neoplasm of digestive organs, code range
C34.00-C34.92	Malignant neoplasm of bronchus and lung, code range
D01.0-D01.9	Carcinoma in situ of other and unspecified digestive organs, code range
D02.20-D02.22	Carcinoma in situ of bronchus and lung code range
D12.0-D13.9	Benign neoplasm of digestive system, code range
D14.30-D14.32	Benign neoplasm of bronchus and lung, code range
G56.40-G56.43	Causalgia of upper limb code range
G57.70-G57.73	Causalgia of lower limb code range
G89.0-G89.4	Pain, not elsewhere classified code range
G90.50-G90.59	Complex regional pain syndrome I code range
J40-J47.9	Chronic lower respiratory diseases code range

ICD-10 DIAGNOSES	
J96.0-J99	Other diseases of the respiratory system code range
K80.00-K87	Disorders of the gallbladder, biliary tract and pancreas, code range
M25.50-M25.579	Pain in joint code range
M54.00-M54.9	Dorsalgia code range
M79.60-M79.676	Pain in limb, hand, foot, fingers and toes code range
R52	Pain, unspecified
Z12.0-Z12.13	Encounter for screening for malignant neoplasm of stomach or intestinal tract, code range
Z12.2	Encounter for screening for malignant neoplasm of respiratory organs
Z13.811	Encounter for screening for lower gastrointestinal disorder
Z13.83	Encounter for screening for respiratory disorder NEC
Z80.0	Family history of malignant neoplasm of digestive organs
Z80.2	Family history of malignant neoplasm of other respiratory and intrathoracic organs
Z82.5	Family history of asthma and other chronic lower respiratory diseases
Z83.6	Family history of other diseases of the respiratory system
Z83.71-Z83.79	Family history of diseases of the digestive system, code range
Z85.00-Z85.048	Personal history of malignant neoplasm of digestive organs code range
Z85.110-Z85.118	Personal history of malignant neoplasm of trachea, bronchus and lung code range
Z86.010	Personal history of colonic polyps

REVISIONS	
09-10-2010	Description Section updated
	In Policy Section: ▪ Added the following not medically necessary statement: "A. Monitoring of sedation by an anesthesia provider for gastrointestinal endoscopies, CT scans, MRIs, cardiac catheterizations, and PTCAs is generally considered not medically necessary." ▪ Rephrased "sleep apnea" to "9. Patients with increased risk for airway obstruction due to anatomic variation including a history of sleep apnea or stridor, dysmorphic facial features, and certain oral (e.g., macroglossia), neck (e.g., neck mass), and jaw (e.g., micrognathia) abnormalities." ▪ Added the following medically necessary indications in B.: "7. Prolonged or therapeutic endoscopic procedures requiring deep sedation, or "8. Acutely agitated uncooperative patients, or " ▪ Added the following not medically necessary indication: "C. Use of monitored anesthesia care is considered not medically necessary for procedures in patients at average risk related to use of anesthesia and sedation."
	Rationale Section added
	In Diagnosis Section:

REVISIONS	
	▪ Added the following Gastrointestinal diagnosis code ranges: 152.0-152.9, 153.0-153.9, 154.0-154.8, 155.1, 156.1-156.9, 157.0-157.9, 211.3, 574.00-576.9, 577.0-577.9, V12.72, V16.0, V18.51, V76.51 ▪ Converted diagnosis codes to code ranges.
	References Section updated
01-28-2011	In Policy Section: ▪ Added the word "HOWEVER" between Item A and Item B. ▪ No change in the policy language was made.
	In Coding Section: ▪ Added, "…to include ASCs" to read, "Unusual anesthesia is an additional level of services that are applicable to endoscopies to address those patients who receive services in a hospital setting, to include ASCs. Claims for this level should be billed using 00740 or 00810 with modifier 23 describing unusual anesthesia only when performed as inpatient or outpatient at a hospital setting, to include ASCs."
02-05-2014	Policy reviewed.
	In Coding section: ▪ Added ICD-10 Diagnosis *(Effective October 1, 2014)*
10-01-2015	Published 05-18-2016. Effective 10-01-2015 with ICD-10 coding implementation.
	In Coding section: Added ICD-10 Code: E66.01
07-01-2016	Published 05-25-2016. Effective 07-01-2016.
	Title revised from "Monitored and General Anesthesia Services" to "Monitored Anesthesia Care"
	Description section updated
	In Policy section: ▪ Removed "Monitoring of sedation by an anesthesia provider for gastrointestinal endoscopies, CT scans, MRIs, cardiac catheterizations, and PTCAs is generally considered not medically necessary. HOWEVER," ▪ In Item A removed "or general anesthesia" and "billed with any of the following conditions:" and added "Use of", "bronchoscopy, interventional pain procedures" and "there is documentation by the proceduralist and anesthesiologist that specific risk factors or significant medical conditions are present. Those risk factors or significant medical conditions include any of the following:" to read "Use of monitored anesthesia care may be considered medically necessary for gastrointestinal endoscopy, bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs when there is documentation by the proceduralist and anesthesiologist that specific risk factors or significant medical conditions are present. Those risk factors or significant medical conditions include any of the following:" ▪ Revised Item A 1 to read "Increased risk for complications due to severe comorbidity (ASA P3* or greater)" ▪ Revised Item A 2 to read "Morbid obesity (BMI [body mass index] >40) ▪ Revised Item A 3 to read "Documented sleep apnea" ▪ Added Item A 4 "Inability to follow simple commands (cognitive dysfunction, intoxication, or psychological impairment)" ▪ Added Item A 5 " Spasticity or movement disorder complicating procedure" ▪ In Item A 6 removed "alcohol" and revised to read "History or anticipated intolerance to standard sedatives, such as: a. Opioid dependent b. Benzodiazepine dependent" ▪ Added Item A 7 "Patients with active medical problems related to drug or alcohol abuse"

REVISIONS	
	▪ Revised Item A 8 to read "Patients younger than 13 years or 70 years or older" ▪ Revised Item A 9 to read "Patients who are pregnant" ▪ Revised Item A 10 to read "Patients with increased risk for airway obstruction due to anatomic variation including a history of such as: a. History of stridor b. Dysmorphic facial features c. Oral abnormalities (e.g., macroglossia) d. Neck abnormalities (e.g., neck mass) e. Jaw abnormalities (e.g., micrognathia)" ▪ In Item A 12 added "gastrointestinal" and "(See Policy Guidelines)" to read " Prolonged or therapeutic gastrointestinal endoscopic procedures requiring deep sedation (See Policy Guidelines)" ▪ Added asterisk reference of "* American Society of Anesthesiologists (ASA) physical status classification system for assessing a patient before surgery: P1 – A normal, healthy patient P2 – A patient with mild systemic disease P3 – A patient with severe systemic disease P4 – A patient with severe systemic disease that is a constant threat to life P5 – A moribund patient who is not expected to survive without the operation P6 – A declared brain-dead patient whose organs are being harvested" ▪ In Item B added "bronchoscopy, interventional pain procedures" to read "Use of monitored anesthesia care is considered not medically necessary for gastrointestinal endoscopy, bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs in patients at average risk related to use of anesthesia and sedation." Policy Guidelines added
	Rationale section updated
	In Coding section: ▪ Updated Coding notations. ▪ Added ICD-10 Codes: C15.3, C15.4, C15.5, C15.8, C16.0, C16.1, C16.2, C16.3, C16.4, C16.5, C16.6, C16.8, C34.01, C34.02, C34.11, C34.12, C34.2, C34.31, C34.32, C34.81, C34.82, D14.31, D14.32
	References updated
10-01-2016	Published 09-15-2016. Revision effective 10-01-2016.
	In the coding section: ▪ ICD-10 Codes Effective 10-01-2016: C49A1, C49A2, K85.00, K85.01, K85.02, K85.10, K85.11, K85.12, K85.20, K85.21, K85.22, K85.30, K85.31, K85.32, K85.80, K85.81, K85.82, K85.90, K85.91, K85.92, K86.81, K86.89, O00.00, O00.01, O00.80, O00.81,O00.90, O00.91, O11.4, O11.5, O12.04, O12.14, O12.24, O13.4, O14.05, O14.15, O14.24, O14.94, O16.4, O24.415, O24.425, O24.435, O33.7XX1, O33.7XX2, O33.7XX3, O33.7XX4, O33.7XX5, O33.7XX9, O34.211, O34.212, O44.21, O44.22, O44.23, O44.31, O44.32, O44.33, O44.42, O44.43, O44.51, O44.52, O44.53, Z33.3 ▪ ICD-10 Codes Termed 09-30-2016: K85.0, K85.1, K85.2, K85.3, K85.8, K85.9, K86.8, O00.0, O00.8, O00.9, O33.7, O33.8 ▪ Revised ICD-10 Codes Effective 10-01-2016: O09.11, O09.12, O09.13, O15.02, O15.03, O15.1, O15.2, O24.011, O24.012, O24.013, O24.02, O24.03, O24.111, O24.112, O24.113, O24.12, O24.13, O44.01, O44.02, O44.03, O44.11, O44.12, O44.13
01-01-2017	Policy Published 12-20-2016. Policy effective 01-01-2017.
	Corrected July 2016 Revision date from "07-01-2015" to "07-01-2016"
	Description section updated
	In Policy section

REVISIONS	
	▪ In Item A removed "gastrointestinal endoscopy" to read "Use of monitored anesthesia care may be considered medically necessary for bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs when there is documentation by the proceduralist and anesthesiologist that specific risk factors or significant medical conditions are present." ▪ Removed Item A 12 "Prolonged or therapeutic gastrointestinal endoscopic procedures requiring deep sedation (See Policy Guidelines)" ▪ In Item B removed "gastrointestinal endoscopy" to read "Use of monitored anesthesia care is considered not medically necessary for bronchoscopy, interventional pain procedures, CT scans, MRIs, cardiac catheterization and PTCAs in patients at average risk related to use of anesthesia and sedation." ▪ Updated Policy Guidelines
	Rationale updated
	In Coding section: ▪ Removed CPT Codes: 00740, 00810 ▪ Removed ICD-9 Codes: 152.0-152.9, 153.0-153.9, 154.0-154.8, 155.1, 156.1-156.9, 157.0-157.9, 211.3, 574.00-576.9, 577.0-577.9, V12.72, V16.0, V18.51, V76.51 ▪ Removed ICD-10 Codes: C49A1, C49A2, D12.0, D12.1, D12.2, D12.3, D12.4, D12.5, D12.6, K63.5, K80.00, K80.01, K80.10, K80.11, K80.12, K80.13, K80.18, K80.19, K80.20, K80.21, K80.32, K80.33, K80.34, K80.35, K80.36, K80.37, K80.40, K80.41, K80.42, K80.43, K80.44, K80.45, K80.46, K80.47, K80.50, K80.51, K80.60, K80.61, K80.62, K80.63, K80.64, K80.65, K80.66, K80.67, K80.70, K80.71, K80.80, K80.81, K81.0, K81.1, K81.2, K81.9, K82.0, K82.1, K82.2, K82.3, K82.4, K82.8, K82.9, K83.0, K83.1, K83.2, K83.3, K83.4, K83.5, K83.8, K83.9, K85.00, K85.01, K85.02, K85.10, K85.11, K85.12, K85.20, K85.21, K85.22, K85.30, K85.31, K85.32, K85.80, K85.81, K85.82, K85.90, K85.91, K85.92, K86.0, K86.1, K86.2, K86.3, K86.81, K86.89, K86.9, K87, K91.5
	References update
01-01-2017	Policy published 01-18-2017. Policy retro-effective to 01-01-2017.
	Description section updated to remove information regarding endoscopy.
	Rationale section updated to remove information regarding endoscopy.
	In Coding section: ▪ Removed ICD-10 Codes regarding endoscopy: B25.2, C15.3, C15.4, C15.5, C15.8, C16.0, C16.1, C16.2, C16.3, C16.4, C16.5, C16.6, C16.8, C17.0, C17.1, C17.2, C17.3, C17.8, C17.9, C18.0, C18.1, C18.2, C18.3, C18.4, C18.5, C18.6, C18.7, C18.8, C18.9, C19, C20, C21.0, C21.1, C21.2, C21.8, C22.1, C24.0, C24.1, C24.8, C24.9, C25.0, C25.1, C25.2, C25.3, C25.4, C25.7, C25.8, C25.9, Z12.11, Z80.0, Z83.71, Z86.010 ▪ Removed the following coding notation: "Unusual anesthesia is an additional level of services that are applicable to endoscopies to address those patients who receive services in a hospital setting, to include ASCs. Claims for this level should be billed using 00740 or 00810 with modifier 23 describing unusual anesthesia only when performed as inpatient or outpatient at a hospital setting, to include ASCs."
	Reference section updated to remove information regarding endoscopy.
10-01-2017	In Coding Section: ▪ Added ICD Codes: O36.8311, O36.8312, O36.8313, O36.8314, O36.8315, O36.8319, O36.8321, O36.8322, O36.8323, O36.8324, O36.8325, O36.8329, O36.8331, O36.8332, O36.8333, O36.8334, O36.8335, O36.8339, O36.8391, O36.8392, O36.8394, O36.8395, O36.8399
10-01-2018	In Coding Section: ▪ Added ICD Codes: O30.131, O30.132, O30.133, O30.139, O30.231, O30.232, O30.233, O30.239, O30.831, O30.832, O30.833, O30.839
03-09-2021	Description section updated

REVISIONS	
	Rationale section updated
	References section updated
01-13-2022	Updated Description Section
	Updated Rationale Section
	Updated Codes Section ▪ Changed ICD-10 codes to code ranges
	Updated References Section

REFERENCES

1. American Society of Anesthesiologists (ASA). Position on monitored anesthesia care (Amended October 17, 2018). 2018; https://www.asahq.org/standards-and-guidelines/position-on-monitored-anesthesia-care. Accessed September 12, 2021.
2. American Society of Anesthesiologists (ASA). Distinguishing monitored Anesthesia care (MAC) from moderate sedation/analgesia (Last Amended October 17, 2018). 2018; https://www.asahq.org/standards-and-guidelines/distinguishing-monitored-anesthesia-care-mac-from-moderate-sedationanalgesia-conscious-sedation. Accessed September 14, 2021.
3. American Society of Anesthesiologists (ASA). Continuum of Depth of Sedation: Definition of General Anesthesia and Levels of Sedation/Analgesia (Last Amended on October 23, 2019). 2019; https://www.asahq.org/standards-and-guidelines/continuum-of-depth-of-sedation-definition-of-general-anesthesia-and-levels-of-sedationanalgesia Accessed September 15, 2021
4. American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists. Practice guidelines for sedation and analgesia by non-anesthesiologists. Anesthesiology. Apr 2002; 96(4): 1004-17. PMID 11964611
5. American Society of Anesthesiologists (ASA). Guidelines for ambulatory anesthesia and surgery (Reaffirmed October 2018). 2018; American Society of Anesthesiologists (ASA). Guidelines for ambulatory anesthesia and surgery. https://www.asahq.org/standards-and-guidelines/guidelines-for-ambulatory-anesthesia-and-surgery. Accessed September 13, 2021.
6. American Society of Anesthesiologists (ASA). Statement on nonoperating room anesthetizing locations (Amended October 2018). 2018; https://www.asahq.org/standards-and-guidelines/statement-on-nonoperating-room-anesthetizing-locations. Accessed September 22, 2021.
7. Whippey A, Kostandoff G, Paul J, et al. Predictors of unanticipated admission following ambulatory surgery: a retrospective case-control study. Can J Anaesth. Jul 2013; 60(7): 675-83. PMID 23606232
8. Fleisher LA, Pasternak LR, Herbert R, et al. Inpatient hospital admission and death after outpatient surgery in elderly patients: importance of patient and system characteristics and location of care. Arch Surg. Jan 2004; 139(1): 67-72. PMID 14718279
9. Mazze RI, Kallen B. Reproductive outcome after anesthesia and operation during pregnancy: a registry study of 5405 cases. Am J Obstet Gynecol. Nov 1989; 161(5): 1178-85. PMID 2589435
10. ACOG Committee on Obstetric Practice. ACOG Committee Opinion Number 284, August 2003: Nonobstetric surgery in pregnancy. Obstet Gynecol. Aug 2003; 102(2): 431. PMID 12907126

11. Higuchi H, Adachi Y, Arimura S, et al. Early pregnancy does not reduce the C(50) of propofol for loss of consciousness. Anesth Analg. Dec 2001; 93(6): 1565-9, table of contents. PMID 11726445
12. Cohen LB, Delegge MH, Aisenberg J, et al. AGA Institute review of endoscopic sedation. Gastroenterology. Aug 2007; 133(2): 675-701. PMID 17681185
13. McCarty TR, Hathorn KE, Creighton DW, et al. Safety and sedation-associated adverse event reporting among patients undergoing endoscopic cholangiopancreatography: a comparative systematic review and meta-analysis. Surg Endosc. May 08 2021. PMID 33966121
14. Enestvedt BK, Eisen GM, Holub J, et al. Is the American Society of Anesthesiologists classification useful in risk stratification for endoscopic procedures?. Gastrointest Endosc. Mar 2013; 77(3): 464-71. PMID 23410699
15. Agostoni M, Fanti L, Gemma M, et al. Adverse events during monitored anesthesia care for GI endoscopy: an 8-year experience. Gastrointest Endosc. Aug 2011; 74(2): 266-75. PMID 21704990
16. Berzin TM, Sanaka S, Barnett SR, et al. A prospective assessment of sedation-related adverse events and patient and endoscopist satisfaction in ERCP with anesthesiologist-administered sedation. Gastrointest Endosc. Apr 2011; 73(4): 710-7. PMID 21316669
17. Cote GA, Hovis RM, Ansstas MA, et al. Incidence of sedation-related complications with propofol use during advanced endoscopic procedures. Clin Gastroenterol Hepatol. Feb 2010; 8(2): 137-42. PMID 19607937
18. Singh H, Poluha W, Cheung M, et al. Propofol for sedation during colonoscopy. Cochrane Database Syst Rev. Oct 08 2008; (4): CD006268. PMID 18843709
19. Poincloux L, Laquiere A, Bazin JE, et al. A randomized controlled trial of endoscopist vs. anaesthetist-administered sedation for colonoscopy. Dig Liver Dis. Jul 2011; 43(7): 553-8. PMID 21450542
20. Shen XC, Ao X, Cao Y, et al. Etomidate-remifentanil is more suitable for monitored anesthesia care during gastroscopy in older patients than propofol-remifentanil. Med Sci Monit. Jan 01 2015; 21: 1-8. PMID 25553506
21. Treeprasertsuk S, Rerknimitr R, Angsuwatcharakon P, et al. The safety of propofol infusion compared to midazolam and meperidine intravenous bolus for patients undergoing double balloon enteroscopy. J Med Assoc Thai. May 2014; 97(5): 483-9. PMID 25065086
22. de Paulo GA, Martins FP, Macedo EP, et al. Sedation in gastrointestinal endoscopy: a prospective study comparing nonanesthesiologist-administered propofol and monitored anesthesia care. Endosc Int Open. Feb 2015; 3(1): E7-E13. PMID 26134777
23. Sieg A, Beck S, Scholl SG, et al. Safety analysis of endoscopist-directed propofol sedation: a prospective, national multicenter study of 24 441 patients in German outpatient practices. J Gastroenterol Hepatol. Mar 2014; 29(3): 517-23. PMID 24716213
24. Silvestri GA, Vincent BD, Wahidi MM, et al. A phase 3, randomized, double-blind study to assess the efficacy and safety of fospropofol disodium injection for moderate sedation in patients undergoing flexible bronchoscopy. Chest. Jan 2009; 135(1): 41-47. PMID 18641105
25. Bernards CM, Hadzic A, Suresh S, et al. Regional anesthesia in anesthetized or heavily sedated patients. Reg Anesth Pain Med. Sep-Oct 2008; 33(5): 449-60. PMID 18774514
26. Neal JM, Bernards CM, Hadzic A, et al. ASRA Practice Advisory on Neurologic Complications in Regional Anesthesia and Pain Medicine. Reg Anesth Pain Med. Sep-Oct 2008; 33(5): 404-15. PMID 18774509

27. American Society of Anesthesiologists (ASA). Statement on safe use of propofol (Amended October 2019). 2019; https://www.asahq.org/standards-and-guidelines/statement-on-safe-use-of-propofol. Accessed September 11, 2021
28. American Society of Anesthesiologists (ASA). Statement on anesthetic care during interventional pain procedures for adults. Amended October 26, 2016. 2016; https://www.asahq.org/standards-and-guidelines/statement-on-anesthetic-care-during-interventional-pain-procedures-for-adults, Accessed September 21, 2021.
29. American Society of Anesthesiologists (ASA). Statement on Respiratory Monitoring during Endoscopic Procedures (Amended October 2019). 2019; https://www.asahq.org/standards-and-guidelines/statement-on-respiratory-monitoring-during-endoscopic-procedures. Accessed September 17, 2021.
30. Early DS, Lightdale JR, Vargo JJ, et al. Guidelines for sedation and anesthesia in GI endoscopy. Gastrointest Endosc. Feb 2018; 87(2): 327-337. PMID 29306520
31. Rizk MK, Sawhney MS, Cohen J, et al. Quality indicators common to all GI endoscopic procedures. Am J Gastroenterol. Jan 2015; 110(1): 48-59. PMID 25448874
32. Chandrasekhara V, Early DS, Acosta RD, et al. Modifications in endoscopic practice for the elderly. Gastrointest Endosc. Jul 2013; 78(1): 1-7. PMID 23664042
33. Calderwood AH, Chapman FJ, Cohen J, et al. Guidelines for safety in the gastrointestinal endoscopy unit. Gastrointest Endosc. Mar 2014; 79(3): 363-72. PMID 24485393
34. Vargo JJ, Cohen LB, Rex DK, et al. Position statement: nonanesthesiologist administration of propofol for GI endoscopy. Gastrointest Endosc. Dec 2009; 70(6): 1053-9. PMID 19962497