HealthStream ASCA Regulatory Script

Monitoring Ambulatory Surgery Patients During Moderate Sedation/Analgesia

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HLC CE version: 3

Introduction	
Welcome to the introductory lesson on moderate sedation [glossary]/analgesia [glossary]. This lesson gives the course rationale, goals, and outline. *HealthStream and the Ambulatory Surgery Center Association (ASCA) strive to provide our customers with excellence in regulatory learning solutions. As new guidelines are continually issued by regulatory agencies, we work to update courses, as needed, in a timely manner. Since responsibility for complying with all of these new guidelines ultimately remains with your ASC, we encourage you to routinely check all relevant regulatory agencies directly for the latest updates for the clinical/organizational guidelines that apply to your facility and your ASC's staff.* *Please remain aware that if you have concerns about any aspect of the safety or quality of patient care in your organization, you may report those concerns directly to your accrediting organization.*	
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Course Rationale

Sedation and anesthesia are important risk factors for morbidity and mortality during operative or invasive procedures.

Administering sedation safely is critical to:

- Help prevent negative outcomes
- Comply with regulations

This course will cover:

- How moderate sedation relates to other types of anesthesia services, and how this relates to patient safety
- Important information about the administration of moderate sedation, including processes and procedures that occur before and after analgesic administration

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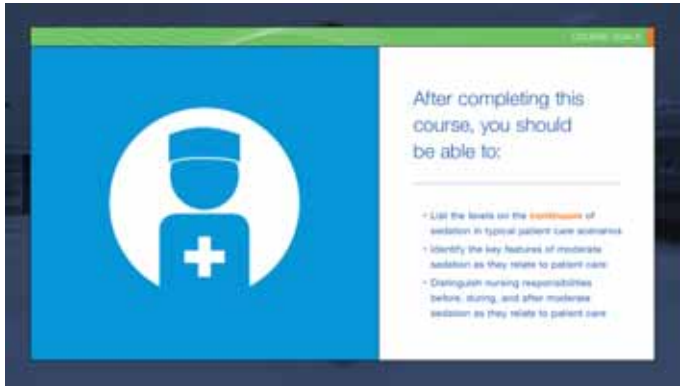
Course Goals

After completing this course, you should be able to:

- List the levels on the continuum [glossary] of sedation in typical patient care scenarios
- Identify the key features of moderate sedation as they relate to patient care
- Distinguish nursing responsibilities before, during, and after moderate sedation as they relate to patient care



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Course Outline

This introductory lesson gave the course rationale and goals.

Lesson 2 will describe the sedation continuum.

Lesson 3 will cover events before moderate sedation.

Lesson 4 will discuss the procedure of moderate sedation.

Lesson 5 will review the process after moderate sedation.

Lesson 1: Introduction
Lesson 2: The Sedation Continuum
- Minimal sedation
- Moderate sedation
- Deep sedation
- General anesthesia
- Significance
- Scope of practice

Lesson 3: Before Moderate Sedation
- Purpose and patient selection
- Providers
- Pre-procedure evaluation
- Informed consent
- Pre-procedure fasting
- Plan of care

Lesson 4: During Moderate Sedation
- Monitoring
- Equipment
- Medications
- Documentation

Lesson 5: After Moderate Sedation
- Post-sedation monitoring
- Post-sedation assessment
- Discharge
- Patient education

Lesson 2: The Sedation Continuum

Introduction	
Welcome to the lesson on the sedation continuum. This lesson will identify key features of each level on the sedation continuum and discuss the clinical significance of each level.	Lesson 2: Sedation Continuum • Minimal sedation • Moderate sedation • Deep sedation • General anesthesia • Significance • Scope of practice
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The Sedation Continuum	
Moderate sedation is on a continuum with other levels of sedation. The levels on this continuum are: • Minimal sedation (anxiolysis [glossary]) • Moderate sedation/analgesia (formerly conscious sedation) • Deep sedation/analgesia • General anesthesia Let's take a closer look at each level on the following screens.	
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Minimal Sedation: Anxiolysis

Minimal sedation is also called anxiolysis, meaning that it decreases anxiety.

In this medication-induced state:

- The patient feels relaxed.
- The patient responds normally to speech.
- Thinking and coordination may be affected.
- Breathing and heart function (heart rate and blood pressure) are generally not affected.

Moderate Sedation/Analgesia

Moderate sedation/analgesia was previously called conscious sedation.

In this medication-induced state:

- The patient has depression of consciousness.
- The patient experiences relief of anxiety and pain.
- The patient will respond purposefully to spoken words, or spoken words with a light touch. For this definition, “purposeful” movement does not include reflexive movement away from pain.
- The airway remains patent without help.
- The patient’s breathing is adequate.
- Heart function and blood pressure are usually maintained.

Deep Sedation/Analgesia

Deep sedation/analgesia is the next level on the continuum.

In this medication-induced state:

- The patient has depression of consciousness and is difficult to awaken.
- The patient will respond purposefully to repeated or painful stimulation. Reflexive movement away from pain is not purposeful.
- Intervention may be required to maintain respiratory function and patent airway.
- The patient's own breathing may not be adequate.
- Heart function and blood pressure are usually maintained.

General Anesthesia

General anesthesia is the deepest form of sedation.

In this medication-induced state:

- The patient loses consciousness.
- The patient cannot be awakened, even by painful stimuli.
- The patient often needs assistance maintaining the airway and ventilation. This often requires positive pressure ventilation [glossary].
- Heart function and blood pressure may be impaired.

The Sedation Continuum: Summary

The table here summarizes the sedation continuum.

Continuum of Depth of Sedation

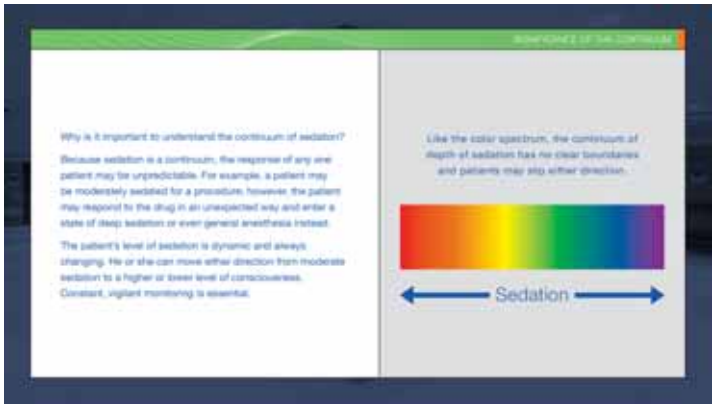
	Minimal sedation (anxiolysis)	**Moderate sedation/ analgesia**	**Deep sedation/ analgesia**	**General anesthesia**
Responsiveness	Normal response to speech	Purposeful response to speech or touch	Purposeful response to repeated or painful stimulation	No response, even to pain
Airway	Unaffected	Remains open	May need help to maintain airway	Often needs help to maintain airway
Breathing	Unaffected	Adequate	May not be adequate	Often requires ventilator support
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired

Significance of the Continuum

Why is it important to understand the continuum of sedation?

Because sedation is a continuum, the response of any one patient may be unpredictable. For example, a patient may be moderately sedated for a procedure; however, the patient may respond to the drug in an unexpected way and enter a state of deep sedation or even general anesthesia instead.

The patient's level of sedation is dynamic and always changing. He or she can move either direction from moderate sedation to a higher or lower level of consciousness. Constant, vigilant monitoring is essential.



Significance of the Continuum

This is the rationale for many of the regulations related to moderate sedation. Moderate sedation does not usually put a patient's breathing or heart function at risk, but a moderately sedated patient may progress to deep sedation. Therefore, moderate sedation must be monitored just as carefully as deep sedation and general anesthesia.

Scope of Practice

Registered nurses administering sedation/analgesia must practice within the scope of nursing practice as defined by their state and be in compliance with rules and regulations that direct the practice of the registered nurse.

Typically, nurses who possess the proper training and skills are allowed to administer minimal and moderate sedation to patients under the order and/or supervision of a physician. These patients must be deemed appropriate candidates for nurse-administered sedation or analgesia. Conversely, it is typically inappropriate for registered nurses to administer deep sedation or general anesthesia.

Review

Select the answer that best fits the question.

The best description of moderate sedation is:

a. A risk-free treatment
b. A point on the continuum of sedation
c. A lesser form of sedation than minimal sedation
d. A treatment entirely different from general anesthesia

Correct: B

Feedback: Moderate sedation is a point on the continuum of sedation. It is not risk free.

Review

Select the answer that best fits the question.

You are assisting in providing sedation for a procedure and are carefully assessing the patient's response. You note that the patient responds only to repeated or painful stimulation and has shallow breathing. Blood pressure and pulse are unchanged. What level of sedation has the patient entered?

a. Moderate sedation
b. Deep sedation
c. General anesthesia
d. Interval between moderate and deep sedation

Correct: B

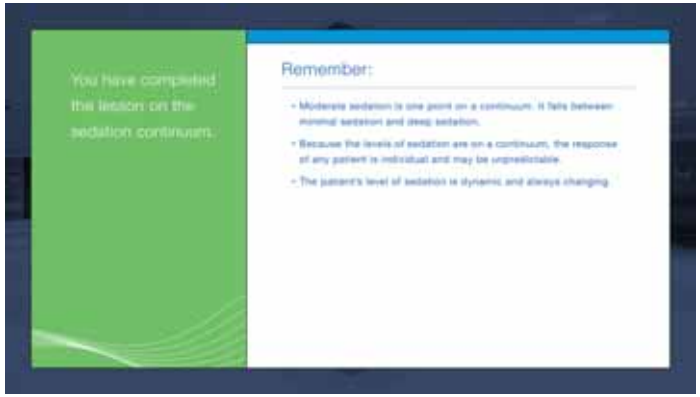
Feedback: Deep sedation is indicated when a patient responds only to repeated or painful stimulation, may not have adequate breathing, and may require help in maintaining an airway. Cardiovascular function is maintained.

Summary

You have completed the lesson on the sedation continuum.

Remember:

- Moderate sedation is one point on a continuum. It falls between minimal sedation and deep sedation.
- Because the levels of sedation are on a continuum, the response of any patient is individual and may be unpredictable.
- The patient's level of sedation is dynamic and always changing.



Introduction	
This lesson will discuss the planning and events that must take place before the administration of moderate sedation/analgesia.	Lesson 3: Before Moderate Sedation/Analgesia • Purpose and patient selection • Providers • Pre-procedure evaluation • Informed consent • Pre-procedure fasting • Plan of care
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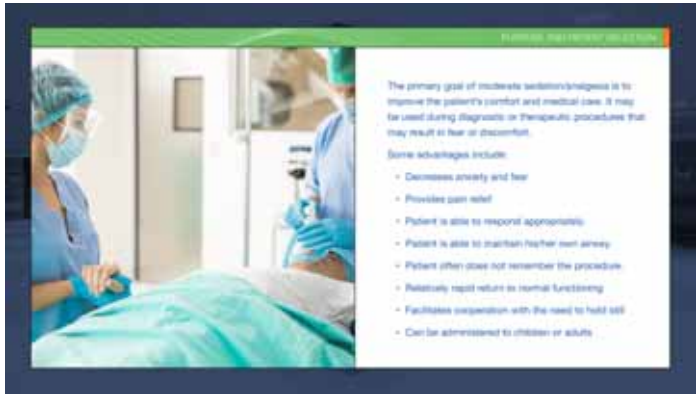
Purpose and Patient Selection

The primary goal of moderate sedation/analgesia is to improve the patient's comfort and medical care. It may be used during diagnostic or therapeutic procedures that may result in fear or discomfort.

Some advantages include:

- Decreases anxiety and fear
- Provides pain relief
- Patient is able to respond appropriately.
- Patient is able to maintain his/her own airway.
- Patient often does not remember the procedure.
- Relatively rapid return to normal functioning
- Facilitates cooperation with the need to hold still
- Can be administered to children or adults



Qualified Provider

A qualified provider must administer moderate sedation.

A provider qualified to give moderate sedation must be trained in:

- The evaluation of patients before sedation
- How to administer medications for moderate sedation
- Monitoring patients to keep them moderately sedated
- How to rescue patients from deep sedation

The ability to rescue patients from deep sedation includes training in:

- Airway management
- How to administer oxygen and ventilate the patient
- Administration of appropriate reversal agents

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Qualified Provider

The person administering the medications and monitoring the patient must have the ability to manage the patient's airway.

This includes:

- Knowing how to provide supplementary oxygen
- Having the skills to provide bag-valve-mask ventilation
- Having someone immediately available who can place an advanced airway and administer advanced life support

Pre-Sedation Assessment

The pre-sedation assessment, performed by a licensed independent practitioner, should include information about the procedure and the patient.

The assessment should include:

- Indication for the procedure
- Determination that the patient is an appropriate candidate for sedation and the procedure

The pre-sedation assessment should also include:

- Patient history
- Physical assessment

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The pre-sedation assessment should also include:

- **Patient history**
- Physical assessment

The **patient history** should include:

- NPO status
- Medical problems
- Medications
- Allergies or adverse drug events
- Prior sedative or anesthesia experiences
- Last oral intake
- Potential for pregnancy
- History of tobacco or alcohol use
- Verification of a responsible adult to escort the patient home

Pre-Sedation Assessment

The pre-sedation assessment, performed by a licensed independent practitioner, should include information about the procedure and the patient.

The assessment should include:

- Indication for the procedure
- Determination that the patient is an appropriate candidate for sedation and the procedure

The pre-sedation assessment should also include:

- Patient history
- **Physical assessment**

The **physical assessment** of the patient should include:

- Baseline vital signs and oxygen saturation
- Weight
- Airway status and factors that may affect the ability to ventilate such as obesity, dental status, facial hair, stridor
- Aspiration risk factors
- Status of cardiac, pulmonary, and neurologic systems
- Mental status and level of consciousness
- Appropriate lab tests
- Physical status (see next screen)

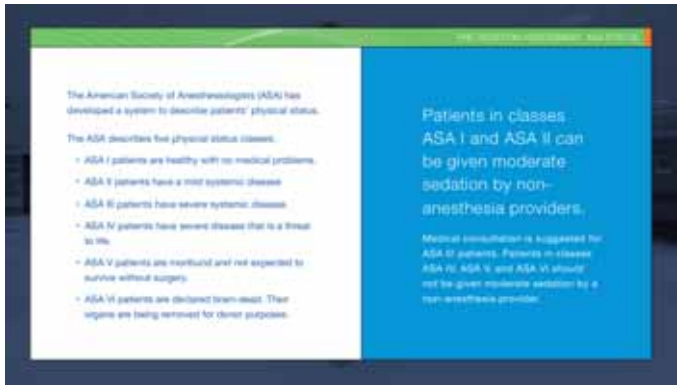
Pre-Sedation Assessment: ASA status

The American Society of Anesthesiologists (ASA) has developed a system to describe patients' physical status.

The ASA describes five physical status classes:

- ASA I patients are healthy with no medical problems.
- ASA II patients have a mild systemic disease.
- ASA III patients have severe systemic disease.
- ASA IV patients have severe disease that is a threat to life.
- ASA V patients are moribund and not expected to survive without surgery.
- ASA VI patients are declared brain-dead. Their organs are being removed for donor purposes.

Patients in classes ASA I and ASA II *can be* given moderate sedation by non-anesthesia providers. Medical consultation is suggested for ASA III patients. Patients in classes ASA IV, ASA V, and ASA VI *should not* be given moderate sedation by a non-anesthesia provider.



Pre-Sedation Assessment: ASA status

The table shown here has examples for each class.

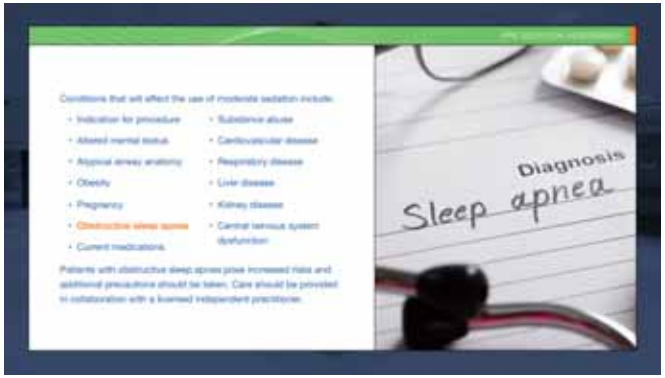
ASA PS Classification	Definition	Examples, including, but not limited to:
ASA I	Healthy patient with no medical problems	Healthy, non-smoking, no or minimal alcohol use
ASA II	Mild systemic disease	Smoker, social alcohol drinker, pregnancy, obesity, controlled DM or HTN
ASA III	Severe systemic disease	Uncontrolled DM or HTN, morbid obesity
ASA IV	Severe systemic disease that is a constant life threat	Recent (<3 months), MI, CVA, TIA, CAD w/ stents
ASA V	Moribund, not expected to survive without the operation	Ruptured abdominal or thoracic aneurysm, massive trauma, and intracranial bleed with mass effect
ASA VI	Declared brain-dead, whose organs are being removed for donor purposes	

Pre-Sedation Assessment

Conditions that will affect the use of moderate sedation include:

- Indication for procedure
- Altered mental status
- Atypical airway anatomy
- Obesity
- Pregnancy
- Obstructive sleep apnea [glossary]
- Current medications
- Substance abuse
- Cardiovascular disease
- Respiratory disease
- Liver disease
- Kidney disease
- Central nervous system dysfunction

Patients with obstructive sleep apnea pose increased risks and additional precautions should be taken. Care should be provided in collaboration with a licensed independent practitioner.



Informed Consent

Informed consent is a process of communication between care providers and patients. A licensed independent practitioner is responsible for this dialogue.

Discussion should include:

- Diagnosis
- Purpose of the treatment or procedure
- Risks and benefits of the treatment or procedure
- Alternatives to the proposed treatment or procedure including their risks and benefits
- Risks and benefits of not having the treatment or procedure

Sedation options and risks must be discussed with the patient and family and consent must be obtained before administering moderate sedation.

Part of informed consent is a full understanding of the options and risks of treatment.

Fasting Guidelines

A period of fasting before the administration of moderate sedation/analgesia is intended to reduce the risk of lung aspiration of stomach contents during the procedure. However, following these guidelines does not guarantee complete gastric emptying, due to the different rates at which various types of material empty from the stomach.

The fasting periods noted in the table shown here are the minimum fasting times applicable for patients of all ages. Always check your ASC's fasting policies and guidelines, as these time periods may be increased based upon individual patient considerations.

Fasting guidelines for healthy patients undergoing elective procedures

Intake	Minimum Fasting Period
Clear liquids	2 hours
Breast milk	4 hours
Infant formula, milk, light meal*	6 hours

*An example of a light meal would be toast and clear liquids. Meals with fried or fatty foods or meat should have a longer fasting period (i.e., 8 hours or more). The amount and type of food ingested must be considered when determining an appropriate fasting period.

Pre-Sedation Plan

The moderate sedation of each patient must be carefully planned.

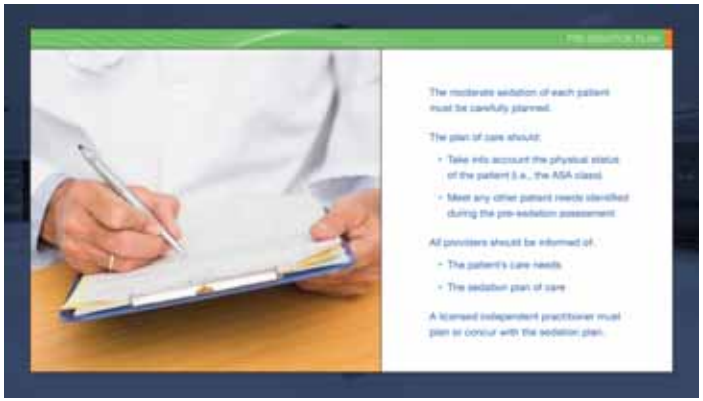
The plan of care should:

- Take into account the physical status of the patient (i.e., the ASA class)
- Meet any other patient needs identified during the pre-sedation assessment

All providers should be informed of:

- The patient's care needs
- The sedation plan of care

A licensed independent practitioner must plan or concur with the sedation plan.



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Review

Select the answer that best fits the question.

Which of the following statements about the provision of moderate sedation/analgesia is NOT TRUE?

a. A qualified provider will be able to rescue patients from deep sedation.
b. The pre-sedation assessment should include evaluation of the patient's airway.
c. Patients classified as ASA IV are at low risk for complications.
d. Obstructive sleep apnea increases the risk for complications.

Correct: C

Feedback: ASA IV patients have severe, life-threatening disease and are at high risk for complications.

Review

Select the answer that best fits the question.

While preparing to assist in the provision of moderate sedation to a patient, you note that the patient is an ex-smoker with COPD but appears stable on examination. What would be the ASA status of this patient?

a. ASA I
b. ASA II
c. ASA III
d. ASA IV
e. ASA V
f. ASA VI

Correct: C

Feedback: The patient has a severe systemic illness that is not a current threat to life and should receive medical consultation prior to the provision of moderate sedation. The patient's status is ASA III.

Summary

This concludes the lesson on care of the patient before the administration of moderate sedation/analgesia.

Remember:

- Moderate sedation/analgesia is useful for diagnostic or therapeutic procedures that might produce fear and/or discomfort.
- Qualified providers must be able to rescue patients from deeper-than-planned sedation.
- The pre-sedation assessment should include a history and physical exam aimed at identifying possible complications.
- Informed consent is a tool to discuss the risks and benefits of, and alternatives to, moderate sedation/analgesia.
- Fasting before a procedure can reduce the risk of pulmonary aspiration.
- Moderate sedation should be carefully planned for each patient.

Introduction	
This lesson covers the events that occur during the administration of moderate sedation/analgesia, including the monitoring equipment and some of the medications commonly used.	Lesson 4: During Moderate Sedation/Analgesia • Monitoring • Equipment • Medications for sedation/analgesia • Reversal medications • Documentation
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Monitoring

The monitoring of a patient receiving moderate sedation/analgesia should be continuous and focused. The professional monitoring the patient should have no other responsibilities that would require leaving the patient unattended or would compromise continuous monitoring during the procedure.

Monitoring

Adequacy of lung function should be monitored continuously.

This includes:

- Continual observation of clinical signs
- Monitoring for the presence of exhaled carbon dioxide with capnography [glossary]

Capnography may give an earlier indication of respiratory compromise.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- Level of consciousness
- Blood pressure
- Electrocardiogram (ECG)
- Comfort
- Skin condition

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

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The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- **Heart rate**
- Oxygenation
- Level of consciousness
- Blood pressure
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- Comfort
- Skin condition

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

Heart rate
Heart rate should be continuously monitored. The normal resting heart rate for most adults is 60–100 beats per minute. Minimal changes in heart rate and blood pressure are good indications of sedation level stability.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

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- Skin condition

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Oxygenation
Drug-induced respiratory depression is the primary cause of morbidity associated with sedation and analgesia. Continuous monitoring of oxygenation by pulse oximetry and use of supplemental oxygen reduces the magnitude of blood deoxygenation and possibility of the patient slipping into hypoxia.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- **Level of consciousness**
- Blood pressure
- Electrocardiogram (ECG)
- Comfort
- Skin condition

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Level of consciousness
Measure by the response to verbal commands when practical. The moderately sedated patient will respond to verbal and physical commands, not be anxious or afraid, experience acceptable pain control, remain cooperative during the procedure, and have mild amnesia for the procedure.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- Level of consciousness
- **Blood pressure**
- Electrocardiogram (ECG)
- Comfort
- Skin condition

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

Blood pressure
Measure noninvasively or invasively if indicated. Changes in blood pressure and heart rate may indicate the level of sedation is becoming deeper (decreasing blood pressure and heart rate) or the patient is becoming less sedated (increasing blood pressure and heart rate).

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- Level of consciousness
- Blood pressure
- **Electrocardiogram (ECG)**
- Comfort
- Skin condition

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

Electrocardiogram (ECG)
Monitor heart rate and rhythm. ECG monitoring is especially important for high-risk patients: those with significant cardiovascular disease or dysrhythmias.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- Level of consciousness
- Blood pressure
- Electrocardiogram (ECG)
- **Comfort**
- Skin condition

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

Comfort
If the patient is awake enough to communicate clearly, check on his/her comfort level.

Monitoring

The following parameters should be monitored before the start of the procedure, after administration of sedative or analgesic medications, and at least every 5 minutes during the period of sedation. This should be based on the patient's condition, type and amount of medication administered, and the length of the procedure.

- Heart rate
- Oxygenation
- Level of consciousness
- Blood pressure
- Electrocardiogram (ECG)
- Comfort
- **Skin condition**

Although electronic monitoring equipment often facilitates assessment of patient status, it does not replace a well-trained and vigilant assistant.

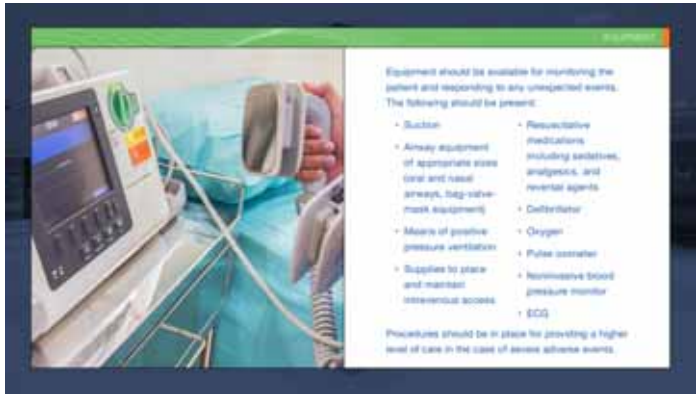
Skin condition
Be alert for cold or clammy skin or skin damage from positioning or monitoring devices of consciousness.

Equipment

Equipment should be available for monitoring the patient and responding to any unexpected events. The following should be present:

- Suction
- Airway equipment of appropriate sizes (oral and nasal airways, bag-valve-mask equipment)
- Means of positive pressure ventilation
- Supplies to place and maintain intravenous access
- Resuscitative medications including sedatives, analgesics, and reversal agents
- Defibrillator
- Oxygen
- Pulse oximeter
- Noninvasive blood pressure monitor
- ECG

Procedures should be in place for providing a higher level of care in the case of severe adverse events.



Medications

The medications used for a particular case of moderate sedation/analgesia will vary by provider and patient characteristics. Generally, medications are chosen from these categories:

- Benzodiazepines
- Opioids
- Reversal agents

Benzodiazepines

The benzodiazepines are useful as sedatives and to induce relaxation. An advantage of midazolam is that it causes anterograde amnesia, meaning that patients generally do not remember what occurred after it was administered. Its rapid onset and short duration of action make it well suited to use.

Side effects of benzodiazepines are:

- Decreased respiration
- Low blood pressure
- Confusion
- Dizziness
- Excessive sedation

Benzodiazepines

- Midazolam (Versed)
- Diazepam (Valium)
- Lorazepam (Ativan)

Opioids

Opioids provide both analgesia and sedation. Fentanyl is commonly favored due to its quick onset and clearance, and its lower risk of nausea compared to other opioids.

Side effects include:

- Central nervous system depression
- Low blood pressure
- Respiratory compromise
- Low heart rate
- Itching
- Constipation

The combination of benzodiazepines and opioids is effective for sedation and analgesia. However, their side effects can be additive and each medication should be titrated separately to achieve the optimal response in the patient.

Opioids

- Fentanyl (Sublimaze)
- Morphine
- Meperidine (Demerol)

Reversal Agents

Medications are available to reverse the actions of benzodiazepines and opioids. These drugs can reverse sedation and respiratory depression. However, their use may result in pain as well as elevated blood pressure and heart rate.

Flumazenil (Romazicon) is used to reverse the effects of benzodiazepines.

Naloxone (Narcan) is used to reverse the effects of opioids.

Keep in mind that the reversal drug may not last as long as the medication it is counteracting, and repeat doses may be necessary.

Reversal medications should always be available when a patient is being sedated with benzodiazepines and/or opioids.

Documentation

At a minimum, the following information should be documented in the medical record:

- Assessment of the patient's condition
- Plan of care
- Nursing diagnoses
- Vital signs and level of consciousness documented at specified intervals, dependent on the type and quantity of medication administered
- All medications administered, including name, dose, route, time, and effects
- Any fluids administered
- Unexpected events
- Any treatment rendered
- Patient response to care
- Patient condition at the conclusion of the procedure

Review

For each of the statements, drag the name of the medication described and place it in the blank.

1. Benzodiazepine with rapid onset and short action that causes anterograde amnesia: Midazolam
2. Opioid with quick onset and clearance with a lower risk of nausea: Fentanyl
3. Medication that can reverse the action of benzodiazepines: Flumazenil

Review

Select the answer that best fits the question.

While providing moderate sedation, monitoring parameters such as heart rate and blood pressure should be obtained at least every 10 minutes.

a. True
b. False

Correct: B

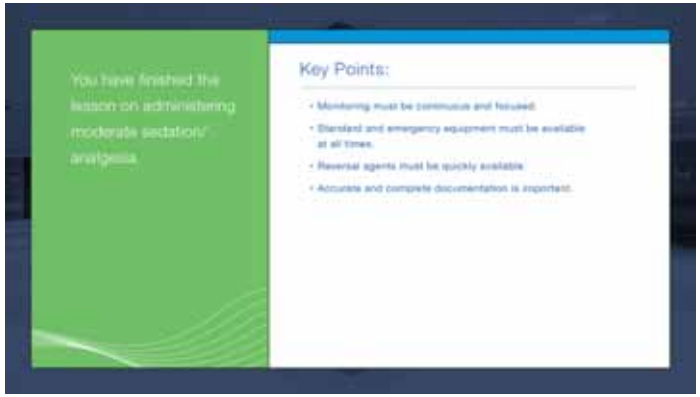
Feedback: Monitoring parameters should be obtained at least every 5 minutes.

Summary

You have finished the lesson on administering moderate sedation/analgesia.

Key points:

- Monitoring must be continuous and focused.
- Standard and emergency equipment must be available at all times.
- Reversal agents must be quickly available.
- Accurate and complete documentation is important.

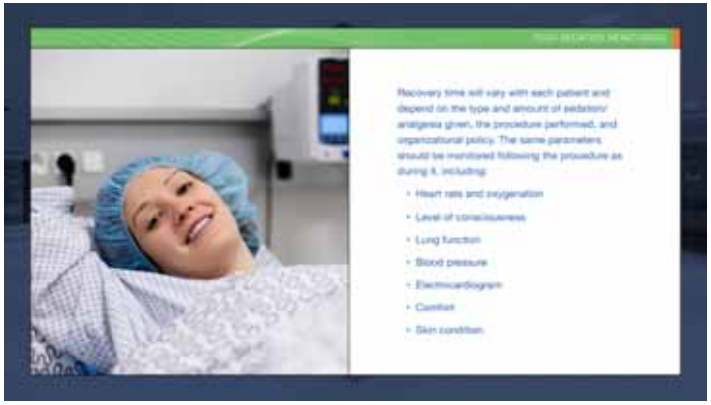


Introduction	
This lesson discusses events after the period of sedation. This includes monitoring, assessment of patient status, evaluating readiness for discharge, and patient education.	Lesson 5: After Moderate Sedation/Analgesia • Post-sedation monitoring • Post-sedation assessment • Discharge • Patient education
	Slide 55 of 62

Post-Sedation Monitoring

Recovery time will vary with each patient and depend on the type and amount of sedation/analgesia given, the procedure performed, and organizational policy. The same parameters should be monitored following the procedure as during it, including:

- Heart rate and oxygenation
- Level of consciousness
- Lung function
- Blood pressure
- Electrocardiogram
- Comfort
- Skin condition



Post-Sedation Assessment

Assessment of the patient following the procedure should include:

- Level of pain
- Condition of any wounds or dressings
- Vital signs
- Level of consciousness
- Presence of nausea
- Evaluation of motor and sensory function

If the patient received a reversal drug, he/she should be monitored long enough to make sure he/she does not become re-sedated after the effects of the reversal agent wear off.

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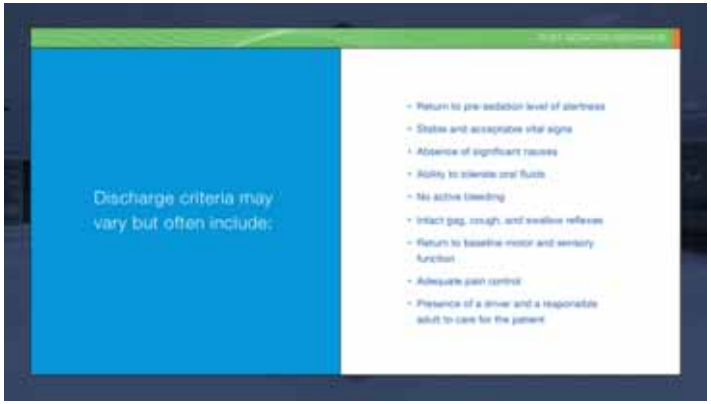
Post-Sedation Discharge

Discharge criteria may vary but often include:

- Return to pre-sedation level of alertness
- Stable and acceptable vital signs
- Absence of significant nausea
- Ability to tolerate oral fluids
- No active bleeding
- Intact gag, cough, and swallow reflexes
- Return to baseline motor and sensory function
- Adequate pain control
- Presence of a driver and a responsible adult to care for the patient

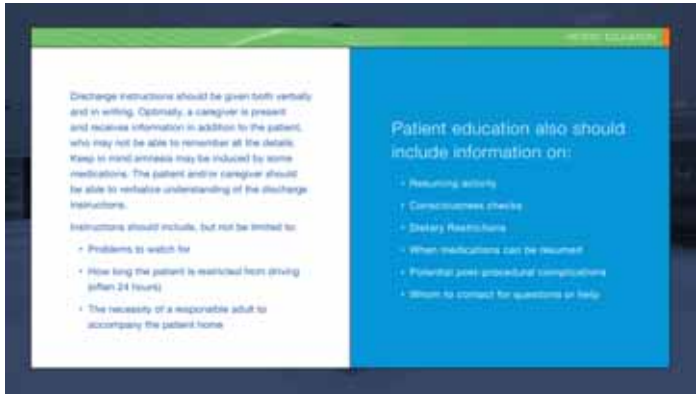


Patient Education

Discharge instructions should be given both verbally and in writing. Optimally, a caregiver is present and receives information in addition to the patient, who may not be able to remember all the details. Keep in mind amnesia may be induced by some medications. The patient and/or caregiver should be able to verbalize understanding of the discharge instructions.

Instructions should include, but not be limited to:

- Problems to watch for
- How long the patient is restricted from driving (often 24 hours)
- The necessity of a responsible adult to accompany the patient home



Review

Select the answer that best fits the question.

The reversal medications always last longer than the sedative effect of benzodiazepines and opioids.

a. True
b. False

Correct: B

Feedback: Reversal medications may wear off, returning the patient to a sedated state.

Review

Select the answer that best fits the question. Monitoring parameters used during and following sedation are the same, and include all of the following EXCEPT: a. Blood pressure b. Oxygenation c. Body temperature d. Skin condition e. Electrocardiogram	Correct: C Feedback: Body temperature is not one of the monitoring parameters for the provision of sedation.

Summary

This concludes the lesson on care of the patient after moderate sedation/analgesia.

Keep in mind:

- Monitoring should continue into the post-sedation period.
- Assess pain, wounds, vital signs, level of consciousness, nausea, and motor and sensory function after the procedure.
- Discharge criteria should be met before dismissing a patient.
- Discharge instructions should be given verbally and in writing to both patient and caregiver, if possible.

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Compliance is the responsibility of each ASC. Provision of this list does not imply that the content of this course wholly or partially addresses the guidelines and references provided here.

Glossary

Term	Definition
analgesia	pain relief
anxiolysis	the use of drugs to lessen anxiety without lessening awareness
capnography	the monitoring of inhaled and exhaled carbon dioxide concentrations
continuum	on a scale progressing from the smallest to the greatest amount
obstructive sleep apnea	disorder with pauses in breathing while sleeping
positive pressure ventilation	artificial breathing using positive pressure to maintain inflation of the lungs
sedation	sleepiness, or the act of causing sleepiness

Exam

1. What is the deepest form of sedation?
    a. Deep sedation
    b. Minimal sedation
    c. Moderate sedation
    d. General anesthesia

Correct: D
Rationale: General anesthesia is the deepest form of sedation.

2. What is a key feature of moderate sedation?
    a. The airway does not remain patent.
    b. Heart function is usually maintained.
    c. The patient's own breathing is not adequate.
    d. The patient does not exhibit reflex movement away from pain.

Correct: B
Rationale: In moderate sedation, heart function is usually maintained.

3. Which statement is true of monitoring moderate sedation?
    a. Informal monitoring is adequate.
    b. Monitoring is optional.
    c. Monitoring is important, as a moderately sedated patient may progress to deep sedation.
    d. Monitoring is unnecessary, as moderate sedation does not put breathing or heart function at risk.

Correct: C
Rationale: Moderate sedation must be monitored just as carefully as deep sedation and general anesthesia, because a moderately sedated patient may progress to deep sedation.

4. Which of the following aspects of care is/are required as part of the minimum information documented in the medical record for a patient undergoing moderate sedation?
    a. Any treatment rendered
    b. Patient's caregiver information
    c. Signature of patient acknowledging receipt of care
    d. All of the above

Correct: A
Rationale: The medical record must contain a description of any treatment rendered to the patient.

5. Which is true regarding fasting prior to sedation?
   a. It is recommended that patients refrain from clear liquids for at least 8 hours prior to sedation.
   b. Infants may take milk or formula up to 15 minutes prior to sedation.
   c. The fasting guidelines should be adjusted for the age of the patient.
   d. Following the fasting guidelines does not guarantee complete gastric emptying.

Correct: D
Rationale: Although generally the stomach will be emptied completely if the fasting guidelines are followed, individuals may have, for various reasons, incomplete emptying after the recommended period.

6. Which of the following cases would NOT be appropriate for nurse-administered moderate sedation/analgesia?
   a. A healthy 50-year-old female undergoing a screening colonoscopy
   b. A 72-year-old male with hypertension, diabetes, and heart failure undergoing transesophageal echocardiography
   c. An otherwise healthy 14-year-old girl who is anxious about having a closed reduction of an arm fracture
   d. A stable, relatively healthy 61-year-old male undergoing elective upper gastrointestinal endoscopy

Correct: B
Rationale: Administering moderate sedation/analgesia to a high-risk patient is out of the scope of practice of a registered nurse.

7. Which of the following is the most significant risk factor for complications from moderate sedation?
   a. Obstructive sleep apnea
   b. Pleurisy
   c. Upper respiratory infection
   d. Gastroesophageal reflux disease

Correct: A
Rationale: Obstructive sleep apnea significantly increases the chance of problems with moderate sedation.

8. Which of these parameters is/are important to monitor during moderate sedation/analgesia?
   a. Heart rate and oxygenation
   b. Level of consciousness
   c. Patient comfort
   d. All of the above

Correct: D
Rationale: All of these (in addition to lung function, electrocardiogram, and skin condition) are important to monitor.

9. In addition to monitoring equipment, which of these is important to have quickly available while a patient is undergoing moderate sedation?
   a. Arterial line for sampling blood gas

b. Cardiologist
c. Resuscitative medications and a defibrillator
d. Music to calm the patient

Correct: C
Rationale: Resuscitative medication and a defibrillator should be quickly available in order to respond to unexpected events.

10. Which statement about medication used during moderate sedation/analgesia is INCORRECT?
    a. Midazolam (Versed) works quickly and has a short duration of action.
    b. Fentanyl (Sublimaze) has no significant side effects.
    c. Opioids provide analgesia and sedation.
    d. Flumazenil (Romazicon) is used to reverse the action of benzodiazepines and Naloxone (Narcan) is used to reverse the action of opioids.

Correct: B
Rationale: Fentanyl may cause central nervous system depression, respiratory compromise, low blood pressure, and a decreased heart rate.

11. Which types of sedation must be monitored?
    a. General anesthesia only
    b. General anesthesia and deep sedation only
    c. General anesthesia and moderate sedation only
    d. General anesthesia, deep sedation, and moderate sedation

Correct: D
Rationale: Moderate sedation must be monitored just as carefully as deep sedation and anesthesia, because a moderately sedated patient may progress to deep sedation.

12. Which statement is true?
    a. Benzodiazepines and opioids have non-overlapping mechanisms of action and therefore may be co-administered without regard to one another.
    b. Flumazenil is used to reverse the effects of benzodiazepines and opioids.
    c. Because each person's metabolism is different, the effects of reversal agents may be of shorter or longer duration than the sedating agent.
    d. The use of reversal agents may increase blood pressure and heart rate.

Correct: D
Rationale: Reversal agents may have their own side effects. Benzodiazepines and opioids must be titrated separately when co-administered while reversal agents are specific to the sedating agent being counteracted. Often the reversal agent is shorter acting than the analgesic, not longer acting.

13. Which is NOT part of commonly used discharge criteria after moderate sedation/analgesia?

a. Blood pressure less than 110 over 60 mmHg
b. Return to pre-sedation level of alertness
c. Absence of significant nausea and ability to tolerate oral fluids
d. Intact gag, cough, and swallow reflexes

Correct: A
Rationale: Stable vital signs near pre-sedation levels may be used as discharge criteria, but absolute numbers are not typically given. The other criteria usually must be met before a patient is discharged.

14. The qualified provider of sedatives for moderate sedation must have the ability to:
a. Know how to provide supplementary oxygen
b. Provide bag-valve-mask ventilation
c. Call on someone who is immediately available to place an advanced airway and administer advanced life support if the patient requires it
d. All of the above

Correct: D
Rationale: Each of these is necessary of the person administering moderate sedation.

15. Patients must be monitored during moderate sedation. Which is an acceptable monitoring practice?
a. Heart rate is monitored by ECG and oxygenation is monitored by pulse oximetry.
b. All monitoring is performed by observing the patient's skin color.
c. The person performing the procedure also is in charge of monitoring.
d. Monitoring is performed by watching the patient's brain waves on EEG.

Correct: A
Rationale: Heart rate should be monitored continuously by ECG and oxygenation should be monitored continuously by pulse oximetry.

16. Patients must be assessed and monitored as they recover from moderate sedation. What must be evaluated in the post-sedation monitoring/assessment?
a. Patient's pain level
b. Success of the surgery
c. Patient's satisfaction with the care provided
d. Likelihood of healing without a surgical scar

Correct: A
Rationale: Pain level should be assessed post-sedation.

17. Patient ASA status should be assessed before moderate sedation is given. An anesthesia provider is the only type of provider qualified to give moderate sedation to which ASA patient classes?
a. Classes ASA I and ASA II

b. Classes ASA IV, ASA V, and ASA VI
c. Classes ASA I, ASA II, and ASA III
d. Classes ASA III, ASA IV and ASA V

Correct: B
Rationale: Patients in ASA classes IV, V, and VI should NOT be given moderate sedation by a non-anesthesia provider.

18. Which practice meets criteria for patient discharge after moderate sedation?
a. A patient is discharged before meeting discharge criteria.
b. A patient is discharged without post-sedation assessment.
c. The patient's status at discharge is documented in the medical record.
d. An outpatient is discharged without being accompanied by a responsible adult.

Correct: C
Rationale: Patients should be assessed to ensure they meet discharge criteria before discharge. Meeting discharge criteria should be documented in the medical record.

19. A provider qualified to give moderate sedation is trained in:
a. How to rescue patients from deep sedation
b. The administration of medications to achieve moderate sedation
c. The monitoring of patients to keep them moderately sedated
d. All of the above

Correct: D
Rationale: A qualified provider is trained in all of these skills.

20. Which best describes a moderately sedated patient?
a. It is not necessary to monitor cardiovascular function.
b. Once sedated, a patient will remain sedated until a reversal agent is administered.
c. A given dose of benzodiazepine will always produce the same response in patients of similar body mass.
d. Patients are generally stable but may unexpectedly slip into a lighter or deeper state of sedation, possibly without warning.

Correct: D
Rationale: Sedated patients may, unexpectedly and without warning, slip into lighter or deeper states of sedation. Hence, persons administering moderate sedation must be trained to revive patients from a level of sedation one level deeper than that which they are permitted to perform.