Foundations of Anesthesia Practice and Pain Management

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What is Anesthesia?

- General Anesthesia
  - Unconsciousness
  - Amnesia
  - Analgesia
  - Immobility
Outline - Anesthesiology

- Basics of billing
- Types of anesthesia providers
- Medical direction versus supervision
- Types of anesthesia
- Sedation
Outline – Pain Management

• Facet joints
  • Intra-articular
  • Diagnostic medial branch blocks
  • Radiofrequency ablation

• Epidural
  • Intralaminar
  • Transforaminal
  • Caudal
Billing Basics

- (Base units + Time units) x Anesthesia Conversion Factor

- Base units determined by CPT code
  - Use highest units per CPT if multiple procedures – do not add

- Time units (in 15 minute increments)
  - Government payors split time into 1/15th units
  - If non-government payor
    - ASA classification
    - Modifying units
Billing Basics

• Whomever is on the record for the majority of time is the billing provider

• Professional fee split between Physician and Anesthetist
  • Separate line items on bill
  • Students, residents and fellows do not generate line item
## Billing Basics

<table>
<thead>
<tr>
<th>Physician</th>
<th>CRNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personally performed services</td>
<td>Medically directed by physician</td>
</tr>
<tr>
<td>Medically directed single case</td>
<td>Non-medically directed</td>
</tr>
<tr>
<td>Medically directed 2-4 cases</td>
<td>AA</td>
</tr>
<tr>
<td>Medically supervised more than 4 cases</td>
<td>Medically directed</td>
</tr>
</tbody>
</table>
Anesthesia Modifiers

- AA – Personally performed by Anesthesiologist
- AD – Medical supervision of over 4 cases
- QK – Medical direction up to 4 concurrent anesthesia services
- QX – CRNA service medically directed by Anesthesiologist
- QY – Anesthesiologist medically directs 1 CRNA
- QZ – CRNA services without medical direction
Anesthesia Modifiers

• QS – Monitored anesthesia care (MAC)
• G8 – MAC for deep, complex or complicated procedures
• G9 – MAC for patient with severe cardio-pulmonary disease
Anesthesia Modifiers

- Non-government payors
  - P1 – P6 correlates to ASA physical status
    - P3 = 1 extra unit, P4 = 2 extra units, P5 = 3 extra units
ASA Physical Status

• ASA 1: Healthy patient (Non smoker, no/minimal alcohol use)

• ASA 2: Mild systemic disease (Smoker, pregnant, obesity, well controlled DM/HTN)

• ASA 3: Severe systemic disease (Poorly controlled DM/HTN, BMI > 40, implanted pacemaker, history of MI/CVA/TIA/CAD/Stents/PCA, on dialysis, moderate reduction of EF, alcohol dependence/abuse, premature infant)
ASA Physical Status

- ASA 4: Severe disease, constant threat to life (MI/CVA/TIA/Stents < 3 months, severe cardiac valvular disease, cardiac ischemia, severe reduction in EF, sepsis, DIC, ARD/ESRD not on scheduled dialysis)

- ASA 5: Moribound patient not expected to survive without an operation (Ruptured aortic aneurysm, massive trauma, intracranial bleed with mass effect, ischemic bowel with significant cardiac disease, multiple organ/system dysfunction)

- ASA 6: Brain dead donor
Additional units

• Non-government payors
  • Position other than supine/lithotomy: add up to 2 units, but not to exceed 5 total base units
  • Field avoidance: limited access or more difficult monitoring will add up to 2 units, but not to exceed 5 total base units
Additional Units

• Non-government payors

  • Age under 1, or over 70: 1 additional unit
  • Emergency: 2 additional units
  • Induced hypotension/hypothermia: 5 additional units
Example - Medicare

- Case: 63 year old with coronary artery bypass x 4
- Anesthesia Time: 4 hours and 15 minutes
- Location: Minnesota
- Personally performed
Example - Medicare

- Surgery CPT code: 33513  ASA 00567 MODIFIER AA
- Base units: 18
- Time units: 17
- Conversion factor: 150.00
- \((\text{Base units} + \text{Time units}) \times \text{Conversion factor}\) = $5,250.00
Lines or TEE

- Arterial line: 36620
- CVP line: 36555 (under 5 years of age)/36556 (age 5 or older)
- Swan-Ganz: 93503
- Ultrasound for line placement: +76937
- TEE for diagnostic (12) or congenital (15): 93312/93315
Ultrasound Guidance

• Remember it is an add on code.

• Ultrasound guidance of vascular access requiring ultrasound evaluation of potential access sites. Documentation of selected vessel patency, concurrent realtime ultrasound visualization of vascular needle entry, with permanent recording and reporting.

• List separately in addition to code for primary procedure.

• (DO NOT REPORT 76937 in conjunction with 37191, 37192, 37193, 37760, 37761 or 76942)
Example

- Previous CABG x 4 also had arterial line placed, as well as CVP under ultrasound

- Also able to charge:
  - Arterial line: 36620
  - CVP: 36556 (age 5 or older)
  - Ultrasound for line placement: +76937
Types of Anesthesia Providers
Types of Anesthesia Providers

- Anesthesiologist
  - Physician
  - Undergraduate degree
  - 4 years of medical school
  - 4 years of residency

- Possible additional fellowship training
Types of Anesthesia Providers

- Certified Registered Nurse Anesthetist
  - Undergraduate nursing degree
  - 12 months working in an ICU setting
  - 24-42 months graduate education in anesthesia

- Opt out
  - 17 states opted out of federal physician supervision requirement
CRNA Opt Out

https://azcrna.wordpress.com/2016/01/15/introduction-2/
Types of Anesthesia Providers

- Anesthesiologist Assistant
  - Bachelor degree (with typical pre-medical coursework)
  - 24-28 months of graduate education in anesthesia
  - Work solely in the anesthesia care team model
  - 17 states have legislation allowing practice
Types of Anesthesia Providers

- Trainees
  - Residents
    - Physicians
    - Graduated medical school
    - Completing specialization training

- Fellows
  - Physicians
  - Graduated medical school and residency
  - Completing sub-specialty training
Types of Anesthesia Providers

- Trainees
  - Student Registered Nurse Anesthetists
  - Student Anesthesiologist Assistants
Different Payment Rates
Personally Performed - AA

- Performed entire service alone
- Involved in one case with resident or student
- Involved with two cases involving residents only
- Involved in resident case concurrent with one medical direction
- Involved in case with anesthetist that is medically necessary (AA & QZ modifiers)
Medical Direction

• Physician directs 2 to 4 qualified individuals
  • Pre-anesthetic exam and evaluation
  • Creates anesthetic plan
  • Personally participates in demanding portions
• Any procedures done by qualified person
  • Monitors anesthetic at frequent intervals
  • Physically present and available
  • Provides indicated post-anesthesia care
Medical Direction

- Can direct up to 4 cases if in room provider:
  - CRNA
  - AA
  - Resident

- Can only direct 2 cases if a student is involved

- Can address short emergency, labor epidural, periodic OB monitoring, receive patients into OR for next surgery, manage PACU, handle scheduling matters in addition to cases
Medical Direction

- Physician
  - 50% of the base units and total time
- Anesthetist
  - 50% of the base units and the time present
- Trainees
  - Do not generate line item for any charges
Medical Supervision

• Applies if the requirements for medical direction are not met

• Government payors only allow three base units per procedure
  • Additional time unit possible if documentation that physician was present at induction
Concurrency

- This is a fluid number

- Depends on how many cases the Anesthesiologist is covering at any one time

- Billing is based off of highest concurrency at any point during the cases covered

- This means if one Anesthesiologist ever covers more than 4 cases at one time, all of those cases have to be billed as supervision
Concurrency

- Medical direction of one to four procedures at one time

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Time</th>
<th>Concurrent Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>7:00-7:20</td>
<td>2</td>
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<tr>
<td>Case 2</td>
<td>7:10-7:45</td>
<td>2</td>
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<tr>
<td>Case 3</td>
<td>7:30-8:15</td>
<td>3</td>
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<tr>
<td>Case 4</td>
<td>8:00-11:00</td>
<td>3</td>
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<tr>
<td>Case 5</td>
<td>8:10-8:55</td>
<td>3</td>
</tr>
<tr>
<td>Case 6</td>
<td>8:30-9:15</td>
<td>3</td>
</tr>
</tbody>
</table>
# Examples

<table>
<thead>
<tr>
<th>OR 1</th>
<th>OR 2</th>
<th>OR 3</th>
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</thead>
<tbody>
<tr>
<td><strong>In Room:</strong> Amy CRNA, Bill SRNA</td>
<td><strong>In Room:</strong> Tim, CRNA</td>
<td><strong>In Room:</strong> Jill, AA</td>
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<tr>
<td><strong>Supervising:</strong> Dr. Who</td>
<td><strong>Supervising:</strong> Dr. Who</td>
<td><strong>Supervising:</strong> Dr. Who</td>
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<tr>
<td><strong>Dr. Who</strong></td>
<td><strong>Dr. Hyde</strong></td>
<td><strong>In Room:</strong> Dr. McCoy (Res)</td>
</tr>
<tr>
<td><strong>Rooms:</strong> 4</td>
<td><strong>Rooms:</strong> 2</td>
<td><strong>Supervising:</strong> Dr. Who</td>
</tr>
<tr>
<td><strong>Medically Directed</strong></td>
<td><strong>Personally Performed</strong></td>
<td><strong>In Room:</strong> Dr. Frank (Res)</td>
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<tr>
<td><strong>Dr. Hyde</strong></td>
<td></td>
<td><strong>Supervising:</strong> Dr. Hyde</td>
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<td></td>
<td></td>
<td><strong>In Room:</strong> Dr. Stein (Res)</td>
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<tr>
<td></td>
<td></td>
<td><strong>Supervising:</strong> Dr. Hyde</td>
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</tbody>
</table>
### Examples

<table>
<thead>
<tr>
<th>Room</th>
<th>Medical Personnel</th>
<th>Supervising Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 1</td>
<td>Amy CRNA, Bill SRNA</td>
<td>Dr. Who</td>
</tr>
<tr>
<td>OR 2</td>
<td>Tim, CRNA</td>
<td>Dr. Who</td>
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<tr>
<td>OR 3</td>
<td>Jill, AA</td>
<td>Dr. Who</td>
</tr>
<tr>
<td>OR 4</td>
<td>Dr. McCoy (Res)</td>
<td>Dr. Who</td>
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<tr>
<td>OR 5</td>
<td>Dr. Frank (Res)</td>
<td>Dr. Hyde</td>
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<tr>
<td>OR 6</td>
<td>Dr. Stein (Res)</td>
<td>Dr. Hyde</td>
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**Dr. Who called to do a labor epidural**
<table>
<thead>
<tr>
<th>OR 1</th>
<th>OR 2</th>
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<th>OR 4</th>
<th>OR 5</th>
<th>OR 6</th>
</tr>
</thead>
</table>
| In Room: Amy CRNA, Bill SRNA  
Supervising: Dr. Who | In Room: Dr. Who  
Rooms: 4 Medically Directed | In Room: Jill, AA  
Supervising: Dr. Who | In Room: Dr. McCoy (Res)  
Supervising: Dr. Who | Medically Directed | Dr. Hyde Rooms: 2 Personally Performed | In Room: Dr. Frank (Res)  
Supervising: Dr. Hyde |
| Dr. Hyde discharging patients from the PACU | Dr. Hyde discharging patients from the PACU |

Dr. Hyde discharging patients from the PACU
CRNA gives lunch breaks in OR 5 and OR 6

<table>
<thead>
<tr>
<th>OR 1</th>
<th>OR 2</th>
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<th>OR 4</th>
<th>OR 5</th>
<th>OR 6</th>
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<tbody>
<tr>
<td>In Room: Amy CRNA, Bill SRNA Supervising: Dr. Who</td>
<td>In Room: Tim, CRNA Supervising: Dr. Who</td>
<td>In Room: Jill, AA Supervising: Dr. Who</td>
<td>Dr. Who Rooms: 4 Medically Directed</td>
<td>In Room: Dr. McCoy (Res) Supervising: Dr. Who</td>
<td>In Room: Deb, CRNA Supervising: Dr. Hyde</td>
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Breaks

- Must be careful in regards to in room provider getting breaks
  - Especially true when trainees are involved
  - Anesthesiologist billing AA with 2 resident rooms is in violation if CRNA gives breaks to both residents at same time
  - SRNA are not considered qualified personnel!
## Types of Anesthesia

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Anesthesia</td>
<td></td>
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<tr>
<td>Regional Anesthesia</td>
<td></td>
</tr>
<tr>
<td>• Primary anesthetic</td>
<td></td>
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<tr>
<td>• Post op pain control</td>
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<tr>
<td>General Anesthesia</td>
<td></td>
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<tr>
<td>Monitored Anesthesia Care</td>
<td></td>
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<tr>
<td>• QS</td>
<td></td>
</tr>
<tr>
<td>• G8 – Deep, complex or</td>
<td></td>
</tr>
<tr>
<td>invasive procedures</td>
<td></td>
</tr>
<tr>
<td>• G9 – History of severe</td>
<td></td>
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<tr>
<td>Cardio-Pulm condition</td>
<td></td>
</tr>
</tbody>
</table>
Regional Anesthesia

- Primary anesthetic
  - Included in anesthesia time
  - Time is added to case
  - Factors into concurrency

- Post op pain control
  - Not anesthesia time
  - Separate procedural charge
  - Minutes not billed
Monitored Anesthesia Care

- Possibly indicated due to:
  - Nature of procedure
  - Patients clinical condition
  - Potential to convert to general or regional anesthetic
  - Does not need to correlate with any certain depth of sedation
## Sedation

<table>
<thead>
<tr>
<th></th>
<th>Minimal Sedation**</th>
<th>Moderate Sedation/Analgesia (&quot;Conscious Sedation&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsiveness</strong></td>
<td>Normal response to verbal stimulation</td>
<td>Purposeful** response to verbal or tactile stimulation</td>
</tr>
<tr>
<td><strong>Airway</strong></td>
<td>Unaffected</td>
<td>No intervention required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intervention may be required</td>
</tr>
<tr>
<td><strong>Spontaneous Ventilation</strong></td>
<td>Unaffected</td>
<td>Adequate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>May be inadequate</td>
</tr>
<tr>
<td><strong>Cardiovascular Function</strong></td>
<td>Unaffected</td>
<td>Usually maintained</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually maintained</td>
</tr>
<tr>
<td></td>
<td></td>
<td>May be impaired</td>
</tr>
</tbody>
</table>

**General Anesthesia**

Unarousable even with painful stimulus.

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**AMERICAN SOCIETY OF ANESTHESIOLOGY CONTINUUM OF DEPTH OF SEDATION: DEFINITION OF GENERAL ANESTHESIA AND LEVELS OF SEDATION/ANALGESIA**
Sedation

- 2017 has new codes for moderate/conscious sedation when sedation is being performed by the same provider who is doing the procedure
  
  - Does not apply to the anesthesiologist if they are only providing the anesthesia services
  
  - Can apply to pain physicians in certain circumstances
CPT Coding Changes: Moderate Sedation 2017

• Starting in 2017, Moderate Sedation CPT Codes 99151, 99152, 99153, 99155, 99156 and 99157 should be used when administering moderate sedation with each procedure. Multiple CPT codes for 2017.

• NOTE: There is a table for the new codes, based on time and age, in the 2017 CPT book.

• Codes 99151-99157 are not used to report administration of medications for pain control, minimal sedation, deep sedation, or monitored anesthesia care.

• 99143 – 99150 have been deleted
Pain Management

- Facet joints
  - Intra-articular
  - Diagnostic medial branch blocks
  - Radiofrequency ablation

- Epidural
  - Intralaminar
  - Transforaminal
  - Caudal
Facet Joints

- Located on the posterior aspect of spine
- Articular surface between adjacent vertebral bodies
- Also called zygapophyseal joints
- True synovial joint
- Innervated by two spinal levels
  - Branches from dorsal ramus at same level
  - Branches from dorsal ramus one level superiorly
Facet Joints
Diagnosing Facet Arthropathy

- X-ray and MRI imaging

- History
  - Increased load under extension of spine = increased pain
  - Usually doesn’t go past knees

- Physical exam
  - “Facet loading maneuvers”
  - Lateral rotation in lower spine
  - Lateral flexion or extension of neck
Facet Arthropathy Treatment

- Intra articular injection
- Diagnostic medial branch blocks
- Radiofrequency ablation
Facet Arthropathy Treatment

- Intraarticular injection
  - Joint labeled by superior and inferior vertebral body
    - IE: L4-L5 facet joint is the joint between the L4 and L5 vertebral bodies
  - Small volume (~1.5ml per joint)
  - Allows isolation of specific joint
Facet Arthropathy Treatment

Facet joint complex - back view
Facet Arthropathy Treatment

- Medial branch block
  - Each joint innervated by medial branch of dorsal ramus at level as well as superior level
- Diagnostic
- Radiofrequency ablation
Facet Arthropathy Treatment

- Diagnostic medial branch block
  - Short term relief (depends on local anesthetic utilized)
  - Each joint requires two levels to be blocked
  - Small amount of local anesthetic placed at junction of superior articular process and transverse process
  - Usually two sets of diagnostic blocks required prior to radiofrequency ablation (pain diary)
Facet Arthropathy Treatment

- Radiofrequency ablation of medial branches
  - Requires greater than, or equal to, 80% pain relief with two separate diagnostic medial branch blocks
  - Can repeat if greater than, or equal to, 50% pain relief for 6 months
  - Motor testing to ensure no lesioning of motor nerves
Facet Arthropathy Treatment

[Diagram showing Medial branch block target sites and needles for treatment]
Examples

- Intra-articular joint injections of the left L3-L4 and L4-L5 facet joints
  - 64493-LT, 64494-LT (commonly called facet joint injection)
- Intra-articular joint injections of bilateral L4-L5 facet joints
  - 64493-50
Examples

• Radiofrequency ablation of right L3, L4 and L5 vertebral bodies
  • 64635-RT, 64636-RT X2

• Diagnostic medial branch of right L3, L4 and L5 vertebral bodies
  • 64493-RT, 64494-RT, 64495-RT
Epidural Injections

- Epidural space
  - Potential space that is located between the dura and the ligamentum flavum
  - Contains fat and blood vessels
Epidural Injections

- Location
  - Cervical
  - Thoracic
  - Lumbar or Sacral

- Technique
  - Intralaminar
  - Transforaminal
  - Caudal
Epidural Injections

• Indications:
  • Unilateral or bilateral radiculopathy
  • Spondylolisthesis
  • Spinal deformity
  • Pain from vertebral compression fractures
  • Herpes Zoster
Epidural Injections

- Benefit of transforaminal approach
  - Ability to place medicine closer to the nerve root
  - Use of less medication to achieve similar or superior outcomes than intralaminar approach
Epidural Injections

- Caudal
  - Beneficial in adults who have had back surgery
  - Require larger volume of medication to spread cephalad
  - Can utilize a catheter to reach more cephalad levels
Epidural Injections

- Facet joint injection
- Nerve root injection
- Epidural injection

Vertebrae
Facet joint
Spinal nerve root
Spinal cord
Epidural space (fat)
Dura (membrane)

Spine injections

L3
L4

©2005 MAYO
©1995 MAYO

©2013 MAYO
Examples

- A patient with an acute left > right sided radiculopathy due to L5-S1 disc herniation
  - Intralaminar epidural injection performed at L4-L5
  - 62322 w/o image guidance
  - 62323 with image guidance
Examples

• A patient with significant left foraminal stenosis at L4 resulting in an isolated L4 radiculopathy
  • Transforaminal epidural injection at left L4
  • 64483
  • If using ultrasound guidance code to 0230T
  • Note: Fluoroscopy and any injection of contrast are inclusive components of 64479 – 64484, (imaging guidance and localization are required for performance of these codes)
Examples

• Gentleman who is s/p lumbar laminectomy with chronic radicular pain
  • Caudal epidural injection
  • 62322 without image guidance
  • 62323 with image guidance
Summary

• Anesthesia billing unique due to base units + time units

• Concurrency must be watched closely

• Special attention to types of providers giving breaks is important, especially in academic institutions

• Proper classification of ASA physical status can result in large changes in billing – Don’t forget emergency status!

• Proper documentation important for coding pain procedures
Questions
References


- https://www.cms.gov/Center/Provider-Type/Anesthesiologists-Center.html?redirect=/center/anesth.asp


- http://www.asahq.org