



Log Book

Anesthesia Department (045)

Student Name:-----

Computer Number: -----



King Saud University
College of Medicine
Department of Anesthesia

RECOVERY ROOM RECORD

CASE#

DATE: _____

Time of Arrival: _____ Date: _____ Theater No: _____

Surgeon: _____ Surgical Procedure: _____

Anesthesia: _____

Skin color	Circulation	Oxygen

Medication given	Amount	Route

Output	Amount	Color
Urine		
Emesis		



King Saud University
College of Medicine
Department of Anesthesia

RECOVERY ROOM RECORD

CASE#

DATE: _____

Time of Arrival: _____ Date: _____ Theater No: _____

Surgeon: _____ Surgical Procedure: _____

Anesthesia: _____

Skin color	Circulation	Oxygen

Medication given	Amount	Route

Output	Amount	Color
Urine		
Emesis		



INSERTING AN ORAL AIRWAY

1 SELECT THE PROPER SIZE

- Measure the OPA from the victim's earlobe to the corner of the mouth.



2 OPEN THE VICTIM'S MOUTH

- Use the cross-finger technique to open the victim's mouth.



3 INSERT THE OPA

For an adult:

- Grasp the victim's lower jaw and tongue and lift upward.
- Insert the OPA with the curved end along the roof of the mouth.
- As the tip approaches the back of the mouth, rotate it one-half turn (180 degrees).
- Slide the OPA into the back of the throat.



For a child or an infant:

- Use a tongue blade or a tongue depressor and insert with the tip of the device pointing toward the back of the tongue and throat in the position it will rest in after insertion.

OR

- Insert the OPA sideways and then rotate it 90 degrees.

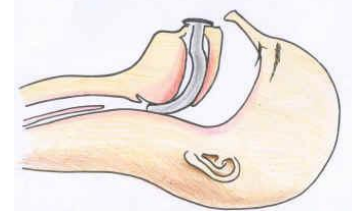


4 ENSURE CORRECT PLACEMENT

- The flange should rest on the victim's lips.



Note: If the victim vomits, remove and suction the airway, ensuring all debris is removed from the airway. Thoroughly clean the device and reinsert the OPA only if the victim is still unconscious and does not have a gag reflex.





King Saud University
College of Medicine
Department of Anesthesia

NASAL AIRWAY

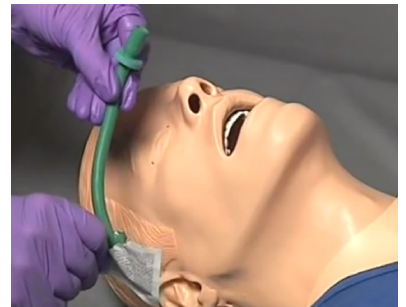
1 Select The Proper Size

- Measure the NPA from the victim's earlobe to the tip of the nostril. Ensure that the diameter of the NPA is not larger than the nostril.



2 Lubricate The NPA

Use a water-soluble lubricant prior to insertion. With the bevel toward the septum, advance the NPA gently



3 Insert The NPA

If resistance is felt, do not force.
If you are experiencing problems, try the other nostril.



4 Ensure Correct Placement

The Airway Should Rest The Victim's Nostril.





King Saud University
College of Medicine
Department of Anesthesia

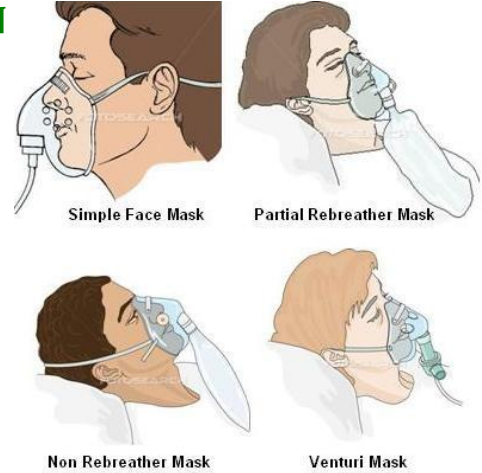
SUPPLEMENTAL OXYGEN


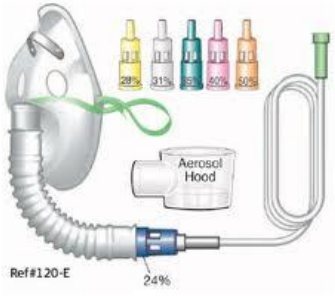


Low Flow Systems

- nasal cannula
- facial mask
- facial mask with oxygen reservoir

High Flow Systems

- Venturi mask



Method	FiO ₂ (Approximate)	Flowrate (L/min)
Non rebreather Mask	60-80%	10-15
Venti Mask 	24% 26% 28% 31% 35% 40% 50% 	3 3 6 6 9 12 15 
Simple Face Mask	35-55%	5-10lpm
Nasal Cannula 	24% 28% 32% 36% 40% 44%	1 2 3 4 5 6



**King Saud University
College of Medicine
Department of Anesthesia**

Pre Intubation Airway Assessment Record

Patient History:

- Has the patient had a previous difficult intubation? (i.e. Fiberoptic) yes no
 Comment: _____
- Does the patient have an unstable c-spine or previous spinal fusion? yes no
 Specifics: _____
- Does the patient have a history of OSA with CPAP use? yes no
 Any treatment: _____
- Does the patient have a history of burns to the head or neck? yes no
 Comment: _____
- Does patient have severe rheumatoid arthritis? yes no
 Comment: _____
- Has the patient had previous airway surgery or a previous tracheostomy? yes no
 Specifics: _____

Clinical Examination LEMON Assessment Method:

L – Look externally for characteristics known to cause difficult laryngoscopy (please circle all that apply)

- Face**
- | | | |
|---|--|---|
| <input type="checkbox"/> Small jaw | <input type="checkbox"/> Edema | <input type="checkbox"/> Loose Teeth |
| <input type="checkbox"/> Facial hair | <input type="checkbox"/> Prominent Teeth | <input type="checkbox"/> Disfiguring of the Jaw |
| <input type="checkbox"/> Difficult Bag/Mask Ventilation (2 person, use of airway, inability to maintain seal) | | |
- Thorax / Abdomen**
- | | | |
|--|---|---|
| <input type="checkbox"/> Pregnancy | <input type="checkbox"/> Massive ascities | <input type="checkbox"/> Morbid obesity |
| <input type="checkbox"/> Bowel Obstruction | | |

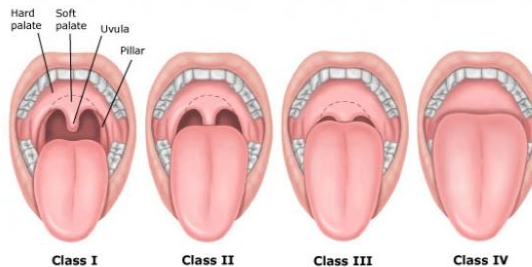
E – Evaluate the 3-3 Rule:

- Mouth opening – 3 finger breadths yes no
 Thyro-Mental distance – 3 finger breadths yes no



M – Mallampati Score

Mallampati Class: _____



O – Obstruction (Is there any condition that can cause obstruction of the airway which would make laryngoscopy and ventilation difficult?)

- Tumors
- Stridor
- Congenital Defects (Down's, Goiter, Pierre-Robin Syndrome)
- Other obvious deformity _____

N – Neck mobility

- Can the patient move their jaw forward? yes no
 Can the patient fully bend / extend the head and neck? yes no
 Is the patient in a cspine collar? yes no



Bag-Mask Ventilation

Performance Steps	✓ if done correctly
Perform head tilt-chin lift	
Perform suctioning within 10 seconds	
Assembles bag and chooses appropriate size mask	
Choose appropriate size OPA (Oropharyngeal Airway) or NPA (Nasopharyngeal Airway) and Inserts device	
Hold and seal mask with 1 hand	
Ventilate at proper rate (1 breath every 5 to 6 seconds)	
Produce noticeable chest rise	
Deliver each ventilation over 1 second	
Release bag completely between ventilations	
Hold and seals mask correctly with 2 hands	
Apply cricoid pressure	



Bag-mask ventilation



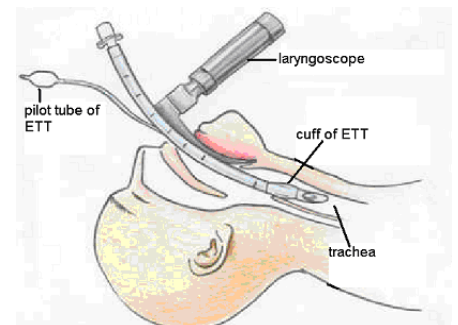
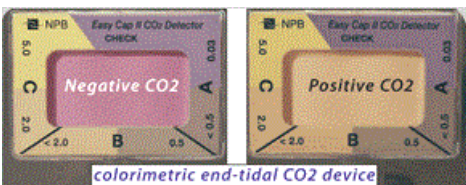
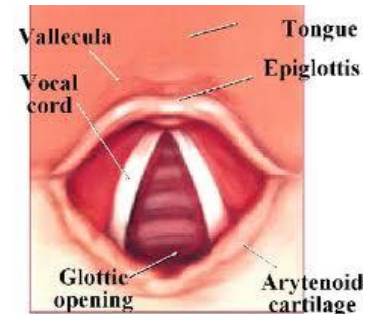
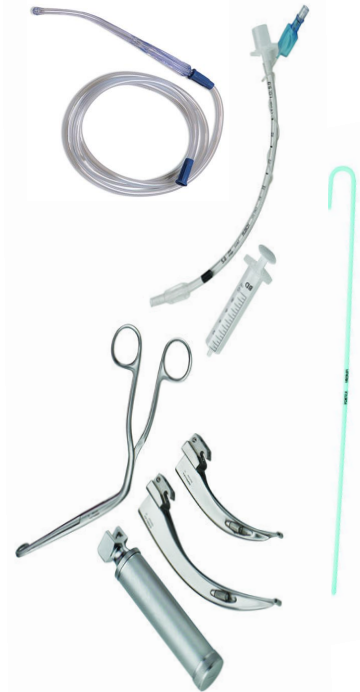
2-person Bag-mask ventilation



King Saud University
College of Medicine
Department of Anesthesia

Adult Intubation

Performance Steps	√ if done correctly
Assume ventilation is in progress.	
Assemble and checks all necessary equipments	
Choose appropriate size ET tube	
Choose appropriate type (straight or curved) and size laryngoscope blade	
Check light ,Tests ET tube cuff integrity	
Insert the stylet and lubricates the ET tube	
Place head in neutral or sniffing position	
Clear airway if needed	
Insert laryngoscope blade	
Hold laryngoscope in left hand.	
Insert laryngoscope in right side of mouth, moving tongue to the left.	
Visualize epiglottis, then vocal cords.	
Insert ET tube to proper length for gender	
Inflate ET tube cuff to achieve proper seal; remove syringe	
Insert bite block	
Produce noticeable chest rise; auscultates breath sounds	
Confirm correct positioning of ET tube by colorimetric ETCO ₂ Capnograph	
Secure ET tube in place (commercial device or tape)	
Perform correct ventilation rate for respiratory arrest (1 breath every 5 to 6 seconds)	
Perform correct ventilation rate for cardiac arrest (1 breath every 6 to 8 seconds)	
Deliver each ventilation over 1 second	
Demonstrate complete release of bag between ventilations	

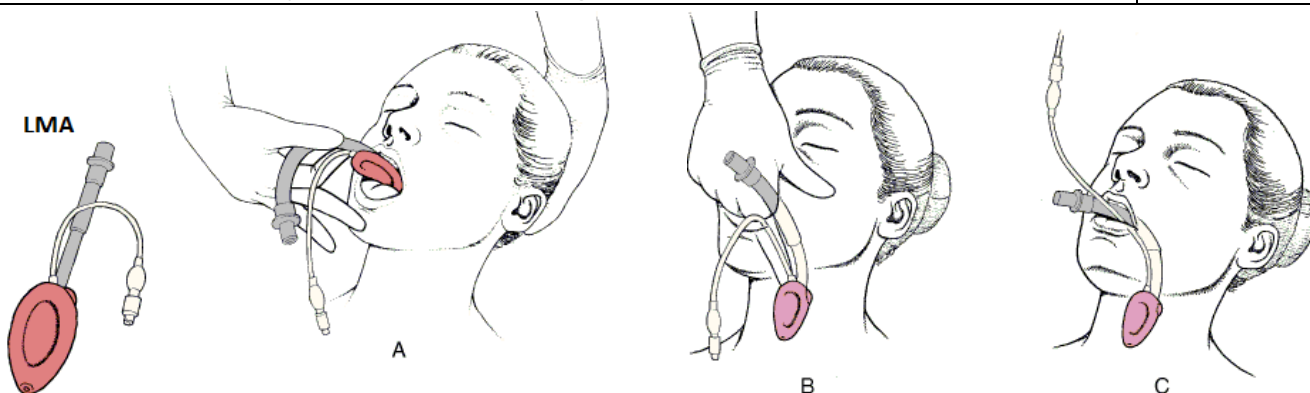




King Saud University
College of Medicine
Department of Anesthesia

Laryngeal Mask Airway (LMA)

Performance Steps	✓ if done correctly
Prepare and assemble all necessary equipment	
Choose appropriate size LMA	
Test integrity of cuff by inflating it	
Deflate cuff on a flat surface and lubricate LMA on posterior surface only for use	
Open the mouth using the "crossed fingers" technique or by performing a tongue-Jaw lift; do not hyperextend neck.	
Clear the airway if needed	
Insert tube into mouth and place it so that the curvature is the same as that of the Pharynx, directing it posteriorly until resistance is felt.	
Inflate the cuff with the appropriate amount of air corresponding to the size of the tube , remove syringe	
Insert bite block	
Produce noticeable chest rise; auscultate breath sounds	
Confirm correct positioning of LMA by colorimetric ETCO ₂ capnograph	
Secure LMA in place	
Perform correct ventilation rate for respiratory arrest (1 breath every 5 to 6 seconds)	
Perform correct ventilation rate for cardiac arrest (1 breath every 6 to 8 seconds)	
Deliver each ventilation over 1 second	
Demonstrate complete release of bag between ventilations	





King Saud University
College of Medicine
Department of Anesthesia

Peripheral Veins

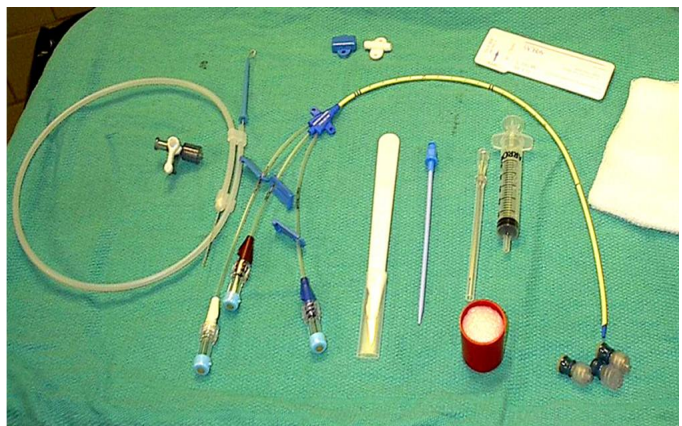
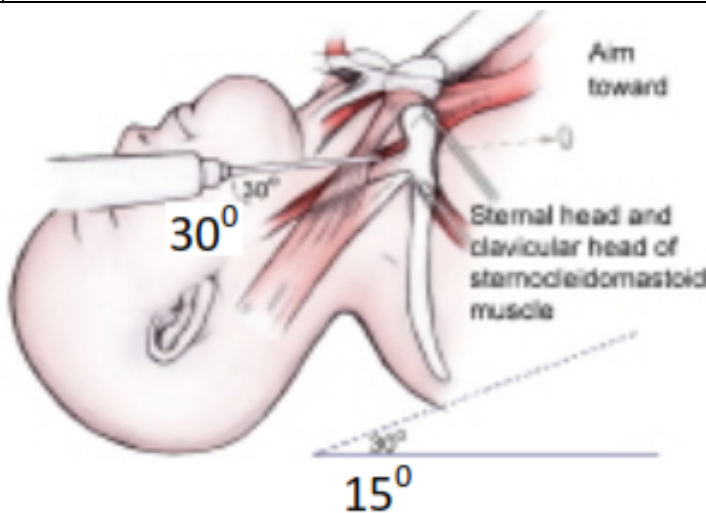
Performance Steps	√ if done correctly
Apply tourniquet proximally.	
Locate vein and cleanse the overlying skin with alcohol or povidone-iodine.	
Anesthetize the skin if a large bore cannula is to be inserted in an awake patient.	
Hold vein in place by applying pressure on vein distal to the point of entry.	
Puncture the skin with bevel of needle upward about ½ to 1 centimeter from the vein and enter the vein either from the side or from above.	
Note blood return and advance the catheter either over or through the needle, depending on which type of catheter-needle device is employed.	
Remove the tourniquet.	
Withdraw and remove the needle and attach the intravenous tubing.	
Cover the puncture site with povidone-iodine ointment and a sterile dressing and tape in place, excluding the point of connection of the intravenous tubing.	



King Saud University
College of Medicine
Department of Anesthesia

Internal Jugular, Middle Or Central Route

Performance Steps	✓ if done correctly
Patient in supine, at least 15° head down position, head turned away.	
Cleanse skin, use lidocaine if patient awake.	
Introduce needle attached to syringe in the centre of triangle formed by two lower heads of sternomastoid muscle and clavicle.	
Direct needle caudally, parallel to sagittal plane, at 30° posterior angle	
If vein not entered, withdraw needle and redirect it 5 to 10 degrees laterally.	
Advance needle while withdrawing plunger of syringe.	
When blood appears and vein entered, remove syringe and insert catheter to predetermined depth.	
Remove needle and connect catheter to IV tubing	
Cover puncture site, and affix catheter in place	

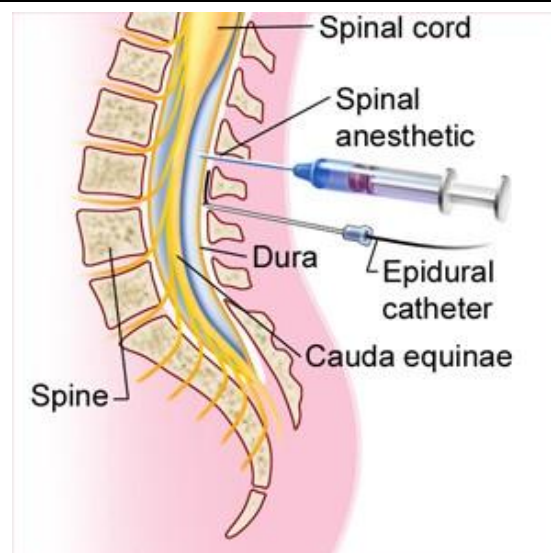




King Saud University
College of Medicine
Department of Anesthesia

Regional Anaesthesia (Spinal Anaesthesia)

Performance Steps	√ if done correctly
Taking Consent from the patient	
Assessment (indications and contraindications)	
Insert iv fluids	
Mask, cap, gown and gloves	
Prepare the back with antiseptic	
Place a sterile Drape Over The Area	
Identify the anatomical landmarks	
Inject local anaesthetic into the skin and deeper tissue	
Insert the large introducer needle into the selected spinal interspace	
Direct the spinal needle through the introducer and into the subarachnoid space	
Free flow of CSF confirms proper placement	
Aspirate for CSF if clear inject the proper anaesthetic	
Remove the needle, introducer and drape sheet	
Have the patient lie down	





King Saud University
College of Medicine
Department of Anesthesia

Prepared by:
Pain Management Unit

Dept. of Anesthesia
KKUH. KSU

Pain

Pocket Guide



King Saud University
College of Medicine
Department of Anesthesia

Pain is the 5th Vital Sign

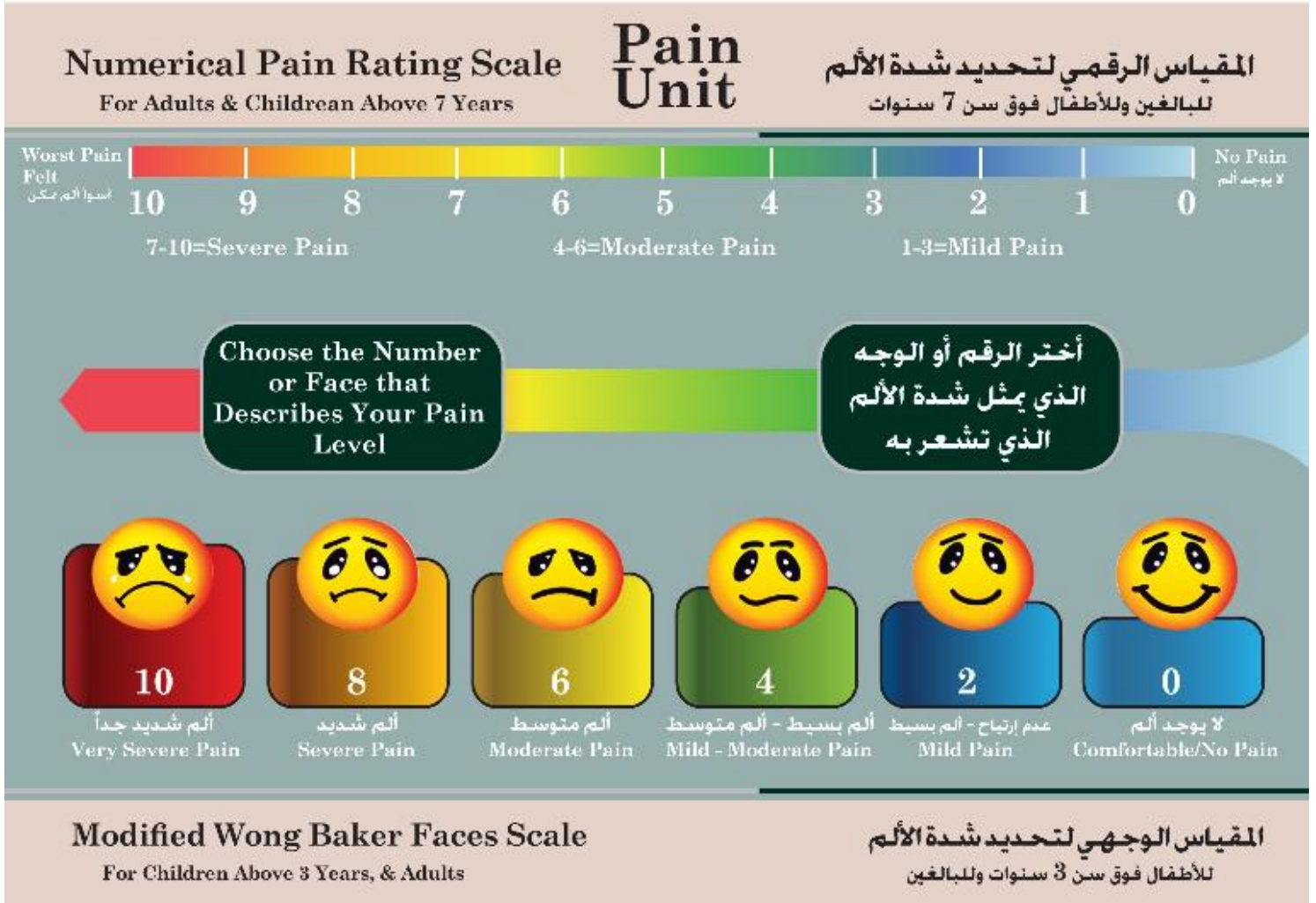


- . Assess & document pain in all patients.
- . Use the standardized pain assessment scale, which is appropriate for age and cognition.
- . Manage pain & evaluate response to analgesia periodically.
- . Avoid placebo & IM. Pethidine.



King Saud University
College of Medicine
Department of Anesthesia

Standardized Pain Assessment Scales





King Saud University
College of Medicine
Department of Anesthesia

FLACC Scale for Pain Assessment in Children 2 months–7 years

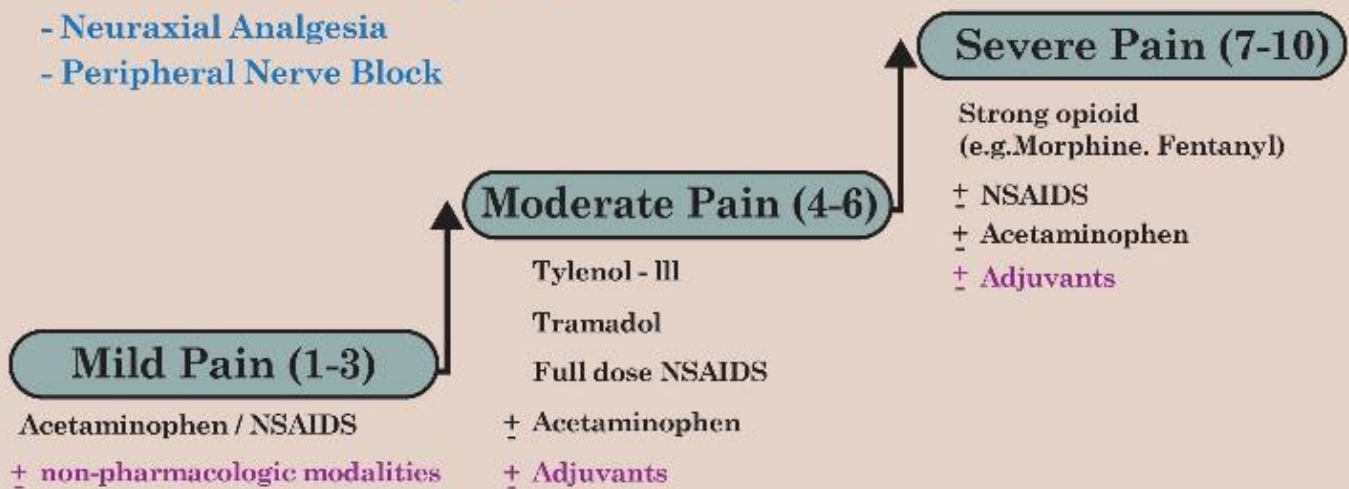
Categories	0	1	2
FACE	NO particular expression or smile	Occasional grimace or Frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
LEGS	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
ACTIVITY	Lying quietly, normal position, moves easily	Squirming, shifting back & forth, tense	Arched, rigid, or jerking
CRY	No cry (awake or sleep)	Moans or whimpers, occasional complaints	Cries steadily, screams or sobs, frequent complaints
CONSOLABILITY	Content, relaxed	Reassured by occasional touching, hugging, or being talked to, distractible	Difficulty to console or comfort



Analgesic Ladder

Acute pain management modalities provided by the APS:

- Patient Controlled Analgesia IV
- Neuraxial Analgesia
- Peripheral Nerve Block



Based on the WHO Analgesic Ladder



King Saud University
College of Medicine
Department of Anesthesia

PAIN MANAGEMENT: NSAIDS

Drug/Class	Preparations	Doses	Comments
1) Acetaminophen (Paracetamol)	<ul style="list-style-type: none"> • Tablet: 500 mg • Elixir: 120mg/5mL • Drops: 100 mg/mL • Injection: vial 1 g/100mL • Suppository: 100 mg, 125 mg, 200 mg, 250mg, 350 mg, 500 mg 	<ul style="list-style-type: none"> • Adult: 1g, q 4-6 hr • Pediatric: 10 -15 mg/kg/dose q 4-6 hr 	<ul style="list-style-type: none"> • IV Acetaminophen used postoperatively reduces opioid consumption. • Caution: may cause severe hepatic toxicity in acute overdose; monitor LFTs with chronic use & with alcohol use. Use with caution in patients with known G6PD deficiency.
2) NSAIDs: <ul style="list-style-type: none"> • Ibuprofen (Brufen) • Diclofenac (Voltaren) • Indomethacin (Indocin) • Ketoprofen (Orudis) 	<ul style="list-style-type: none"> • Tablet: 200mg,400mg • Syrup: 100 mg/5mL • Tablet: 25 mg, 50 mg • Tablet (Retard): 100 mg • Suppository: 50 mg • Topical gel: 1% • Eye drops: 0.1% • Capsule: 25 mg • Injection: vial 50 mg/2mL • Suppository: 100 mg • Injection: vial 100 mg/2 mL 	<ul style="list-style-type: none"> • Adult: 400-600 mg, q8 hr • Pediatric: 5-10 mg/kg, q8 hr • Adult: 25-50mg, q 8 hr • Adult: 25-50mg, PO, q8hr • Supp.: 100mg, OD • Adult: 50-75-100mg IM, q8hr, PRN 	<ul style="list-style-type: none"> • Used alone for mild-to-moderate pain, & as adjunct to opioids in severe pain. • Avoid in patients with Asthma. • Avoid concurrent use of Aspirin with other NSAIDs (increases the risk of bleeding). • Before initiating treatment: weigh the potential benefits & risks, consider other treatment options; & use the lowest effective dose for the shortest possible duration. • If the pediatric dose is not specified in the table, then the analgesic is not applicable!
Selective COX2 Inhibitors: <ul style="list-style-type: none"> • Celecoxib (Celebrex) • Meloxicam (Mobic) 	<ul style="list-style-type: none"> • Capsule: 200 mg • Tablet: 7.5 mg, 15 mg 	<ul style="list-style-type: none"> • 200-400 mg, once daily • 7.5 -15 mg, q 12 hr 	<ul style="list-style-type: none"> • Selective COX-2 inhibitors have less GI side effect but similar renal toxicity. • Used for moderate pain, & as adjunct to opioids in severe pain. • Celecoxib has equal efficacy & similar renal toxicity to other NSAIDs, less GI ulcer/bleed. Should be used with caution in patients with hypertension and cardiac diseases.



King Saud University
College of Medicine
Department of Anesthesia

PAIN MANAGEMENT: OPIOIDS & WEAK OPIOID COMBINATIONS

Drug/Class	Preparations	Doses	Comments
Acetaminophen + Codiene (Tylenol III)	<ul style="list-style-type: none"> Tablet: Acetaminophen 500 mg – Cocaine 30mg 	<ul style="list-style-type: none"> Adult: 1-2 tab, q 4-6hr Children: (20 kg & above) 1 tab, 4-6 hr 	<ul style="list-style-type: none"> Do not exceed the maximum recommended daily dose of acetaminophen (4 grams/day). Higher than recommended doses over long periods of time may cause drug dependence.
Acetaminophen + Dextropropoxyphene (Distalgesic)	<ul style="list-style-type: none"> Tablet: Acetaminophen 325 mg – Dextropropoxyphene 32.5mg 	<ul style="list-style-type: none"> Adult: 1-2 tab, q 4-6hr Children: (20 kg & above) 1 tab, q 4-6 hr 	<ul style="list-style-type: none"> Constipation should be managed appropriately. May be used in moderate pain alone or in combination with NSAIDs. Low doses of strong opioids often more effective & better tolerated.
Tramadol (Tramal)	<ul style="list-style-type: none"> Capsule: 50 mg Tablet SR: 100 mg Injection: vial 100 mg/2mL 	<ul style="list-style-type: none"> 50-100 mg, q 8hr 100 mg, q12hr 50-100 mg, q8 IV/IM 	<ul style="list-style-type: none"> A Centrally-acting analgesic with mutual mechanism of action (weak opioid & serotonin reuptake inhibitor). May cause nausea/vomiting & dizziness.
Strong Opioids:			
<ul style="list-style-type: none"> Morphine 	<ul style="list-style-type: none"> Tablet: 10 mg Tablet SR: 30mg,60mg Syrup: 10 mg/5 mL Injection: 1 mg, 10 mg 	<ul style="list-style-type: none"> Tab.: 10 mg, q 4-6 hr Tab, SR:15 mg, q12 hr 	<ul style="list-style-type: none"> Pain physician/APS should be consulted for severe pain, to select the most appropriate opioid & pain management protocol. Adjust doses in renal impairment. Tolerance develops to all side effects within days, except for constipation. Oxycodone: use with caution; potential fatal interaction with alcohol or medications containing alcohol. Methadone: is difficult to titrate due to its half-life variability. It may take a long time to reach a stable level in the body. Methadone dose should not be increased more frequently than every 7 days. Do not use as PRN or combine with other long-acting opioids.
<ul style="list-style-type: none"> Hydromorphone 	<ul style="list-style-type: none"> Injection: 10 mg/mL 	<ul style="list-style-type: none"> 2 mg, q 4-6 hr 	
<ul style="list-style-type: none"> Oxycodone 	<ul style="list-style-type: none"> Capsule: 5 mg 	<ul style="list-style-type: none"> 5 mg, q 6-8 hr 	
<ul style="list-style-type: none"> Meperidine (Pethidine) 	<ul style="list-style-type: none"> Injection: 50mg/mL 	<ul style="list-style-type: none"> 1-1.5 mg/kg, IM q 4-6 hr, PRN 	
<ul style="list-style-type: none"> Fentanyl 	<ul style="list-style-type: none"> Injection: 100 mcg/2mL & 500 mcg/10mL Dermal patch: 25 mcg, 50 mcg, 75 mcg 	<ul style="list-style-type: none"> 2-5 mcg/kg, IV PRN Dermal patch/ 72 hr 	
<ul style="list-style-type: none"> Methadone 	<ul style="list-style-type: none"> Tablet: 5 mg, 10 mg 	<ul style="list-style-type: none"> 5 mg, q 8-12 hr 	



King Saud University
College of Medicine
Department of Anesthesia

MANAGEMENT OF OPIOID SIDE EFFECTS

SIDE EFFECT	TREATMENT	ADULT DOSE	PEDIATRIC DOSE
Nausea/Vomiting	<ul style="list-style-type: none"> • Metoclopramide (plasil) • Diphenhydramine (Benadryl) • Granisetron 	<ul style="list-style-type: none"> • 10 mg PO/IV, q6 hr PRN • 0.25-0.5 mg/kg PO/IV • 1 mg IV daily, PRN (in severe form) 	<ul style="list-style-type: none"> • 0.25 mg/kg, PO/IV, q 6 hr, PRN • Consider Benadryl 0.25-0.5 mg/kg PO/IV • Not used in children under 18 yrs • In chemotherapy: 2 yrs and above: 10-40 mcg/kg/dose/ 30 min
Pruritus	<ul style="list-style-type: none"> • Diphenhydramine • Propofol • Naloxone 	<ul style="list-style-type: none"> • 25-50 mg PO/IV, q 6hr, PRN • 20-50 mg IV stat 	<ul style="list-style-type: none"> • 0.25 - 0.5 mg/kg IV, q 6h, PRN • 12.5 - 25 mg, PO, q 8h, PRN
Sedation/Respiratory depression	<ul style="list-style-type: none"> • Naloxone 	<ul style="list-style-type: none"> • 1-5 mcg/kg bolus, (can be repeated) 	<ul style="list-style-type: none"> • 5-10 mcg/kg bolus, (can be repeated)
Constipation	<ul style="list-style-type: none"> • Glycerin suppository • Docusate Sodium • Lactulose syrup (Dulcolax) 	<ul style="list-style-type: none"> • 1-2 suppository BD PRN • 100-200 mg, PO, BD • 15-30 mL, PO, q 8h 	<ul style="list-style-type: none"> • 900/1500 mg suppository, OD, PRN • 20-60 mg/day in 2-4 divided doses • 5-10 mL, PO, OD



King Saud University
College of Medicine
Department of Anesthesia

PATIENT CONTROLLED ANALGESIA (PCA-IV)-(APS)

DRUG	MORPHINE	FENTANYL	HYDROMORPHONE
Concentration	1 mg/mL	10 mcg/mL	0.2 mg /mL
Bolus	0.05 mg/kg	0.5 mcg/kg	0.4-0.5 mg
PCA dose	0.02 mg/kg	0.2 mcg/kg	0.1-0.3 mg
Basal Rate	0-2 mg/hr	0-10 mcg/hr	0-0.2 mg/hr
Lock out/delay (minutes)	5-10	5-10	5-10
Loading Dose	2 - 2.5 mg	10-20 mcg	0.2 - 0.4 mg

Consider decreasing the dose by 20% in elderly patients, severely ill patients, & in patients with sleep apnea.



EPIDURAL ANALGESIA (EA), APS

DRUG	PREPARATIONS	COMMENTS
Bupivacaine	- 0.0625 % - 0.1 %	<ul style="list-style-type: none">• May cause motor blockade• May cause hypotension• Patients may need to be catheterized as they will not feel bladder fullness
Bupivacaine +Fentanyl	0.0625 % or 0.1% 2 mcg/mL	<ul style="list-style-type: none">• May cause respiratory depression.
Ropivacaine	0.2%	<ul style="list-style-type: none">• Similar to Bupivacaine, but more sensory selectivity & less cardiac & neurotoxicity

- Assessment for sensory block: use 'ice in glove technique'.
- Assessment for motor block: use Bromage scale.



King Saud University
College of Medicine
Department of Anesthesia

PAIN AMANGEMENT: ADJUVANT ANALGESICS

Drug	Preparations	Doses	Comments
1) Antidepressants: • Amitriptyline (Elavil, Tryptizol) • Imipramine (Tofranil)	• Tablet: 10mg, 20mg, 50mg Capsule SR: 25mg • Tablet: 10 mg, 25 mg	• 10-25 mg at night 50-150 mg at night • 110-25 mg at night 50-150 mg at night	• Should be administered at night to reduce daytime sedation & support good sleep. • Associated with significant tolerability issues • Used as analgesics for chronic/neuropathic pain, & as prophylaxis against migraine headaches.
2) Anticonvulsants: • Na Valproate (Depakene) • Gabapentin (Neurontin) • Pregabalin (Lyrica)	• Tablet: 200 mg Tablet SR: 500 mg Syrup & Drops • Capsule: 300mg, 400mg • 75-150 mg BD	• 20 mg/kg IV, over 5 minutes • 300-400mg, OD, 1st week, 300-400mg BD, 2nd week, 300-400mg, TDS, 3d week	• Anti-convulsants are used in acute/chronic neuropathic & migraine pain. • Check LFT before & after starting Valproate. • Gabapentin can be used in PHN • Pregabalin is approved for fibromyalgia & painful diabetic neuropathy. • Adjust doses in renal impairment.
3) Corticosteroids: • Dexamethasone (Decadron) • Prednisone	• Tablet: 0.5 /1.5 /2 /4 mg Elixir: 0.5 mg/5 ml, Injection: 8 mg/2mL • Tablet: 10 /20 / 50 mg	• Low –dose regimen: 1-2 mg once-twice/day • High –dose regimen: 100 mg 4 times/day	• Corticosteroids can be used in short-term to relief acute pain associated with inflammation. • Shown to reduce spontaneous discharge in injured nerves. • Can be used for bone pain. • If used more than 1week, avoid rapid withdrawal (risk of adrenocortical insufficiency).
4) Muscle relaxants: • Baclofen (Lioresal)	• Tablet: 10 mg, 25 mg	• 10-25 mg, q 8 hr	• Relieve muscle spasm in acute/ cancer pain. • Can be used in neurogenic pain & in rectal tenesmus.
5) Bisphosphonates: • Alendronate (Fosamax)	• Tablet: 70 mg	• 70 mg, once/ week	• Used for metastatic bone pain. May cause esophagitis, should be taken in the morning with a glass of plain water at least one-half hour before food, beverages, or other medications.



King Saud University
College of Medicine
Department of Anesthesia

Acute Pain Service (APS)

APS Resident: pager # 2113 (weekdays 07:30 - 16:30 hours)

APS Nurse: pager # 2789 (weekdays 07:30 - 16:30 hours)
(thursdays 09:00 - 13:00 hours)

Anesthesia Resident on for Maternity: pager # 3540 (daily 16:30 - 07:30 hours, & weekends 24 hours, or in the absence of APS Anesthesiologist)

