

It is far easier to accidentally kill someone during even a short procedure with anesthesia than a scalpel during an extremity procedure. The most experienced provider should run anesthesia and stay by the patient's head until after the procedure and the patient is fully recovered from all drugs.It is recommended that the more experienced medic do the anesthesia and the othermedic do the procedure.

| | +4 | +4 Combative Combative, violent, immediate danger to staff | | | | | | |
|---|--|--|--|--|----------|----------------------|-----|--|
| Pre-Sedation Patient Assessment | +3 | Very agitated | ery agitated Pulls to remove tubes or catheters; aggressive | | | | | |
| Baseline GCS(no meds) or RASS(If meds on board) | +2 | +2 Agitated Frequent non purposeful movement; fights venti | | | | ator | | |
| Blood Pressure | +1 | Restless | | ents not aggressiv | ve | | | |
| Heart Rate | 0 | 0 Alert and calm Spontaneously pays attention to caregiver | | | | | | |
| Shock Index=(HR÷SP) [Normal=.57] | -1 | Drowsy | Not fully alert but has sustained awakening to voice (eye opening and contact >10 seconds) | | | | | |
| Respiratory Rate | -2 | Light sedatio | n | Briefly awakens to voice (eyes open and contact <10 seconds) | | | | |
| Allergies | -3 | Moderate se | dation | Movement of eye opening to voice (no eye contact) | | | | |
| Blood Type | -4 | Deep sedation | n | No response to voice but movement or eye opening to physical stimulation | | | | |
| Weight kg | -5 | Unarousable | | No response to voice or physical stimulation | | | | |
| Tactical Time Out | | Procedure for RASS assessment | | | | Score | | |
| □ S-Security Situation | | Observe patient. Patient is alert, restless, or agitated. | | | | 0 to +4 | | |
| O-Operational Situation C-Contingency Plans S-Shift (Role) Change P-Patient Status and Procedural Plan | If not alert, state patient's name and tell patient to open eyes and look at speaker. Patient awakens with sustained eye opening and eye contact. Patient awakens with eye opening and eye contact, but not sustained. Patient has any movement in response to voice but no eye contact. | | | | | -1 -2 -3 | | |
| Adequately resuscitated? YES NO SICK or NOT SICK? STABLE or UNSTABLE? | | houlder and/or r Patient has a | se to verbal stimulat ubbing sternum. ny movement to phy o response to any s | y shaking | -4 -5 | | | |
| GETTING BETTER or GETTING WORSE? | | | | ng dose first (1mg/kg IV/IO over 6inL of normal saline (3mg/mL soluti | | | | |
| Equipment M-Machine Ventilator/BVM S-Suction Device M-Monitor | | Initial drip dose: Best: Using an IV pump, set to µg/kg/min dose desired. Increase or decrease dose by 5-10µg/kg/min increments. Better: Using a dial flow adaptor, initial drip rate in mL/h equals the casualty's weight in kg divided by 2 (see mL/h table). Minimum: Count drip rate. Increase or decrease rate by 1-2 drips/min (very slowly) to achieve goal. Drip adjustments: Increase or decrease drip by 0.25mg/kgh (1 row). | | | | | | |
| Patient Monitor | Ketamine Drip Dosing Tables | | | | | | | |
| □ Stethoscope | Ketamine drip rate for dial flow or IV pump (starting dose highlighted) | | | | | | | |
| □ BP Cuff | | De | ose | 40 | 60 60 | Patient's Weight, kg | | |
| : ::: : | 1 | mg/kg/h | μg/kg/min | 40 | | nfusion Rate, mL/h | 100 | |
| ☐ Pulse Ox | | 0.5 | | | 40 | 40 | 47 | |

| tamine Drip Dosin | dial flow or IV pump (startin | a dose highlighted) | | | | | | | | |
|-----------------------|--------------------------------|---------------------------------|---------------------|------------|------|--|--|--|--|--|
| | | g dose mgmignied) | Patient's 1 | Weight, kg | | | | | | |
| Dose | | 40 | 100 | | | | | | | |
| mg/kg/h | μg/kg/min | | Infusion Rate, mL/h | | | | | | | |
| 0.5 | 8 | 7* | 10 | 13 | 17 | | | | | |
| 0.75 | 13 | 10 | 15 | 20 | 25 | | | | | |
| 1.0 | 17 | 13 | 20 | 27 | 33 | | | | | |
| 1.25 | 21 | 17 | 25 | 34 | 42 | | | | | |
| 1.5 | 25 | 20 | 30 | 40 | 50 | | | | | |
| 1.75 | 29 | 24 | 35 | 47 | 59 | | | | | |
| 2.0 | 33 | 27 | 40 | 53 | 67 | | | | | |
| etamine drip count fo | r 15 drips/mL tubing (starting | ng dose highlighted) | * | | | | | | | |
| | | Infusion Rate, 1 drip/X seconds | | | | | | | | |
| 0.5 | 8 | 1/35 | 1/24 | 1/18 | 1/9 | | | | | |
| 0.75 | 13 | 1/27 | 1/18 | 1/14 | 1/8 | | | | | |
| 1.0 | 17 | 1/18 | 1/12 | 1/9 | 1/7 | | | | | |
| 1.25 | 21 | 1/15 | 1/10 | 1/8 | 1/6 | | | | | |
| 1.5 | 25 | 1/12 | 1/8 | 1/6 | 1/5 | | | | | |
| 1.75 | 29 | 1/11 | 1/7 | 1/6 | 1/5 | | | | | |
| 2.0 | 33 | 1/9 | 1/6 | 1/5 | 1/4 | | | | | |
| etamine drip count fo | r 10 drips/mL tubing (starting | ng dose highlighted) | | | | | | | | |
| | | Infusion Rate, 1 drip/X seconds | | | | | | | | |
| 0.5 | 8 | 1/53 | 1/36 | 1/27 | 1/14 | | | | | |
| 0.75 | 13 | 1/41 | 1/27 | 1/21 | 1/12 | | | | | |
| 1.0 | 17 | 1/27 | 1/18 | 1/14 | 1/11 | | | | | |
| 1.25 | 21 | 1/23 | 1/15 | 1/12 | 1/9 | | | | | |
| 1.5 | 25 | 1/18 | 1/12 | 1/9 | 1/8 | | | | | |
| 1.75 | 29 | 1/17 | 1/11 | 1/9 | 1/8 | | | | | |
| 2.0 | 33 | 1/14 | 1/9 | 1/8 | 1/6 | | | | | |

Procedural Sedation

Step 1: Bolus (1.0-2.0mg/kg) 80-160mg ketamine IV/IO over 60 seconds (250-400mg IM if necessary).

Step 2: Consider adding (start low, give more): • 25–100µg fentanyl IV/IO

1-4mg midazolam IV/IO

Step 3: May need to repeat doses as below if procedure lasts longer than 10–15 minutes.

- - Ketamine every 10–15 minutes
 Fentanyl every 15–30 minutes
- Midazolam every 30–60 minutes dial flow adaptor not accurate for rate < 10mL/h; use drip count

| <u>SICK</u> or <u>NOT SICK</u> ? <u>STABLE</u> or <u>UNSTABLE</u> ? | | | | | | | | | |
|--|--|-------------------|---|--|--|--|--|--|--|
| GETTING BETTER OF GETTING WORSE? | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Equipm | | | | | | | | | |
| | M-Machiı □ | ne Ventilator/ | D\/M | | | | | | |
| | _ | | DVIVI | | | | | | |
| _ | S-Suction DeviceM-Monitor | | | | | | | | |
| _ | | | onitor | | | | | | |
| | ā | | | | | | | | |
| | | | | | | | | | |
| | | Pulse Ox | | | | | | | |
| | | Capnogra | ph | | | | | | |
| | A-Airway | | | | | | | | |
| | <u> </u> | | d checklist | | | | | | |
| | ū | iGel/SGA | on and an eligible aldist | | | | | | |
| | I-IV/IO | RSI Equip | ment and checklist | | | | | | |
| _ | I-IV/IO | Fluids and | I lines hooked up | | | | | | |
| | _ | | calculated, drawn and labeled | | | | | | |
| _ | | | regional anesthesia block for | | | | | | |
| | | analgesia | • | | | | | | |
| | | Ondanset | ron 4-8mg as antiemetic | | | | | | |
| | | Midazolan | n 1-4mg for sedation and amnesia | | | | | | |
| | as needed | | | | | | | | |
| | | | Flumazenil 0.2-1mg as needed for | | | | | | |
| | _ | Cambana d C | Midazolam reversal | | | | | | |
| | ū | | 25-100 mcg as needed for sof analgesia for painful stimuli | | | | | | |
| | | | Narcan 0.4-2as needed for | | | | | | |
| | | _ | fentanyl reversal | | | | | | |
| | | Ketamine | 1-2mg/kg for 10 mins of | | | | | | |
| dissociation or longer duration analgesia | | | | | | | | | |
| Epinephrine as needed for vasopressor | | | | | | | | | |
| | 20mcg slow push as needed | | | | | | | | |
| | | Anaphyla | | | | | | | |
| | | | Epinephrine .3mg IM | | | | | | |
| | | | Benadryl 25-50mg | | | | | | |
| | | | Solumedrol 125mg vial | | | | | | |



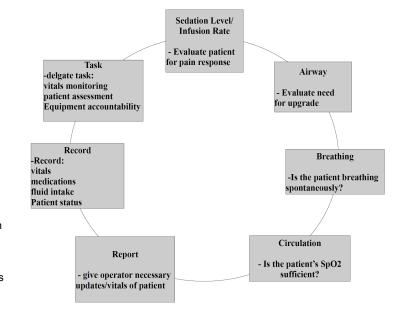
Circle of Awareness Continuous 5-Minute Checks During the Procedure

- 1. Airway Patency (Including ventilator if being used)
- 2. Breathing Rate with stethoscope on chest
- 3. Circulation Rate and Pressure
- 4. Check ventilator settings
- 5. Sedation level (RASS) and drip rate
- 6. Report Patient Status to the Surgical Team
- 7. Record
- 8. Tasks such as untangling lines

Doug's Basic ICU Neuro Exam for a lightly sedated and Intubated or Criced patient:

- ☐ Check Motor Cortex: Can the patient wiggle all toes and fingers or give the thumbs up
- Check Frontal Temporal and Occipital Lobes: With a pen light, check that both pupils are equal, reactive and accommodating
- ☐ Check Deep Brain Reflexes: Illicit a cough by suctioning the airway down to the carina with a sterile suction catheter like the Ballard inline suction
- Check Brain Stem: Is the patient breathing? If ventilated, are they breathing more than the set rate?

Along with a GCS score, this exam will tell you in simple terms if the geographic areas of the brain are intact.



Ventilated Patient Assessment if on a Vent/ being bagged:

SAVE2 Vent Setup, Troubleshooting and Management

Hook up tubing and circuit to ventilator Add any adjuncts such as HME and Emma Calculate patient height/ideal body weight

Calculate patient height/ideal body weight

Count patient respiratory rate Turn on and adjust ventilator

Initial Vent Setup

Remove patient from BVM and plave on working vent

Airway Nursing Care

Record baseline settings and vitals below Assess patient using thte MOVE pneumonic Optimize PEEP using (pPlat(PiP) -PEEP = <18)

Keep PiP below 30 (Reduce volume and increase rate if needed)

Monitor for signs of pneumothorax

Suction airway as needed Oral hygeine Q8 Hours Pneumothorax Equipment

Obstruction

Rigidity(due to fentanyl)
Stacked Breaths

DOPERS Troubleshooting

Displacement/Dysynchrony

| Admin Data | Name/Number | Height | | IBW | | Weight(kg) | | CC: | | Stable or | Unstable |
|---------------------------------------|--------------------------------------|--------|--|-----|--|------------|--|-----|--|-----------|----------|
| | Time | | | | | 0 (0/ | | | | | |
| Mechanics | Posture / Positioning | | | | | | | | | | |
| NACH 1980 (1980) | Breath Sounds | | | | | | | | | | |
| | Chest Rise | | | | | | | | | | |
| | Mental Status (AVPU, GCS, RASS) | | | | | | | | | | |
| | Meds/Doses | | | | | | | | | | |
| Oxygenation | SpO2 | | | | | | | | | | |
| 300 | HR | | | | | | | | | | |
| | Skin Color | | | | | | | | | | |
| | FiO2 | | | | | | | | | | |
| | PEEP | | | | | | | | | | |
| V entilation | Hemodynamic Status (BP) | | | | | | | | | | |
| | RR (Respiratory Rate) | | | | | | | | | | |
| | vT (Tidal Volume) | | | | | | | | | | |
| | M.V (Minute Volume) | | | | | | | | | | |
| | vT diff from ARDs vT | | | | | | | | | | |
| | iTime (Inspiratory Time) | | | | | | | | | | |
| | etime (Expiratory Time) | | | | | | | | | | |
| | EtCO2 (End Tidal CO2) | | | | | | | | | | |
| Eval and Equipment | PIP (Peak Inspiratory Pressure) | | | | | | | | | | |
| | pPlat (Plateau Pressure (Not on SAVE | 11) | | | | | | | | | |
| DP (Drive Pressure=pPlat or PIP - PEE | | P) | | | | | | | | | |
| | Tube Cuff pressure or MOV | | | | | | | | | | |
| | Humidity | | | | | | | | | | |



The risks and benefits of doing or not doing a procedure must be discussed with the team **Is the juice worth the squeeze?**

- What happens if you do it and the patient dies?
- What happens if you do nothing and they die?
- Can you transfer to another host-nation, Ally or NGO facility?

Goals of emergency war wound surgical procedures:

- 1. Stop Bleeding
- 2. Relieve tension
- 3. Remove or reduce contaminants including dead tissue and reduce bacterial load
 - a. Restore perfusion or function

Other things that can make a difference and buy time before surgery

(Things we have learned since the Civil War):

- Early systemic antimicrobials
 - Early Antibiotics
 - □ Tetanus prophylaxis
 - ☐ Invasive Fungal Prophylaxis (Dakins)
- Disruption of superficial biofilm on old wounds by scrubbing with antimicrobial such as
 - Chlorhexidine
 - lodine surgical scrub
 - Antibacterial soap
 - dakin's solution (1L water + 0.5ml unscented household bleach) for suspected fungal infection
- Copious irrigation with potable water
- Bacteriostatic dressings such as silverlon, sugar, honey...
- Promoting natural drainage NO occlusive dressings
- Sterility and aseptic technique

Step by Step Surgical Prep

- ☐ Telemedical Consult?
- □ Room Prepped

- ☐ Clean
- □ Secure
- Drug Calculations and Syringes
- Procedure and <u>Anesthesia Cheatsheets</u>
- Patient
 - Resuscitated and Stable?
 - ☐ Mental status, BP, HR, RR, SI, Lactate, INR, HCT
 - NPO or decompressed?
 - ☐ Additional Blood anticipated?
- ☐ Instruments Disinfected and Sterile
 - □ Scalpel w/ 10 blade
 - → Forceps/Clamps
 - ☐ Tissue forceps nice to have
 - Needle Drivers nice to have
 - Gigli Saw wire
 - Gigli handles nice to have
 - Scissors .
 - Metzenbaums or Mayos nice to have
 - □ Sterile Drapes Recommended

Autoclave - Lobster Pot

Instant Pot - 20 mins on high(15 psi setting)

Stove top Pressure cooker











| | | To the state of th |
|------------|--|--|
| Dry Heat | (Oven, Toaster Oven, grill) ☐ 180°C (356°F) for 30 mins | ar Forwar |
| | ☐ 170°C (338°F) for 1 hour1 | |
| | ☐ 160°C (320°F) for 2 hours | |
| | ehyde, Cidex 5 mins then rinse | |
| Alcohol: | D 000/ 4- 000/ minimum | |
| | 60% to 90% minimum3 hours of contact time | |
| | ☐ Consumable alcohol must be a minimum of 120 proof | |
| Bleach: U | ndiluted (5.25%) sodium hypochlorite NO MORE THAN 5 mins then | |
| rinse off | | A Topic State of the State of t |
| | O mins at a low rolling boil | |
| | the microwave with a small cup of water on the side (NO METAL!) Sather Other Surgical Equipment | |
| - ` | ☐ Sterile Gloves | |
| | ☐ Gown | |
| | □ mask | |
| | □ Suture □ Chlorhexidine | |
| | | |
| | | |
| Prep and | | |
| | Gross decontamination of entire limb with chlorhexidine scrub | |
| | rrigate and Dry Don hat and mask | |
| | Open outer layer of sterile pack, gown and gloves | |
| | Apply tourniquet at this time if needed | |
| | Scrub in and Don gown and gloves | TO BE STORY |
| | Open sterile packs and create sterile working space | |
| | Paint everything with Povidone lodine Drape affected area with sterile drapes | |
| | ☐ Air-tight/Waterproof plastic layer | |
| | ☐ Large outer working surface | |
| DDOCED | LIDAL TIME OUT DEFODE CUTTING | |
| | URAL TIME OUT BEFORE CUTTING Procedure. | |
| | □ Plan | |
| | ☐ Roles | |
| | Special considerations | |
| <u> </u> | Questionsncise skin and elongate wound edges with scalpel | |
| | Assess and remove dead tissue with scissors | |
| | □ Color | |
| | Consistency | |
| | □ Contractility | |
| <u> </u> | □ Capillary bleeding .igate vessels | |
| | Distract and cut nerves (amputation only) | |
| | Cut/remove bone | |
| | Fasciotomies | |
| | Remove tourniquets(NOTIFY ANESTHETIST FIRST)and check bleeding rrigate with potable water | |
| | Dry (Count in and out) | The state of the s |
| <u> </u> | Dress the wound/stump | |
| <u> </u> | Bulky sterile non-occlusive dressings and/or drains to allow for exudate dra | inage |
| Encuro | our interventions worked | |
| | ALL bleeding controlled once tourniquets removed | |
| <u>-</u> : | | |

- □ No tense compartments
 □ All contaminants and non-viable tissues removed and irrigated
 □ Check Pulse, Motor, Sensory of affected limb!