Table of Contents

[Abbreviations Used in Document 8](#_Toc198162298)

[Section 1: EMS 8](#_Toc198162299)

[Intro to Abbott 8](#_Toc198162300)

[Core Principles – Safety & Well-Being 8](#_Toc198162301)

[ALS Ground Rules 8](#_Toc198162302)

[General Important Information 8](#_Toc198162303)

[Scope Violations & Possible Consequences 8](#_Toc198162304)

[Suspension/Revocation 8](#_Toc198162305)

[On-Scene Authority 8](#_Toc198162306)

[Response Mode 8](#_Toc198162307)

[Transfer to Lesser Credential 8](#_Toc198162308)

[EMR Accompanying Critically Ill 8](#_Toc198162309)

[Consulting OLMC 8](#_Toc198162310)

[On-Scene Healthcare Professionals 8](#_Toc198162311)

[Dispatching MD [200] 8](#_Toc198162312)

[AIR AMBULANCE UTILIZATION 8](#_Toc198162313)

[Applies to both Adults & Pediatrics 8](#_Toc198162314)

[Restraints of Agitated/Combative Pts 8](#_Toc198162315)

[Richmond Agitation Sedation Scale (RASS) 8](#_Toc198162316)

[Rule of 9’s & Rule of Palms for estimating BSA 8](#_Toc198162317)

[Smith-Modified Sgarbossa Criteria 8](#_Toc198162318)

[Crime Scene 8](#_Toc198162319)

[PCR Requirements 8](#_Toc198162320)

[Clinical Errors & Reporting 8](#_Toc198162321)

[Mandatory Reporting 8](#_Toc198162322)

[Medication Administration Cross Check 8](#_Toc198162323)

[BLS MACC 8](#_Toc198162324)

[CDC Field Triage Guidelines for Trauma 8](#_Toc198162325)

[Rehabilitation – Emergency Incidents; Municipal partners 8](#_Toc198162326)

[Skills 8](#_Toc198162327)

[Ventilator Set-Up Procedure: ParaPAC Plus 8](#_Toc198162328)

[I-gel Supraglottic Airway (SGA) 8](#_Toc198162329)

[Thermometer: using the Braun ThermoScan 8](#_Toc198162330)

[Glucometer–McKesson True Metrix Pro 8](#_Toc198162331)

[Diltiazem Add-Vantage directions for use 8](#_Toc198162332)

[EZ-IO Insertion 8](#_Toc198162333)

[PUSH-DOSE EPI 8](#_Toc198162334)

[Mucosal Atomization Device (M.A.D.) 8](#_Toc198162335)

[Minutes of Oxygen by Cylinder Size 8](#_Toc198162336)

[Understanding Ratios, %’s, & Solution Mixtures 8](#_Toc198162337)

[Adult Protocols 8](#_Toc198162338)

[Airway/Breathing 8](#_Toc198162339)

[AIRWAY 8](#_Toc198162340)

[BREATHING 8](#_Toc198162341)

[BRONCHOSPASM 8](#_Toc198162342)

[COMA/OD 8](#_Toc198162343)

[CPAP or BiPAP 8](#_Toc198162344)

[SAI 8](#_Toc198162345)

[Nasal Intubation 8](#_Toc198162346)

[ET Intubation 8](#_Toc198162347)

[VENTILATOR Pt; Intubated & Sedated 8](#_Toc198162348)

[TRACHEOSTOMY CARE 8](#_Toc198162349)

[Cricothyrotomy 8](#_Toc198162350)

[Tension Pneumo 8](#_Toc198162351)

[SGA → Cardiac Arrest = Use 1st 8](#_Toc198162352)

[Circulation/Cardiology 8](#_Toc198162353)

[CIRCULATION 8](#_Toc198162354)

[BRADYCARDIA 8](#_Toc198162355)

[PUSH-DOSE EPI 8](#_Toc198162356)

[CARDIOGENIC SHOCK (NON- POST- ARREST) 8](#_Toc198162357)

[LVAD PT 8](#_Toc198162358)

[MI or Acute Coronary Syndrome (ACS) 8](#_Toc198162359)

[PEA or Asystole 8](#_Toc198162360)

[Pulmonary Edema 8](#_Toc198162361)

[ROSC Stabilization 8](#_Toc198162362)

[Symptomatic Tachycardia 8](#_Toc198162363)

[V-FIB or PULSELESS V-TACH 8](#_Toc198162364)

[Medical 8](#_Toc198162365)

[ALLERGIC REACTION 8](#_Toc198162366)

[ANAPHYLAXIS 8](#_Toc198162367)

[CPR Initiation & Termination 8](#_Toc198162368)

[DEATH Documentation; body Temp. 8](#_Toc198162369)

[FALL OR WEAKNESS 8](#_Toc198162370)

[HYPERGLYCEMIA 8](#_Toc198162371)

[HYPOGLYCEMIA / INSULIN SHOCK 8](#_Toc198162372)

[HYPERKALEMIA 8](#_Toc198162373)

[N/V 8](#_Toc198162374)

[Organophosphate or Carbamate Poisoning 8](#_Toc198162375)

[PAIN MANAGEMENT 8](#_Toc198162376)

[SEIZURE 8](#_Toc198162377)

[SEPSIS 8](#_Toc198162378)

[Sickle Cell Crisis 8](#_Toc198162379)

[Stroke Centers; Missouri Certified (Greater St. Louis Region) 8](#_Toc198162380)

[Suspected Acute STROKE 8](#_Toc198162381)

[TOXIC INGESTION 8](#_Toc198162382)

[VIOLENT/COMBATIVE PT – RASS +4 8](#_Toc198162383)

[RASS +1, +2, or +3 Agitated/Anxious Pt 8](#_Toc198162384)

[OB/GYN 8](#_Toc198162385)

[Delivery OOH/Pre-eclampsia/Eclampsia 8](#_Toc198162386)

[Trauma 8](#_Toc198162387)

[Riot Control (Incapacitating Agent) 8](#_Toc198162388)

[Spinal Motion Restriction (SMR) 8](#_Toc198162389)

[TASER – p̄-deployment 8](#_Toc198162390)

[TRAUMA – Major (Level 1) 8](#_Toc198162391)

[Traumatic Arrest??????? 8](#_Toc198162392)

[Refusals 8](#_Toc198162393)

[Consent & Refusal 8](#_Toc198162394)

[Refusals **&** Suicidal Pt’s 8](#_Toc198162395)

[Pediatric Protocols 8](#_Toc198162396)

[Pediatric VS 8](#_Toc198162397)

[Low SBP Pediatric 8](#_Toc198162398)

[Pediatric Initial pt Assessment 8](#_Toc198162399)

[Airway & Breathing 8](#_Toc198162400)

[AIRWAY 8](#_Toc198162401)

[BREATHING / Respiratory Failure 8](#_Toc198162402)

[BRONCHOSPASM 8](#_Toc198162403)

[Brief Resolved Unexplained Event (BRUE) 8](#_Toc198162404)

[CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) 8](#_Toc198162405)

[CPAP Set-up: FlowSafe II System 8](#_Toc198162406)

[BiPAP Set-up: FlowSafe II System 8](#_Toc198162407)

[Directions For Providing CPAP: 8](#_Toc198162408)

[Circulation/Cardiac 8](#_Toc198162409)

[CIRCULATION / Shock 8](#_Toc198162410)

[Newborn Resuscitation – Inverted Pyramid Model 8](#_Toc198162411)

[Inverted Pyramid Model for Newborn Resuscitation 8](#_Toc198162412)

[Cardiogenic Shock or p̄ Arrest Stabilization 8](#_Toc198162413)

[PEDIATRIC ADVANCED LIFE SUPPORT 8](#_Toc198162414)

[NEONATAL RESUSCITATION 8](#_Toc198162415)

[Medical 8](#_Toc198162416)

[AMS/Suspected Opioid OD 8](#_Toc198162417)

[ALLERGIC REACTION 8](#_Toc198162418)

[ANAPHYLAXIS 8](#_Toc198162419)

[Hyperglycemia/DKA or Nonketotic Hyperosmolar Coma 8](#_Toc198162420)

[Hypoglycemia / Insulin OD 8](#_Toc198162421)

[N/V 8](#_Toc198162422)

[Organophosphate or Carbamate Poisoning 8](#_Toc198162423)

[PAIN MANAGEMENT 8](#_Toc198162424)

[SEIZURE 8](#_Toc198162425)

[SICKLE CELL CRISIS 8](#_Toc198162426)

[TOXIC INGESTION 8](#_Toc198162427)

[Violent Pt 8](#_Toc198162428)

[Refusals 8](#_Toc198162429)

[Minor Consent/Refusal Details 8](#_Toc198162430)

[Trauma 8](#_Toc198162431)

[TRAUMA, major 8](#_Toc198162432)

[Traumatic Arrest???????????????? 8](#_Toc198162433)

[Special Needs Children 8](#_Toc198162434)

[Central IV Catheters – Indwelling IV access: 8](#_Toc198162435)

[CSF Shunt (Ventriculoperitoneal or V-P Shunt): 8](#_Toc198162436)

[**Gastrostomy** 8](#_Toc198162437)

[Colostomy of Ileostomy – Fecal Drainage: 8](#_Toc198162438)

[**Ureterostomy or Nephrostomy Tube or Foley:** 8](#_Toc198162439)

[SPECIAL HEALTH CARE NEEDS 8](#_Toc198162440)

[Special needs Tracking & Awareness Response System (STARS) 8](#_Toc198162441)

[Tracheostomy–Tube 8](#_Toc198162442)

[Needle Decompression 8](#_Toc198162443)

[Worker’s Compensation Process 8](#_Toc198162444)

[Pediatric References 8](#_Toc198162445)

[Abbreviations for PCR – Approved list 8](#_Toc198162446)

[ALS Medications 8](#_Toc198162447)

[Adenosine (6mg/2ml) 8](#_Toc198162448)

[**Drug Info:** 8](#_Toc198162449)

[**Adult Rx:** 8](#_Toc198162450)

[Albuterol (2.5mg/3cc) 8](#_Toc198162451)

[**Drug Info:** 8](#_Toc198162452)

[**Adult Rx**: 8](#_Toc198162453)

[**Pediatric Rx**: 8](#_Toc198162454)

[ASA (81mg/tab) 8](#_Toc198162455)

[**Drug Info:** 8](#_Toc198162456)

[**Adult Rx:** 8](#_Toc198162457)

[Atropine (1mg/10ml) 8](#_Toc198162458)

[**Drug Info:** 8](#_Toc198162459)

[**Adult Rx:** 8](#_Toc198162460)

[**Pediatric Rx:** 8](#_Toc198162461)

[Calcium Chloride (1,000mg/10ml) 8](#_Toc198162462)

[**Drug Info:** 8](#_Toc198162463)

[Adult Rx: 8](#_Toc198162464)

[Dexamethasone (Decadron) (10mg/ml) 8](#_Toc198162465)

[**Adult Rx:** 8](#_Toc198162466)

[**Pediatric Rx:** 8](#_Toc198162467)

[D5 (5g/100ml bag) & D10 (25g/250ml bag) 8](#_Toc198162468)

[Rx: 8](#_Toc198162469)

[Benadryl (50mg/ml) 8](#_Toc198162470)

[**Adult Rx:** 8](#_Toc198162471)

[**Pediatric Rx:** 8](#_Toc198162472)

[Droperidol (Inapsine) (5mg/2ml) 8](#_Toc198162473)

[**Adult Rx:** 8](#_Toc198162474)

[Epi 1:1,000 (Adrenaline) (10mg/10ml) 8](#_Toc198162475)

[**Adult Rx:** 8](#_Toc198162476)

[**Pediatric Rx:** 8](#_Toc198162477)

[Epi 1:10,000 (1mg/10ml) 8](#_Toc198162478)

[**Adult Rx:** 8](#_Toc198162479)

[Epi 1:100,000 (100mcg/10ml) “Push-Dose Epi” 8](#_Toc198162480)

[**Push-Dose Epi Preparation:** 8](#_Toc198162481)

[**Epi Continuous Infusion:** 8](#_Toc198162482)

[**Epi Continuous Infusion Drip Rates c̅ 60-Drip** (Micro-Drip): 8](#_Toc198162483)

[**Adult Rx:** 8](#_Toc198162484)

[**Pediatric Rx:** 8](#_Toc198162485)

[Etomidate (40mg/20ml) 8](#_Toc198162486)

[**Adult Rx:** 8](#_Toc198162487)

[Fentanyl (100mcg/2ml) 8](#_Toc198162488)

[**Adult Rx:** 8](#_Toc198162489)

[**Pediatric Rx:** 8](#_Toc198162490)

[Ipratropium (0.5mg/3cc) 8](#_Toc198162491)

[**Adult Rx:** 8](#_Toc198162492)

[Ketamine (500mg/5ml) 8](#_Toc198162493)

[**Adult Rx:** 8](#_Toc198162494)

[**Pediatric Rx:** 8](#_Toc198162495)

[Ketorolac (Toradol) (30mg/ml) 8](#_Toc198162496)

[**≥17yo Rx:** 8](#_Toc198162497)

[Lidocaine (100mg/5ml) 8](#_Toc198162498)

[Adult Rx: 8](#_Toc198162499)

[MgSO₄ (1g/2ml) 8](#_Toc198162500)

[**Adult Rx:** 8](#_Toc198162501)

[**Pediatric Rx:** 8](#_Toc198162502)

[Metoprolol (Lopressor) (5mg/5ml) 8](#_Toc198162503)

[**Adult Rx:** 8](#_Toc198162504)

[Midazolam (Versed) (10mg/2ml) 8](#_Toc198162505)

[**Adult Rx:** 8](#_Toc198162506)

[**Pediatric Rx:** 8](#_Toc198162507)

[Morphine (4mg/2ml) 8](#_Toc198162508)

[**Drug Info:** 8](#_Toc198162509)

[**Adult Rx:** 8](#_Toc198162510)

[**Pediatric Rx:** 8](#_Toc198162511)

[Narcan (2mg/2ml) 8](#_Toc198162512)

[**Drug Info:** 8](#_Toc198162513)

[**Adult Rx:** 8](#_Toc198162514)

[**Pediatric Rx:** 8](#_Toc198162515)

[NTG (0.4mg/spray) 8](#_Toc198162516)

[**Drug Info:** 8](#_Toc198162517)

[**Adult Rx:** 8](#_Toc198162518)

[Zofran (4mg/2ml) 8](#_Toc198162519)

[**Drug Info:** 8](#_Toc198162520)

[**Adult Rx:** 8](#_Toc198162521)

[**Pediatric Rx:** 8](#_Toc198162522)

[8.4% Bicarb (NaHCO₃) (50mEq/50ml) 8](#_Toc198162523)

[**Drug Info:** 8](#_Toc198162524)

[**Adult Rx:** 8](#_Toc198162525)

[**Pediatric Rx:** 8](#_Toc198162526)

# Abbreviations Used in Document

ā = before

c̅ = with

s̄ = without

p̄ = after

q̄ = every

x̄ = except

MD = Medical Director

COG

OLMC

MAC

CES Manager

S&R Manager

SMR

SGA

MPDS

CIR = Certificate of Informed Refusal

(RRWCT) = Regular Regular Wide Complex Tachycardia

Differences between SQ and IM

# Section 1: EMS

## Intro to Abbott

EMS is about reducing the suffering of others.

EMS **=** Pt Advocate for Safety**/**Medical Monitoring**/**Pt Care.

**Start-of-Shift**

* Verify vehicle (stock, batteries, **O₂**, lights, siren, safe)

Related policy: V998877 Rig Checklist, P875960 Vehicle Repair Request, P000125 Equipment Service Order, P000127 Medical Equipment

**Medical Oversight**

* All care authorized by **MD** (Direct**/**Indirect).
* **Medical Directive** **=** Describes specific clinical Changes**/**Updates by **MD**.
* **Quality & Medical Oversight Team**

**MD**, **CES Manager**, Ops Mgr, Comm Mgr, **S&R** Mgr, & **MAC** Physicians **→** Reviews clinical issues**/**data (COG**/**Event**/**Performance). Final decision-making group.

Focus **→** on improvement, not discipline.

**MD** may modify criteria in Unusual**/**Extreme conditions.

**Research/Trial**

* **GMR/MD** may request research**/**trials for new equip, Rx’s, or procedures.
* C̅ **MAC** consent, **MD** may add trial directives not in current **COG**.
* Only involved units carry trial docs.

Post-trial items may integrate into **COG**.

**Knowledge, Skills, & Abilities (KSA) Drills**

**Knowledge** is a body of info applied directly to the performance of a function.

Emergency Medical Knowledge **=** Paramedic Certificate

**Skills** **=** Proficient Physical**/**Verbal**/**Mental Manipulation of Data

or Things (turning data into info)

**Examples of proficient manipulation of things**

Simultaneous use of Laryngoscope Blade & Magill Forceps to

open an obstructed airway

Operating a Scoop Stretcher or Stair Chair

**Examples of proficient manipulation of data**

Recognizing 3 seemingly unrelated issues & recognizing them as

an opiate toxidrome. (unconscious, apnea, & pinpoint pupils)

Calculating mg**/**kg of a Rx & properly giving the Rx.

**Skill =** Certificate of Completion from the Written**/**Practical

portion of the NREMT &**/**or State License

**Ability** **=** Power to Perform an Observable Activity at the Present

Time.

Evidenced through Activities**/**Behaviors, in real time, similar to

those required on the job.

Plan & Organize a driving route to a call

Manage a stretcher tip**-**over Incident

Perform CCR or Manage a Trauma Incident

Adequate ability c̅ Abbott EMS**/**MD **→** Observation in NEOP c̅

3rd person rides, PAT, & in**-**person scenario assessments.

QA & CQI efforts have revealed the need to assist employees c̅

KSA into real-world application.

We ask all employees to actively engage & participate in the KSA Drills throughout the year.

**Skills/Interventions**

* **EMD** **=** 24hr **NAED** course
* **EMT-B** **=** Basic Airway, **O₂**, **AED**, SMR, assist Pre-Prescribed Rx’s, Triage, Bleed Control, Splint**/**Bandage, Assessment, Assist Paramedics.
* **EMT-P** **=** All **EMT-B** **+** Magill Forceps, Direct Laryngoscopy, **CPR**, Childbirth, Adv. Airways, Trach Suction, Topical Nasal Vasoconstrictors, G**-**Tube Insertion, **BG**, 12-Lead **+** Interpretation, Nebs, **CPAP/BiPAP**, **IV/IO** (**+** Jugular Vein), Needle**/**Surgical Cric, Needle**-**D, Cardioversion**/**Defib**/**Pacing, Pronouncements
* **SCT** **=** All **EMT-P** **+** **RSI**, Adv. Rx’s**/**Ventilator mgmt, Adv. decision-making

Related Policy, P987667 Identification, Employee, AMR Caregiver Credentials Policy v6.0

**Credentialing Requirements**

* **ALL Require →** Interview**/**Background Check, Good standing c̅ Abbott, License**/**Credentials (Final approval by GMR & MD), CPR, Cornerstones, Prior requirements.
* **EMT-B**
* **EMT-P** **→** **ACLS**, **PHTLS/ITLS**
* **SCT →** Interview**/**Selection Process c̅ **MD/**Ops, MD approved SCT course, Adv. **PHTLS/ITLS**, SCT Skills q̄12wks c̅ **MD**, SCT Quarterly Training, Quarterly **MAC** Approval p̄ any Pt Care Scrutiny Inquiry

## Core Principles – Safety & Well-Being

Scene secure **→** Scene Survey **→** Hazards**/**Additional Resources?

Evaluate the scene upon approach

Balance need for pt access & clinician**/**pt safety

On-scene **→** Continually Evaluate**/**Judge the situation accordingly

Examples: Downed power lines, Fuel spills, Unstable vehicles, Water hazards, Crowds (large, unruly, threatening), Weapons involved

**Infection Control**

Well-known infectious agents **→** Hepatitis B, influenza, etc

Employ basic infection control measures on q̄ single incident

**Basic Protection Guidelines & Immunizations**

Six links in the “Chain of Infection” **→** Pathogen **→** Reservoir **→** Portal of exit **→** Mode of transmission **→** Portal of entry **→** Susceptible host

Healthcare Workers **→** **Recommended Immunizations**:

COVID-19, Measles, Mumps, Rubella, Varicella, Tetanus, Diphtheria, Pertussis, Influenza (seasonal), Hepatitis A & B

**Hand Washing**: Contact c̅ contaminated surfaces (fomites) provides a way for you to become infected and to infect others. Hands washed p̄ pt contact, gloves changed, & Equipment cleaned

**No soap/water** **→** Alcohol-based hand cleaners

Effective hand washing **→** Soap & water **→** 20sec Min **→** Vigorous rubbing followed by thorough rinsing

Waterless hand wash**/**wipe should be used. Wash hands c̅ soap and water when able.

Conduct self-checks of skin prior to pt contact. Cover all open and scabbed wounds c̅ bandages

**PPE**

Gloves worn c̅ all pt contact. Latex free c̅ sensitivity**/**allergy

Airway Management Procedure or Splash Fluids **=** Eye Shield &

Mask**/**N95 **+** Goggles

**Bodily Splash Fluids = Gowns**

Gloves (& possibly gown) **+** Respiratory Protection are required c̅ these S/S **→** Productive Cough (c̅ or s̄ blood), Fever**/**Chills c̅ Coughing, Night Sweats, Dramatic (**>**10%) unexplained weight loss, Fatigue (Along c̅ other Sx), Hemoptysis, Nuchal rigidity, & Chest**/**Upper Torso Rash

**N95** protects against **airborne particles** (TB, measles, chicken pox, COVID-19, etc). Use also ā entering area c̅ pt’s & these S**/**S

Eye shield **+** Mask **=** **Larger Droplets** (Meningitis, Flu, RSV, etc)

Pt c̅ S/S of larger droplets disease **=** N95 mask or eye shield **+** surgical mask anytime within 6ft of pt

**c̅ Airborne/Droplet precautions** **→** place surgical mask on pt as long as it does not interfere c̅ respiratory function.

If O₂ is needed, then use a NRM to deliver O₂ which helps limit the amount of aerosolized agent emitted.

An N95 mask should not be placed on the pt.

• If Sputum, try to dispose of it properly & use an 4X4

• If doubt = Maximal PPE

**Sharps Hazards**

Needles c̅ human tissue contact should not be recapped, re-sheathed, bent, broken, or separated from disposable syringes

• Used needles **=** sharps containers

**Cleaning** & **Disinfecting Equipment** & **Work Areas**

Disinfect p̄ removing large organic material.

Be thorough & consider goggles if possible splashing.

Clean surfaces your gloved hand contacted.

P̄ applying disinfectant, let it air dry

Wiping dry the wet disinfected surface will negate the effects & render it useless.

Upon completion of the cleaning, make sure you wash your hands

**Exposure Follow-up**

• Withdraw from pt care as soon as soon as it’s appropriate. Usually p̄ pt care but may be sooner in some cases.

• Take self-care steps & cleanse Wound**/**Irrigate

Do not “milk” any needle stick injuries.

• Exposures require immediate intervention.

Report suspected exposure to communicable diseases to Sup ASAP

If you think you need medical evaluation, testing, follow-up, &**/**or Rx’s, report this to the Supervisor for further instruction.

AMR Infection Control policies: SRM #1205 & #1225.

**MVCs – Lights** & **Siren Driving**

The **#1** cause of EMS occupational death is ambulance crashes. A 2019 study found that among 2268 US counties, **↑**EMS response times were associated c̅ **↑**rates of MVCs**/**Mortality.

Most crashes occur c̅ lights & sirens at intersections.

**Acceptable Code 3**

Time Critical **→** STEMI, Lvl 1 Trauma**/**acute stroke**/**septic shock

Critical VS are not responding to intervention

Need for immediate ED care

ABCs are not intact & are unmanageable

**Maybe Code 3**

Need for definitive Dx **→** low back**/**Abd pain but c̅ concern for leaking AAA

Clinician Concern**/**Discretion

Often tied to abnormal VS

Post-ROSC but ABCs are being managed

2004 data of 103 reported firefighter deaths, 34% occurred while responding**/**returning from alarms. Of the 35 response related deaths **→** 17 firefighters died from injuries directly related to vehicle crashes. Failure to wear seat belts & speeding remain listed as major contributing factors in crash related deaths.

**Abbott personnel will wear seatbelts whenever possible** & **will come to a complete stop at intersections, regardless of traffic light indication, & clear each lane prior to proceeding through the intersection.**

**Violence Against Clinicians**

It is Acceptable**/**Expected that EMS crews do not place themselves in any situation that has a high likelihood of causing harm to themselves.

**Staging** & **Retreat**

Stage, wait, & request PD if something “just doesn’t feel right.”

Use your partner in a “contact and cover” mode & rapidly transition out to the truck & away from the scene.

LE should be part of managing these scenes.

**Medical Care in a Threat Environment**

**Direct Threat Environment →** Immediately cease all medical care **→** Get crew & pt to safety (or relative). Re-establish care when the direct threat is no longer present.

**Indirect Risk/Threat Environment** **→** Limit medical assessment, interventions, & procedures to lifesaving &**/**or necessary steps to expedite movement to a secure**/**cold zone

**Indirect Risk/Threat examples include** (but are not limited to) **→** Contained criminal, crime scene relatively safe c̅ adequate LE protection**/**presence, controlled flame**/**fire, structure**/**vehicle that has been reinforced**/**stabilized, MVC on roadway c̅ active traffic

Situations that pose risks that are not immediately dangerous to life &**/**or health or pose an imminent threat.

Resume normal medical care in the cold zone

In some instances (MCIs) the crew may pass the pt off to a different set of care givers in the cold zone.

**Handoff report** **→** Complete as possible & PCR should reflect the findings**/**care provided ā handoff.

**Transporting clinicians in the cold zone of a MCI** should consider bringing pts to different hospitals for load distribution &**/**or safety,Provided that pts are transported to an appropriate facility & pt agrees to the transport destination

Revised Statutes of Missouri, Chapter 190, Section 243, paragraphs 1 through 4 [RSMo 190.243]

**Psychological Stress** & **Burnout**

Excessive stress &**/**or inadequate coping strategies are associated c̅ poor situational reasoning & judgment, tunnel vision, impaired driving skills, impulsiveness, injuries, & poor communication c̅ pts**/**others on-scene

Lack of sleep**/**exercise, addiction, & relationship**/**financial stress can overwhelm one’s ability to cope effectively.

Managing those can improve work performance**/**happiness

# ALS Ground Rules

**INTERVENTION** **→** What we do ā calling Med-Control

**CONSULTATION** **→** The paramedic must:

**a.** **Contact Med-Control**

**b.** **Report pt info**

**c.** **Inform Med-Control**

**d.** **Ask permission** to perform these actions

**CONTINUITY** **→**1 failed attempt to contact Med-Control

Don’t interrupt pt care **→** Keep trying to contact Med-Control

**Document All attempts to contact Med-Control**

**Ground Rules**

**1.** The **ABC** protocols apply to all pts who consent to Tx.

**ABC’s ā moving the pt to the ambulance**

**2.** Move pt into ambulance early **→** Transport quickly

**3.** Don’t Rx if **→** Hypersensitivity Hx, Allergic, or Rx Hx prohibits its use

**4.** Rx c̅ Rx Administration Cross Check (**MACC**)

**5.** Wear appropriate BSI prn

**6.** **Document S/S ā/p̄ Tx → Reassess p̄ Tx**

**7.** **VS/15min → Unstable VS/5min → or prn**

**8.** **EKG → Required c̅ Open IV Rx Drips/Acutely ill/Injured**

**9.** **Actions are only legal while on duty at Abbott EMS**

**10.** **MD may restrict use of any orders**

# General Important Information

## Scope Violations & Possible Consequences

**Out-Of-Scope** (actions) **=** Performing Tx’s s̄ credential

or Tx c̅ Non**-**Prescriptive**/**Approved Rx

**→ Suspension/Revocation Possible**

**Practitioner** & **on-duty Ops-Sup may both File Incident Report to Clinical Mgr & MD → Not reporting if told may be considered Falsification**

**→ Regional Director Review may result in Suspension/Termination**

## Suspension/Revocation

**Decredential** (19 CSR 30-40.303) → by MD

**Causes** → Falsification/Lapse of PCR/Licenses/Certs,

Withheld**/**Impaired Care, Harming Pt,

Failing Remediation/Required-Edu/Review,

**Criminal/Reg Issues,**

**or Threats to Pts/Company/Public Health**

**Report Criminal Arrests** **→** To Ops Mgr & MD by *or on* 1st

Business day p̄**-**Arrest or Risk Suspension

**Suspension/Revocation** **→** By Regional Dir, Ops Mgr, & MD

Based on **→** Requirements**/**Circumstances**/**System Impact

**DHSS** Notification **=** Your Responsibility

Failure **=** Possible Suspension of Credentials

DHSS Review**/**Suspension**/**Revocation

**→** Must be Reported to Ops & MD (Decides Credential Status)

**→** Regional Director Notified

## On-Scene Authority

Focus on pt’s Best Interest, No Delays

**Scene/Transport Authority**

Municipal **=** Senior Fire Officer

Outside Municipal **=** Senior Credential Decides

**Credential Seniority** **=** EMT**-**B **→** EMT**-**P **→** on**-**scene

Physician (Non**-**EMS) **→** **OLMC** **→** **MD** *or Designee*

**Non-Pt Issues** **→** Incident Cmd.

Major Conflict **→** Quality & Medical Oversight Team Review

## Response Mode

* **MPDS** may or may not be used

## Transfer to Lesser Credential

Senior Credentialed Decides if immediate transport or if lesser credential can maintain care within scope

MCI Transport **→** On-Scene Command

**Leave Pts On-Scene** only if it Maximizes Outcome

(e.g. Critical Pt Must Go Now)

Transfer care only if not beyond the Lower Credential’s Scope (e.g. Intubated Pt cannot be left c̅ **EMT-B**)

All pts accounted for, triaged, & resources requested ā transporting a Critical Pt

No pt needing Adv. Stabilization (Needle-D, Intubation, Defib, etc.) Left unless properly credentialed EMR present

## EMR Accompanying Critically Ill

**EMR, Ops supervisor,** or other available resources may ride c̅ Critical Pts

Rendezvous c̅ Additional Resources may help.

## Consulting OLMC

**Contact Receiving/Specialized ED for physician Input/Approval per PSO (Pt’s personal physician, OLMC,** or **200 = MD on scene if needed)**

**Once OLMC engaged, follow within your scope**

**Document Orders; typically transport to that ED unless otherwise arranged**

## On-Scene Healthcare Professionals

**Crew Acts under MD/OLMC &** responsible for overall pt Mgmt

Persons claiming to be physicians must show a valid MO Physician & Surgeon License or be Recognized by Crew.

2 On**-**Scene Physician Types:

**Pt’s Personal Physician** (Established Relationship)

**Intervener Physician** (No Established Relationship)

**If Pt’s Personal Physician is On-Scene** & **Assumes Care:**

Notify OLMC (Scene & ED Arrival) & Defer to physician’s orders

Physician Documents in your **PCR**

**Conflict c̅ COGs →** **Physician Contacts OLMC → Disagrees**

**→** Physician must Ride**/**Take Pt-care to ED

**or** defer to OLMC. LE prn

**If Intervener Physician is On-Scene:**

* + Must **→** Valid MO license & Willing to Assume Pt Care
  + **OLMC** decides whether to:
    - Manage Exclusively
    - Collaborate c̅ Intervener
    - Allow Intervener Full Pt Responsibility

**Disagreement between Intervener & OLMC**

**→** Follow OLMC & Intervener talks c̅ OLMC.

**Intervener Must** **→** Document Tx’s**/**Orders in your **PCR**

& have OLMC Approval to Leave the Pt

**No Non-Physician Orders unless OLMC Explicitly Approves**

**Acceptable Practitioners Only →** (MO) No specific physician rules

the most qualified manages the pt

## Dispatching MD [200]

**Dispatching the MD [200] for Scene Response**

**Certain Situations/Conditions warrant an MD scene response**

**Multi-alarm fires** requiring extensive Emergency Incident Rehab

operations

**Rescue incidents that require specialty team intervention**

High Angle**/**Trench**/**Swift Water**/**Confined Space**/**Structural

Collapse & Heavy Rescue

**Rescue incidents where there is prolonged entrapment** of a

victim &**/**or the victim may require amputation or specialized

medical care during rescue operations

**HazMat situations c̅ exigent** **circumstances** that may benefit

from a physician on scene working c̅ Unified Command

**Prolonged police actions** where LE has requested EMS staging or

when tactical Rx considerations are a major component of

incident mitigation

**Disaster scenes requiring Adv Triage & Tx** **→** Discretion of IC

To request 200 **→** Contact Abbott to activate MD scene response.

## AIR AMBULANCE UTILIZATION

**Air ambulance activation assumes a pt is critical in nature. Use of an air ambulance may be appropriate in the following conditions:**

a) Ground Transportation **>**20min,

b) Delayed scene time & Rapid transport is necessary,

c) Ground Transportation is a No-Go

Notify Abbott 1st p̄ deciding to activate air ambulance

Helicopter staff → Indicates when to approach the helicopter.

**Never approach a helicopter from the rear of the aircraft**

Receiving ED should be notified ASAP c̅ pt report

All uses reviewed within 24hrs by MD, Ops Manager, & Clinical Manager

Review will include, but will not be limited to, pt condition, documentation of care, & appropriateness of resource utilization

## Applicability of the COG

* **“Pt”** **=** Any Person c̅ an Illness**/**Injury c**/**c or any circumstance suggesting potential Illness**/**Injury
* If Any Doubt, Tx pt
* Adult **≥**18yo (Unless legally Incompetent**/**Emancipated)

Minor **<**18yo

Pediatric **<**15yo (for transport guidelines)

* C̅ Pt **→** Evaluate**/**PCR**/**Tx Prn **→** Unless Not a Pt
* Pt definition Involves both the Individual’s Input & the Clinician’s Assessment (Including why 911 was called)
* **Missouri** does **not** define “Emancipated,” but common case law references exist

## Restraints of Agitated/Combative Pts

**Assessment/Tx** **→** Identify Hypoxia, **↓**BGL, Alcohol**/**Drug,

Stroke, Seizure, TBI, & Agitation c̅ delirium. Consider early

High**-**Flow O₂ to Tx hypoxic pts too agitated to obtain VS.

**Severe Agitation c̅ Delirium** **→** Associated c̅ **↑**Tº, **↑**K**⁺**,

Rhabdomyolysis, & cardiac arrest **→** Rapid Rx to **↑**pt safety

**Indications** **→** **Lacks Capacity** **+** **Needs Care** or **Danger to**

**Self/Others** **→** Safe**/**Humane **LE**-Assisted Restraint.

**Confirm if Potentially harmful MOI/NOI?**

Does Pt Comprehend Consequences & Alternatives?

↓BP, **↓Tº**, Intoxication, CVA, Psych Decomp?

**→** Physically Restrain c̅ LE help

**→** If Unsafe for EMS **→** Only LE should restrain

**Techniques** **→** Verbal**-**De**-**Escalation**/**Physical**/**Rx **→** when used,

by whom, & if direct medical oversight is needed.

**Do Not** **→** Sedate to Help LE take pt to jail.

*Use least restrictive restraint needed. Protect pt Dignity.*

**Don’t** **→** Place pt Under Backboards**/**Mattresses**/**Prone, leave pt

alone c̅ any type of Restraint, hands & feet tied together behind

back, c̅ ways Compromising the Airway **or** Constrict Neck**/**Cx,

**or** use weapons as adjuncts to restrain a pt.

***De-Escalate over Physical/Chemical Restraint*** *when able*

**No Paralytics** x̄ to Tx an Medical**/**Traumatic condition.

**Physical Restraints must allow for rapid removal if ABC’s**

**becomes compromised.**

Rigid restraints (***handcuffs***) should *not* be used by EMS.

If LE handcuffs pt, aim for the least Restrictive/Safest Method

**Physical restraints easily removed s̄ a key are preferred.**

**Restrained c̅ Key devices → Key Remains c̅ pt**

**Rapid Onset Rx Preferred** to **↓**Risk ASAP c̅ Agitated Delirium

& Serious Self-Injurious Behavior

**Preoxygenation** **→** Beneficial if pt is sedated. *Tx may* ***↓****Agitation*

**Sedation** **→** Likely Ketamine or Midazolam or Droperidolor

**→** These may be Combined prn

**May Cause Respiratory Depression → Monitor q̄ 5-10min**

***Must Transport to ED*** for Assessment**/**Tx

**Restraint Reviewed for** **→** Appropriate? Type, Frequency

Monitored, Protocol**/**Documentation Compliance, & Rx use.

**Reassess** **→** Physical**/**Chemical Restraints, Assessments,

Respiratory**/**Hemodynamic**/**Neurovascular Status of all

restrained Extremities (Done ASAP & at recurring intervals)

**PCR** **→** Pt Behavior**/**Assessment, Reason, Types, Methods,

Attempts, Monitoring Frequency, Transport Care, **RASS ā** & **p̄**

**Direct Medical Oversight** of Tx’s performed may beneeded

c̅ Restraints or c̅ Combative pts refusing Tx.

**MD** decides when EMS must contact physician **→** should be

educated on EMS protocols & options

**EMS authorized to function in a LE capacity** (or vice versa)

**must stick to their current Role c̅ pt encounters**.

**LE prn c̅ Active HI** **→** Scene not safe **=** Stage for LE.

*Unable to Retreat* **=** *Defend against pt as permitted by law.*

**LE Refuses to Help** **→** Note LE’s Name, Badge **#**, Agency, Reason. **Document** pt lacks capacity & RSMo 632.305 Requested.

**Have LE sign Certificate of Release as Substituted Consent**

**If LE Uses Techniques/Restraints not in our protocols** **→**

LE stays c̅ EMS while EMS Assesses**/**Manages the pt.

**or** Switch Restraint to one in our protocols.

**Under Arrest → LE must be c̅ EMS transport**

## Richmond Agitation Sedation Scale (RASS)

**Richmond Agitation Sedation Scale**

## Rule of 9’s & Rule of Palms for estimating BSA

## Smith-Modified Sgarbossa Criteria

## Crime Scene

* **Preserve evidence** s̄ compromising pt care. Any Pulseless**/**Apneic scene may be a crime scene
* 1st arriving credentialed clinician **→** Quickly see if CPR is indicated. If **LE** blocks entry, notify all units
* **All Refusals** to allow access to pts **→** Retro Review c̅ LE
* If no CPR: leave area the same way, don’t disturb items
* Any EMR s̄ proper credentials to pronounce an obvious Dead on Scene (DOS), Should Immediately Leave the area the same way entry was made s̄ touching anything
* When confirmation of death is required, only 1 properly credentialed EMR should make entry to the area
* **Weapons**: Handle Only prn for safety & no LE present; wear gloves, note Original**/**New Location, inform LE
* **Don’t use** scene items (phones, towels, etc.)

Deter assault victims from “cleaning up”

* If unknown ID, label “John/Jane Doe” c̅ **≈** age.

Focus on pt care, not demos. Only get pt info from LE

* **Suicide ligature**: cut away from knots, keep intact if able
* **Ingested substances**: leave in place unless needed by ED;

Minimize Handling c̅ gloves

* **Leave used disposables** (tubes, IV lines, sharps in container) on-scene. Keep unsuccessful IV lines, ETT’s & all other disposable equipment used, successfully or unsuccessfully, are to remain in place &**/**or on-scene
* Mark **failed** IV**/**Needle-D attempts on body c̅ pen & circle
* P̄ pronounced, Body **=** **ME** property. Don’t alter s̄ ME permission
* **Protect dignity** (block public view)
* If transporting, Clothing**/**Jewelry removed stays on-scene; Doc location changes & tell LE

If pt on a sheet, Inform ED it may be evidence

* Acceptable to share pt care info c̅ LE if pronounced dead
* **No resuscitation initiated**:
  + If you can’t pronounce **DOS**, leave as you came; only 1 properly credentialed person confirms death
* **Unsuccessful resuscitation**:
  + Once pronouncement obtained, vacate area
  + **ME** must differentiate resuscitation punctures vs. prior injuries—mark unsuccessful attempts c̅ pen
* **Sharps** used in resuscitation: store in an appropriate container & leave on-scene
* Obtain pronouncement times per CPR guidelines

## PCR Requirements

* Must be **Truthful, Accurate, Objective, Complete,** & **Timely**; only approved Abbreviations**/**Grammar
* **Reflect**:
  + Full **Hx/**Event sequence
  + **Initial findings/VS/**Details of Abnormalities
  + Ongoing Monitoring**/**Changes
  + All Interventions**/**Changes**/**Results (EKG, ETCO₂, SPO₂), & rationale for omissions
  + Explanation for any **Intuitively Indicated** **Action** (per **COG** or **PSO**) that was NOT done
  + Complex**/**Unusual circumstances
* **Minimal Data**: date/time, location, crewith trip #, pt name (or “John/Jane Doe”), gender, **CC**, **VS**, assessment (trauma category if any), witness accounts, **Tx** (incl. EKG, **ETCO₂**), destination, refusal if applicable
* Must be **available** in an acceptable timeframe, remain **confidential**, & only shared c̅ lawful entities
* **CES Manager** & **MD** define minimum PCR data.
* All documents Scanned**/**Stored electronically for **QA/QI**
* **HIPAA** compliance is mandatory

## Clinical Errors & Reporting

* Goal **=** improvement, **not blame**
* **3 steps** if error occurs:
  1. **Care** for pt & manage consequences ASAP
  2. **Report** to receiving ED & on-duty Supervisor (Anonymously prn)
  3. **Learn:** Non-punitive approach to fix System
* **OMD** & Clinical Manager review all incidents**/**Data; lessons shared prn

**Clinical Review Process**

* Investigates potential incidents**/**near misses.
* **Event** **=** any assertion of incident**/**near miss (valid or not)
* **Incident** **=** event c̅ actual harm or inappropriate care (Sentinel**/**Non-Sentinel)
* **Near Miss** **=** Error almost Hurt pt (Chance**/**Intervention)
* **Sentinel** **=** Unanticipated incident causing Death**/**Serious Harm not from natural disease (or Device Failure, Theft**/**Diversion, Major Wrongdoing, etc)
* **Non-Sentinel** **=** lesser harm
* Must foster self-reporting to improve
* **Report** Sentinel Immediately, Non-Sentinel ASAP, Near Misses ASAP
* All are confidential; no destroying notes**/**logs or speaking to outside investigators s̄ approval from **S**&**R** or counsel

**Clinical Review Process**

* **Abbott’s Quality** & **Medical Oversight Team** uses this process to ensure timely system improvement, feedback, education, & track performance (as current clinical issues arise)
* Focus: ID opportunities for system clinical performance improvement
* All credentialed clinicians **Must** Participate**/**Support

**Purpose**

Clinical Event Review process is focused on opportunities for clinical performance improvement

**Has the following desired outcomes**:

• Emphasize avoidance**/**prevention of potentially adverse events

• Identify System trends at the earliest possible point in time

• Compile experience data in a single location

• Share experiences within the System to prevent repeat events

**Clinical event review process**:

1. Self-reporting yields potential improvement opportunities

2. Clinical Manager will develop**/**Implement a process for

Identifying**/**Reporting**/**Reviewing clinical events

4. OMD has knowledge of significant events, collects event

data & resolves conflicts in clinical findings prn

5. Pt Care Scrutiny Reports are reported to Abbott’s Medical

Advisory Committee, physicians from both MO & IL

**Confidentiality Discussions**

1. Clinical performance Concerns**/**Complaints & limited to

those directly involved in review**/**investigation process

2. Discussions among crew members regarding event details

should be avoided & strongly discouraged by Abbott

3. Review Outcomes should be limited to those directly

involved in the process until the review is completed &

approved by the MD & CES Manager

**Additional Definitions**

* **Event** – assertion made that a clinical incident or near miss may have occurred

Designation as an event **≠** valid or invalid

**Near Miss** – Error did not result in pt harm due to chance or immediate intervention.

Harm to the pt nearly occurred

A near miss is considered when the event**/**situation is likely to result in harm if this event occurs in the future s̄ any System action taken to prevent this from occurring. Some refer to this as a “Close Call” or “Near Hit”

A near miss DOES NOT meet the definition of a Sentinel Incident or Non-Sentinel Incident

Near misses are a subset of Events

* **Event Review**: systematic investigation of actions**/**omissions (c̅ a specific event**/**situation) vs. accepted standards, to find improvement ops. Doesn’t require actual harm or negative pt outcome. Complexity varies by situation
* **Incident** – an event in which there is evidence that pt harm or inappropriate clinical performance were involved

Incidents are further classified as either Sentinel Incidents or Non-Sentinel Incidents

Incidents are a subset of Events

**Sentinel Incident** (expanded by **MD**): includes pt death p̄-intervention (airway attempt, Rx admin, restraint, Needle-D), device**/**equipment failure (Medical device, Cardiac Monitoring, Adv*-or-basic* Airway**/**Vent device) during pt care (Even if no harm occurred), suspicion of theft**/**diversion of controlled Rx, pt appears harmed due to a clinician’s action**/**omission, or any action consistent c̅ potential decredentialing

**1 of 5 potential decredentialing issues:**

a. Falsification of PCR or Credentials

b. Intentional harm to a pt

c. Intentionally withholding pt care

d. Pt care on Drugs**/**Alcohol

e. Failure to remediate

* **Non-Sentinel Incident**: no serious injury but possible harm (outside **COG’s scope**, performance concerns**/**complaints (No Sentinel criteria), lost controlled Rx’s s̄ theft**/**diversion suspicion).

**Event Review Process**: Used by the Clinical Manager to determine if improvements can be found c̅ reported concern

**Process Steps**

1. **When:** Always review sentinel, non-sentinel, near miss. Clinical Mgr can review other events as needed.
2. **Notification:**
   * **Sentinel**: Initiate Immediate p̄ pt care **→** on-duty Ops Sup **→** Ops Mgr **→** Clinical Mgr**/**MD **→** Regional Dir & S&R Mgr. Also notify OMD (~1hr)

**Include**: Name**/**Abbott**/**Contact-Info**/**Summary**/**Why Sentinel & the OMD primary contact for review

* + **Non-sentinel**: notify on-duty Sup ASAP, then MD within ~48hrs. Provide summary & available info.

**Include**: Name**/**Abbott**/**Summary**/**Specifics

* + **Near miss**: to Clinical Mgr ASAP. They confirm it’s not sentinel**/**non-sentinel & document it

1. **Review Progress:**
   * Primary reviewer updates Ops Mgr**/**MD weekly on sentinel events, immediate update if new sentinel evidence
   * Monthly near-miss report
2. **Methods:**
   * Clinical Mgr focuses on root causes
   * Review should consider all aspects of the event
   * May review Comms**/**Dispatch**/**Logis logs, PCR, written statements, etc. (for sentinel**/**non-sentinel)
3. **Reports:**
   * Clinical Mgr (c̅ completed review) **→** Ops, S&R, MD c̅ summary, root causes, recommended actions, timeline
   * Review documents may include: Voice recordings, Electronic**/**Paper documents, PCR, Maps, Photos, Visuals (other), event summary c̅ root causes and contributing factors, Actions (or recommended actions) for improvement c̅ estimated timelines,
   * OMD checks for Completeness**/**Comprehensive (root causes, improvement actions, timeline). May approve or send back to Clinical (CES) Manager

**Investigative Obligation**

* **Employees must NOT** speak c̅ non-Abbott**/**GMR investigators (detectives, insurers, lawyers, etc) unless specifically directed. Usually involves the **S&R** Mgr or counsel
* **No destroying** notes**/**logs or other written records from the event

## Mandatory Reporting

* We are **mandated reporters** for suspected abuse**/**endangerment (adults**/**children)
* Telling hospital alone **≠** fulfilling legal duty

Must notify MO **DHSS** (adult**/**elder, preferred online) or **DSS** (child)

**Adult/Elder**: [**www.health.mo.gov/abuse**](http://www.health.mo.gov/abuse) **# 800-392-0210**

***Questions***

*DSDSOfficeOfConstituentServices@health.mo.gov*

**Child Emergency** (24**/**7): **DSS hotline** **#** **800-392-0210**

*The phone number to the Missouri Child Abuse and Neglect Hotline is* **800-392-3738**

**Non-Emergency**: <https://apps.dss.mo.gov/OnlineCanReporting>

* + [apps.dss.mo.gov/OnlineCanReporting/default.aspx](https://apps.dss.mo.gov/OnlineCanReporting/default.aspx)

**DSS response times**

**Emergency**: High risk **→** visited within 3hrs

**Urgent**: visited within 24hrs

**Routine**: possibly within 72hrs

* **If child is in imminent danger**, request **LE/**Physician to take custody & transport to peds ED. Only **LE**, Court Deputy/Juvenile officer, or physician can do so
* Civilians can remain anonymous, but Abbott EMS employees must provide name**/**phone for investigator follow-up
* Thorough **PCR** doc is crucial; **DHSS/DSS** often subpoena PCR. EMS sees hazards ā they can be concealed or changed

**Professional Practice**

* Move c̅ purpose, arrive c̅ needed equipment (especially if pre-arrival info suggests the possible need)
* Always focus on pt’s best interest

## Medication Administration Cross Check

**Executing the Procedure**

Scenario**:**

*EMR 1 would like to give 75mcg of Fentanyl for pain*

EMR 1 Initiates Procedure by stating 1 of the following:

**Cross‐check or Safety‐check or Med-check**

EMR 2 responds “**ready**”

EMR 1 states “**I am going to give**” & Provides

**→** Dose, Drug Name, Route, Rate, & Reason

**Example:** “I’m going to give 75mcg of Fentanyl IV slow push for pain”

If EMR 2 doesn’t agree **→** EMR 1 starts over p̄ conflict resolves

**If EMR 2 agrees** **→** “**Contraindications?**”

**EMR 1 → Checks Expiration date**, Verifies appropriate VS,

& Checks for any drug allergies

**EMR 1** **→** “no contraindications” **or** state contraindications

**EMR 2 Agrees** **→** “**volume?**”

**EMR 1 States** **→** Drug Concentration, Volume to give, & should

show the vial to EMR 2 (if appropriate)

**Example:**

**EMR 1 States** **→** “50mcg**/**mL, I’m going to give 1.5mL”

**EMR 2 agrees** c̅ visual verification **→** “**I agree**” & says “**give it”**

**Contraindications Include**

**Verify Appropriate VS**

**Known pt allergies**

**Expiration date**

**If Discrepancy/Disagreement/Confusion** **→** Resolved ā MACC

Only EMR 2 can **allow** giving the Rx

**Complete MACC ā giving any Rx**

**Interruption/Change c̅ pt Condition** **→** EMR 1 Restarts MACC

**Visualize vials diluent is in**

CRM **→** **Avoid Ambiguity & use closed loop/Effective**

**communication** between partners.

The MACC was presented to EMR’s in conjunction c̅ an introduction to Crew Resource Management (CRM)

## BLS MACC

**BLS EMR’s**

Positive Visual Verification of Info on drug label

Drug name, Concentration, & Expiration Date

Procedure still requires an Out**‐**Loud Verbal/Visual Verification

**Strategic Error Traps**

EMR 1 Initiates an attentional check c̅ EMR 2

**Says →** Med**-**Check**/**Safety**-**Check**/**Cross**-**Check

EMR 2 says **→** “Ready”

EMR 1 Affirms that they have full attention of EMR 2

EMR 1 States **→** Dose, Drug Name, Route, Rate, & Reason

**Contraindications Verification** **→** Expired Rx, Pt drug allergies, PMH, Prescription Rx Interactions

**Not required to Verbalize Contraindications unless Present**

Some EMR’s choose to verify Appropriate VS, Pt drug Allergy

Status, & Expiration date out loud anyway.

The last & final steps in the process were **designed to catch**

**Errors of action** **→** Behavior Slips**/**Lapses that may not have been

**Corrected c̅** **→** Both EMRs Verify Volume EMR**-**1 will give

Vial **≠** Dose

Avoid terms like **→** Amp or Vial

Visual verification **→** Prevents wrong drug errors

**Abbott → Doesn’t require** Visual Verification if EMR 2 is driving

**In summary, this procedure was designed to catch**

**Wrong Drug** (Skill Based Error)

**Wrong Dose** (Skill**/**Rule**/**Knowledge Based Error)

**Wrong Concentration** (Skill**/**Rule Based Error)

**Wrong Volume** to give (Knowledge Based Error)

**Wrong Duration** (Rule Based Error)

**Wrong Situation** **or reason**  (Rule Based Error)

**Absolute/Relative Contraindications** Allergies**/**Interactions**/**Expired

(Rule Based Error)

## CDC Field Triage Guidelines for Trauma

## Rehabilitation – Emergency Incidents; Municipal partners

**PURPOSE:**

(IMS) Provide guidance on Implementation**/**Use of Rehabilitation at the scene of a fire, other emergency, or training exercise.

Personnel who might be suffering the effects of metabolic heat buildup, dehydration, physical exertion, &**/**or extreme weather receive Evaluation**/**Rehabilitation during emergency operations

**SCOPE:**

All personnel attending or operating at the scene of a fire**/**emergency or training exercise

**GUIDELINES:**

**Phase I rehab** **→** Commence upon the crew’s 1st bottle change,

or the Company Officer’s discretion. Rehabilitation should

consist of each member consuming 12-16ounces of water

**Phase II rehab** **→** Consists of medical monitoring by assigned on

scene personnel

**Phase III** **→** IC shall establish Rehabilitation according to the circumstances of the incident & assigns a Rehabilitation Manager.

Rehabilitation is established c̅ any incident c̅ **≥**2 alarms, any incident**/**training that requires PPE for **≥**1hr or as directed by IC.

Phase III Rehabilitation shall include the following as environmental conditions dictate:

a) Rest **→** Minimum 10min

b) Hydration to replace body fluids **→** water**/**sports drinks

c) Cooling **→** passive &**/**or active

d) Warming

e) Restrooms**/**Personal hygiene prn

f) Medical monitoring

g) Emergency medical care prn

h) Relief from extreme climatic conditions

i) Calorie &**/**or Electrolyte Replacement

j) Accountability

k) Release

**RESPONSIBILITIES:**

**INCIDENT COMMANDER**

1. Include rehabilitation in incident**/**event size-up

2. Establish a rehabilitation group to **↓** adverse physical

effects on firefighters while operating during

fire**/**emergencies, training exercises & extreme weather

3. Designate**/**Assign a supervisor to manage rehabilitation

4. Ensure sufficient resources are assigned to rehabilitation

5. Ensure EMS available for emergency medical care of FD

**REHABILITATION MANAGER (If Assigned)**

1. Don the rehabilitation manager vest

2. Select location for rehabilitation c̅ site characteristics:

a) Large enough to fit the # of personnel expected c̅ a

separate area for members to remove PPE

b) Accessible for an EMS**/**Ambulance

c) Removed from hazardous atmospheres including exhaust

fumes**/**smoke**/**toxins

d) Shade in summer & protection from inclement weather

e) Portable water supply access for hydration & cooling

f) Away from Spectators**/**Media

3. Ensure personnel in rehabilitation “dress down” by removing

their bunker coats, helmets**/**hoods & opening their bunker

pants to promote cooling ā entering rehab area.

Once in rehabilitation area bunker pants should be lowered to

boot level to improve cooling & **↓** potential for additional

physical problems related to heat retention.

4. Ensure PASS devices deactivated to **↓** noxious noise exposure.

5. Time personnel in rehabilitation to ensure they receive a

Minimum of 10min of rest.

6. Ensure personnel rehydrate themselves.

7. Ensure personnel can be actively cooled prn

8. Maintain accountability**/**Remain in rehabilitation at all times

9. Document members entering**/**leaving rehabilitation.

10. Inform IC**/**Accountability**-**Officer**/**EMS if a member requires

Transportation**/**Tx to medical facility.

11. Serve as liaison c̅ EMS personnel

**COMPANY OFFICERS**

1. Be familiar c̅ the S**/**S of heat**/**cold stress.

2. Monitor the company members for S/S of heat**/**cold stress.

3. Notify the IC when stressed members require relief, rotation or

reassignment according to conditions.

4. Ensure that the company is properly checked in c̅ the

rehabilitation manger & accountability officer & that the

company remains intact.

**CREW MEMBERS**

1. Be familiar c̅ the S/S of Heat**/**Cold stress.

2. Maintain awareness of themselves**/**company members for S**/**S

of heat**/**cold stress.

3. Promptly inform their company officer when members require

rehabilitation &**/**or relief from assigned duties.

**Phase II Rehabilitation Assigned Personnel**

1. Report to IC & obtain Rehabilitation requirements.

2. Coordinate c̅ the rehabilitation manager (if assigned)

3. Identify EMS personnel requirements.

4. Check**/**Document VS, monitor for S**/**S of Heat**/**Cold related

stress & medical issues.

5. Provide emergency medical care & transportation to medical

facilities as required.

6. Inform IC & Rehabilitation Manager when personnel require

transportation to & Tx at a medical facility.

**PROCEDURES**

1. Everyone is responsible for continuously staying hydrated

P̄ the 2nd SCBA bottle has been expended & or 1hr of continuous strenuous activity in PPE, a sports drink containing between 50-80 calories, 100-170mg Na**⁺** and 4-6% concentration of carbohydrates (Gatorade G2, Gatorade, PowerAde, Accelorade) shall be provided in either a dry or premixed form.

Fluids shall be available on each response vehicle c̅ a minimum of 3 bottles of water & 1 electrolyte replacement solution (powder or premix) per riding position.

Upon IC declaring a Phase III rehab sector all specified fluids should be consolidated in the rehab sector to facilitate rehab.

2. Members sent to rehabilitation prn

3. All members sent to Phase II**/**III rehabilitation following the use of two 45min SCBA cylinders, or p̄ 1hr of strenuous work. Shorter times might be considered during extreme weather conditions.

4. Ensure PASS devices are deactivated to **↓**noxious noise

5. In hot**/**humid conditions, Min of 10min of active cooling p̄ the use of the 2nd & each subsequent SCBA cylinders. Ensure personnel in rehabilitation “dress down” by removing their bunker coats**/**helmets**/**hoods & opening their bunker pants to promote cooling ā entering rehab area. Once in rehabilitation area bunker pants should be lowered to boot level to improve cooling & **↓** potential for additional physical problems related to heat retention.

Active cooling (wet towels, forearm immersion, misting fans**/**streams) should be applied where temperatures**/**conditions &**/**or workload create the potential for heat stress.

6. Personnel in rehabilitation shall rest for at least 10min ā being reassigned**/**released.

7. Nutritional snacks**/**meals shall be provided during longer duration incidents as conditions warrant.

**Medical Monitoring Criteria**

Phase II**/**III Rehabilitation Assigned Personnel shall provide medical monitoring & emergency medical care as per medical protocol & in accordance c̅ (IAW) the following parameters:

• Crew members who initially enter the Rehab Sector should be diverted to the Medical Evaluation & Tx Area (META) if they have any of the following:

Immediate transport to ED initiated for items indicated by:

HR**>**120

BP **>**200 or DBP **>**110

BP **<**90 or DBP **<**40

Temp **>** 101ºF

Injuries of any type

Priority signs **=** Confusion, Emesis, Syncope, Resp-distress,

any positive element of the Stroke Scale

Priority symptoms **=** Cx pain, unusual dyspnea, nausea, H**/**A,

focal neurologic deficit

**Reassignment/Release**

Crew members may report for re-assignment p̄ a minimum 10min

cycle in the Rehab Sector UNLESS:

HR**>**100 (Transport to ED if **>**140)

BP **>**160 or DBP **>**90 (Transport to ED **>**200 DBP**>**130)

BP **<**100 or DBP **<**50 (Transport to ED **<**90 DBP**<**40)

Crew members not able to return for re-assignment, must remain

for another 10min cycle in Rehab Sector for re-evaluation. P̄ a

total of 4 cycles or 40min, if VS still do not allow a crew

member to return for re-assignment, then they should be

removed from further duty &**/**or transported for further

evaluation at ED.

Personnel transported to a medical facility for Tx shall be accompanied & attended to by a department representative.

**INCIDENT REHAB – INDIVIDUAL REHABILITATION REPORT**

# Skills

### Ventilator Set-Up Procedure: ParaPAC Plus

**ParaPAC Vent use:**

For reference **→** **Typical initial settings for an adult is**

FiO2 **→** 100%

PEEP **→** 5cm H2O

RR **→** 12

TV **→** 6-8ml**/**kg (Ideal body weight)

**To ventilate the pt**

1. Connect supply Hose to O₂

2. Ensure O₂ is on & has adequate pressure

3. Connect Vent circuit to ParaPAC Plus

4. Connect ETCO₂ detector to vent circuit

5. Connect filter to Vent Circuit unless facility filter in place

6. Set Frequency & Tidal Volume to match facility vent (if able)

7. Set Air Mix to 50% or 100%

8. Set Relief pressure Volume to match facility Vent (if able)

9. Turn the vent dial to VENTILATE

10. Place Vent Circuit on pt & monitor Comfort, SPO2,

ETCO2, VS, & EKG

11. P̄, turn PEEP until it matches facility, typically 5

**Remember to:**

Get a signed Vent form & scan to the computer.

Monitor, Print, & Import ETCO2 waveform (not just the #)

frequently throughout transport

Document VS q̄ 10 minutes (Sooner if Unstable)

ALWAYS have a BVM available at the pt’s side

Always have 2 O₂ tanks available during Vent transport to & from the ambulance If problems develop check for:

**Dislodgement** **→** ETT dislodged? Re-confirm capnography

**Obstruction** **→** Suctioning? Kinked? Other Obstructions?

**Patient** **Assessment** **→** Need for sedation, pain control, etc

**Pneumothorax →** Difficult to ventilate? Equal BS? Crepitus?

**Equipment failure** **→** Check O₂, Tube placement, batteries, etc

**Pt is Agitated or Decompensate** **→** Remove pt from Vent **→** Ventilate c̅ BVM **→** Determine lung compliance while simultaneously checking for causes (DOPE)

### I-gel Supraglottic Airway (SGA)

**PROCEDURE**

Grasp Lubed I-gel.

Position **→** I-gel cuff outlet is facing towards the chin of the pt.

Pt in sniffing position c̅ head extended & neck flexed unless contraindicated

Gently press chin down ā proceeding.

Place soft tip into mouth in a direction towards the hard palate.

Glide SGA downwards & backwards along the hard palate c̅ a continuous but gentle push until a definitive resistance is felt.

If early resistance during insertion **→** Jaw thrust is recommended

**PEARLS of USE**

Insertion can be achieved in **<** 5sec

Sometimes a ‘give-way’ is felt ā the end point resistance is met

This is due to passage of the bowl through the faucial pillars.

**Important** **→** Continue inserting until definitive resistance is felt

p̄ insertion & teeth are located on the integral bite block, do not repeatedly push down or apply excessive force during insertion

Secure c̅ provided hook ring & strap or tape (Adult Sizes 3, 4 & 5)

(Pediatric sizes 1.5 & 2)

Not necessary to insert fingers**/**thumbs into mouth during insertion

HME Airway Filter & ETCO₂ **→** utilized c̅ I-gel ventilation

### Thermometer: using the Braun ThermoScan

1. Lens filter

2. Probe

3. Lens filter detector

4. Lens filter ejector

5. Display

6. **«I/O» button (On/memory function–IRT 4520 Only)**

7. **«ExacTemp» light**

8. Start button

9. Battery door

10. Protective cover IRT 4520

11. Protective cap IRT 4020

Accurate **→** New**/**Clean lens filter (1) in place ā measurement

IRT 4020 Push Start button (8)

IRT 4520 Push «I/O» button (6)

Internal self-check

Last Tº taken will be displayed together c̅ «MEM»

Ready Signal Beep & Ready Symbol in Display

**Fit Probe into Ear Canal**

**Push & Release Start button** (8)

**If Securely in Ear Canal** **→** Long Beep Signals the end

The result is shown on display (5)

**«ExacTemp» light** (7) ***Flashes if securely positioned***

***Lights stay on c̅ accurate measurement***

**Bad Placement** **=** Sequence of short beeps

Light goes out & **Displays «POS»** **=** Position Error

**Next Measurement**

**→** **Eject Used Lens Filter** (push ejector (4))

Put on New**/**Clean lens filter

Clear Display by pushing Start button once IRT 4020

Clear Display by pushing «I**/**O» button once IRT 4520

Wait for Ready Signal

Fit Probe Snuggly into Ear Canal

Push & Release Start button

### Glucometer–McKesson True Metrix Pro

In 2009, there were 1,579 ambulance crash injuries (2), and most EMS vehicle crashes occur when driving c̅ lights and siren (L&S) (3). When compared c̅ other similar-sized vehicles, ambulance crashes are more often at intersections, more often at traffic signals, and more often c̅ multiple injuries, including 84% involving three or more people (4). From 1996 to 2012, there were 137 civilian fatalities and 228 civilian injuries resulting from fire service vehicle incidents and 64 civilian fatalities and 217 civilian injuries resulting from ambulance incidents. According to the U.S. Fire Administration (USFA), 179 firefighters died as the result of vehicle crashes from 2004 to 2013 (5). The National EMS Memorial Service reports that approximately 97 EMS practitioners were killed in ambulance collisions from 1993 to 2010 in the United States (6). Traffic-related fatality rates for law enforcement officers, firefighters, and EMS practitioners are estimated to be 2.5 to 4.8 times higher than the national average among all occupations (7).

In a recent survey of 675 EMS practitioners, 7.7% reported being involved in an EMS vehicle crash, c̅ 100% of those occurring in clear weather and while using L&S. 80% reported a broadside strike as the type of MVC (8). Additionally, one survey found estimates of approximately four “wake effect” collisions (defined as collisions caused by, but not involving the L&S operating emergency vehicle) for q̄ crash involving an emergency vehicle (9).

For EMS, the purpose of using L&S is to improve patient outcomes by decreasing the time to care at the scene or to arrival at a hospital for additional care, but only a small percentage of medical emergencies have better outcomes from L&S use. Over a dozen studies show that the average time saved c̅ L&S response or transport ranges from 42 seconds to 3.8 minutes. Alternatively, L&S response increases the chance of an EMS vehicle crash by 50% and almost triples the chance of crash during patient transport (11). Emergency vehicle crashes cause delays to care and injuries to patients, EMS practitioners, and the public. These crashes also increase emergency vehicle resource use through the need for additional vehicle responses, have long-lasting effects on the reputation of an emergency organization, and increases stress and anxiety among emergency services personnel.

Despite these alarming statistics, L&S continue to be used in 74% of EMS responses, and 21.6% of

EMS transports, c̅ a wide variation in L&S use among agencies and among census districts in the United States (10). Although L&S response is currently common to medical calls, few (6.9%) of these result in a potentially lifesaving intervention by emergency practitioners (12). Some agencies have used an evidence-based or quality improvement approach to reduce their use of L&S during responses to medical calls to 20-33%, s̄ any discernable harmful effect on patient outcome. Additionally, many EMS agencies transport very few patients to the hospital c̅ L&S.

Emergency medical dispatch (EMD) protocols have been proven to safely and effectively categorize requests for medical response by types of call and level of medical acuity and urgency. Emergency response agencies have successfully used these EMD categorizations to prioritize the calls that justify a L&S response. Physician medical oversight, formal quality improvement programs, and collaboration c̅ responding emergency services agencies to understand outcomes is essential to effective, safe, consistent, and high-quality EMD.

The sponsoring organizations of this statement believe that the following principles should guide L&S use during emergency vehicle response to medical calls and initiatives to safely decrease the use of L&S when appropriate:

• The primary mission of the EMS system is to provide out-of-hospital health care, saving lives and improving patient outcomes, when possible, while promoting safety and health in communities. In selected time-sensitive medical conditions, the difference in response time c̅ L&S may improve the patient’s outcome. • EMS vehicle operations using L&S pose a significant risk to both EMS practitioners and the public. Therefore, during response to emergencies or transport of patients by EMS, L&S should only be used for situations where the time saved by L&S operations is anticipated to be clinically important to a patient’s outcome. They should not be used when returning to station or posting on stand-by assignments. • Communication centers should use EMD programs developed, maintained, and approved by national standard-setting organizations c̅ structured call triage and call categorization to identify subsets of calls based upon response resources needed and medical urgency of the call. Active physician medical oversight is critical in developing response configurations and modes for these EMD protocols. These programs should be closely monitored by a formal quality assurance (QA) program for accurate use and response outcomes, c̅ such QA programs being in collaboration c̅ the EMS agency physician medical director. • Responding emergency agencies should use response based EMD categories and other local policies to further identify and operationalize the situations where L&S response or transport are clinically justified. Response agencies should use these dispatch categories to prioritize expected L&S response modes. The EMS agency physician medical director and QA programs must be engaged in developing these agency operational policies/guidelines.

• Emergency response agency leaderships, including physician medical oversight and QA personnel should monitor the rates of use, appropriateness, EMD protocol compliance, and medical outcomes related to L&S use during response and patient transport.

• Emergency response assignments based upon approved protocols should be developed at the local/department/agency level. A thorough community risk assessment, including risk reduction analysis, should be conducted, and used in conjunction c̅ local physician medical oversight to develop and establish safe response policies.

• All emergency vehicle operators should successfully complete a robust initial emergency vehicle driver training program, and all operators should have required regular continuing education on emergency vehicle driving and appropriate L&S use.

• Municipal government leaders should be aware of the increased risk of crashes associated c̅ L&S response to the public, emergency responders, and patients. Service agreements c̅ emergency medical response agencies can mitigate this risk by using tiered response time expectations based upon EMD categorization of calls. Quality care metrics, rather than time metrics, should drive these contract agreements. • Emergency vehicle crashes and near misses should trigger clinical and operational QA reviews. States and provinces should monitor and report on emergency medical vehicle crashes for better understanding of the use and risks of these warning devices.

• EMS and fire agency leaders should work to understand public perceptions and expectations regarding L&S use. These leaders should work toward improving public education about the risks of L&S use to create safer expectations of the public and government officials.

In most settings, L&S response or transport saves less than a few minutes during an emergency medical response, and there are few time-sensitive medical emergencies where an immediate intervention or treatment in those minutes is lifesaving. These time-sensitive emergencies can usually be identified through utilization of high-quality dispatcher call prioritization using approved EMD protocols. For many medical calls, a prompt response by EMS practitioners c̅out L&S provides high-quality patient care c̅out the risk of L&S-related crashes. EMS care is part of the much broader spectrum of acute health care, and efficiencies in the emergency department, operative, and hospital phases of care can compensate for any minutes lost c̅ non-L&S response or transport.

### Diltiazem Add-Vantage directions for use

**Supplies** **→** Usually includes vial of Diltiazem, Add-Vantage IV

fluid bag, alcohol wipes, syringe, & an IV set**/**kit

**Check** **→** Expiration date

**Inspect →** Clarity, particulate matter, discoloration, & integrity

**Remove Cap →** From vial, exposing central rubber stopper

**Activate** **IV Solution →** Hold IV solution container’s base

**→** Gently grasp pull ring **→** Pull up to break tie membrane

**→** Then pull back to remove cover

**Connect The Vial to the IV Bag** **→** Screw Vial into Vial Port

Until it will go no further

**Mix the Medication c̅ the IVF** **→** Hold IV container c̅ one hand

**→** Invert vial & push it down into the solution container

**→** Grasp inner vial plug through the IV bag & pull the

inner plug into the IV bag

**Check the mixture →** Look

**→** Ensure Diltiazem has fully mixed c̅ the IV fluid

**Attach the administration set →** Invert the IV bag

(Administration port pointing up)

**→** Pull white administration port cover off & spike bag

**Give Rx →** p̄ mixed **→** Bag provides 1mg**/**ml

***WARNING* → Give Diltiazem SLOWLY over 2min**

**Knowledge** is a body of info applied directly to the performance of a function.

Emergency Medical Knowledge **=** Paramedic Certificate

**Skills** **=** Proficient Physical**/**Verbal**/**Mental Manipulation of Data

or Things (turning data into info)

**Examples of proficient manipulation of things**

Simultaneous use of Laryngoscope Blade & Magill Forceps to

open an obstructed airway

Operating a Scoop Stretcher or Stair Chair

**Examples of proficient manipulation of data**

Recognizing 3 seemingly unrelated issues & recognizing them as

an opiate toxidrome. (unconscious, apnea, & pinpoint pupils)

Calculating mg**/**kg of a Rx & properly giving the Rx.

Skill **=** Certificate of Completion from the Written**/**Practical

portion of the NREMT &**/**or State License

**Ability** **=** Power to Perform an Observable Activity at the Present

Time.

Evidenced through Activities**/**Behaviors, in real time, similar to

those required on the job.

Plan & Organize a driving route to a call

Manage a stretcher tip**-**over Incident

Perform CCR or Manage a Trauma Incident

Adequate ability c̅ Abbott EMS**/**MD **→** Observation in NEOP c̅

3rd person rides, PAT, & in**-**person scenario assessments.

QA & CQI efforts have revealed the need to assist employees c̅

KSA into real-world application.

We ask all employees to actively engage & participate in the KSA Drills throughout the year.

## EZ-IO Insertion

**Choose Needle Size**

**Ensure Needle/Driver set are securely seated**

**Control pt movement** ā**/**During Needle insertion

**Hold Needle at 90º to Insertion Site**

Gently press needle to bone

**5mm of needle must be visible**

***Proximal black line on needle***

**Squeeze Trigger** & Apply Gentle**/**Steady**/**Downward pressure

**→** Release Trigger once in bone marrow

**Remove Driver/Stylet**

***Confirm Needle Stability***

**Aspirate Marrow to Confirm Placement**

Flush c̅ NS to facilitate flow

***Can’t Confirm Placement = Try a different site***

**P̄ Confirmed** **→** **Attach Stabilizer → Attach Primed Tubing**

**to Needle → Infuse Emergency Rx’s/Fluids**

**Pressure bag** prn to Infuse Saline**/**Rx’s

Needle Insertion **=** Almost Painless

Fluid**/**Rx **=** Very painful if pt is awake & can feel pain

**If pt requires site numbing:**

a. Remove tubing & Infuse Lidocaine over 60-90sec

**Most Adults Start at 2mL**

b. Flush Rapidly c̅ 5**-**10mL NS

c. Infuse Subsequent Lower Doses of Lidocaine over 30sec

**Most Adults → this will be 1mL**

d. Reattach Tubing & Infuse Rx’s**/**Fluids under pressure

e. Remind pt that pain is **↓** c̅ Lidocaine

but may not be eliminated

## PUSH-DOSE EPI

**Goal Concentration** **=** **10mcg/mL** (1:100,000)

Waste 1mL from NS Flush **→** Draw 1mL Epi 1:10,000 back in flush

**Epi Continuous Infusion** .

**Goal Concentration** **= 4mcg/mL**

Waste 10mL from 250mL NS bag

Place 10mL 1:10,000 Epi (1mg) into bag

**Using a “60-Drop” Micro Drip set**

**2mcg/min = 0.5gtts/sec**

**4mcg/min = 1gtts/sec**

6**mcg/min =** 1.5**gtts/sec**

**8mcg/min = 2gtts/sec**

10**mcg/min =** 2.5**gtts/sec**

**12mcg/min = 3gtts/sec**

14**mcg/min =** 3.5**gtts/sec**

**16mcg/min = 4gtts/sec**

## Mucosal Atomization Device (M.A.D.)

**Procedure**

Aspirate the proper volume of Rx required to Tx the pt

**An Extra 0.1ml should be drawn up to account for dead space**

Twist Off**/Remove Syringe from needle(less) device**

**Attach Atomizer tip** via Luer lock **→** Twists into place

Slip Luer is also effective as long as tip is firmly on the syringe tip

Hold head stable

**→** **Place tip against nostril aiming slightly up**

**& inward towards the top of the opposite ear**

Briskly **deliver half of the Rx into the nostril**

Give **Rest of Rx in the other Nostril**

Ideal volume per nostril is 0.2**-**0.3ml to a Max of 1mL per Nostril

**Factors affecting absorption**

-Vasoconstrictors (Afrin nasal spray, cocaine abuse)

-Obstructions: Epistaxis, Congestion, Mucous, FBO

**Contraindications**

-Epistaxis, Obstructions, Major Nasal Trauma**/**Septal Abnormality, Congestion**/**Discharge

-Destruction of nasal mucosa from surgery or past cocaine abuse

## Minutes of Oxygen by Cylinder Size

**All based on full 2200 PSI Cylinders**

Flow D Cylinder M Cylinder

**LPM Portable Ambulance**

**5 64min 624min**

**6 53min 520min**

**8 40min 390min**

**10 32min 312min**

**12 26min 260min**

**15 21min 208min**

**20 16min 156min**

**25 2min 124min**

## Understanding Ratios, %’s, & Solution Mixtures

**Calculations based on water weight**

Water is most dense at 4ºC (39.2°F) **→** 0.9998395 g**/**ml **≈** 1g**/**mL

1:1 **=** 1g in 1mL **=** 100g in 100mL

100% **=** 100g in 100mL

**X100 = 100g in 100mL**

**Real-life applications**

**D100** **=** 100g of Dextrose in 100mL

**D50** **=** 50g of Dextrose in 100mL

**D10** **=** 10g of Dextrose in 100mL of solution

An “**amp**” of D50 **=** 50mL

**There are 25g of Dextrose in an amp of D50**

1:1 **=** 1g**/**mL

1:10 **=** 1g**/**10mL

1:100 **=** 1g**/**100mL

1:1000 **=** 1g**/**1000mL **==** 1mg**/**mL

1:10,000 **=** 1g**/**10,000mL **=** 0.1mg**/**mL

1:100,000 **=** 1g**/**100,000mL **=** 0.01mg**/**mL **=** 10mcg**/**mL

**% Solutions**

100% **=** 100g**/**100mL **=** 1g/1mL

1% **=** 1g**/**100mL

2% **=** 2g**/**100mL

**1% Lidocaine = 1g of Lidocaine in 100mL =** **1:100 ratio**

or 1000mg in 100mL

or 10mg**/**mL

**VALSALVA, Modified Maneuver**

Vasopressor Mixing Procedure

# Adult Protocols

## Airway/Breathing

### AIRWAY

**Intervention**

**Assess→** Airway open or obstructed?

Breathing **=** Evidence the airway is open.

Stridor **=** Obstructed.

Apnea **→** Use PPV to determine if the airway is open

**Conscious + Complete Airway Obstruction** **→** **Use BLS Tx’s**

**OR**

**Unconscious + FBAO** **→ Direct Laryngoscopy/Mcgill Forceps**

### BREATHING

**Intervention**

Assess Breathing **→** Apnea, (In)adequacy

**Abnormal Rate + Shallow Depth/Rate + Abnormal Breath Sounds** **→ Provide PPV or CPAP if criteria is met**

**If AMV & VSS + No reported volume loss + Pt reports Dyspnea or Cx pn** **= 2-4LPM O₂ by NC If RA SPO₂ < 94%**

**General Weakness/Dizziness** (& **Acute Stroke is not suspected) = 2-4LPM O₂ by NC**

**AMV appears normal + Reported Volume Loss (↓Hematocrit, or objective sign of distress (↓BP, ↑HR, pallor, diaphoresis, abnormal BS/RR, etc.))**

**= 15L** O**₂ via NRM**

Adjust flow so the Reservoir Collapses Partially Upon Inspiration

**Emphysema/COPD Hx + SPO₂ < 90%**

**= 2L** O**₂ NC → titrate up** (NRM prn) **until 90-92% SP**O**₂**

**\*SPO₂ > 92% c̅ these pts can cause Hyperoxia\***

**Severely Labored Breathing +** O**₂** (regardless of SPO₂) **→ Give PPV + ET Intubation**

**Shortly p̄ ETT placement → Decompress the Stomach**

### BRONCHOSPASM

**Labored Breathing** OR **Wheezing/Diminished Breath Sounds**

(Bronchospasm may be the cause **or** part of the distress)

Not all bronchospastic processes will benefit from Albuterol

**Albuterol may Harm pts c̅ → Hyperthyroidism/Cardiovascular Disorders**

Albuterol will not help relieve other causes of dyspnea

**Intervention**

**Albuterol 2.5mg** in **3cc via Neb** (O₂ ≥ 6L/min)

**Discontinue if → ↑Respiratory Distress, Cx pn,** or **HR >150**

**Use ETC**O**₂**

**Decadron 10mg IVP/IM**

**2g MgS**O**₄ slow IV drip for Severe Asthmatics** or **Asthmatics c̅ Intubation Hx**

\***Giving Mg too fast can result in** **Mg toxicity & respiratory/CNS depression**

**If this occurs → Ca 1g IV\***

**Status Asthmaticus** or **Severe Bronchoconstriction + pt requires ET Intubation**

**= Ketamine 2mg/kg IV → Instead of Etomidate**

**Consultation**

**If n/c c̅ Albuterol → Epi (1:1000) 0.5mg IM for Severe Asthmatics**

**Continuity**

**Labored Breathing + Wheezing/Diminished Breath Sounds → Give a 2nd Albuterol Dose or Duo-Neb**

### COMA/OD

BGL **>**100

or it was below & the pt remains comatose p̄ giving Dextrose

**Intervention**

**High flow O₂**

**Check SPO₂**

**BVM prn**

**Narcan → 2mg IN**

**0.4mg IVP**

IM prn

**Consultation**

Discuss possible causes based on pt’s Hx & current circumstances

### CPAP or BiPAP

Too ill for NRB, Not ill enough for Intubation (non-invasive PPV)

**Intervention**

Ensure proper Mask Fit**/**Seal **→** Start pt on 5cm H2O (CPAP)

Can’t protect their own airway **=** Airway PSOs

IFTs **→** BiPAP or CPAP & confirm settings c̅ RT, R.N, etc

**CPAP** **→** Match Settings **→** Use CPAP Original Facility Settings

**BiPAP** **→** Please seek consultation ā converting to CPAP

**Set → Flow** (LPM) **CPAP PEEP Pressure**

**6 2.0 - 3.0**

**10 6.0-7.0**

**12 8.0 - 9.0**

**15 11.0 - 12.0**

If you need **>**15L **→** Insert pressure gauge in your circuit & ↑flow until desired pressure is obtained

**Consultation**

Ā changing a pt from BIPAP to CPAP, consult Med-Control

**If on BiPAP** **→** Start CPAP setting to the Expiratory Pressure

Example **→** BiPAP settings of 10 & 5 **→** Set your pressure to 5

**If pt does not seem to tolerate CPAP intervention, discuss:**

**1**) Sedation

**2**) Increased or Decreased pressure setting

### SAI

**SAI =** Pre-Intubation **+ Awake** or **Gag/Bite Reflex** or **not flaccid**

(SGA prn)

**Rx: Etomidate 0.3mg/kg IVP (max = 40mg)**

**\*Etomidate is contraindicated ≤ 10yo\***

If **Status Asthmaticus** or **Severe Bronchoconstriction** or **if can’t do Etomidate → Ketamine 2mg/kg IV**

***\*Don’t Intubate*** If ***fasciculations*** or ***trismus p̄ Rx → BVM\****

High-flow O₂ via NRM**/**BVM**/**Vent & mask prn

Suction**/**Intubation Equipment prn & Suction Oropharynx

Connect Vent (if able) & O₂ **→** Set Controls **→** Have mask ready

Attach NS bag to IV**/**IO **→** Flows briskly **+ No** Extravasation

Turn on Vent **→** Partner **→** good mask seal **→** pt sedated enough

When pt is Sedated **→** Hyperventilate **→** Intubate **→** Confirm

**2 failed Intubations =** Suction prn **→** Transport c̅ BVM

**Versed 2.5-5mg IV** prn following successful intubation

### Nasal Intubation

**Nasal Intubation** **=** **Awake** (or not completely apneic) **+ Can’t use ETT/SGA** **+** **Unable to quickly Obtain IV Access**

**Nasal Intubation** (use any method)

### ET Intubation

**ET Intubation** **→** **Required c̅**

**Newly unresponsive + unable to protect Airway**

(**x̄ c̅ Cardiac Arrest**)

**OR**

**Impaired Consciousness/Breathing & BLS doesn’t work**

**OR**

**Conscious + Needs BVM for few min** (or longer)

**Withhold Intubation** if Readily Reversible Causes:

**↓BGL**

**Suspected Opioid OD**

**Single Seizure → Consciousness Expected to Improve soon**

(Gum Elastic Bougie for ETT placement **→** Highly encouraged)

### VENTILATOR Pt; Intubated & Sedated

**ParaPAC Vent use:**

For reference **→** **Typical initial settings for an adult is**

FiO2 **→** 100%

PEEP **→** 5cm H2O

RR **→** 12

TV **→** 6-8ml**/**kg (Ideal body weight)

**Transporting Vent Pt** **→** Use the settings that the pt is on.

Ask RT to assist in matching the settings c̅ the ParaPAC Vent

**Intervention**

**Pt is Agitated or Decompensate** **→** Remove pt from Vent **→** Ventilate c̅ BVM **→** Determine lung compliance while simultaneously checking for causes (DOPE)

**Dislodgement** **→** ETT dislodged? Re-confirm capnography

**Obstruction** **→** Requires Suctioning? Other Obstructions?

**Pneumothorax →** Difficult to ventilate? Equal BS? Crepitus?

**Equipment failure** **→** Check O₂, Tube placement, batteries, etc.

**No obvious cause for the Agitation** or **Decompensation is found**

**→ Versed 5mg IV/IO → Reassess VS** & **D.O.P.E**

**Consultation**

**Pt remains Agitated or Unstable c̅ no obvious cause**

**→** Discuss **↑**Sedation or other potential solutions.

### TRACHEOSTOMY CARE

Trach Pts in Respiratory Distress

**Assume Trach is Problem** **→** Collect pt’s Trach Equipment

Go Bag **→** Unique emergency equipment to manage Airway

**→** Must be c̅ the pt at all times

**Check Airway Patency** **→ DOPE**

**Dislodgemen**t **→** Dislodged Trach Tube?

**Obstruction** **→** Trach require Suctioning?

Suction depth **→** No more than 3-6cm in depth

Instill 2-3mL of NS **→** Ā Suctioning

Max **= 10sec/**attempt **→** Pre-Oxygenate between attempts

**Pulm.** **→** **P**neumo, **P**neumonia, Aspiration, Reactive Airway,

etc. Difficult to Ventilate? Equal Breath Sounds? Crepitus?

**Equipment →** Vent issue, Empty O₂ Tank, Tube Kinked, etc.

Check Tube displacement, batteries, etc.

If Pt is good c̅ suction, O₂, BVM **→** Monitor

**n/c** or **Pt Worsens** **→** Emergency Trach Replace**/**Changeout

**EMS does procedure if Regular Caregiver is not present**

O₂ via BVM over mouth**/**nose unless previous laryngectomy

**Other rescuer** **→** Deflate Trach Tube Cuff if present

**→** Hyperextend neck by padding under shoulders

**Prepare** new Trach Tube**/**ETT & one 0.5 size smaller

**→** Make sure Tracheostomy ties are untied

Remove old Tube while other person installs new Tube

P̄ **→** Remove Obturator if present

**Attach BVM** **→** O₂ & Ventilate pt through new Trach Tube

**New Trach Ties** should be secured to avoid dislodgement

Reinflate **Trach tube cuff** if present

Assess RR, lung sounds, SPO₂, Capno, color, tone, VS, etc.

**If trouble changing Trach** **→** BVM over mouth**/**nose or over the stoma **→** Troubleshoot **→ A**ttempt smaller Trach Tube, Cut-&-Size-Match ETT, or other ways to secure Airway.

***Tracheostoma c̅ No/Uncuffed Appliance → Insert ETT just far enough that the cuff is in the Trachea → Auscultate Epigastrium/Lungs → Verify c̅ ETCO₂ + waveform → Secure tube → Decompress stomach c̅ NG/OG Tube***

### Cricothyrotomy

**Surgical Cricothyrotomy = No FBO** **+** **PPV doesn’t Inflate Cx** (C̅ proper pt positioning) **+** **can’t use Rescue Airway Device** **or**

### Tension Pneumo

**Tension Pneumo** **→ ↑**PPV difficulty **c̅**  JVD or Hyper-Expanded Cx or Tracheal Deviation **=** **Needle-D**

### Needle Decompression

Indications:

Known or suspected tension pneumothorax as evidenced by blunt thoracic trauma c̅ severe dyspnea c̅ or s̄ subcutaneous emphysema; blunt trauma c̅ profound shock or cardiac arrest; penetrating trauma c̅ severe dyspnea. Other clinical clues might include: JVD, hypotension, muffled heart tones, diminished/absent breath sounds on affected side. Tracheal deviation will rarely, if ever, be evident.

Contraindications:

Dyspnea that is unlikely to be caused by a tension pneumothorax.

Procedure:

Insert a large bore needle of at least 3.25 inch length into the affected hemithorax, 90 degrees

(perpendicular) to the skin, at the mid-clavicular line of the 2nd intercostal space (typically at the Angle of Louis). (Remember: the mid-clavicular line is usually more lateral than most people would guess. Don’t be too medial.) The needle should be inserted over the rib to avoid the neurovascular bundle that runs inferior to the rib margin.

### SGA → Cardiac Arrest = Use 1st

**& → Use P̄ 2 failed ET Intubation Attempts**

**P̄ placed** **→** **Insert OG/NG Tube into the stomach**

**(Via Gastric Decompression Port)**

**Suction Airway prn** for Suspected aspiration, Pulmonary Edema, or excess secretions

**Look for** Thick**/**Dry Airway Secretions c̅ long-term O₂ pts

**(especially c̅ a Trach Pt)**

**Or for Aspiration c̅ → ALOC or Stroke Hx pts**

## Circulation/Cardiology

### CIRCULATION

**Intervention**

**Airway & Breathing are good**

**Awake = Palpate Radial pulse**

**Unconscious = Palpate Carotid pulse**

**If no pulse → Begin CPR + Check EKG Rhythm**

Tx **=** **Cardiac Arrest Protocol** & look for **Treatable causes**

**Obtain IV Access If** **→ ↓Volume, Shock Signs, Any New Deficit, Metabolic Imbalance, New Systemic Complaint, New Uncontrolled pn, or a condition that may require Tx**

***Contact Med-Control if a 3rd attempt is needed***

No Immediate IV needed **=** Attempt IV en route

**Non-Hemorrhagic ↓Volume + Symptomatic** or **SBP <100**

**=** 500mL NS Bolus & Reassess **→** **Otherwise Saline Lock**

**Authorization for IO Access:**

1st Route **→ Arrests, Critical pts,** or **Bad** **Traumas**

**Exsanguinating hemorrhage** **→** Standard attempts fail to stop bleeding **→ Place TQ proximal to wound**

Do not remove the TQ once placed & bleeding controlled

**Consultation**

Med-Control **→ Additional IV attempts are needed**

**Shock Signs** **→** Discuss IV flow rate, 2nd 500mL bol, & an 2nd IV

**Continuity**

Med-Control **→ Additional IV attempts needed** during transport

**Non-Cardiogenic Shock Signs → 1**LIVFWO Reassess p̄

**↓BP + one IV Established → Discuss for 2nd** IV attempt

Always document the quantity of IVF used

### BRADYCARDIA

Athletes may have a resting HR in the upper 40s or low 50s

**If bradycardic due to Hypoxia, then → ABC’s 1st**

**HTN is not an indication to Tx ↓HR**

**Intervention**

**Bradycardia + serious S/S of poor perfusion**

**= Attempt Pacing on scene** **while establishing IV access**

**Pacing Successful + Pt is Uncomfortable = Versed 5mg** IV**/**IO

**Pt Symptomatic p̄ IV Access = Atropine 1mg** IVP**/**IO

**If n/c p̄ 5min → Repeat Atropine**

**Transport Immediately p̄ the 2nd Atropine dose**

**If symptomatic p̄ 2nd Atropine Dose + N**O **Hypovolemia → Epi 10mcg** IVP (1ml of Push-Dose Epi) **→ Then 2mcg/min IV Infusion**

**Consultation**

Discuss T**itrating Epi up by 2mcg/min q̄ min prn**

Max **=** 16mcg**/**min

**Always consider Hyperkalemia in Bradycardic pts**

**If Hyperkalemia is likely → DO NOT Pace or give Epi** (intervene per Hyperkalemia PSO 1st)

## PUSH-DOSE EPI

**Goal Concentration** **=** **10mcg/mL** (1:100,000)

Waste 1mL from NS Flush **→** Draw 1mL Epi 1:10,000 back in flush

### CARDIOGENIC SHOCK (NON- POST- ARREST)

**Recognized by Pulmonary Edema c̅ Shock Signs &/or ↓BP often c̅ normal HR**

\*For cardiogenic shock related to cardiac arrest, see Cardiac Arrest**/**CCR orders

**Intervention**

**Assess airway frequently for PPV needs**

**If any chance of concurrent hypovolemia → 250cc NS IVF**

**Epi 10mcg IVP (1ml of Push-Dose Epi) followed by → 2mcg/min IV Infusion**

**→ Titrate up by 2mcg/min** (max **=** 10mcg**/**min) **BP goal of ≥ 90**

**Consultation**

Report pt's condition, Tx progress, & any changes.

### LVAD PT

**Intervention**

**Transport** **only to** **→** St. Louis **=** **Barnes-South** & Wash-U Medical Center (LVAD capable ED)

(**Transport to hospital that placed LVAD**)

**Bring** **→** All Batteries, Chargers, & any other devices

Back-up controller & spare batteries always in pt’s travel bag

If able **→** Bring Power Module, Cable, & Display Module

All pts should carry a Spare Pump Controller c̅ them

**BP** **→** Hard to obtain c̅ Automatic cuffs due to narrow pulse

pressure created by the continuous flow pump

If obtained **→** MAP is usually accurate

**LVAD flow** **→** Usually NO Palpable Pulse & Inaccurate SPO₂

**\*Pulseless ≠ cardiac arrest\***

**Typical LVAD “Flow”** **=** **4-6**L**/**min

Pts usually knows their normal flow rate

**<** 4L**/**min indicates Hypovolemia **→** Consider IVF

“**Low flow**” **Alarm** indicates Hypovolemia **→** Give IVFs

Typical occurs at flows **<** 2.5L**/**min

Common LVAD Alarm Causes **=** “low flow” alarm

or low Batteries**/**Battery failures

**\*Flow ≤ 0.5**L**/**min **→ Indicates Cardiac Arrest → CPR**

Consult c̅ LVAD coordinator to provide care

C̅ non-LVAD issues **→** Obtain Hx**/**physical

Tx the cause **→** **Low Volume = Give Volume**

**If ↑volume → Give Push-Dose Pressors** (Avoid Volume)

**Perfusion Status** **→** Use ETCO₂ **+** Mental Status Assessments

**VF/VT** or **Asystole/PEA → May be “Normal” Rhythm**

**Do NOT Shock VT/VF if the Pt appears Well-Perfused**

Don’t disconnect Controller**/**Batteries to Defib**/**Cardiovert**/**EKG

**Consultation**

Report **→** Pt's condition, Tx progress, & any changes**/**problems.

[www.myLVAD.com](http://www.myLVAD.com)

### MI or Acute Coronary Syndrome (ACS)

Pt interview

**+** Substernal**/**Epigastric**/**Back**/**Left-Arm Pn**/**Pressure

**+** Relevant Cardiac Hx or Suspicion in Elderly**/**Dm**/**Female pts

**Intervention**

**Give O₂ Starting at 2L NC If → SPO₂ < 94%**

**Titrate SPO₂ To → 95-98**%

Rapidly Obtain IV**/**IO **→** EKG **→** Look for dysrhythmias**/**STEMI

**12-lead EKG should be obtained within 5min of pt contact**

**If → STEMI** or **LBBB + Modified Sgarbossa**

Transport ASAP to nearest STEMI center ED

Transmit EKG to ED & call to activate Cardiac Cath team

\*12-lead EKG must be in PCR\*

**Unless absolutely confident**, DO NOT activate Code STEMI for wide QRS**/**BBB rhythms

**Rx → ASA 324mg PO** **→** Priority Rx given ASAP

Absolute Contraindications **=** Anaphylaxis Hx & Active GI bleed

ASA given prior to EMS arrival, counts

Document in PCR

**NTG 0.4mg SL** if BP **>**100 or **>**110 if pt never had NTG

**Repeat prn q̄ 5min for angina** (Max **=** 3 doses)

Don’t Give if ED Rx’s within last 48hrs (i.e. Viagra & Cialis)

NTG is not contraindicated c̅ Inferior STEMI

Though **→** May get profoundly **↓**BP

If this occur **→** **Infuse NS until BP >90**

Pts c̅ RV infarctions are preload dependent

**Fentanyl 1mcg/kg slow** IVP (over 3-5min) **If →**

Pain persists p̄ the 3rd dose of NTG

**or**

Pt in pain & unable to receive NTG

**\*Morphine 4mg slow IVP** may be used if can’t do Fentanyl\*

**Consultation**

Discuss additional Fentanyl until the pain is gone

**Continuity**

Repeat NTG q̄ 5min if BP **>**100 & pain is still present

### PEA or Asystole

No pulse **+** EKG rhythm **≠** VF**/**VT **+** Not Trauma pt

**If apparent Asystole** **→** Check another lead

**If apparent PEA** **→** Attempt to verify Pulselessness

**Intervention**

Begin **CCR protocols**  (see VF**/**pVT PSO)

Attempt to **identify treatable causes**

**\*Do NOT give Atropine\***

**Check BGL**

Begin transport upon ROSC

**or** if Appropriate sometime p̄ the 1st 30min of CCR

(According to algorithm) (whichever comes 1st)

**Consultation**

Report pt’s condition, Tx progress, & any changes

Discuss the possibilities of a treatable cause

### Pulmonary Edema

**Intervention**

**Rales/Crackles + ↑RR = NTG 0.4mg** if BP **>**100

**or** **>**120 if pt has never had NTG

**HTN Crisis + Flash Pulm-Edema +** Ø **IV = NTG 0.4mg** SL

Lasix Diuretic effects may not begin for 10-15min

**Cardiogenic Pulm-Edema = Double the pt’s daily Lasix Dose**

NTG **=** Priority Rx due to rapid onset

Lasix may cause **↓**BP or ↓K**⁺**

**Consultation**

**Flash Pulm-Edema from HTN Crisis = NTG 0.8-1.2mg** SL

Inform Med-Control if an IV is not yet established

### ROSC Stabilization

Optimize Oxygenation & Ventilation **→** Avoid Hyperventilation

**Tx SBP < 90 c̅ crystalloids 1st → prn**

**2mcg/min Epi Infusion Titrating ↑2mcg/min q̄ min** (Max **=** 16mcg**/**min)

(0.02-0.2mcg**/**kg**/**min)

Obtain & Transmit 12-lead EKG to receiving ED

**If STEMI** **→** Transport to STEMI center

### Symptomatic Tachycardia

**Sinus Tach** **→** p-waves, regular PRI, & HR **<** 150

**SVT →** HR **>** 150 ***(exceptions do exist)***

Any doubt **→** Med-Control

**Intervention**

**Sinus-Tach** **→** Tx the underlying problem

**Hyperkalemia** (Assume) **→ HR < 150 + RRWCT** (QRS **>**5mm)

**→ \*Lidocaine should *Not* be given\***

**→ 1g Ca IVP** & **50mEq Bicarb IVP** (Separate IV**/**20mL NS

If QRS Narrows **→ Repeat Ca** & **Bicarb** ***(Don’t give Lidocaine)***

**SVT/Mono-VT + Unstable** or **Severe Cx pn/Dyspnea** **→ Sync**

***& latest cardiac life support protocols***

Pt speaks or is alert **→ Versed 5mg IVP** ā Sync

**Sync at → 75J/biphasic (50J for A-flutter)**

**If n/c → Sync at → 100 → 200 → 360J/biphasic**

**SVT** *(Stable Symptomatic)* **→ Vagal**

If n**/**c **→ Adenosine 6mg rapid IVP**

*(Always get EKG strip during vagal maneuvers or drug pushes)*

If n**/**c **→ Adenosine 12mg rapid IVP** **→** If n**/**c **→ Repeat**

If **Unstable** or **ALOC** (at any time) **→ Sync**

**Adenosine pushes accompanied by nearly simultaneous 10mL flushes**

**A-Fib RVR** or **A-flutter** (Stable Symptomatic) **→ Metoprolol 0.15mg/kg** (max **=** 10mg) **slow IVP** (over 2min)

**Multifocal Atrial Tachycardia** (**MAT**) (Stable Symptomatic) **→** (Irregularly irregular tachycardia + different p-waves of)

No Tx is normally needed (Besides Tx of underlying conditions)

**Evaluation is required →** (Poor sign in the setting of acute illness) **Discus c̅ Med-Control**.

**VT** (Assumed) **→** **Stable +** **Regular + Monomorphic + Wide QRS Tachycardia**

**→ Lidocaine 1-1.5mg/kg slow IVP over 2-3min**

If n**/**c p̄ 5min **→ Lidocaine 0.5-0.75mg/kg** (max **=** 3mg**/**kg)

**Torsades** (Assumed) **→ Stable +** **Regular + Polymorphic + Wide QRS Tachycardia**

**→ 2g Mg IV Infusion over 2min →** Then **→ 5mg/min Mg Infusion**

**Unstable Mono-VT + pulse → Immediately Sync**

**Unstable Poly-VT** (Torsades) **→ Immediately Defib**

**Consultation**

Report pt’s condition, Tx progress, & any changes.

Discuss any further pre-hospital modalities **→** Especially if the pt is not responding to Tx

**For stable narrow complex tachycardia,** discuss additional adenosine, or metoprolol

**Continuity**

If narrow QRS & condition remains unchanged **→ Repeat 12mg Adenosine during transport**

If the complex is narrow and the condition remains unchanged, administer diltiazem (Cardizem) 0.25 mg/kg (up to 20 mg) slow IVP over 2 minutes. Should we be using Metoprolol instead of Diltiazem?

### V-FIB or PULSELESS V-TACH

**Adult Non-Trauma Cardiocerebral Resuscitation** (CCR)

Absent pulse & VF**/**VT & recognized c̅ EKG monitor

Work pt where they are found (Unless unsafe**/**Impractical)

**→** Minimize CPR Interruptions for rhythm check, shock delivery, Adv Airway insertion, vascular access, or Rx delivery

**Intervention**

**Follow CCR algorithm**

**Active Airway management**

(BVM**/**ET intubation, Magill forceps for FBO, SGA, etc.)

**→** May Replace c̅ 15L NRB O₂ in cases of cardiac arrest that was

**→** Unwitnessed**/**Unk down time, due to trauma, accidental hypothermia, Primary Respiratory Arrest such as **→** Drowning, Choking, Status Asthmaticus, etc

**If still in VF/VT p̄ 3 consecutive shocks** **→ Resume CPR, charge to 360J** & **Apply new Replacement Set of pads adjacent** & NOT TOUCHING **the current pad set**

*(Goal* ***=*** *Obtain a different vector of current delivery)*

**→** **Defib at 360j p̄ “clearing” pt** **→** **Resume 2min CPR ā rechecking the rhythm** & **give another dose of Epi 1mg IVP during CPR**.

(Always begin 2min of CPR ā rechecking the rhythm between each Defib)

**If still in VF/VT p̄ 4th shock → Resume CPR & prepare for Double Sequential Defibrillation** (DSD) **procedure**

(if a 2nd defibrillator**/**AED is available)

**DSD:**

**Attach 2nd Defib pad adjacent to** & NOT TOUCHING **the pad set currently in use =** 4 live pads on pt

**Assure** **Controls,** for both cardiac monitors, **next to Defib Person**

**Charge both cardiac monitors to Max joules** (usually 360J each)

When appropriate **→** **Push Both Shock Buttons** (Synchronously as Possible) & **Defib at 720J** (or max of each defibrillator) **p̄ “clearing” pt**

**→ Resume 2min CPR** **ā rechecking the rhythm**

*\*In the event that 1 of the 2 defibrillators is an AED because a standard monitor****/****defibrillator is unavailable, push the shock button on the AED 1st*

**Transport upon ROSC → But p̄ a period of stabilization**

**Evaluate for** **→ Transport or Field** **Termination Of Resuscitation** (TOR) **p̄ 30min of CCR**

30min mark **=** Decision Phase, Reassess Progress & Goals

**Consultation**

Report pt’s condition, Tx progress, & any changes

Discuss the possibilities of treatable causes

**If pulse has resumed** **→** **Request to Give** **→** **Lidocaine 2mg/min IV maintenance infusion**

(All joules listed are via biphasic delivery system)

## Medical

### ALLERGIC REACTION

Not Anaphylaxis

Allergen Exposure resulting in **→** Itching**/**Rash**/**hives**/**flushing

**Intervention**

**Benadryl 50mg** IVP

(Monitor for anaphylaxis)

**Consultation → Report** pt's condition, Tx progress, & any changes

### ANAPHYLAXIS

**Wheezing/Stridor, Airway Swelling, Urticaria** or **Flushing**

**Itching, Dyspnea, Difficulty Swallowing, Nausea,** or **Weakness**.

**Food anaphylaxis** **→ Emesis + Abdominal pn** & **no Urticaria**

**Rx if →** Pt meets **1 of 3 Criterion for Anaphylaxis**

**Intervention**

**0.5mg Epi** (1:1000) **IM** (Lateral Mid-Thigh) **→ 1st Tx**

**n/c p̄ 5min** or **Gets worse** or **Re-appears → Repeat Epi**

**50mg** IVP **Benadryl p̄ Epi**

**10mg Dexamethasone** PO**/**IV**/**IM

**Consultation** **→** Report pt's condition, Tx progress, & any changes

Discuss a **3rd Epi dose if S/S persists 5mins p̄ 2nd Epi dose** (Should now be long be en route to ED)

**Anaphylaxis Criteria**

**Respiratory Compromise =** Dyspnea, wheeze-bronchospasm, stridor, hypoxemia

**End-Organ Dysfunction Sx** **=** Hypotonia, Collapse, Syncope, Incontinence

**Skin-Mucosal Tissue =** Generalized hives, pruritus or flushing, swollen lips**-**tongue**-**uvula

**Anaphylaxis → Highly likely c̅ any 1 of the 3 criteria:**

***Criteria 1***

**Acute + c̅ Skin-Mucosal Tissue Involvement** & **Either**

**→ Respiratory Compromise** or **↓BP** or **End-Organ**

**Dysfunction Sx’s**

***Criteria 2***

**≥ 2 of the Following** & **Occur Rapidly p̄ Likely Allergen**

**Exposure:**

**A**) **Skin-Mucosal Tissue**

**B**) **Respiratory Compromise**

**C**) **↓BP or End-Organ Dysfunction**

**D**) **Persistent GI Sx** (Crampy abdominal pn, emesis)

***Criteria 3***

**↓BP p̄ exposure to a KNOWN allergen**:

**Adults = SBP < 90** or **> 30**% **↓ From Pt’s Baseline**

### CPR Initiation & Termination

* **When in doubt, Start CPR**
* **Do NOT initiate if:**
  + Decomposition
  + Obvious Mortal Wounds (massive burns, destroyed organs, etc)
  + Severe Extremity damage alone **≠** mortal wound unless coexistent Injury**/**Illness
  + No evidence of signs of life, Specifically Pupillary Reflexes or Spontaneous Movement
  + Valid **OOH DNR** (Original**/**Copy**/**Electronic) or physician (On Scene**/**Phone) orders no resuscitation
  + Certain blunt**/**penetrating trauma arrests (no RR p̄ BLS airway, no rhythm **>**40, no signs of life, **>**20min from arrival)
  + Additional Trauma Criteria (unless pt arrests during transport), **Do Not Initiate CPR for**:

**Blunt Cardiopulmonary Arrest c̅** clear **MOI** to **Head/Torso + No Spontaneous RR** p̄-BLS airway

**Penetrating Cardiopulmonary Arrest c̅ MOI to Head/Torso + No RR p̄-BLS + No Organized Rhythm >40 + No Life Signs & >20**min **from 1st ALS arrival if applicable**

* + **OLMC may give time of death**

**MO = Barnes-South**, IL **=** Belleville Mem

PCR **→** Incl. OLMC physician name

* + Pts **<**18 **→** Call Children’s for OLMC
* **Contact OLMC** ā stopping & Keep Resuscitating while requesting pronouncement
* Keep doing CPR if needed for special circumstances (hypothermia, Persistent VF**/**VT, PEA **>**40, Intubated c̅ ETCO₂ **>**20)
* **Transport** prn for death in public places or other reasons
* **OOH DNR** **not honored if:**
  + Pt**/**Rep Revokes**/**Destroys Form**/**Device
  + Pt is known Pregnant
  + Pt or pt’s Representative expresses to such personnel in any manner, ā or p̄ the onset of Arrest, the desire to be resuscitated
  + If there is Confusion **→** call OLMC
* If a **DNR** is not honored, doc reason
* Palliative**/**Supportive care is never withheld
* Honoring a DNR provides legal protection (RSMo 190.606)
* **If Valid POA**, **they decide when pt is Incapacitated**
* In the **absence of a valid POA**, Missouri recognizes surrogate decision makers to make decisions when the pt is incapacitated in the following order:

**Spouse → Adult Child → Parent → Adult Sibling → Grandparent** or **Adult Grandchild → Next Nearest Adult Relative → Religious Person** (pt’s community member) **→ Person Unanimously Agreed Upon by those in priority list**

* Always rule out a non-traumatic cause in traumatic arrests (e.g. primary V-Fib resulting in a minor car crash)

### DEATH Documentation; body Temp.

STL City Health Department requires a Body Temp. when the

**Death in city limits during a Heat Advisory/Warning**

Declared by the National Weather Service

**Not required if the body shows signs of decomposition**

**Intervention**

Any death declared in St. Louis City during an official heat emergency **→** **Record** & **document a body Temp.**

**Document → Name/Badge # of the officer you gave this Info**

### FALL OR WEAKNESS

Pt unable to get up s̄ assistance

or New Reported Weakness

**Intervention**

Investigate**/**Document **→** Cause of Fall**/**Weakness

Any loss of consciousness?

Does the pt need any form of SMR?

**BP > 90** & **pt is capable → Assess Orthostatic VS, BGL, EKG**

Watch for STROKE signs!

**Consultation**

Report pt’s condition, Tx progress, & any changes

**Continuity**

**Immobile & Pressure Sores + Pulseless = Bicarb 1mEq/kg IVP** as part of resuscitation process

Watch for Hyperkalemia S**/**S

### HYPERGLYCEMIA

BGL **>** 300mg/dL **+** Abnormal Mental Status

**Intervention**

**Infuse 1L NS** then Recheck **BGL**

**Consultation**

Report pt’s condition Including

**→ LOC, BGL, Rate/Depth of breathing, & Presence/Absence of Ketones/Dehydration Signs**

Report progress, Discuss options

### HYPOGLYCEMIA / INSULIN SHOCK

**BGL < 90 + Abnormal Mental Status**

**Intervention**

**Attempt IV → Give 100ml Increments of D10 until BGL >100**

**PO glucose** if appropriate

**If** Ø **IV/PO Dextrose → IO D10**

**Consultation**

Report pt’s condition, Tx progress, & any changes

**Continuity**

3rd IV attempt may be made during transport

**If IV → 100ml Increments of D10 until BGL >100**

\*10g of Dextrose = 100mL of D10

**Hypoglycemic Pediatric Pts**

**< 2 months = 2ml/kg D10**

**> 2 months = 3ml/kg D10**

### HYPERKALEMIA

Chronic Renal Failure pt’s c̅ Sx’s

Cardiac Arrest **+** Rhabdomyolysis

Bradycardia c̅ **→** Peaked T-Waves **+** Widened**/**Flat**/**Absent P-Waves**/**Conduction blocks or Bizarre**/**Widened or slightly widened QRS complexes

**Sine-Wave EKG suggests imminent Cardiac Arrest**

**Intervention**

Electrolyte Imbalances, Especially K**⁺** **→** **IV** & **EKG monitoring**

Hyperkalemia**/**Hyperkalemic Cardiac Arrest

**→** **Ca⁺ 1g** IVP**/**IO& **Bicarb 50mEq** IVP**/**IO

2 separate IVs **or** Flush in-between Rx’s

May give **→ Albuterol 2.5mg Neb** p̄ Ca**⁺/**Bicarb

*If Unable to Establish IV****/****IO* ***→*** *Give Albuterol*

**Consultation**

Report pt’s condition, Tx progress, & any changes.

**Continuity**

**↓**BP **+** Wide-QRS Symptomatic Rhythm **→** **Ca⁺ 1g IVP**

### N/V

**Gastric upset/motion sickness**

**Pt is conscious & uncomfortable**

N**/**V may occur c̅Abdominal**/**Head Injury, Acidosis, Adrenal Crisis, AMI, Bowel Obstruction, Digitalis OD, Food Allergy, Hepatitis, **↑**Ca**⁺**, **↑**Tº, Intoxication, Ketoacidosis, Meningitis, Pancreatitis, Peritonitis, Sickle Cell Crisis, Stroke, Toxic Ingestion, or Uremia

**Intervention**

**Zofran 4mg IVP over 60sec**

or **Droperidol 1.25mg IV**

**If no IV** **→** **Zofran 8mg PO**

(Zofran**/**Droperidol may be given IM)

**Consultation**

**If N/V continues** **→** Ask Med-Control to give a 2nd dose of either

### Organophosphate or Carbamate Poisoning

**Pesticide exposure c̅ Symptomatic ↓HR** or **SLUDGEM pt** (Assume organophosphate or carbamate (insecticide))

**Intervention**

Protect yourself from exposure

**If able** **→** Decontaminate the pt

**If unable** **→** Request FD to Decon pt ā you make contact

**Symptomatic ↓HR** **=** **Atropine 2mg** IVP**/**IO

Repeat prn until secretions dry out

Give IO**/**IM if Initial IV attempt is unsuccessful

**If seizures occurs → Versed 5mg** IV**/**IM

Transport ASAP **→** Notify ED of possible HazMat situation

**Consultation**

Report pt's condition, Tx progress, & any changes

Discuss the appropriateness of any further pre-hospital modalities

**Continuity**

**Crew Contamination** **→** Decon procedures & change uniform

### PAIN MANAGEMENT

Pain or Pain S**/**S

**Intervention**

Rx sickle cell disease

Rx if **→** Pt not already on Long-Term pn Rx’s

Choose ONE of the following:

**Fentanyl → 1mcg/kg Slow** IVP**/**IM**/**IN(Max **=**150mcg)

**Morphine → 2-4mg** IVP

**Ketorolac** (Toradol) **→ 15mg** IV**/**IM

**Ketamine → 0.2mg/kg** IV**/**IN (Max **=** 25mg)

If able **→** Document pain-scale**/**VS ā & p̄ each dose

Monitor**/**Document SPO₂, ETCO₂, LOC & EKG continuously

Pain from H**/**A or Abdominal-pn **→** **Droperidol 2.5mg IV**

***\*Droperidol is NOT authorized for other types of pain***

**Consultation**

Severe pn persists p̄ Rx or NSAID**/**Opioid Rx is contraindicated **→** Discuss the appropriateness of repeat dosing

### SEIZURE

**BGL >100**

**or → Seizure continues p̄ D10 is given**

**Intervention**

**Actively Seizing → Versed 0.1mg/kg** IV(Max **=** 5mg IV)

or **→ 10mg** IM

or **→ 0.1mg/kg** c̅ MAD(Max **=** 10mg IN)

**High-flow O₂** & **EKG**

**Manage Airway**

**Consultation**

Request repeat dose if **→ Seizure still active 3min p̄ 1st dose**

### SEPSIS

Due to **→** **Infection**

**Recognized by at least 2 of the following 3 acute criteria**

**1) Temp >38°C** (100.4°F)

or **→ <36.0° C**

**2) RR >20** or Minute Volume **>**10L or PaCO₂ **<** 32

**3) HR >90** s̄ heart disease or Rx**/**chemical **↑**HR

**&**

**ETCO₂ ≤ 25**

**&**

**Infection**

**Intervention**

**High-flow O₂** via NRM &an **2nd large-bore IV**

**10cc/kg IV NS in 500**cc **Boluses** **Up to** 30cc**/**kg if BP **<** 90 or MAP **<** 65

**Reassess** BP & Breath Sounds p̄ each Bolus

Maximize each IV line infusion

Pre-alert ED of inbound Sepsis pt

**If Sepsis related Organ Failure evidence → Sepsis Alert**

**Renal Failure** or **AMS** or **Cardiac Ischemia**

**Consultation**

Report pt’s condition, Tx progress, & any changes

Discuss **Pressor Rx if MAP remains < 65 p̄ 30cc/kg bolus is completed**

### Sickle Cell Crisis

**Severe pn similar to previous Crisis + Clear LS + No Heart Failure Hx**

**Intervention**

**Establish IV → 150**cc**/**hrNS Drip

**Encourage PO Fluids** if available

**2**L**/**min **O₂ by NC**

**Fentanyl 1**mcg**/**kg slow IVP (Max **=** 150mcg)

### Stroke Centers; Missouri Certified (Greater St. Louis Region)

**Level I**

Barnes**-**South\*\*

DePaul\*\*

Mercy STL

SLUH

St. Clare

Mercy South

**Level II**

Barnes St. Peters

Christian NE

Mercy Washington

MoBap

Progress West

SSM St. Joseph’s (both)

SSM St. Luke’s

SSM St. Mary’s

**Level III**

Mercy Jefferson

\*\*indicates Comprehensive Stroke Center

STROKE SCALES

**Los Angeles Motor Stroke Scale (LAMS)**

**Cincinnati Pre-hospital Stroke Scale**

### Suspected Acute STROKE

**Acute → Numbness/Weakness** especially on one side, **Dizziness +** **↓**Balance**/**Coordination**, Trouble Speaking/Understanding/Seeing, Vertigo + Double Vision, Severe H/A, Acute AMS, or a Positive Cincinnati Stroke Scale**

**Intervention**

Document Exact time of onset or LKW

Stroke Scale **→** Facial Droop, Pronator Drift, & Speech Deficit

\*Normal results do not rule out stroke\*

Obtain BGL & LAMS score

Score **≥** 4 suggests large vessel occlusion

Do NOT give O₂ unless **→** SPO₂ **<** 94%

EKG & IV

**Using the Info gathered above → Classify your pt as follows:**

**Emergent → Immediate life-threatening condition**

**Group 1 → LAMS ≥ 4; ED ETA from LKW < 6**hrs

**Group 2 → LAMS ≤ 3; ED ETA from LKW < 4.5**hrs

**Group 3 → Out of Therapeutic Window**

**LAMS ≥ 4; ED ETA from LKW > 6**hrs

**LAMS ≤ 3; ED ETA from LKW > 4.5**hrs

**Emergent → Closest appropriate facility** for stabilization

**Group 1 → Closest Level I Stroke Center**

If **>** 20min **→** Then Closest Level II or III

**“Worst H/A”, loss of consciousness** **+** H**/**A or stiff neck**,**

**coma, or obvious** (Mute **+** unable to move arm**/**leg)

**Group 2 → Closest Level I, II,** or **III**

**Goal → Appropriate pt Tx within the Tx window**

**Group 3: Closest Level I, II, III, or IV**

**Call ED ASAP c̅ pt report, ETA Include the following:**

**• Facial droop →** Does both sides of face move equally?

**• Pronator drift →** Do both arms move equally or arm drift?

**• Speech →** Pt speaks **+** uses correct words **+** no slurring?

**• LKW**

**• BGL**

**• Any reports of seizure activity?**

**• Does the pt** **take Warfarin** (Coumadin, Jantoven)**?**

**• LAMS score**

**C̅ IFTs who have received** or are receiving **Thrombolytics**

**Record VS q̄ 15**minor sooner

**Diligently Monitor Neuro Status**

**Look for Cerebral Hemorrhage Signs**

(Acute H**/**A, Emesis, or **↓**Mental Status)

**Pt decompensates → Stop thrombolytic** if applicable

& **Manage pt’s emergent needs**

**Notify ED of Status Change**

**Continuity**

**Improvement** or **Deterioration in Mental Status/Neuro exam?**

**→** Impacts Tx decisions in ED

**Continue Reassessing ABC’s**

### TOXIC INGESTION

Poisoning**/**Drug OD (Accidental or Intentional) **+** Potential for harm

**Intervention**

**Scene Safety** **→** Toxin in environment**?** Violent pt**?**

**Obtain Info** on the ingestion **+** Type**/**Time-of-ingestion**/**Amount

**Consider** possibility of multiple ingestions

**Variety/Quantity** of intentional ingestions may be underreported

**Attempt to collect all Rx bottles** on scene for the ED

**Consultation**

Contact Med-Control ASAP during transport

(even if the above is not yet complete)

Discuss drug therapies that may be helpful for specific ingestions

**Continuity**

***These therapies may be beneficial if serious S/S are present:***

**Ca⁺/Beta-Blocker OD c̅ ↓HR → Ca 1g slow IVP**

**Haloperidol use c̅ Acute Extrapyramidal Reaction → Benadryl 50mg IM/IVP**

**Plant Ingestion c̅ ↓HR → Atropine 2mg IVP** repeat prn

**Tricyclic Antidepressant OD + wide-QRS rhythm + ↓BP** or **pulseless → Bicarb 1mEq/kg IVP**

(Several doses may be required)

### VIOLENT/COMBATIVE PT – RASS +4

**RASS +4** often exhibit the following Behaviors**/**Hx (PRIORITY)

• Psychological Issues**/Psych** Hx

• Recent substance use (**drugs/alcohol**)

• Incoherent **Speech/Thought** processing

• **Off c̅ clothing** (stripping naked or taking clothes off)

• **Resistant** to Negotiations**/**Redirection**/**Restraint,

Police**/**EMS Presence

• **Anger** towards Shiny Items**/**Objects**/**Reflections

• Almost **Super-Human Strength**

• Yelling or **Screaming Incoherently**

**RASS +4 can be Life-Threatening** (due to ongoing metabolic injury) **→ Can lead to cardiac arrest**

**Intervention**

**Try to rule out Medical/Trauma causes of Agitation/Violence**

**↓**BGL**/**Hypoxia may cause RASS **+**4 **→** Obtain BGL if able

**If the pt cannot be calmed** & **continues to be RASS +4**

**→ Ketamine 4mg/kg IM** (**>**65yo **=** 2mg**/**kg)(**all →** max **=** 500mg IM)

**Document RASS q̄ 5min**

Physically restrain as Reasonably**/**Safely as possible **→** Avoid measures that may Impact**/**Inhibit pt’s ability to breathe. PD prn

Restraint procedures should follow National Association of EMS Physicians (see Appendix)

**Suspected/Known Hyperthermic** **→** Ice Pack Axilla, Groin, & Neck to **↓**Tº. If able **→** Obtain IV access & Infuse 1000mL NS

**Watch for** **→** Signs of Acidosis or Respiratory Compromise, monitor SpO₂**/**ETCO₂ continuously as possible

**Look for Hyperkalemia** **If possible →** Obtain 12-Lead & Tx accordingly (Peaked T-Waves or widened QRS)

Give high flow O₂ if unable to confirm adequate SPO₂

**Consultation**

If more sedation needed **→** Consult to give **Versed 5mg** IV**/**IM**/**IN

### RASS +1, +2, or +3 Agitated/Anxious Pt

Caution c̅ **→** “OBS call” or EDP (Emotionally Disturbed Person)

**→** Request PD prn Ensure the scene is safe prior to your encounter c̅ a violent pt

**Intervention**

Attempt to rule out Medical**/**Trauma causes of Agitation**/**Violence

**Obtain BGL if possible**

Try to “talk down” an Agitated**/**Anxious pt

Do Not be Confrontational or Reflect Hostility back at pt

**If these methods Fail** & **Safety is in question** **→ Then Rx**:

**RASS +1 = Versed 0.02mg/kg** IV(single Max dose **=** 2.5mg IV or **5mg** IM)

**or** **→** **Droperidol 5mg** IM

**RASS +2, +3 = Droperidol 10mg** IM, may repeat once in 10min

Pts **>** 65yo **→ Droperidol 5mg** IM

**Document RASS q̄ 5**min

Watch for respiratory compromise & monitor SpO₂ & ETCO₂ continuously as possible

## OB/GYN

### Delivery OOH/Pre-eclampsia/Eclampsia

**Normal Delivery**

Precipitous births **=** **↑**Morbidity**/**Mortality Risks

Make q̄ attempt to get pt to a hospital prior to delivery.

**Intervention**

Pertinent Hx **→** Gravida, Para, Abortions, due date

**Delivery Not Imminent** **=** Left Lateral Recumbent Position,High-flow O₂, monitor for crowning or signs of imminent delivery

**If delivery is imminent:**

Assemble OB kit **→** Sterile techniques (if possible)

Support perineum (avoid episiotomy)

Control delivery of head **→** Do Not Delaydelivery

Suction mouth **→** Nose, c̅ bulb syringe

**ONLY prn** (not part of routine care)

Nuchal Cord **→** gently slip overhead

If unable **→** Clamp & Cut

Deliver Anteriorthen Posterior shoulder

Keep Infant level c̅ perineum

Dry c̅ towel & wrap in blanket

Record APGAR **→** Resuscitate prn

**Stimulation/Warming/Blow-by O₂ = 1st**

2 Clamps **→** 8-10inches between stomach & 1st clamp **→**

Cut between the clamps

**Transport now** **→** Do not wait for placenta delivery.

If placenta delivers **→** Bring to the ED (NO PULLING)

**Complicated Delivery**

**Manage any complications as follows while initiating immediate transport:**

**Shoulder Dystocia →** Transport**/**Notify ED ASAP

**→** Place Mom on **12-15LPM O₂** via NRM

**McRobert’s Maneuver →** Hyperflex Hips

**→** Severe Supine,Knee-Cx position

Apply firm Suprapubic Pressure to attempt to dislodge shoulder

**Breech →** Abnormal part Presents (foot, arm, buttocks, etc.) **→** Transport**/**Notify ED ASAP. Place Mom on 12-15LPM O₂ via NRM

Don’t pull baby **→** When level to umbilicus **→** Keep baby’s sacrum parallel to the ceiling if possible

**Frank/Complete Breech presentation**

You may assist freeing the legs **→ then arms once the**

**baby is out level to the shoulders**

All but head delivered **→** Keep butt parallel to the ceiling

C̅ baby resting on your hand & forearm **→**

**Insert index & middle fingers into the birth canal** to

rest upon the fetal maxilla (Helps flexion the head) Avoid placing fingers into the mouth or pushing the neck hard (tears may occur).

EMT may place firm, downward pressure suprapubically

(not on fundus) (promotes head flexion & getting

head under the pubic symphysis)

Hook 2 fingers from other hand on both sides of neck **→** Grasp shoulders & apply downward traction until the subocciput appears beneath the pubic symphysis. Elevates baby toward mom’s belly

Keep it’s head flexed c̅ delivery (mouth, nose, & occiput) & beyond the perineum.

Keep baby warm **→** Clamp & Cut cord as above.

**Prolapsed Cord** **→** Transport, call ED ASAP, &

**Give 12-15LPM O₂ via NRM**.

Elevate Mom’s hips to knee-chest position

(McRoberts Maneuver)

Gently **push baby up vagina** several inches **→**

maintain position into ED (Keep pressure off cord)

**Eclampsia** **→** Protect pt from injury during seizure if present

Monitor SPO₂ & Airway

**12-15LPM O₂ via NRM**

**Begin Mg 4g slow IVP (over 3-5min) in NS**

Pushing Mg too fast can result in Mg toxicity

**Mg OD = Ca 1g IV**

Start an IV piggy back drip **→ Mg 1-2g/hr**

**BP Diagnostic criteria → Pre-Eclampsia**

• SBP **≥** 140 or DBP **≥** 90 on 2 occasions & at least **4**hrs apart p̄ **20** weeks of gestation in a woman c̅ a previously normal BP

• SBP ≥ 160 or ***DBP ≥ 110***

Severe HTN can be confirmed within minutes to facilitate timely antihypertensive therapy

**&**

Protein in urine

**Or → in the absence of proteinuria:**

New-onset HTN c̅ → New onset of any of the following:

• Platelet count **<**100

Impaired Liver Function

• **Pulmonary Edema**

• **New-onset H/A unresponsive to Rx’s** & **Not Accounted**

**for by other Dx/Visual Sx**

**Consultation**

Report progress & any problems encountered.

## Trauma

### Riot Control (Incapacitating Agent)

CS**/**CN**/**OC

AKA **→** Tear Gas, **“Mace”**, Pepper Spray, or Bear Repellant, etc.

**or similar** “Riot Control” agents

**c/o → Skin burning, ↑Lacrimation, Eyelid Twitching/Spasm, Sneezing,** &**/**or **coughing**

**Intervention**

BSI & Be cautious of Contact Exposure

**Remove Contaminated Clothing/Belongings**

**Expose Affected Tissues/Mucous membranes to air** as feasible

**Then Irrigate it c̅ water/NS**

Try not to Contaminate unaffected parts

**Assess Airway**

**To Hasten Recovery →** Consider washing exposed parts c̅ baby shampoo or similar non-irritating cleanser followed by copious irrigation

**Consultation**

Report pt’s condition, Tx progress, & any changes

### Spinal Motion Restriction (SMR)

**Should be considered in any trauma pt.**

**If SMR is indicated → use C-Collar & stretcher**

**We do not use backboards for SMR**

### TASER – p̄-deployment

**Intervention**

Evaluate **→** Medical**/**Trauma**/**Toxic**/**Psych Issues, what attracted LE, & why was TASER needed **→** Stabilize Accordingly

If RASS +4 criteria, refer to that Standing Order

12-Lead **If** **→** Concerns for Cx Trauma, Dysrhythmia, Toxic/Metabolic abnormality, or ACS

**Do Not remove TASER barbs located in → Head/Neck, Hands, Feet,** or **Genitalia**

**Do NOT remove barbs that were deployed by the TASER 7 →** Requires a special barb removal tool

**Other barbs removed at crew/LE discretion**

**To remove →** Stabilize skin around barb & pull out rapidly

**Ā “Sharping”** **→** Ask PD if barbs are needed for evidence

Barbs are treated as contaminated biohazard sharp

IF LE wants to keep pt:

**→** Advise of Non**-**Transport risks **+** In-Custody Death

**→** Have Custodial Officer sign Refusal Form

### TRAUMA – Major (Level 1)

**Trauma c̅ ≥1 of the following**:

GCS**<**14, SBP **<**105, RR **<**10 or **>**20, Airway Compromise, Breathing Difficulty, shock (or Shock Index of **≥**0.9), AMS, Exsanguinating Hemorrhage,

Penetrating Injury (to head**/**neck**/**t-shirt area**/**boxer shorts area),

**>**20% BSA burns,

**>**2 long bone Fx, Limb Amputation, or Cardiac Arrest

**Intervention**

**Tx Exsanguinating Hemorrhage = 1st priority**

Make 1 Intubation Attempt if indicated on scene

**→** Further attempts during transport

**Consider making no IV attempts on scene**

Tx’s done on scene **=** Those required ā moving pt (including SMR)

**or** Procedure Expected to quickly cause a Dramatic Improvement

(such as Bilateral Needle-D)

**Major Trauma Pt** **Level 1** **→** Handle appropriately

**→** Transport ASAP c̅ scene time of **≤**10min to closest ED

**Head injury pts + Needs ETT = Don’t Hyperventilated unless**

**→** Clear Signs of active herniation **→** Newly Fixed & Dilated Pupil, Cushing’s Reflex, or Posturing

Ventilate c̅ 100% O₂ at 20-24LPM

**→** **Don’t Allow** **<**30 ETCO₂ or **<**94% SPO₂

All efforts made to avoid **↓**CO₂, **↓**O₂, & **↓**BP**†** in Head Injury pt

Major Trauma **+** BP **≤** 105 (**≤**110 if **>**65yo) **=** Nearest Trauma ED

Major Trauma **+** Shock Index (SI) **≥**0.9 = Nearest Trauma ED

**SI =** (**HR*/*SBP**)

†Allow for permissive **↓**BP (SBP **<** 90)

**Only** if pt is awake & Answers questions appropriately

If BP **<** 90 c̅ significant head injury or pt not alert

**→** Give Infusions to maintain 100-110 BP

### Traumatic Arrest???????

## Refusals

### Consent & Refusal

**≥ 18yo + Competent + Present Mental Capacity**

**→** May Consent**/**Refuse Evaluation**/**Tx**/**Transport & can AMA

**p̄ giving Refusal Risks, Alternatives, & Actions to take if Conditions Persist/Worsen & ensure they understand them.**

+ No SI**/**HI If in Doubt**/**Conflict **→** OLMC

**Present mental capacity → Assessed by EMS**

**→**Understand**/**Appreciate Consequences & make rational choices

Offer Evaluation**/**Tx for those who can’t decide

If able to consent **→** Respect pt’s choice

**Red Flags →** Head Injury **+** **↓**GCS, **↓↓**Hypoxia, **↓**BP, Abnormal Thoughts**/**Behavior, Noticeably Impaired

Lacks Capacity + Implied Consent doesn’t apply → call **OLMC**

Document Mental Status findings (not just conclusions)

**Consent/Refuse Assessment** → Rational Responses, & ability to Apply Given Info

**LOC**: Avoid Sternal Rub, May use Mild Noxious Stimuli

(Ammonia Inhalant, Fingernail Pressure)

**Orientation**: A&OX4?

**Registration**: Pt repeats 3 Unrelated Words & ask pt to recall later

**Attention/Calculation**: Spell 5-letter word backward

or subtract 7s from 100

**Recall**: Pt recalls those 3 items.

**Language**: Pt Repeats Short Phrase or Follows Simple Command

[Pts c̅ **Impaired** Capacity may be treated under Implied Consent. If legal Competency**/**Capacity is Lacking & Implied consent **doesn’t apply**, Contact **OLMC** for orders & transport for further eval]These two sentences contradict each other…………………

**Competency** **→** presumed unless already declared otherwise

Legal term only a Judge can Declare

**→** Minimum Cognitive/Behavioral Ability needed to Perform a legal Act or assume some Legal Role

**Incompetent** → Guardian decides Consent**/**Refusal

**3 Forms of Consent**

**Informed** **→** Aware**/**Understands the Risks**/**Benefits & consequences of refusing

**Implied** **→** Pt Can’t communicate because of an MOI/NOI

or Unconscious **+** Life**-**Threat or **↓**AMS or **M**inor **+** Possible Life**-**Threat **+** No Consenting adults present.

**Substituted**: When Someone Else Legally Consents for

**→** Minors, Incapacitated**/**Incarcerated, or Legally Incompetent pts

**P**roperty Owner**/**Pt may deny entry to Land**/**Home if no Immediate Life Threat

### Refusals **&** Suicidal Pt’s

**Suicidal Pt’s →** May have taken Substance**/**Toxin ā EMS Arrival.

Pts should be Medically Evaluated**/**Monitored en route ED.

**Med-Control okays Refusal** **→** Document on CIR & leave scene

**Call OLMC if Transporting Against the pt’s will**

Document Findings/pt’s mental Status**/**Comprehension

**Physical Force →** MO Chapter 563.061, paragraph 4, of the Revised Statutes of Missouri (RSMo 563.061)

A Physician or EMS at his direction, can use physical force in an

Emergency Situation, c̅ a medically acceptable form of pt Tx,

for the pt’s Physical**/**Mental Health.

**→** Force is justified c̅ reasonable belief that the pt is about to

Commit Suicide or Inflict serious physical self**-**harm.

“**Likelihood of serious harm**” **→** RSMo Chapter 632.005, paragraph 10

**→** Recent Threats**/**Verbal Threats**/**self-Harm**/**Suicide Attempts

**Evidence of Substantial Risk** **→** Also includes pt behavior Hx

that had resulted in serious pt self-harm.

**96hr-Hold Affidavit** RSMo Chapter 632.305.1

**→** Any adult on behalf of a respondent c̅ a mental

health disorder that may cause serious harm to Self**/**Others

**→** May Allege under oath/Writing, s̄ notarization, to apply for

Mental Health Detention

**Suicidality** Entails Brain Chemistry**/**Physiology Changes, Usually

from a stressor & may show as various chemical imbalances

**Occurs When** Stress Induces Psych**-**Pain so Unbearable that

Death is seen as the only relief.

Ā this point **=** **Suicidal Risk**

P̄ Expressing SI **=** **Risk of Completing Suicide**

Becoming Suicidal **=** Crisis **=** Traumatic stress

**Suicidal Pts** **→** Don’t qualify for **C**ertificate of **I**nformed **R**efusal

***If they want to refuse transport → Contact Med-Control***

**If no receiving ED Identified**, then Abbott Policy P000145

**→** Contact Memorial Belleville in IL & Barnes**-**South in STL

**Suicidal Pt Refuses Transport + Med-Control Orders Transport**

**→** Document as provided for on CIR & Attempt to Convince

pt to go to the ED

**Peace Officer** Chapter 192.2465, Chapter 632.440, Abbott Policy P528855, RSMo Section 632.305

PO can Transport**/**Arrange Transport for a pt c̅

imminent likelihood of serious harm.

Gives the PO Immunity from civil liability as long as he

is acting in good faith & s̄ gross negligence.

Physically Resists Transport **+** Crew threat **=** Request LE

Inform PO **→** Pt’s Condition, ED Order, & the need to

Restrain**/**Assist c̅ transporting pt to ED

**If PO Refuses** **→** Document Request, PO’s

Name**/**Badge **#**, Risks**/**Benefits, & Obtain PO Refusal.

Have that officer sign the CIR as Substituted Consent.

EMS leaves scene s̄ pt.

# Pediatric Protocols

## Pediatric VS

### Low SBP Pediatric

**Low SBP for children**

1month**-**1yo **=** **<**70

1**-**10yo **=**  **<**(70 **+** [2 x age])

11**-**17yo **=**  **<**90

## Pediatric Initial pt Assessment

**A length-based resuscitation tape is recommended** to help EMS personnel quickly determine appropriate equipment size, normal VS, & correct Rx dosages

1) Ensure scene safety.

2) Perform **→** Scene Survey (to assess environmental conditions & MOI**/**NOI) If hazardous conditions

(swift water, hazardous materials, electrical hazard, or confined space) **→** Have specialist secure scene & pt

3) Form a 1st impression of the pt’s condition.

4) Standard Precautions.

5) Establish pt responsiveness. If C-Spine trauma is suspected **→** Manual Stabilization.

6) Pt’s airway patent? Protective Reflexes? Advanced Airway prn. Airway obstruction?

7) **Open Airway** **→** Head Tilt**/**Chin Lift (no spinal trauma) **→** Jaw Thrust (spinal trauma is suspected)

8) Suction prn

9) **Consider OPA** or **NPA** airway adjunct(Unable to maintain Airway c̅ positioning **+** pt is unconscious)

10) **Assess Breathing** **→** Rate, Sound, Look, Effort, & adequacy of ventilation. Obtain SPO₂

11) If Cx rise indicates Inadequate Ventilation **→** Reposition Airway & reassess.

12) If Inadequate Cx rise is noted p̄ Repositioning Airway **→** Suspect a FBO in Airway.

13) Assess for signs of airway compromise & respiratory distress, failure, or arrest.

If present **→** Refer to the Airway & Breathing protocols

14) Airway Patent **+** Good Breathing **→** Place pt in position of comfort & give 100% high-

flow O₂ prn. Use a NRM or blow-by as tolerated

15) Control hemorrhage **→** Direct Pressure (or pressure dressing)

Exsanguinating Hemorrhage **=** TQ

16) Assess Circulation & Perfusion by **→** HR & Observing skin color & temperature, Cap-

Refill-Time, & the quality of Central**/**Peripheral pulses. BP should be measured only in

children **>**3yo. **→** Cardiac Monitoring. Refer to the Circulation/Shock protocol.

17) Evaluate Mental Status (Including **→** Pupillary reaction, distal function & sensation, & AVPU)

18) Suspected Spinal Trauma **→** Continue Manual Stabilization **→** C-Collar & begin SMR

(using a long spine board or similar device)

19) Expose child only prn for assessments while maintaining body temperature throughout exam

20) Critical**/**Unstable pt **→** Transport ASAP **→** Focused Hx & detailed physical en route if able.

21) Stable pt **→** Perform focused Hx & detailed physical on scene **→** Then transport.

22) Reassess the pt frequently.

23) Contact Med-Control for additional instructions prn.

## Airway & Breathing

### AIRWAY

**Pediatric Airway Identified as**:

Clear

Or **→** Maintainable c̅ repositioning

Or **→** Unmaintainable s̄ foreign body removal or active airway management.

**Intervention**

**Assess→** Airway open or obstructed?

Breathing **=** Evidence the airway is open.

Stridor **=** Obstructed.

Apnea **→** Use PPV to determine if the airway is open

**[**C**onscious + Complete Airway Obstruction** **→** **Use BLS Tx’s**

**OR**

**Unconscious + FBAO** **→ Direct Laryngoscopy/Mcgill Forceps] Does this need to be in here???**

**Basic airway maneuvers** Used to open & maintain Pediatric Airway

OPA**/**NPA placement

Or **→** Neutral, in-line positioning (Head, neck & shoulders)

Or **→** Anterior displacement of chin**/**Jaw to open mouth

Remove Foreign bodies if present

***Do not attempt nasotracheal intubation of the pediatric pt***

**Withhold Intubation** if Readily Reversible Causes:

**↓BGL**

**Suspected Opioid OD**

**Single Seizure → Consciousness Expected to Improve soon**

[(Gum Elastic Bougie for ETT placement **→** Highly encouraged) ]

**Perform ET Intubation** **→** Cannot maintain the Airway

Consider giving Rx to aid c̅ intubation as permitted by Med-Control

Confirm placement of ETT c̅ Assessments & ETCO₂ monitoring.

**ET intubation should be considered in pt’s ≥8yo if:**

1) Newly unconscious **+** c̅**/**s̄ a gag reflex

2) Conscious **+** Impaired Breathing

3) Conscious **+** Requires PPV for a few min or more

**Examples of Emergencies that may benefit from intubation:**

Respiratory distress **not quickly reversed using lesser measures**

**or responsive only to pain**

Coma**/**Unconsciousness **c̅ inability to maintain airway**

Status epilepticus

Head trauma

Shock **c̅ severely impaired consciousness**

**SGA → Cardiac Arrest = Use 1st**

**SGA** if **Difficult Intubation is Anticipated**

**or p̄ Use P̄ 2 failed ET Intubation Attempts**

**P̄ placed** **→** **Insert OG/NG Tube into the stomach**

(Via Gastric Decompression Port)

**SAI =** Pre-Intubation **+ Awake** or **Gag/Bite Reflex** or **not flaccid**

(SGA prn)

**Steps:**

High-flow O₂ via NRM**/**BVM**/**Vent & mask prn

SGA available prn if child is **>**5kg or 11lbs

**Neonates <5kg should receive BVM**

Suction**/**Intubation Equipment prn & Suction Oropharynx

Connect Vent (if able) & O₂ **→** Set Controls **→** Have mask ready

Attach NS bag to IV**/**IO **→** Flows briskly **+ No** Extravasation

Sedate c̅ **Ketamine 2**mg**/**kgIV

**Ketamine 1**mg**/**kgIV **→** If **↓**BP s̄ Cardiogenic Shock

**Ketamine 0.5**mg**/**kgIV **→** c̅ Cardiogenic Shock

***\*Don’t Intubate*** If ***fasciculations*** or ***trismus p̄ Rx → BVM\****

Turn on Vent **→** Partner **→** good mask seal **→** pt sedated enough

When pt is Sedated **→** Hyperventilate **→** Intubate **→** Confirm

**2 failed Intubations =** Suction prn **→** Transport c̅ BVM

**Versed 0.1mg/kg IV** prn p̄ successful intubation **Max = 5mg**

**Confirm c̅** Auscultation of the Epigastrium & lungs

Verify c̅ ETCO₂ & document waveform

**Tension Pneumo** **→ ↑**PPV difficulty **c̅**  JVD or Hyper-Expanded Cx or Tracheal Deviation **=** **Needle-D**

**[ Tracheostoma c̅ No/Uncuffed Appliance** **→** Insert ETT just far enough that the cuff is in the Trachea **→** Auscultate Epigastrium**/**Lungs **→** Verify c̅ ETCO₂ **+** waveform **→** Secure tube **→** Decompress stomach c̅ NG**/**OG Tube

**Pts c̅ tracheostoma**: See Special Health Care Needs Standing Order, page 194. ]

**Suction Airway prn** for Suspected aspiration, Pulmonary Edema, or excess secretions

**Look for** Thick**/**Dry Airway Secretions c̅ long-term O₂ pts

**(especially c̅ a Trach Pt)**

**Or for Aspiration c̅ → ALOC or Stroke Hx pts**

**Meconium c̅ newborn** **→** Suction mouth, nose & manage airway prn

**\*Avoid using Meconium Aspirator Adaptor** & **ETT to perform Tracheal Suctioning as previously recommended**

**Consultation**

Discuss ET Intubation in pts **<** 8yo c̅ Med-Control

**Pediatric field Intubation is no longer considered standard of care** & **EMS may elect to transport using adjunctive airway measures rather than calling in for Intubation orders**

**P̄ the SGA is placed** **→** Decompress the stomach c̅ OG tube

**Cricothyrotomy shouldn’t be performed on any child < 12yo**

**Surgical Cricothyrotomy = No FBO** **+** **PPV doesn’t Inflate Cx** (C̅ proper pt positioning) **+** **can’t use Rescue Airway Device** (use any method)

**Then Access the trachea through the cricothyroid membrane**

### BREATHING / Respiratory Failure

RR **+** Effort, BS (air entry) & skin color will be assessed as measures of O₂ & ventilation.

A RR **>**60 or **<**10 suggest **respiratory distress or failure**

Accessory muscles **→** supraclavicular**/**intercostal, subcostal**/**sternal retractions, along c̅ grunting**/**nasal flaring, are signs of **↑work of breathing**

Auscultation of BS provides a sense of **tidal volume**

Pale, mottled, or blue skin color suggests **respiratory failure**

**Normal RR** (breaths**/**min)

**Age Rate**

**Infant** (**< 1yo**) **30-60**

**Toddler (1-3yo) 24-40**

**Preschooler (4-5yo) 22-34**

**School-age Child (6-12yo) 18-30**

**Adolescent (13-18yo) 12-16**

**Intervention**

No RR or inadequate breathing **→** BVM c̅ high**-**flow, 100% O₂

If abdominal distention arises **→** Consider placing a NG Tube

### BRONCHOSPASM

If breathing is Labored**/**Diminished or pt has Stridor**/**Wheezing, Bronchospasm may be the cause or part of the distress.

Not all bronchospastic processes will benefit from albuterol

**Intervention**

albuterol may help c̅ bronchospasm but not c̅ other dyspnea causes

Unless contraindicated, Give 1 dose Albuterol

Discontinue if the pt experiences **↑**Respiratory distress, or Cx pain

**1**) **Albuterol 2.5**mg in 3cc via Neb c̅ 6LPM O₂

**2**) **Dexamethasone 0.6** mg**/**kg PO**/**IV**/**IM

**Consultation**

Report pt’s condition, Tx progress, & any changes.

Discuss giving **Epi** 1:1000 **0.3**mg IM

Discuss giving Mg slow IV drip for severe asthmatics or those c̅ prior Intubation Hx for asthma.

**Only for** **>**2yo who have had Beta Agonists & steroid therapy

**Mg 40mg/kg** diluted c̅ NS to a concentration of 100mg**/**ml

**Infuse over 20min** c̅ rate not to exceed 150mg**/**min (**Max** **=** **2**g)

**Contraindications for Mg:**

1) Acute Pulm-Disease besides asthma (foreign body

aspiration, croup, bronchiolitis, lobar pneumonia, etc)

2) Chronic Pulm-Disease besides asthma (cystic fibrosis,

broncho-pulmonary dysplasia, Pulm-HTN, sickle cell

disease, etc)

3) Congenital heart disease

4) Renal**/**hepatic disease

5) Pregnancy

6) Hypocalcemia

7) Muscle Dx **→** Myasthenia Gravis, muscular dystrophy, etc

**Continuity**

If breathing is labored & BS are Wheezing**/**Diminished, give a 2nd dose of albuterol. Refer to dosing as above

### Brief Resolved Unexplained Event (BRUE)

Formerly **→** **A**pparent **L**ife**-T**hreatening **E**vent (ALTE)

**BRUE** **→** Events lasting **<**1min in **<**1yo that are associated c̅

**≥**1 of the following:

➢ Absent, **↓**, or Irregular Breathing

➢ Cyanosis**/**Pallor

➢ Altered level of Responsiveness

➢ Marked change in Muscle Tone (hypertonia or hypotonia)

**+**

Must appear well & be back at baseline by the time EMS arrives on scene p̄ the initial event.

Infants who are febrile, coughing, or showing any signs of distress or other abnormalities are not considered to have BRUE!

**Intervention**

Obtain Hx of events to ensure inclusion criteria are met.

If not **→** Proceed to most appropriate Standing Order.

Have a high index of suspicion for:

➢ GERD or Dysphagia associated c̅ laryngospasm**/**aspiration

➢ Neurologic Dx (seizures, breath holding, hydrocephalus,

brain malformations)

➢ Respiratory Infections (RSV, Flu, pertussis)

➢ Infectious **→** Sepsis, meningitis

➢ Cardiac**/**Metabolic, Airway abnormalities, Rx’s,

Anaphylaxis, Abuse, etc

Because BRUE is a Dx of exclusion, all caregivers Must be strongly advised that ED evaluation is necessary

**Consultation**

Call Med-Control if Parent**/**Guardian refusing transport

### CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

Too ill for NRB, Not ill enough for Intubation (non-invasive PPV)

**Intervention**

Ensure proper Mask Fit**/**Seal **→** Start pt on 5cm H2O (CPAP)

Can’t protect their own airway **=** Airway PSOs

IFTs **→** BiPAP or CPAP & confirm settings c̅ RT, R.N, etc

**CPAP** **→** Match Settings **→** Use CPAP Original Facility Settings

**BiPAP** **→** Please seek consultation ā converting to CPAP

**Set → Flow** (LPM) **CPAP PEEP Pressure**

**6 2.0 - 3.0**

**10 6.0-7.0**

**12 8.0 - 9.0**

**15 11.0 - 12.0**

If you need **>**15L **→** Insert pressure gauge in your circuit & ↑flow until desired pressure is obtained

**Consultation**

Ā changing a pt from BIPAP to CPAP, consult Med-Control

A child must have spontaneous respiratory drive & good respiratory effort for CPAP to be effective.

**If on BiPAP** **→** Start CPAP setting to the Expiratory Pressure

Example **→** BiPAP settings of 10 & 5 **→** Set your pressure to 5

**If pt does not seem to tolerate CPAP intervention, discuss:**

**1**) Sedation

**2**) Increased or Decreased pressure setting

### CPAP Set-up: FlowSafe II System

### BiPAP Set-up: FlowSafe II System

### Directions For Providing CPAP:

Set CPAP Mode**-Green Switch to CPAP**

**Connect O₂** tubing to gas source & **Turn on O₂**

**Secure face mask to pt’s face** c̅ head harness

**Slowly ↑gas flow to 6-8LPM**

Check mask fit & for leaks

**Adjust** flowmeter **until desired pressure is obtained**

***Flow of 12-14LPM is required to reach CPAP pressure of 8.5-10***

**Directions For Providing BiLevel:**

Ensure device **set to BiLevel** **mode** by rotating Green switch

**Connect O₂** tubing nipple to gas source & Turn on

**Secure face mask to pt’s face** c̅ head harness

**Slowly ↑gas flow to reach ≈ 8 IPAP**

**8 IPAP = Min IPAP pressure required for device to function**

**properly in the BiLevel mode**

Check mask fit & for leaks

**Adjust flowmeter until desired IPAP pressure is obtained**

***Flow of 17LPM is required to reach Max IPAP pressure of 12-13***

**To ↓EPAP** pressure rotate EPAP knob **counterclockwise**

**To ↑EPAP** pressure rotate EPAP knob **clockwise**

**Effective mask seal** required **to shift from IPAP → EPAP mode**

## Circulation/Cardiac

### CIRCULATION / Shock

**Shock Present if perfusion is inadequate for tissue demands**

**Perfusion info** through HR & quality, LOC, Cap-Refill, extremity Tº, skin color, urine output & BP

**↑HR** may be associated c̅ shock

**↓HR** provides inadequate CO & is an ominous finding

**Pulse quality** reflects cardiac output.

**Compare** HR quality at proximal & distal sites &

Compare skin Tº at the trunk c̅ Tº at an extremity to judge peripheral perfusion

**Check Cap-Refill** c̅ the hand elevated slightly above the heart

**Normal Range by Age:**

**Age Awake HR Mean Sleeping HR**

**0-3months 85-205** 140 80**-**160

**3months-2yo 100-190** 130 75**-**160

**2-10yo 60-140** 80 60**-**90

**>10yo 60-100**  75 50**-**90

**BP**

**1) Typical SBP for 1-10yo: 90 + (age in years x2)**

**2) Lower limits of SBP for 1-10yo: 70 + (age in years x2)**

**3) Lower range of normal SBP for >10yo: ≈ 90**

**4) Typical MAP: 55 + (age in years x 1.5)**

**Intervention**

**If Evidence of shock** **→** Obtain IV access c̅ 18G.

**If no IV access p̄ 90sec** **→** IO access in the proximal tibia.

**If no IO p̄ the 1st attempt** **→** Transport ā any further attempts

1) NS 20ml**/**kg IV**/**IO bolus (Min time **=** **<** 20min)

2) NS 20ml**/**kg IV**/**IO may be repeated (Max dose **=** 40ml**/**kg)

3) Consider 10ml**/**kg if poor cardiac function suspected

**Reassess p̄ each bolus**

BP is inadequate strategy to identify early signs of shock. **Narrowing pulse pressure & ↑HR** are 1st subtle signs of shock. **Look for** **↓**LOC, **↓** (skin) Tº, poor color, & delayed Cap-Refill

Aggressive volume resuscitation (for non-cardiogenic shock) & rapid transport should be initiated

### Newborn Resuscitation – Inverted Pyramid Model

**All Newborns**

**Few Newborns\***

**\*RISK FACTORS PREDICTING POSSIBLE NEED FOR RESUSCITATION**

### Inverted Pyramid Model for Newborn Resuscitation

**SOME NEWBORNS**

**FEW NEWBORNS**

**ALL NEWBORNS**

Risk factors predicting possible need for newborn resuscitation

### Cardiogenic Shock or p̄ Arrest Stabilization

Pulm**-**Edema c̅ shock signs or **↓**BP c̅ normal HR or **↓**BP p̄ ROSC

**Intervention**

Titrate FiO₂ to maintain SPO₂ **>**94%

Consider Adv airway placement & Capno (if available)

**Identify & Tx** contributing factors (Hypovolemia, ↓O₂, Acidosis, Hypoglycemia, Hypo**/**Hyperkalemia, Hypothermia, Tension pneumothorax, Cardiac Tamponade, Drug OD, Trauma)

1) NS 20ml**/**kg IV**/**IO bolus (minimum **<**20min)

2) NS 20ml**/**kg IV**/**IO may be repeated (Max dose 40 ml**/**kg)

3) Consider 10ml**/**kg if poor cardiac function suspected

**Consultation**

Report pt’s condition, Tx progress, & any changes.

Discuss additional fluid bolus vs Push Dose Epi 1mcg**/**kg IO**/**IVP

1:100,000 Epi **=** 10mcg**/**mL

A 10kg child would get 1mL

15kg child would get 1.5mL

### PEDIATRIC ADVANCED LIFE SUPPORT

Primary **Pediatric cardiac arrest** way less common than in adults

**→** Usually from progressive **↓** in Resp.**/**Cardiovascular function.

**To prevent** **→** Detect & Tx Respiratory failure**/**Arrest, & shock

**Intervention**

Tx according to the ABC’s Standing Orders

Refer to the appropriate AHA Pediatric ALS (**PALS**) algorithm

**Consultation**

Report pt’s condition, Tx progress, & any changes

### NEONATAL RESUSCITATION

Neonates are **<** 28 days & may require resuscitation, typically at the time of childbirth.

Most newborns respond to Tactile Stimulation & Airway opening

**Intervention**

Keep environment as **warm as possible** to avoid hypothermia which inhibits resuscitation efforts

**In the 1st 60sec of management, perform the following:**

➢ **Stimulate** to encourage spontaneous breathing by **drying**

If drying Initiates breathing or crying within 5**-**10sec, proceed to routine care.

**If not**, stop stimulation & proceed below to opening the airway.

If **≤** 32 weeks EGA premature, then do NOT dry

& place in a wet warming bag (like a Ziploc gallon size bag)

& maintain head**/**airway access to continue resuscitation

➢ **Open the airway**

Lay Neonate on back c̅ head in neutral position

**c̅ 3 goals** **→** Aligning face parallel to the ceiling

Opening the anterior neck space

Aligning external auditory meatus**/**sternal notch

**Avoid** flexion**/**hyperextension of neck, this can obstruct the airway

Vigorous**/**Deep suction can elicit a vagal response leading to Apnea**/↓**HR

**Suctioning is not a routine part of neonatal resuscitation** & should be used if copious secretions causing airway compromise

In such cases **→** Suction mouth (Max depth **=** 2cm from the lips)

c̅ a bulb syringe for **≤** 5sec

Still not breathing**/**breathing well **→** More vigorous stimulation

➢ **Stimulate the neonate**

Rub back & soles of feet vigorously

If still having difficulty breathing or not breathing p̄ 5sec

**→** Stop active stimulation

& BVM p̄ managing the umbilical cord

➢ **Clamp & cut cord**

See CHILDBIRTH standing order in adult PSO

➢ **Auscultate HR**

If HR **<**100 **→** BVM for 30sec & reassess

If HR **<**60 **→** BVM 30sec & then begin CPR if no improvement

**If BVM is required**:

Fit mask over nose & mouth

Press firmly to prevent air leaks & Ensure good seal

Bag **→** 30-60breaths**/**min for 60sec c̅ just enough volume to obtain Cx rise & fall

Ventilation **=** priority **→** have partner connect O₂

To avoid hyperventilation **→** Say “squeeze, 2, 3, squeeze, 2, 3, etc

If cardiac arrest **→** “1 & 2 & 3 & squeeze; 1 & 2 & 3 & squeeze, c̅ CPR occurring on 1 & 2 & 3

**WARNING**: excessive ventilation pressure & over-ventilation can cause a pneumothorax from barotrauma.

If the Cx fails to rise, do not just “squeeze harder.”

Instead **→** Check connection between bag & mask

Correct the position of the mask on the face

Correct the head position.

**Mask position**

**Head positioning**

If simple extension of the head & neck position is insufficient to achieve the 3 goals of aligning the pt

**Then** **→** Addition of a shoulder roll & headrest may be necessary

Check q̄ min for spontaneous respiratory effort (Cx movement)

do not take mask off to check for spontaneous breathing

Continue BVM until there is spontaneous respiratory effort

P̄ resuscitation **→** Record APGAR & BGL & Reassess

## Medical

### AMS/Suspected Opioid OD

AMS of unk etiology or from suspected Opioid OD

**Intervention**

Evaluate the ABC’s according to Standing Orders.

Determine the BGL.

If BGL is **≤**50 **→** Hypoglycemia**/**Insulin OD Standing Order

Give **Narcan 0.1mg/kg** IV**/**IO**/**ETT**/**IM (Max dose **=** 2.0mg)

Opioid OD is a common cause of pediatric AMS**/↓**Responsiveness

If Evidence of shock or a Hx of dehydration, give a fluid bolus Refer to the Circulation**/**Shock Standing Order

**Consultation**

Report pt’s condition, Tx progress, & any changes

**Continuity**

Reassess pt’s mental status.

Expose the child only as necessary to perform further assessments. Maintain the child’s body Tº throughout the examination. Consider other causes of AMS **→** Chemical**/**Drug intoxication, toxic exposure, head trauma or seizure

Contact Med-Control for additional instructions

### ALLERGIC REACTION

Not Anaphylaxis

Allergen Exposure resulting in **→** Itching**/**Rash**/**hives**/**flushing

**Intervention**

**Benadryl 1**mg**/**kg **IVP** (Max **= 50mg**)

(Monitor for anaphylaxis)

**Consultation → Report** pt's condition, Tx progress, & any changes

### ANAPHYLAXIS

**Wheezing/Stridor, Airway Swelling, Hives** or **Flushing**

**Itching, Dyspnea, Difficulty Swallowing, scratchy throat Nausea,** or **Weakness**

May also observe signs of GI distress such as vomiting & diarrhea

**Food anaphylaxis** **→ Emesis + Abdominal pn** & **no Urticaria**

**Rx if →** Pt meets **1 of 3 Criterion for Anaphylaxis**

**Intervention**

**Give Epi 1:1000 based on this chart**

**< 10kg = 0.01**mg**/**kg IM

**10-25kg = 0.15**mg IM

**25-60kg = 0.3**mg IM (preferred)

**≥ 60kg = 0.5**mg IM

**Benadryl 1**mg**/**kg **IVP** (Max **=** 50mg) p̄ Epi is given

**Dexamethasone 0.6**mg**/**kg IV**/**IM

**↓BP =** NS **20**cc**/**kg **Bolus**

**Anaphylaxis Persists** **→** Transport ASAP & repeat **Epi q̄ 5-15**min up to 2 additional doses (3 doses total)

**Consultation**

Discuss IV Epi Infusion if Anaphylaxis Persists p̄ 3 IM Epi doses

**Anaphylaxis Criteria**

**Respiratory Compromise =** Dyspnea, wheeze-bronchospasm, stridor, hypoxemia

**End-Organ Dysfunction Sx** **=** Hypotonia, Collapse, Syncope, Incontinence

**Skin-Mucosal Tissue =** Generalized hives, pruritus or flushing, swollen lips**-**tongue**-**uvula

**Anaphylaxis → Highly likely c̅ any 1 of the 3 criteria:**

***Criteria 1***

**Acute + c̅ Skin-Mucosal Tissue Involvement** & **Either**

**→ Respiratory Compromise** or **↓BP** or **End-Organ**

**Dysfunction Sx’s**

***Criteria 2***

**≥ 2 of the Following** & **Occur Rapidly p̄ Likely Allergen**

**Exposure:**

**A**) **Skin-Mucosal Tissue**

**B**) **Respiratory Compromise**

**C**) **↓BP or End-Organ Dysfunction**

**D**) **Persistent GI Sx** (Crampy abdominal pn, emesis)

***Criteria 3***

**↓BP p̄ exposure to a KNOWN allergen**:

**Infants/Children → ↓SBP (age specific)** or **> 30% ↓ in SBP**

**Adults → SBP < 90** or **> 30**% **↓ From Pt’s Baseline**

### Hyperglycemia/DKA or Nonketotic Hyperosmolar Coma

BGL **>**250 & Abnormal mental status

**Intervention**

1) NS 10ml**/**kg IV WO **→** Up to 1L Infused

2) NS 10ml**/**kg IV may be repeated (Max **=** 20ml**/**kg)

**Consultation**

Report pt’s condition, include Arousal, BGL, Breathing Rate**/**Depth, Presence**/**Absence of ketone breath odor, & Presence**/**Absence of signs of dehydration.

Report progress & Discuss options

### Hypoglycemia / Insulin OD

BGL **≤**50 & AMS

**Intervention**

BGL **≤**50 or BGL is so low it cannot be determined,

**→** Give Dextrose IV/IO as follows:

• **<** 2months **=** 2mL**/**kg IV**/**IO of D10

• **≥** 2months **=** 3mL**/**kg IV**/**IO of D10

Repeat BGL 1-2min p̄ dextrose

Dextrose may be repeated once at the same dosage if BGL remains **<**50 or if the BGL cannot be determined & there is no change in the pt’s mental status p̄ the initial dose

**Consultation**

Report pt’s condition, Tx progress, & any changes

**Continuity**

A 3rd IV attempt may be made during transport.

If access is obtained & the IV fluid flows briskly s̄ extravasation, Give dextrose as outlined above

### N/V

N/V may be the by-product of serious emergency conditions.

Examples in children include abdominal or head injury, adrenal crisis, bowel obstruction, food allergy, ketoacidosis, meningitis, UTI, peritonitis, sickle cell crisis, brain tumor, or toxic ingestion.

**Intervention**

**Zofran 0.15 mg/kg** IV over 60sec (Max **=** 4mg)

If no IV **→** then give

4**-**11yo **=** **Zofran 4mg** PO

**≥** 12yo **=** **Zofran 8mg** PO

**Droperidol is not approved in pediatric pts at this time**

### Organophosphate or Carbamate Poisoning

Pesticide Exposure c̅ Symptomatic **↓**HR or SLUDGEM syndrome should be assumed to involve organophosphate or carbamate

**Intervention**

Protect yourself from exposure.

If FD on scene, allow them to Decon pt ā you make contact.

For Symptomatic **↓**HR give Atropine. Transport**/**Notify ED ASAP

**Atropine 0.05mg/kg IV (preferred) or IM**

**Repeat prn**

Monitor for seizures & Tx accordingly c̅ **Versed 0.2mg/kg IV/IO**

(Max = 5mg) **or** **Versed 0.5mg/kg IN**

**Consultation**

Report pt’s condition, Tx progress, & any changes.

Discuss the appropriateness of any further pre-hospital modalities

**Continuity**

If crew contamination **→** Decon & Change uniform

### PAIN MANAGEMENT

pts who require pain management in addition to other Tx’s.

Pain Rx’s often causes sedation & affects a pt’s mental status.

**Analgesia should not be given to a pediatric pt c̅ head trauma**

**Intervention**

Evaluate the ABC’s according to Standing Order.

Assess pt’s pain using # scale or visual analogue scale as appropriate to the child’s abilities

Give Morphine or Fentanyl

**Morphine 0.1mg/kg** IV**/**SQ (max **=** 4mg)

**or**

**Fentanyl 0.5-1.0mcg/kg** IV**/**IN (max **=** 50mcg)

**Consultation**

If pt still in pain, discuss c̅ Med-Control options such as repeating morphine or fentanyl or alternatives such as ketamine or ketorolac

Ketorolac is not FDA-approved for **<**17yo

but may be given off-label c̅ Med-Control authorization.

**Continuity**

P̄ drug administration, reassess the pt’s pain scale.

Carefully note the adequacy of ventilation & perfusion.

Reassess the pt frequently.

Contact Med-Control for further instructions.

### SEIZURE

BGL **>**100 & seizure continues or seizure continues p̄ giving D10

**Intervention**

High-flow O₂ & cardiac monitor

**Give Benzo using one of the options below:**

**Versed 0.2mg/kg** IV**/**IO (Max **=** 5mg)

May repeat for max of **10mg IV**

**Versed 0.5 mg/kg** IN to a max of 10mg initially.

May repeat for max total dose of **20mg IN**

Support ABC’s prn

Transport ASAP

**Consultation**

Request to repeat Benzo if seizure is still active 5min p̄ the 1st dose

### SICKLE CELL CRISIS

Determined by pt’s report of severe pain similar to previous sickle cell crises, clear lung sounds & No Heart Failure**/**Stroke Hx

**Intervention**

Establish IV & run NS to KVO

Give O₂ at 2L**/**min by NC

**Consultation**

If granted permission, give Morphine or Fentanyl

**Morphine 0.1mg/kg** IV**/**SQ (max **=** 4mg)

**Fentanyl 0.5-1.0mcg/kg** IV or SQ (max **=** 50mcg)

Caution used in giving narcotics to sickle cell pts c̅ AMS

### TOXIC INGESTION

Poisoning**/**Drug OD **+** Accidental**/**Intentional **+** Harm Potential

**Intervention**

Safety **→** Toxin may still be around &**/**or pt may be violent

Collect info on Ingestion **+** Type**/**Time**/**Amount

Possibility of multiple ingestions

Intentional Ingestions may under-report Variety & Quantity

Attempt to collect all Rx bottles on scene for ED

**Consultation**

Contact Med-Control ASAP during transport, even c̅ the above not

yet complete

Discuss drug therapies that may be helpful for specific ingestions.

**Continuity**

These therapies may be beneficial if serious S/S are present:

**Propranolol OD c̅ wide QRS = Bicarb 1-2 mEq/kg** IV**/**IO bolus

Ca**⁺** Blocker or β**-**Blocker OD c̅ **↓**HR

**Ca⁺-Chloride = Not for pediatrics** **→** Does not enter the cell & can necrotize the extremity if IV extravasates

**Haldol c̅ acute Extrapyramidal Reaction**

**= Benadryl 1mg/kg** IV**/**IM**/**IO

**Plant Ingestion c̅ ↓HR**

**<12yo = Atropine 0.02-0.05mg/kg**

Repeat q̄ 20**-**30min until effects observed (dry mouth, **↑**HR,

mydriasis) or Sx’s Reverse

**≥12yo = Atropine 0.05mg/kg** IV**/**IO

Repeat q̄ 20**-**30min until effects observed (dry mouth, **↑**HR,

mydriasis) or Sx’s Reverse

**Tricyclic Antidepressant OD c̅ ↓BP or No Pulse or wide QRS**

**=** **Bicarb 1-2mEq/kg** IV**/**IO

**Methadone Ingestion = Narcan 0.2mg/kg** (Max **=** 2mg)

Acute withdrawal S**/**S **→** Not a concern unless on opiates

for chronic pain

### Violent Pt

Exercise caution c̅ Organic-Brain-Syndrome (OBS) call, Emotionally-Disturbed-Person (EDP) or for any situation when a violent pt is encountered.

Wait for LE or facility security to ensure the scene is safe prior to your attempted encounter c̅ a violent pt.

**Intervention**

Attempt to rule out Medical**/**Traumatic causes of Agitation**/**Violence since hypoxia & **↓**BGL may mimic a Psych condition or be a part of the agitation.

Try to “talk down” an agitated pt

Do not be confrontational or reflect hostility back at the pt.

If these methods fail & the safety of the pt &**/**or crew is in question or if the pt requires **↑**physical restraint, then Rx c̅ Versed

**Versed 0.05-0.1mg/kg** IV

**or 0.1-0.2 mg/kg** IM (max **=** 5mg)

May repeat for total max of 10mg IV

**or 0.5mg/kg** IN (max **=** 20mg)

May repeat for max of 20mg IN

**If RASS +4 then give:**

**KETAMINE 4mg/kg** IM

Do not exceed 5ml per injection site (Entire Ketamine Vial)

**Droperidol is not approved in pediatric pts at this time**

## Refusals

### Minor Consent/Refusal Details

**Pediatric Refusals**

All Pediatric Refusals are High Risks Refusals & require calling Med-Control.

**Ped Refusal Checklist**

VS Normal for Age

Normal Mental status for age

No SI/HI

No Obvious Injury or Distress

Parent/Guardian has Capacity & understands the risks of Refusal

Parent/Guardian is Capable of Caring for the pt at Home

No Concerns for Home Abuse

Pt Instructed to Call Back at Any Time

Med-Control has been Contacted

All of the above is Fully Documented

Next section…………………………..

Informed**/**Substituted Consent for Minors Questions *how*

decisions should be made

Parents**/**Guardians are entitled to provide consent due to

legality, & (Absence of Abuse**/**Neglect) are assumed to

act in the Best Interests of the Child

**Minor Consent/Refusal**

* + Typically Parent**/**Guardian.
  + Some minors (Emancipated or certain “medical Emancipation” situations) may Self Consent
  + Parents**/**Guardians **Cannot** Refuse Life-Saving Tx on Religious**/**Other Grounds
* **Who** may Consent**/**Decline c̅ a minor: Parent, grandparent, adult siblings, adult Aunt**/**Uncle, caretaker c̅written authorization, juvenile court, peace officer c̅ reason (or physician), Managing**/**Possessory conservator, or Guardian
* Some minors **≥**16yo living apart & self-supporting or unmarried c̅ a child in their custody
* Always attempt an interactive process that involves minors in their care decisions, as developmentally appropriate
* A Parent**/**Guardian might deny EMS access to minor children if there’s **no** obvious life threat, but they **cannot** refuse Life-Saving Therapy
* **<**18yo c̅ capacity may refuse if Emancipated
* Emancipation does **not** always **=** Medical Emancipation (some conditions allow minors to consent specifically for STDs, Addiction, Pregnancy, or Gynecologic issues, or Infectious**/**Contagious**/**Communicable disease that is required by law to be tested & Tx’ed) or is on active duty
* A Pregnant minor must have adult consent unless she falls under one of those x̄-ions
* If Treating Minors, Involve their input (age-appropriate)

## Trauma

### TRAUMA, major

Defined as Trauma c̅ **→** Airway compromise, breathing difficulty, shock, mental status change, **>**9% BSA burns, or cardiac arrest

**Intervention**

Tx ABC’s & Transport as early as possible

IV en route

Tx’s to do on scene include those done ā moving pt (SMR) or is expected to quickly cause Dramatic Improvement (Needle**-**D)

**Herniation Risk** **=** Potential Head Injury & needs Intubated

Hyperventilate, ETCO₂ **→** 30**-**35

Only if pt has signs of active herniation such as

**→** Newly fixed & Dilated Pupil, Cushing’s reflex, or posturing

**Hyperventilation is defined as**

Adult **=** 20**/**min

Child **=** 25**/**min

Infant **<**1yo **=** 30**/**min

**Consultation**

Contact Med**-**Control early during transport

Discuss therapies that may be indicated by pt’s condition

**Continuity**

Pt has AMS p̄ initial contact, contact Med-Control

[is this part correct??????????]

### Traumatic Arrest????????????????

## Special Needs Children

### Central IV Catheters – Indwelling IV access:

For Rx & parenteral (IV) Hydration**/**Nutrition administration

May be totally Implanted (such as Mediport)

or multilumen catheters (such as Hickman or Broviac catheters)

**Evaluate for DOPE** & **Infection**

**Displaced** **→** Total**/**Partial dislodgement **or** movement out of vein

into internal tissues

**Obstructed** **→** Blood clot, protein, crystallized Rx’s**/**IV nutrition

**Pericardial Tamponade** **→** Pericardial Sac Fluid (catheter perforation)

**Pulmonary Problems** **→** Pneumothorax, PE (from clot or catheter shear)

**Equipment** **→** Tubing Kinked**/**Cracked, infusion pump failure

**Tubing is Leaking** **→** Direct pressure at site **or** Clamp**/**Tie

Give O₂ prn

**Do not Access/Flush central venous catheters s̄ consultation**

### CSF Shunt (Ventriculoperitoneal or V-P Shunt):

For p̄ meningitis, brain injury**/**surgery**/**tumors, & hydrocephalus.

Drains excess fluid from brain through tubing c̅ from brain ventricles to abdomen or heart

**Evaluate for DOPE** & **Infection**

1)**Displaced** **→** Movement of tip into abdominal or heart lining

2)**Obstructed** **→** Blood clot, protein, kinked tubing causing **↑**ICP

3)**Peritonitis**, **Perforation**, or **Pseudocyst** – of stomach**/**bowel

4)**Equipment** **→** Damaged or separated tubing reservoir

Give O₂ prn

**Hyperventilate if signs of brain herniation**

such as unresponsiveness c̅ unequal pupils, fixed dilated or unresponsive pupils, or **↑**BP & **↓**HR

**May attempt to pump shunt reservoir once per Med-Control**

### Gastrostomy

Feeding tube

For Total**/**Enhanced Feeding &**/**or Rx in children c̅ Abd**/**GI problems or neurological or neuromuscular disorders such as muscular dystrophy, brain damage, etc

Button**/**Catheter type G-Tube (stomach) or Jejunal J-Tube (intestine)

**Evaluate for DOPE** & **Infection**

**Displaced →** Total or Partial removal of tube

**Obstructed** **→** Blood, crystallized Feeding**/**Rx’s, Abd tissues

**Peritonitis/Perforation** **→** Of Stomach**/**Bowel

**Equipment** **→** Tubing kinked**/**Cracked, feeding pump failure

**Direct pressure** **→** If bleeding at site

**DSD** **→** If Dislodged or tape if partially dislodged tube

**If tube is blocked** **→** Stop feeding & plug tube

**Transport** for **→** abd evaluation or tube reinsertion**/**replacement

(Stoma can close off within hrs)

**If abd Distention/Vomiting** **→** Leave tube open & drain into cup

**Bring old tube** **→** To ED for sizing purposes

**IV/IO fluids** **→** If signs of Dehydration**/**Shock

### Colostomy of Ileostomy – Fecal Drainage:

For Temporary**/**Permanent Malfunction**/**Obstruction of intestine. Typically **→** Open stomas that drain into plastic pouches

Evaluate for **→** Infection, Irritation**/**Trauma Peritonitis

Bleeding at site **=** Direct Pressure

Exposed Stoma **=** Moistened sterile dressing covered by DSD

Signs of Dehydration**/**Shock **=** IV**/**IO Fluids

### Ureterostomy or Nephrostomy Tube or Foley:

For Temporary**/**Permanent Malfunction of the urinary system. Typically are open stomas that drain into plastic pouches or through a catheter

**Intervention**

Evaluate for Infection, Irritation**/**Trauma, Peritonitis, Blocked Urinary Drainage

Bleeding at site **=** Direct Pressure

Exposed Stoma **=** Moistened sterile dressing covered by DSD

Signs of Dehydration**/**Shock **=** IV**/**IO Fluids

**Consultation**

Report pt’s condition, Tx progress, & any changes

Discuss the appropriateness of any further pre-hospital modalities

### SPECIAL HEALTH CARE NEEDS

**Intervention**

1) Listen to caregivers, they know pt the best.

**Inquire about**:

Childs baseline abilities

Syndromes**/**diseases

What is different today

Devices & meds

Usual VS

Sx

2) Bring Care Plans or Emergency Info Forms to ED c̅ the pt

3) Assess**/**Communicate c̅ pt based on developmental age

4) Look for Medic Alert jewelry or health forms

if usual caregiver is not present

5) Bring necessary specialized Equipment to the ED c̅ the pt

if possible **→** Ventilator, Trach or G**-**tube, etc

6) Ask caregivers **→** Best way to move pt

Particularly if **→** Pt is very prone to Fx’s such as c̅

***osteogenesis imperfecta***

If pt suffers a Fx & has a brace on the affected area, leave

the brace on & immobilize around it

7) Down Syndrome pts may have upper Cervical Instability

& may be prone to spinal cord injury.

Immobilization is important c̅ any MOI c̅ significant

neck movement

8) Cardiac pts may have absent pulses in limbs

& may be chronically hypoxic or have hypoxic spells

### Special needs Tracking & Awareness Response System (STARS)

Identified by various sources

Specifically registered special needs pt’s

c̅ unique medical conditions

**Pre-prescribed Interventions/Orders**

**→ Specific to their condition** (May not be in PSO)

**→ Should be carried out in Emergency cases**

**Intervention**

**→** Is specific condition relevant to current EMS request?

**→** Obtain/Review medical**-**Info**/**Intervention**-**guide in guidebook

**Carry out any Interventions/Orders** required to mitigate the emergency as directed by guidebook

Do not Hesitate to call Med**-**Control at any time for Guidance**/**Assistance

**Consultation**

Report pt’s condition, Tx progress, & any changes

**Continuity**

**Carry out any Interventions/Orders** required to mitigate the emergency as directed by the guidebook

Continue attempting to contact Med-Control

Initiate transport ASAP

### Tracheostomy–Tube

Trach Pts in Respiratory Distress

**Assume Trach is Problem** **→** Collect pt’s Trach Equipment

Go Bag **→** Unique emergency equipment to manage Airway

**→** Must be c̅ the pt at all times

**Check Airway Patency** **→ DOPE**

**Dislodgemen**t **→** Dislodged Trach Tube?

**Obstruction** **→** Trach require Suctioning?

Suction depth **→** No more than 3-6cm in depth

Instill 2-3mL of NS **→** Ā Suctioning

Max **= 10sec/**attempt **→** Pre-Oxygenate between attempts

**Pulm.** **→** **P**neumo, **P**neumonia, Aspiration, Reactive Airway,

etc. Difficult to Ventilate? Equal Breath Sounds? Crepitus?

**Equipment →** Vent issue, Empty O₂ Tank, Tube Kinked, etc.

Check Tube displacement, batteries, etc.

If Pt is good c̅ suction, O₂, BVM **→** Monitor

**n/c** or **Pt Worsens** **→** Emergency Trach Replace**/**Changeout

**EMS does procedure if Regular Caregiver is not present**

O₂ via BVM over mouth**/**nose unless previous laryngectomy

**Other rescuer** **→** Deflate Trach Tube Cuff if present

**→** Hyperextend neck by padding under shoulders

**Prepare** new Trach Tube**/**ETT & one 0.5 size smaller

**→** Make sure Tracheostomy ties are untied

Remove old Tube while other person installs new Tube

P̄ **→** Remove Obturator if present

**Attach BVM** **→** O₂ & Ventilate pt through new Trach Tube

**New Trach Ties** should be secured to avoid dislodgement

Reinflate **Trach tube cuff** if present

Assess RR, lung sounds, SPO₂, Capno, color, tone, VS, etc.

**If trouble changing Trach** **→** BVM over mouth**/**nose or over the stoma **→** Troubleshoot **→ A**ttempt smaller Trach Tube, Cut-&-Size-Match ETT, or other ways to secure Airway.

**Overall Goal = Avoid Hypoxia**

Any attempts to re-cannulate Trachea Must use O₂

(to avoid any hypoxic events)

**Techniques Include** **→** High-flow O₂ over stoma c̅ BVM c̅ O₂ over Mouth**/**Nose

**→ or** combinations thereof to deliver O₂ throughout

**Trach Tubes** **→** Respiratory problems **→** Narrow**/**Obstructed Airways, Bronchopulmonary dysplasia (chronic lung disease seen in premature babies), etc

**→** & Neuro conditions **→** Brain damage, muscular dystrophy, etc

May be totally **or** partially Vent dependent **or** may breathe on own

**Types of tracheostomy tubes include:**

**1**) **Uncuffed** **→** Infant & young child

**2**) **Cuffed** **→** Older, Usually **>**8yo & Adolescent

**3**) **Fenestrated** **→** Hole in stem for breathing through vocal

cords to permit Talking**/**Weaning off tracheostomy

**4**) **Single Tube** or **c̅ Inner Cannula** (Removed**/**Cleaned)

**Evaluate for DOPE** & **Infection** (tracheal or pulmonary)

Reassess HR**/**RR frequently

**Displaced** **→** Total or partial removal of tube

**Obstructed** **→** Mucus plug, blood, FBO or against soft tissue

**Pulmonary →** pneumo(nia), reactive airway, aspiration

**Equipment** **→** Vent malfunction, Low O₂, tubing kinked

**If on a Vent** **→** Disconnect & O₂ c̅ BVM c̅ Trach Adaptor (if able)

or Infant Mask over trach Opening**/**Stoma

**Suction prn** **→** **≤**10sec

Insert no more than ¾ length of neck

**If unable to suction** (Thick Secretions) **→** Instill 2-3ml of NS

**→** Then suction

**If inner cannula present** **→** May remove & clean c̅ NS

(or **½** strength peroxide)

**If Unable to Vent** **→** Plug opening & Vent over Mouth & Nose

**If these do not work** **→** May remove tube

& either reinsert new tube or use ETT of same **≈** Size

**Unable to Find Opening** **→** Thread suction catheter through tube

**→** Use catheter tip to probe opening

**→** Sliding tube over catheter into opening

**→** Then removing catheter

**Gum Elastic Bougies typically are NOT as helpful in the management of pediatric tracheostomies due to the relative fragility & Small Size of the Pediatric Airways**

A smaller trach tube **or** (in some instances) a pediatric stylet may be used to assist guiding a tube, including smaller ETTs, into the trachea, **but the trach tube itself is the best airway**

# Worker’s Compensation Process

**New Claims Management & Care Process Takes Effect as of December 1, 2021**

**Employees will call a single hotline # to report a claim**

GMR no longer uses the STARS software program for initial claim reporting

**How to File a Report**

To Report an Injury**/**Illness, follow these steps.

• **Notify Supervisor 1st**

• **Call Hotline at 1-833-467-1860 & choose option 1**

**Then follow the prompts.**

• **Nurse will Triage your Injury/Illness** & **work to**

**Identify the most Effective/Suitable Tx.**

Note:

Continue to contact GMR **N**urse **N**avigation **L**ine (NNL) for COVID Screenings & Vivify enrollment.

If a **COVID-Related Claim**, the NNL will direct you to **Sedgwick** **→** **1-833-467-1860** for Claims Management & Care as appropriate.

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\_\_\_\_\_04/12//2024\_\_\_\_\_\_\_

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# Abbreviations for PCR – Approved list

To ensure consistency in patient care reporting, only Abbott approved abbreviations will be acceptable for documentation of the Patient Care Report (PCR). If in doubt, unabbreviated, plain English documentation should be utilized. The following are approved:

**A&Ox3 Alert & oriented to name, date, and place**

**AAA Abdominal aortic aneurysm**

**Abd Abdomen**

**AB Abortion**

**ABC Airway, breathing, circulation**

**ABG Arterial blood gas**

**a.c. Ā meals**

**A/C Aircraft**

**ACE Angiotensin-converting enzyme**

**ACS Acute Coronary Syndrome**

**a.d. Right ear (auris dexter)**

**ADD Attention deficit disorder**

**A.E. Above elbow (amputation)**

**AED Automated external defibrillator**

**A Fib Atrial fibrillation**

**Af Atrial flutter**

**AIDS Acquired immunodeficiency syndrome**

**AIVR Accelerated Idioventricular rhythm**

**A.K. Above knee (amputation)**

**ALS Advanced Life Support**

**AMI Acute myocardial infarction**

**Ant Anterior**

**AOS TF Arrived On Scene To Find**

**APAP Acetaminophen (APAP)**

**APS Adult Protective Services**

**APGAR Appearance, Pulse, Grimace, Activity, Respiratory effort**

**ARDS Adult respiratory distress syndrome**

**AS Left ear (auris sinistra)**

**ASA Acetyl salicylic acid (Aspirin)**

**ATF Arrived to find**

**AV Atrioventricular**

**AVA Alternate vascular access**

**AVM Arteriovenous malformation**

**BBBB Bundle branch block**

**BBS Bilateral breath sounds**

**B.E. Below elbow (amputation)**

**BGL Blood glucose level**

**b.i.d. Twice a day**

**BiPAP® Bi-level Positive Airway Pressure**

**B.K. Below knee (amputation)**

**BLS Basic life support**

**BM Bowel movement**

**BP Blood Pressure**

**BS Breath, bowel sounds**

**BSA Body surface area**

**BVM Bag valve mask**

**c̅ c̅**

**Cº Centigrade**

**C/C Chief complaint**

**c/o Complains / complaining of**

**CA Carcinoma, cancer**

**Ca++ Calcium**

**CABG Coronary artery bypass graft**

**CAD Coronary artery disease**

**CAO x 3 or 4 Conscious, Alert, & Oriented to Person, Place, Time & Events**

**CAT/CT Computerized axial tomography scanner**

**CBC Complete blood count**

**Cc Cubic centimeter**

**CCR Cardiocerebral Resuscitation**

**Cm Centimeter**

**CCB Calcium channel blocker**

**CCU Coronary / critical care unit**

**CHF Congestive heart failure**

**CHI Closed head injury**

**CID Cervical Immobilization Device**

**CK Creatine kinase**

**CK-MB Creatine kinase myocardial band**

**CI Chlorine**

**CMO Chief Medical Officer**

**CNS Central nervous system**

**COPD Chronic obstructive pulmonary disease**

**CO Cardiac output / carbon monoxide**

**CO2 Carbon dioxide**

**+CMS Positive circulatory, motor & sensory function**

**CNS Central nervous system**

**CP Chest pain**

**CPAP Continuous positive airway pressure**

**CPR Cardiopulmonary resuscitation**

**CPS Child Protective Services**

**CRT Capillary refill time**

**C-spine Cervical spine**

**CSF Cerebrospinal fluid**

**CSM Carotid sinus massage**

**CTA Clear to auscultation**

**CVA Cerebrovascular accident**

**CVP Central venous pressure**

**Cx Chest**

**CXR Chest x-ray**

**DCAPBTLS Deformities, Contusions, Abrasions, Penetrations,Paradoxical movements, Burns, Tenderness, Lacerations,**

**Swelling**

**DIC Disseminating intravascular coagulation**

**Diff Difficulty**

**Disch Discharge**

**D&C Dilatation & curettage**

**dL Deciliter (1/10 liter: 100 ml)**

**DAE Dysbaric air embolism**

**DKA Diabetic ketoacidosis**

**DM Diabetes mellitus**

**DNAR Did not attempt resuscitation**

**DNR Do-not-resuscitate**

**DO Doctor of Osteopathy**

**DOB Date of birth**

**DOE Dyspnea on exertion**

**DOS Dead on scene**

**DPT Diphtheria, pertussis, tetanus**

**DT’s Delirium tremens**

**D5W Dextrose 5% in water**

**D10W Dextrose 10% in water**

**D25W Dextrose 25% in water**

**D50 50% Dextrose**

**DVT Deep vein thrombosis**

**Dx Diagnosis**

**ECG/EKG Electrocardiogram**

**EDC Estimated date of confinement**

**EEG Electroencephalogram**

**EF Ejection fraction**

**e.g. For example**

**EGA Estimated Gestational Age**

**EMS Emergency Medical Services**

**EOR End of Report**

**EPS Electrophysiological study**

**ER/ED Emergency room/department**

**Epi Epinephrine**

**Est. Estimated**

**ESRD End stage renal disease**

**ETA Estimated time of arrival**

**ET Endotracheal**

**ETC02 End-tidal carbon dioxide**

**ETOH Ethyl alcohol, alcoholic beverage**

**ETT Endotracheal tube**

**ExDS Excited Delirium Syndrome**

**EXP Expansion**

**EXT Extremity(s)**

**Fº Fahrenheit**

**FBAO Foreign body airway obstruction**

**FHx Family history**

**FHR Fetal heart rate**

**Fr French**

**FSP Full spinal precaution**

**FUO Fever of unknown origin**

**Fx Fracture**

**GCS Glasgow coma scale/score**

**GERD Gastroesophageal reflux disease**

**GI Gastrointestinal**

**Gm, g Gram**

**Gtts Drops**

**GU Genitourinary**

**GYN Gynecology**

**Hr Hour**

**H/A Headache**

**HAV Hepatitis A virus**

**HBV Hepatitis B virus**

**HCTZ Hydrochlorothiazide**

**HCV Hepatitis C virus**

**HEENT Head, eyes, ears, nose, throat**

**H&H Hemoglobin and hematocrit**

**Hg Mercury**

**HIV Human immunodeficiency virus**

**HR Heart rate**

**HRT Hormone replacement therapy**

**hs hora somni; hour of sleep; at bedtime**

**HTN Hypertension**

**Hx History**

**AICD Automatic Implanted Cardioverter Defibrillator**

**ICP Intracranial pressure**

**ICU Intensive care unit**

**IDDM/DM I Insulin dependent diabetes mellitus (Type I)**

**ILS Intermediate life support**

**IM Intramuscular**

**IMV Intermittent mechanical ventilation**

**Inf Inferior**

**IO Intraosseous**

**IPPB Intermittent positive pressure breathing**

**IU International units**

**IV Intravenous**

**IVP IV push IVR Idioventricular rhythm**

**J Joules**

**JVD Jugular venous distention**

**K+ Potassium**

**KED Kendrick extrication device**

**KTD Kendrick traction device**

**KVO Keep vein open**

**Kg Kilogram**

**L Left or Liter**

**L spine Lumbar spine**

**L&D Labor and delivery**

**L/S Lung sounds**

**Lac Laceration**

**LAD Left axis deviation / left anterior descending**

**Lbs Pounds**

**LBBB Left bundle branch block**

**Liq Liquid**

**LLQ Lower left quadrant**

**LMA Laryngeal Mask Airway**

**LMP Last menstrual period**

**LOC Level/loss of consciousness**

**Lpm Liter per minute**

**LR Lactated Ringer’s**

**LSB Long spine board**

**LSD Lysergic acid diethylamide**

**LSV Life Support Vehicle (ambulance)**

**LUQ Left upper quadrant**

**LVAD Left Ventricular Assist Device**

**LVH Left ventricular hypertrophy**

**mA Milliamperes**

**mg Milligram**

**MAE Moves all extremities**

**MAP Mean arterial pressure**

**Mcg Microgram**

**MCL Midclavicular line, modified chest lead**

**MD Medical Doctor**

**MDI Metered dose inhaler**

**mEq Milliequivalent**

**mL Milliliter**

**mm Millimeter**

**MMR Measles, mumps, rubella**

**MOI Mechanism of injury**

**Mph Miles per hour**

**MS Morphine Sulfate, Multiple Sclerosis**

**MVC Motor vehicle crash**

**MVP Mitral valve prolapse**

**Na+ Sodium**

**NAD No apparent / acute distress**

**N/C Nasal canula**

**NES Non-English Speaking**

**NGT Nasogastric tube**

**NH Nursing home**

**NICU Neurological, neonatal intensive care unit**

**NIDDM/DM II Non-insulin dependent diabetes mellitus (Type II)**

**NKA No known allergies**

**NKDA No known drug allergies**

**NMB Neuromuscular blockade**

**NOI No obvious injury**

**NP Nurse Practitioner**

**NPA Nasopharyngeal airway**

**NPO Nothing by mouth**

**NRB Non-rebreather mask**

**NS Normal saline**

**NSAID Non-steroidal anti-inflammatory drug**

**NT Nasotracheal**

**NTG Nitroglycerin**

**N/V/D Nausea, vomiting, diarrhea**

**02 Oxygen**

**OB Obstetrics**

**OBS Organic brain syndrome**

**OBV Obvious**

**OD Overdose, right eye (oculus dexter)**

**OLMC On-line medical consultation/control**

**OMD Office of the Medical Director**

**OOH Out of hospital**

**OPA Oropharyngeal airway**

**OPP Organophosphate poisoning**

**OR Operating room**

**OS Left eye (oculus sinister)**

**oz. Ounce**

**Ø No or none**

**P (+ #) Parity (P3, P4 etc)**

**PA Physician assistant, pulmonary artery**

**PAI Pharmacologically assisted intubation, Pre-Arrival Instructions**

**PCI Percutaneous coronary intervention**

**pC02 Carbon dioxide pressure**

**PCP Phencyclidine, Primary Care Physician**

**PE Physical exam, pulmonary emboli, pulmonary edema**

**PEA Pulseless electrical activity**

**PEEP Positive end expiratory pressure**

**PERRL Pupils equal round reactive to light**

**PICU Pediatric intensive care unit**

**PID Pelvic inflammatory disease**

**PMD Primary/Private medical doctor**

**Pn Pain**

**PND Paroxysmal nocturnal dyspnea**

**P02 Partial pressure of oxygen**

**PO By mouth**

**POC Position of comfort**

**post. Posterior**

**POV Privately operated/owned vehicle**

**PPV Positive Pressure Ventilation**

**p.r. Per rectum**

**PRBC’s Packed red blood cells**

**PRN As needed**

**PSO Paramedic Standing Orders / Patient Safety Organization**

**PSVT Paroxysmal supraventricular tachycardia**

**Pt. Patient**

**PTA/PTOA Prior to (our) arrival**

**PTS Pediatric trauma score**

**PVC Premature ventricular contraction**

**PVT Polymorphic ventricular tachycardia**

**P/C̅D Pink warm and dry**

**Q Q̄**

**Qh Q̄ hour**

**q.i.d. Four times a day**

**R Right**

**RAD Right axis deviation, reactive airway disease**

**RBBB Right bundle branch block**

**Rbc Red blood cell, red blood (cell) count**

**RCA Right coronary artery**

**RHD Rheumatic heart disease**

**RLQ Right lower quadrant**

**ROSC Return of spontaneous circulation**

**+ROM Positive range of motion**

**RN Registered nurse**

**RR Respiratory rate**

**RRT Registered Respiratory Therapist**

**RSV Respiratory syncytial virus**

**RTS Revised trauma score**

**RUQ Right upper quadrant**

**Rx Prescription**

**s̅ C̅out**

**s/s Signs / symptoms**

**SA02 Oxygen saturation of arterial oxyhemoglobin**

**SARS Severe acute respiratory syndrome**

**SBP Systolic blood pressure**

**SC, SQ Subcutaneous**

**SCI Spinal cord injury**

**SCUBA Self-contained underwater breathing apparatus**

**SIDS Sudden infant death syndrome**

**SL Sublingual, Saline Lock**

**SOAPE Subjective, Objective, Assessment, Plan, Enroute**

**SOB Shortness of breath**

**SROM Spontaneous Rupture of Membranes**

**STD Sexually transmitted disease**

**SUV Sport utility vehicle**

**SVT Supraventricular tachycardia**

**Sx Symptoms**

**TASER Thomas A. Swift Electric Rifle**

**T spine Thoracic spine**

**TBI Traumatic brain injury**

**Temp Temperature**

**tab Tablet**

**TB Tuberculosis**

**Tbsp Tablespoon**

**TCP Transcutaneous pacing**

**TCA Tricyclic antidepressant**

**TIA Transient ischemic attack**

**t.i.d. Three times a day**

**TKO To keep open**

**Tsp Teaspoon**

**Tx Treatment**

**U Unit**

**U/A Upon arrival, urine analysis**

**URI Upper respiratory infection**

**UTI Urinary tract infection**

**UTL Unable to locate**

**UTO Unable to obtain**

**Vol Volume**

**VO Verbal order**

**VF Ventricular fibrillation**

**VS Vital signs**

**Vt Tidal volume**

**VT Ventricular tachycardia**

**c̅o C̅out, wide open**

**WDWN Well developed, well nourished**

**WPW Wolf-Parkinson-White**

**Xfer Transfer**

**X-prt Transport**

**y/o Years old**

**-Symbols-**

α Alpha

β Beta

@ At

? Questionable, possible

Female

♂ Male

1° First degree or Primary

2° Second degree or Secondary

3° Third degree or Tertiary

x Times

Δ Delta (change)

+ Positive

– Negative

= Equal

Not equal to

Approximately

↓ Decreased / below / lower

↑ Elevated / increased / upper

→ Move/went to

↔ Between

# Number

c c̅

s c̅out

a ā

p p̄

q each

> greater than

< less than

Ø No or none

# ALS Medications

**10% Calcium** Chloride (1,000mg/10ml)

**2% Lidocaine** (Xylocaine) (100mg/5ml)

**8.4%** Sodium **Bicarb**onate (NaHCO₃) (50mEq**/**50ml)

**Adenosine** (Adenocard) (6mg/2ml)

**Albuterol** (2.5mg)

**ASA** (81mg/tab)

**Atropine** Sulfate (1mg/10ml)

**D10** (25g/250ml bag)

**D5** (5g/100ml bag)

**Dex**amethasone (Decadron) (10mg/ml)

Diphenydramine (**Benadryl**) (50mg/ml)

**Droperidol** (Inapsine) (5mg/2ml)

**Epi** 1:1,000 (Adrenaline) (10mg/10ml)

**Epi** 1:10,000 (1mg/10ml)

**Epi** 1:100,000 “Push-Dose Epi” (100mcg/10ml)

**Etomidate** (Amidate) (40mg/20ml)

**Fentanyl** (Sublimaze) (100mcg/2ml)

**Ipratropium** (0.5mg)

**Ketamine** (Ketalar) (500mg/5ml)

Ketorolac Tromethamine (**Toradol**) (30mg/ml)

Magnesium sulfate (**MgSO₄**) (1g/2ml)

**Metoprolol** tartrate (Lopressor) (5mg/5ml)

Midazolam (**Versed**) (10mg/2ml)

**Morphine** (4mg/2ml)

Naloxone (**Narcan**) (2mg/2ml)

**NTG** (0.4mg/Spray)

Ondansetron (**Zofran**) (4mg/2ml)

## 10% Calcium Chloride (1,000mg/10ml)

### **Drug Info:**

#### Class:

Electrolyte

#### Indications:

Hyperkalemia

Symptomatic **↑**HR

Toxic Ingestion

#### Contraindications:

Known hypersensitivity

Digitalis toxicity

#### Precautions:

Rx slowly unless **→** Cardiac Arrest.

#### Significant adverse/side effects:

↓HR

VF

Extravasation Necrosis

Abdominal Pain

N/V

### Adult Rx:

Intervention**:** Mg OD from Bronchospasm IN Eclampsia **1g** IV

(clarify how this is written)

Intervention**:** Hyperkalemia **1g** IVP**/**IO

Continuity**:** **↓**BP **+** Wide**-**QRS symptomatic rhythm **→** **1g** IVP

Intervention**:** RRWCT **>**5mm c̅ HR **<**150 Implies Hyperkalemia **1g**IVP

**Repeat Rx** if QRS Narrows p̄ Ca

**\*do not give Lidocaine**

Continuity**:** Ca**/**β**-**Blocker OD c̅ **↓**HR **1g** slow IVP

***Pediatric Rx → Don’t give Calcium Chloride to Pediatric pts***

## 2% Lidocaine (100mg/5ml)

#### Class:

Antiarrhythmic

#### Indications:

Symptomatic **↑**HR & VF**/**pVT

#### Contraindications:

Hypersensitivity or Local anesthetic allergy in the amide class

AV block **>**1º in the absence of a pacemaker

Idioventricular escape rhythm s̄ pacemaker

Stokes**-**Adams syndrome

WPW syndrome

#### Precautions:

Prolonged Plasma half-life c̅ **>**70yo, CHF, or hepatic failure

**→** Give **↓** Maintenance Infusions.

Don’t Rx if Idioventricular escape rhythm s̄ a pacemaker is

Present.

#### Significant adverse/side effects:

Drowsiness

Paresthesia

Slurred speech

Nystagmus (early sign of toxicity)

Seizures (severe toxicity)

### Adult Rx:

**2% Lidocaine = 2g of Lidocaine in 100ml = 1g/50ml**

***These come from local in hospital things and can be deleted***

***Max dose c̅ Epi = 7mg/kg***

***Max dose s̄ Epi = 5mg/kg***

**Intervention:** VT **=** **1-1.5mg/kg** slow IVP over 2**-**3min

If n**/**c p̄ 5min **→** **0.5-0.75mg/kg** **Max = 3mg/kg**

**Consultation:** P̄**-**ROSC Stabilization **=** **2mg/min** IV Maintenance Infusion

**Intervention:** EZ**-**IO **=** **2ml over 60-90sec**

**→** **Flush** c̅ 5**-**10ml NS rapidly over 5sec

**→** Then give **1ml over 30sec**

## 8.4% Bicarb (NaHCO₃) (50mEq/50ml)

**\*\*\*Given separately from other drugs\*\*\***

### **Drug Info:**

#### Class:

Alkalizing (buffering) agent

#### Indications:

***Fall or Weakness (probably only if for suspected hyperkalemia)***

Hyperkalemia

Symptomatic **↑**HR

Toxic Ingestion

#### Precautions:

Bicarb precipitates**/**Interacts c̅ multiple Rx’s **→** Don’t Mix

Flush IV line ā & p̄ administration.

In neonates and children <2yo → 4.2% slowly used instead.

Bicarb may cause tissue necrosis, ulceration, & sloughing.

#### Significant adverse/side effects:

Metabolic alkalosis

Paradoxical acidosis

Exacerbation of HF

Hypernatremia

Hypokalemia

Hypocalcemia

### **Adult Rx:**

**Continuity:** Dead **+** Bed Sores from Immobility **→** Suggests Hyperkalemia

**= 1mEq/kg**

**Intervention:** Hyperkalemia **=** **50mEq IVP/IO**

**Intervention:** RRWCT **>**5mm c̅ HR **<**150 **→** Suggests Hyperkalemia

**= 50mEq IVP** **→** **If QRS narrows → Give 2nd dose**

**Continuity:** Tricyclic OD c̅ Wide**-**QRS & **↓**BP or Pulseless

**= 1mEq/kg IVP**  **→** Several doses may be needed

### **Pediatric Rx:**

***Neonates*** *&* ***Children <2yo = 4.2% Bicarb given slowly***

**Continuity:** Propranolol OD c̅ Widened QRS

**= 1-2mEq/kg IV/IO** Bolus

**Continuity:** Tricyclic OD c̅ **↓**BP or Pulseless or Wide**-**QRS

**= 1-2mEq/kg IV/IO**

## Adenosine (6mg/2ml)

### **Drug Info:**

#### Class:

Antiarrhythmic

#### Indication:

SVT

#### Contraindications:

Known hypersensitivity

A-Fib associated c̅ WPW Syndrome

#### Precautions:

Rx in a pt c̅ A-Fib & WPW may result in VF

Rx may induce Airway Hyperresponsiveness & should be used

c̅ caution in pts c̅ a RAD Hx (asthma)

#### Significant adverse/side effects:

H/A

Cx pn

Flushing

Dyspnea/Bronchoconstriction

↓HR

AV block

Sinus Pause/Asystole

### **Adult Rx:**

Intervention: SVT **→** **6mg Fast IVP** c̅ 10ml Flush

If n**/**c **→ 12mg Fast IVP** c̅ 10ml Flush

If n**/**c **→** **12mg Fast IVP** c̅ 10ml Flush

***n*/*c = Stable Pt & Rhythm is unchanged***

Consultation: Med**-**Control for additional doses

Continuity: If n**/**c **→** Repeat **12mg Fast IVP during transport**

## Albuterol (2.5mg/3cc)

### **Drug Info:**

#### Class:

Beta Adrenergic Agonist (β₂ selective)

#### Indications:

Bronchospasm

#### Contraindications:

Known hypersensitivity

#### Significant adverse/side effects:

↑HR

Palpitations/Cardiac Ectopy

Tremor

H/A

N/V

### **Adult Rx**:

Intervention**:** Bronchospasm **=** 2.5mg in 3cc Neb c̅ O₂ **≥**6LPM

Continuity **→** Repeat Dose or Give Duo**-**Neb

Intervention**:** Hyperkalemia **=** 2.5mg Neb Given p̄ Ca & Bicarb

### **Pediatric Rx**:

Intervention**:** Bronchospasm **=** 2.5mg Neb c̅ O₂ **≥**6LPM

Continuity **→** Repeat dose

## ASA (81mg/tab)

### **Drug Info:**

#### Classification:

NSAID

#### Indications:

MI or ACS

#### Contraindications:

Known hypersensitivity

***Environmental hyperthermia*** ???????

Peptic ulcer disease (relative for cardiac indications)

Pediatric**/**Adolescent **→** Due to Reye’s Syndrome

#### Precautions:

Reye’s Syndrome S**/**S **=** CNS damage, liver injury, & **↓**BGL

#### Significant adverse/side effects:

Gastritis

N**/**V

Upper GI bleeding

**↑** Bleeding

### **Adult Rx:**

Intervention: MI or ACS **= 324mg PO**

## Atropine (1mg/10ml)

### **Drug Info:**

#### Class:

Anticholinergic & more specifically **→** Antimuscarinic

#### Indication:

Symptomatic **↓**HR

Organophosphate Poisoning

#### Contraindications:

Known hypersensitivity

Glaucoma (relative c̅ life threatening **↓**HR)

#### Precautions:

Caution c̅ MI & Hypoxia **→** **↑**O₂ Heart Demand

Rx should not delay external pacing for pts c̅ poor perfusion

May not be effective for Type II AV block & new **3º** block c̅

Wide QRS where the location of block is likely to be in the

bundle of His or more distal conduction system

Donor hearts are denervated & are not responsive to Atropine

#### Significant adverse/side effects:

**↑**HR (may worsen myocardial ischemia)

Blurred vision c̅ high doses

Confusion c̅ high doses

Acute angle closure glaucoma ***(relative)***

### **Adult Rx:**

Intervention: Symptomatic **↓**HR c̅ IV Access **=** **1mg** IVP**/**IO

**If n/c** **p̄ 5min** **→** **Repeat** **Rx**

Intervention: SLUDGEM Pt S**/**S **=** **2mg** IVP**/**IO

If Initial IV attempt is unsuccessful **→** May be given IO**/**IM

Continuity: Plant Ingestion c̅ **↓**HR **=** **2mg** IVP **→** **Repeat prn**

### **Pediatric Rx:**

Intervention: SLUDGEM Pt S**/**S **=** **0.05mg/kg** IV ( IM prn )

**→** **Repeat prn**

Continuity: Plant Ingestion c̅ **↓**HR**:**

**<12yo** **→** **0.02-0.05mg/kg** IV**/**IO **q̄ 20-30**min until Pt Dries up

**≥12yo** **-----→** **0.05mg/kg** IV**/**IO **q̄ 20-30**min until Pt Dries up

### **Drug Info:**

#### Class:

Electrolyte

#### Indications:

Hyperkalemia

Symptomatic **↑**HR

Toxic Ingestion

#### Contraindications:

Known hypersensitivity

Digitalis toxicity

#### Precautions:

Rx slowly unless **→** Cardiac Arrest.

#### Significant adverse/side effects:

↓HR

VF

Extravasation Necrosis

Abdominal Pain

N/V

### Adult Rx:

Intervention**:** Mg OD from Bronchospasm IN Eclampsia **1g** IV

(clarify how this is written)

Intervention**:** Hyperkalemia **1g** IVP**/**IO

Continuity**:** **↓**BP **+** Wide**-**QRS symptomatic rhythm **→** **1g** IVP

Intervention**:** RRWCT **>**5mm c̅ HR **<**150 Implies Hyperkalemia **1g**IVP

**Repeat Rx** if QRS Narrows p̄ Ca

**\*do not give Lidocaine**

Continuity**:** Ca**/**β**-**Blocker OD c̅ **↓**HR **1g** slow IVP

***Pediatric Rx → Don’t give Calcium Chloride to Pediatric pts***

## D5 (5g/100ml bag) & D10 (25g/250ml bag)

#### Class:

Carbohydrate

#### Indications:

**↓**BGL**/**Insulin Shock

#### Contraindications:

Avoid D5W c̅ **↑**ICP

#### Precautions:

Use D10% for the management of **↓**BGL.

Higher concentration are hypertonic and extravasation may

lead to tissue injury.

Verify Patency & Function of IV line ā Rx

Check BGL p̄ giving Rx

#### Significant adverse/side effects:

Local skin irritation

Thrombophlebitis

Extravasation c̅ subsequent tissue necrosis

↑BGL

Osmotic diuresis

### Rx:

Give D10 in 10g increments until BGL >100mg/dL

## Dexamethasone (Decadron) (10mg/ml)

#### Class:

corticosteroid, anti-inflammatory

#### Indications:

Anaphylaxis

Bronchospasm

#### Contraindications:

Known hypersensitivity

#### Precautions:

Give Slowly

#### Significant adverse/side effects:

Agitation

Perineal/body burning sensation

Pruritis

N/V

### **Adult Rx:**

Intervention: Anaphylaxis **=** **10mg** IV**/**IM**/**PO ***\*Oral tastes bitter\****

Intervention: Bronchospasm **=** **10mg** IVP**/**IM

### **Pediatric Rx:**

Intervention: Anaphylaxis **=** **0.6mg/kg** IV**/**IM

Intervention: Bronchospasm **=** **0.6mg/kg** IV**/**IM**/**PO

## Benadryl (50mg/ml)

#### Class:

Antihistamine (H1)

#### Indications:

Allergic Reaction

Anaphylaxis

Toxic Ingestion (probable about treating dystonic reactions)

#### Contraindications:

Known hypersensitivity

Narrow angle glaucoma

Prostatic hypertrophy or bladder neck obstruction

#### Precautions:

The drug of choice for anaphylaxis is Epi, not Benadryl

#### Significant adverse/side effects:

Sedation

↓BP (rare)

May cause paradoxical excitation in young children

### **Adult Rx:**

Intervention: Allergic RXN **or** c̅ Anaphylaxis **p̄** **Epi** **=** **50mg** IVP

Continuity: Extrapyramidal RXN from Haldol use **=** **50mg** IVP**/**IM

### **Pediatric Rx:**

Intervention: Allergic RXN **or** c̅ Anaphylaxis **p̄ Epi = 1mg/kg** IVP

Continuity: Extrapyramidal RXN from Haldol **=** **1mg/kg** IV**/**IM**/**IO

## Droperidol (Inapsine) (5mg/2ml)

#### Class:

Sedative/Hypnotic/Antiemetic

#### Indications:

N/V

Pain Management

Violent/Agitated/ &/or Anxious pt

#### Contraindications:

Known hypersensitivity

SBP <100mmHg

#### Significant adverse/side effects:

Transient ↓BP

Hyperactivity/Anxiety

Neuroleptic Malignant Syndrome

### **Adult Rx:**

Intervention: N**/**V **=** **1.25mg** IV**/**IM **→** Consultation for a 2nd dose\*

Intervention: H**/**A **or** abdominal pain **=** **2.5mg** IV

Intervention: RASS**+**1 **=** **5mg** IM

Intervention: RASS**+**2**/**3 **=** **10mg** IM **→** **Repeat once prn p̄ 10min**

**>**65yo **=** **5mg** IM

***Not approved for Pediatric Pts***

***(might need to do an EKG due to QT elongation)***

## Epi 1:1,000 (Adrenaline) (10mg/10ml)

#### Class:

Endogenous Catecholamine

#### Indications:

Anaphylaxis

Bronchospasm

***these are probably epi 1:10,000 instead***

***o Symptomatic BRADYCARDIA***

***o Cardiogenic Shock***

***o VF or pVT:***

***o Post-ROSC Stabilization***

#### Contraindications:

Known hypersensitivity

#### Significant adverse/side effects:

Tachycardia and arrhythmias

Myocardial ischemia/infarction

HTN

Tremor

Anxiety

H/A

N/V

### **Adult Rx:**

Intervention: Anaphylaxis **=** **0.5mg** IM

n**/**c p̄ 5min **→** **Repeat once**

Consultation **→** May give **3rd dose 5min p̄ the 2nd dose**

Consultation: Bronchospasm c̅ severe asthmatics **=** **0.5mg** IM

### **Pediatric Rx:**

Intervention: Anaphylaxis **<**10kg **=** **0.01mg/kg** IM (0.01ml**/**kg IM)

10**-**25kg **=** **0.15mg** IM (0.15ml IM)

25**-**60kg **=** **0.3mg** IM (0.3ml IM)

**>**60kg **=** **0.5mg** IM (0.5ml IM)

\*All weight classes: give **prn every 5-15min** (**max = 3 doses**)

Consultation **→** **Epi IV Infusion** p̄ 3rd does of Epi

Consultation: Bronchospasm **=** **0.3mg IM** (0.3ml IM)

## Epi 1:10,000 (1mg/10ml)

#### Class:

Endogenous Catecholamine

#### Indications:

VF or pVT

Symptomatic ↓HR

Cardiogenic Shock

Post-ROSC Stabilization

#### Contraindications:

1. Known hypersensitivity

***2. ≥ 50yo (asthma) usually for the 1:1,000 for bronchospam***

#### Significant adverse/side effects:

↑HR & arrhythmias

Myocardial ischemia/infarction

HTN

Tremor

Anxiety

H/A

N/V

Rx:

Ventricular Fibrillation or Pulseless Ventricular Tachycardia: Page 70

Cardiogenic Shock/Post Arrest Stabilization PEDIATRIC p157- epinephrine 1mcg/kg IO or IVP

### **Adult Rx:**

Intervention: VF/VT **1mg** IVP during CPR

## Epi 1:100,000 (100mcg/10ml) “Push-Dose Epi”

**Class:**

Endogenous Catecholamine

**Indications:**

Symptomatic ↓HR

Cardiogenic Shock

Post-ROSC Stabilization

**Contraindications:**

Known hypersensitivity

**≥**50yo (asthma) ***usually for the 1:1,000 for bronchospam***

**Significant adverse/side effects:**

↑HR & arrhythmias

Myocardial ischemia/infarction

HTN

Tremor

Anxiety

H/A

N/V

### **Push-Dose Epi Preparation:**

Waste **1ml** from NS Flush

**→** Draw **1ml** Epi 1:10,000 into NS Flush

Concentration = **10mcg/ml** & total Epi **=** **100mcg/Flush**

### **Epi Continuous Infusion:**

Waste 10ml from 250ml NS bag

**→** Add 10ml of 1:10,000 Epi into the NS bag

**=** 4mcg**/**ml Epi Concentration

### **Epi Continuous Infusion Drip Rates c̅ 60-Drip** (Micro-Drip):

2mcg/min = 1gtt/2sec

4mcg**/**min **=** 1gtt**/**sec

8mcg**/**min **=** 2gtts**/**sec

12mcg**/**min **=** 3gtts**/**sec

16mcg**/**min **=** 4gtts**/**sec

### **Adult Rx:**

Intervention: Symptomatic **↓**HR (En route & s̄ hypovolemia)

**= 10mcg** IVP followed by **2mcg/min** Infusion

Consultation: Titrate up by **2mcg/min** q̄ min prn **Max = 16mcg/min**

Intervention: Cardiogenic Shock **10mcg** IVP followed by

**→** **2mcg/min** Infusion **→** Titrate up **2mcg/min** q̄ min

***Max*** **=** **10mcg/min** **SBP Goal** **≥90**

Intervention: Post**-**ROSC Stabilization Infused at **2mcg/min**

**→** Titrate up by **2mcg/min** q̄ min **Max = 16mcg/min**

### **Pediatric Rx:**

Consultation: Cardiogenic Shock **or** Post**-**ROSC Stabilization **=** **1mcg/kg** IVP**/**IO **→** From Push**-**Dose Epi

**10kg child = 1ml** **→** From Push**-**Dose Epi

**15kg child = 1.5ml** **→** From Push**-**Dose Epi

## Etomidate (40mg/20ml)

#### Class:

Sedative**-**hypnotic

#### Indications:

SAI

#### Contraindications:

Known allergy or hypersensitivity

#### Significant adverse/side effects:

Pain on injection (secondary to propylene glycol diluent, may be ↓ by administering through a rapidly flowing IV placed in a large vein).

Myoclonus (not of clinical significance), can be ↓ or mitigated by the co-Rx of an opioid or benzodiazepine.

### **Adult Rx:**

Intervention: SAI for **>**10yo **=** **0.3mg/kg** IVP **Max = 40mg**

## Fentanyl (100mcg/2ml)

#### Class:

Synthetic opioid

#### Indications:

MI

Pain Management

Sickle Cell Crisis

#### Contraindications:

Known hypersensitivity & SBP **<**100

#### Precautions:

Fentanyl should be administered slowly.

Careful monitoring (including the use of waveform capnography) is warranted when co- administering c̅ benzodiazepines or to pts who have consumed alcohol as these pts are at risk for ventilatory depression.

#### Significant adverse/side effects:

Respiratory depression

↓BP

Cx Rigidity (Extremely rare c̅ Rapid Rx **+** Dose **>**5mcg/kg)

### **Adult Rx:**

**Intervention:** MI**/**ACS **1mcg/kg slow over 3-5min** IVP

**→ Consultation needed for repeated doses**

**Intervention:** Pain **1mcg/kg slow** IVP**/**IM**/**IN **Max = 150mcg**

**Intervention:** Sickle Cell Crisis **1mcg/kg slow** IVP **Max = 150mcg**

### **Pediatric Rx:**

**Intervention:** Pain **0.5-1mcg/kg** IV**/**IN **Max = 50mcg**

**→ Consultation needed for repeated doses**

**Consultation:** Sickle Cell Crisis **1mcg/kg slow** IVP**/**SQ

**Max = 50mcg**

## Ipratropium (0.5mg/3cc)

#### Class:

Anticholinergic

Parasympatholytic used in the Tx of respiratory emergencies.

Causes bronchodilation & dries Respiratory tract secretions.

Blocks Acetylcholine. 15% of dose reaches lower airway.

#### Indications:

Bronchospasm

#### Contraindications:

Known Hypersensitivity

#### Significant adverse/side effects:

Palpitation

Anxiety

Dizziness

H/A

N/V

### **Adult Rx:**

**Continuity:** Bronchospasm **=** **0.5mg** **or** **Duo-Neb**

## Ketamine (500mg/5ml)

#### Class:

Dissociative general anesthetic

#### Indications:

SAI

Bronchospasm

Pain Management

Violent/Combative Pt

#### Contraindications:

Cardiac ischemia/infarction or Hx of CAD (relative)

Penetrating ocular injury

Pt **≤** 3 months of age

Schizophrenia

#### Precautions:

IV ketamine should be administered over 60sec

When not used in conjunction c̅ a neuromuscular blocking agent, the most common respiratory side effect associated c̅ ketamine is laryngeal spasm. It is usually transitory and easily managed c̅ PPV.

#### Significant adverse/side effects:

Emergence reaction

↑HR

↓BP/HTN

Hypersalivation

Laryngospasm

↑ Intraocular Pressure

N/V

Transient apnea (if given rapidly via IV route)

### **Adult Rx:**

Intervention: Combative pt **=** **4mg/kg** IM **>**65yo **=** **2mg/kg** IM

**Max = 500mg** IM **RASS score q̄ 5min**

Intervention: SAI**/**Bronchospasm **=** **2mg/kg** IV**/**IO

Intervention: Pain **=** **0.2mg/kg** IV**/**IO **Max = 25mg**

### **Pediatric Rx:**

Intervention: Combative **=** **4mg/kg** IM

*Don’t exceed Entire Vial****/****Site*

Intervention: SAI**/**Bronchospasm **=** **2mg/kg** IV**/**IO

Intervention: SAI c̅ **↓**BP s̄ Cardiogenic Shock **=** **1mg/kg** IV

Intervention: SAI c̅ suspected Cardiogenic Shock **=** **0.5mg/kg** IV

## Ketorolac (Toradol) (30mg/ml)

#### Class:

NSAID

#### Indications:

Pain Control for pts **>**17yo

#### Contraindications:

Known hypersensitivity

Allergy to any NSAID (including ASA)

Asthma

Renal insufficiency

Peptic ulcer disease or GI bleeding

Pregnancy

Hypovolemia

Trauma other than isolated extremity trauma

Anticipated major surgery (within 7 days)

#### Precautions:

Ketorolac Tx is not indicated for abdominal**/**Cx pain.

**↓** By 50% in pts **>**65yo due to **↓** Renal Function Concerns

#### Significant adverse/side effects:

GI bleeding

H/A

Drowsiness

Abdominal pain

Dyspepsia

### **≥17yo Rx:**

**Intervention:** For Pain **= 15mg** IV**/**IM If **>65yo** **=** **7.5mg** IV**/**IM

(Not for abdominal**/**Chest pain)

***May be given off-label with med control approval for <17yo***

## Magnesium sulfate (MgSO₄) (1g/2ml)

#### Class:

Electrolyte

#### Indications:

Bronchospasm

Childbirth

Symptomatic ↑HR

#### Contraindications:

Known hypersensitivity

#### Precautions:

↓BP, ↓HR, & Conduction issues may occur if given too fast.

Rx c̅ caution c̅ **↓**HR.

Toxicity is associated c̅ CNS & neuromuscular depression.

A ↓ in deep tendon reflexes (DTRs) **=** Early Toxicity sign

& may indicate impending respiratory depression.

Ca**⁺** reverses respiratory depression associated c̅ Mg toxicity.

#### Significant adverse/side effects:

↓BP

↓HR/Conduction disturbance (Rx c̅ caution in pts c̅ ↓HR)

Respiratory depression

Flushing

### **Adult Rx:**

**Intervention:** Bronchospasm **→** for Severe Asthmatics **or** c̅ PMH

of Intubation for asthma **=** **2g slow IV drip**

**Slow IV Drip** **=** **1gtt/(1-2sec) c̅ a 10-Drip Set** & **250ml NS bag**

**Intervention:** Eclampsia **=** **4g** **slow IVP over 3-5min** c̅ NS

**→** followed by **IV piggyback Drip at 1-2g/hr**

**IV piggyback Drip at 1-2g/hr** **=** **0.7gtts/sec**

**or** **≈** **2gtts/3sec** **c̅ a 10-Drip Set** & 250ml NS bag

Intervention: Torsades **=** **2g IV Infusion over 2min**

**→** Followed by **5mg/min Infusion**

**2g IV Infusion over 2min** **=** **1g in 10ml Flush over 1min**

**→** **repeat once**

**5mg/min Infusion** **=** **Mix 1g in c̅ 250ml NS** **bag** c̅ 60**-**Drip Micro Set

**→** Ran at **1.25gtts/sec** **or** **5gtts/4sec**

### **Pediatric Rx:**

**Consultation:** Bronchospasm **→** For **>**2yo c̅ Severe Asthmatics

or c̅ PMH of Intubation for asthma

**=** **40mg/kg diluted c̅ NS to a concentration of 100mg/ml**

**→ Infuse over 20min c̅ rate < 150mg/min** *Max* **= 2g**

**“Prepared Syringe” c̅ a concentration of 100mg/ml:**

**=** **Draw 10ml out of 250ml NS bag c̅ 10cc syringe**

**→** **Waste 2ml** from syringe

**→** **Draw up into the syringe 1g** (2ml) **of MgSO₄**

(**Pediatric Weight (**in **kg)**)**/2.5** **=** **#** of ml’s added

to our 250ml NS bag from our “prepared syringe”

**Run MgSO₄ Infused NS bag over 20min c̅ 10-Drip Set at 2gtts/sec**

**Note**: **50kg** **Child** **=** 2g MgSO₄ (***our max dose***) **=** 2 Vials of MgSO₄

**25kg child** **=** 1g MgSO₄ **=** 1 Vial of MgSO₄

**Never exceed 3gtts/sec**

**Never exceed 2 Vials of our 1g/2ml MgSO₄**

## Metoprolol (Lopressor) (5mg/5ml)

#### Class:

Beta antagonist (β1 selective)

#### Indications:

Symptomatic ↑HR

#### Contraindications:

Known hypersensitivity

HR **<** 60

AV block >1º s̄ a pacemaker

SBP **<**100

Acute decompensated heart failure

#### Significant adverse/side effects:

↓BP

↓HR

AV block

Dizziness

Bronchospasm

Heart failure

### **Adult Rx:**

**Intervention:** A**-**Fib c̅ RVR **or** A**-**Flutter

**= 0.15mg/kg slow IVP *over* 2min** **Max = 10mg**

**Consultation:** Stable SVT

**→** Discuss for use as an additionally used dose for SVT

## Midazolam (Versed) (10mg/2ml)

#### Class:

Benzo

#### Indications:

SAI

Symptomatic ↓HR

Seizure

Symptomatic ↑HR

Vent Pt

Violent**/**Combative Pt

#### Contraindications:

Known hypersensitivity

***2. Hypotension (SBP <100 mmHg) probabky relative??***

Acute angle glaucoma (relative)

#### Precautions:

Respiratory Depression Risk c̅ Opioids, old age, or c̅

Respiratory Conditions. **↓** Rx c̅ in these pts.

Rx c̅ a non-intubated pt **→** Monitor the airway & ventilation

**→** Use Capno.

↓BP may occur c̅ fast Rx to low volume pts,

or to pts c̅ hemodynamic instability.

#### Significant adverse/side effects:

Respiratory depression

↓BP

Confusion

### **Adult Rx:**

**Intervention:** **↓**HR c̅ **↓**BP *If* **→** Pacing Works **+** Uncomfortable pt

**=** **5mg** **IV/IO**

**Intervention:** **↑**HR c̅ **↓**BP **=** **5mg IV/IO ā Cardioversion if IV**

**Intervention:** Vent pt c̅ **↓**BP **=** **5mg IV/IO**

**Intervention:** RASS **+**1 Adult **≤**65yo **= 0.02mg/kg IV**

**Single Max Dose = 2.5mg IV or 5mg IM**

**Consultation:** RASS**+**4 p̄ Ketamine **or** RASS**+**1 Adult **≤**65yo

**= 5mg IM**

Come back and check this one out more

**Intervention:** SAI **=** **2.5-5mg IV**

**Intervention:** Seizure **=** **10mg IM or 0.1mg/kg IV/IN**

**Max = 5mg IV** & **10mg IM**

**Intervention:** Seizure from Organophosphate OD **=** **5mg IV/IN**

### **Pediatric Rx:**

**Intervention:** SAI **=** **0.1mg/kg IV Max = 5mg**

**Intervention:** Seizure **=** **0.5mg/kg IN**

***Initial Max* =10mg** & ***Total Dose Max* = 20mg**

**or** **0.2mg/kg IV/IO**  **c̅ Max = 5mg** & **prn until Total Max = 10mg IV**

**Intervention:** Seizure from Organophosphate OD

**= 0.2mg/kg IV/IO *Max* = 5mg**

**or 0.5mg/kg IN**

**Intervention:** RASS**+**3 “safety or **↑** physical restraint”

**= 0.1-0.2mg/kg IM *Max* = 5mg IM**

**or** **0.05-0.1mg/kg IV *Max* = 10mg IV**

**or 0.02mg/kg IN *Max* = 20mg IN**

***prn until Max Dose is Reached***

## Morphine (4mg/2ml)

### **Drug Info:**

#### **Class:**

#### Indications:

#### Contraindications:

#### Precautions:

#### Significant Adverse/Side Effects:

### **Adult Rx:**

**Intervention:** MI**/**ACS **=** **4mg Slow IVP**

***Only if* Fentanyl *is Unavailable or Contraindicated***

**Intervention:** Pain **=** **2-4mg IVP**

### **Pediatric Rx:**

**Intervention:** Pain **=** **0.1mg/kg IV/SQ Max = 4mg**

**→** Consult for further doses

**Consultation:** Sickle Cell Crisis **=** **0.1mg/kg IV/SQ Max = 4mg**

## Narcan (2mg/2ml)

### **Drug Info:**

#### **Class:**

#### Indications:

#### Contraindications:

#### Precautions:

#### Significant Adverse/Side Effects:

### **Adult Rx:**

**Intervention:** Coma**/**Opioid OD **=** **2mg IM/IN**

**or 0.4mg IVP**

### **Pediatric Rx:**

**Intervention:** AMS**/**Opioid OD **=** **0.1mg/kg IV/IO/ETT/IM**

**Max = 2.0mg**

**Continuity:** Methadone OD **=** **0.2mg/kg Max = 2.0mg**

## NTG (0.4mg/spray)

### **Drug Info:**

#### Class:

Organic nitrate

#### Indications:

MI or ACS

Pulmonary Edema

#### Contraindications:

Known hypersensitivity

SBP **<**100

Recent use of a phosphodiesterase type 5 inhibitor (sildenafil [Viagra, Revatio] or vardenafil [Levitra] within 24 hours or tadalafil [Cialis, Adcirca]) c̅in 36 hours.

Right ventricular infarction (RVI)

***Tachycardia (HR>100) in the absence of HF (not universal)***

**↑**ICP

#### Precautions:

Pts c̅ RVI are preload sensitive & can develop severe ↓BP in

response to Preload-reducing agents. If ↓BP develops

following Rx **→** IVF may be necessary.

Inferior STEMI **→** Do right sided EKG to look for RVI evidence

Pts c̅ aortic stenosis are very preload dependent to maintain

cardiac output. NTG c̅ aortic stenosis or murmur should be

judicious & carefully titrated.

#### Significant adverse/side effects:

Hypotension

H/A

Tachycardia (reflex)

Bradycardia

Methmemoglobinemia → nitrate ions oxidize hemoglobin

long term effect & unlikely seen in EMS setting

### **Adult Rx:**

***Don’t give if pt had Viagra/Cialis within the past 48hrs***

***NTG is NOT contraindicated c̅ Inferior STEMI***

**→ Should the pt become profoundly Hypotensive**

**→ Infuse NS until BP >90**

***Be cautious c̅ Aortic Stenosis or Murmurs***

**Intervention:** MI**/**ACS **=** **0.4mg SL q̄ 5min prn only if BP >100**

**or >110 if pt Never had NTG ā**

***Max = 3 doses***

**Continuity:** **Repeat q̄ 5min if** **→** SBP **>**100 & pain still present

**Intervention:** Pulmonary Edema **=** **0.4mg SL *if* BP >100**

**or >120 *if* pt Never had NTG ā**

**Intervention:** Flash Pulm**-**Edema from Hypertensive Crisis **s̄** IV

**=** **0.4mg SL**

**Consultation:** **0.8-1.2mg SL** & Inform Med-Control if no IV yet

## Zofran (4mg/2ml)

### **Drug Info:**

#### Class:

Antiemetic

#### Indications:

N/V

#### Contraindications:

Known hypersensitivity

***Prolonged QTI (male >440msec, female >450msec***

***(probably more of a precaution)***

Pregnancy (1st trimester)

#### Precautions:

Use c̅ caution c̅ other agents that may cause QTI prolongation.

#### Significant adverse/side effects:

H/A (particularly in those prone to migraine headaches)

QTI prolongation

AV conduction disturbance (associated c̅ rapid Rx)

Sedation

Diarrhea

Dry mouth

Serotonin syndrome

### **Adult Rx:**

**Intervention:** N**/**V **=** **4mg IVP over 60sec**

### **Pediatric Rx:**

**Intervention:** N**/**V **=** **0.15mg/kg IVP over 60sec *Max = 4mg***

**Intervention:** N**/**V s̄ IV **→** **4-11yo = 4mg tab PO**

**≥12yo = 8mg tab PO**