West Michigan AirCare

Quick Reference Cards

Emergency Medications

RSI	
Etomidate	0.3 mg/kg (~20 mg) IVP/IO over 30-60 sec; onset 10-20 sec
Rocuronium	0.6-1.2 mg/kg (~70 mg) IVP/IO; onset 1-2 min
Succinylcholine	1-1.5 mg/kg (~100 mg) IVP/IO over 10-30 sec; onset 30-60 sec
Vecuronium	0.08-0.1 mg/kg (~10 mg) IVP/IO; onset 2-3 min
Cardiac (ACLS)	
Amiodarone	Cardiac Arrest (pulseless): 300 mg IVP/IO, may repeat 150 mg IVP/IO in 3-5 min Wide Complex Tachycardia (stable): 150 mg IVP/IO over 10 min, may start infusion 1 mg/min x 6 hours followed by 0.5 mg/min x 18 hours
Lidocaine 2% (1 ml = 20 mg)	Cardiac Arrest (pulseless): 1-1.5 mg/kg (~100 mg) IVP/IO; may repeat 0.5-0.75 mg/kg (~50 mg) IVP/IO in 3-5 min x 2; max dose of 3 mg/kg (~300 mg) Wide Complex Tachycardia (stable): 0.5-0.75 mg/kg (~50 mg) IVP/IO; may repeat x1 in 10 min
Diltiazem (Cardizem)	Bolus: 0.25 mg/kg (~20 mg) IV/IO over 2 min, may repeat in 15 min 0.35 mg/kg (~25 mg) IV over 2 min Infusion: 5-15 mg/hr IVPB
Procainamide	Bolus: 20-50 mg/min IV to max of 17 mg/kg; discontinue once arrhythmia resolves, hypotension occurs, or QRS prolonged by 50% Infusion: 1-4 mg/min
Cardiac (Hypertensive Emergencies)	
Esmolol	Bolus: 500 mcg/kg IVP over 1 min Infusion: 50-300 mcg/kg/min IVPB
Labetalol	20 mg IVP over 2 min; may repeat 40-80 mg IVP over 2 min every 10 min to cumulative dose 300 mg
Nicardipine	2.5-15 mg/hr IVPB, increase by 2.5 mg/hr every 5-15 min until goal BP achieved

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Emergency Medications

Cardiac (Vasodilators)	
Nitroglycerin	10-300 mcg/min IVPB, increase by 5-10 mcg/min every 3-5 min
Nitroprusside	0.2-8 mcg/kg/min IVPB, increase by 0.5 mcg/kg/min every 3-5 min
Cardiac (Vasopressors/Inotropes)	
Norepi	0.01-0.3 mcg/kg/min IVPB; may increase to max total of 100 mcg/min
Epinephrine	Infusion: 0.02-0.5 mcg/kg/min IVPB Push Dose: *MUST BE DILUTED TO* 10 mcg/ml (0.01 mg/ml); 5-20 mcg (0.5-2 ml) IVP every 5-10 min; MAX—3 doses; duration 5-10 min
Vasopressin	Infusion: 0.03-0.04 units/min IVPB Push Dose: *MUST BE DILUTED TO* 2 units/ml; 2-10 units (1-5 ml) IVP every 10 min; MAX—3 doses; duration 16-24 min
Dopamine	5-20 mcg/kg/min IVPB
Dobutamine	5-20 mcg/kg/min IVPB
Sedation and Analgesia	
Fentanyl	Analgesia: 1 mcg/kg IVP over 1-2 min Sedation: Bolus: 2-3 mcg/kg IVP; Infusion: 150-300 mcg/hr IVBP
Ketamine	Analgesia: 0.2 mg/kg to max of 25 mg IVP over 1-2 min Sedation: 1-2 mg/kg IVP over 1 min; 4-6 mg/kg IM
Propofol	Sedation: Bolus: 0.5-1 mg/kg IVP, repeat 0.5 mg/kg every 3-5min Infusion: 10-80 mcg/kg/min IVPB
Versed	Sedation: 1-5 mg IVP (PEDS 0.05 mg/kg); 5-10 mg IM (PEDS 0.1 mg/kg)
Special Meds (ICP and Cyanide Poisoning)	
3% Saline	10 ml/kg (MAX 500 ml); PEDS 5 ml/kg
Mannitol	0.5-1 mg/kg
Cyanokit (5g kit)	70 mg/kg; typical doses below 0-2 years= 0.625 g; 2-5 years= 1.25 g; 5-13 years= 2.5 g; ≥ 14 years= 5 g

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Intubation Checklist

Equipment	
☑	ETT prepped and checked with next size down ready
☑	Induction agent / Paralytic drawn up
☑	Post intubation sedation drawn up
☑	+ / - push dose Epi ready
☑	BVM (w/ PEEP valve and manometer if available)
☑	Laryngoscope checked
☑	Suction hooked up and working
☑	IV access patent
Patient Prep	
☑	Assess airway difficulty including looking in the mouth (dentures, loose teeth, foreign body, etc)
☑	Physiologic issues considered (blood products, fluids, acidosis)
☑	Denitrogenated (8 full tidal volume breaths with NRB or >3 min regular breathing +/- supplemental oxygen)
☑	Apneic oxygenation w/ cannula @ 10-15 lpm
☑	SpO2 maximized (goal >95%); use NIPPV if needed
☑	Proper position prior to induction if possible • Ear to sternal notch unless contraindicated • Bed should NOT be lying flat
☑	Avoid BVM ventilations if possible
Backup Plan	
☑	Failed plan verbalized with team
☑	Supraglottic airway / OPA out and ready
☑	Scalpel and neck prepped if anticipate airway edema

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Post ROSC Care Checklist
EPIC TBI Protocol

Goals during ROSC Care
☑ BP every 3 min; intervene early to keep MAP >= 80 mmHg
☑ MAP >= 80 mmHg Epi 1st choice: 0.2-0.5 mcg/kg/min OR 2-20 mcg/min Norepi 2nd choice: 0.01-0.3 mcg/kg/min OR 2-20 mcg/min
☑ If resuscitated from VF/VT: Give 1st dose of lidocaine/amiodarone if not already done If 1st dose given during arrest, give the 2nd dose post ROSC
☑ If available, place mechanical CPR device so this can be quickly turned on during transport if needed
☑ Convert airway to ET tube if not already in place
☑ Ensure ongoing monitoring of ETCO2
☑ Maintain ROSC for at least 5 min prior to initiating transport
EPIC TBI Protocol for Moderate to Severe TBI
☑ Avoid the **"H BOMBs"** (hypoxia, hypercarbia, hypotension)
☑ **Hypoxia**: Keep SpO2 >90% Place ALL patients on high flow O2 via NRB
☑ **Hypercarbia**: target ETCO2 = 40 Assist ventilations PRN; Place ETT if needed; Vt 7 cc/kg Rates: Adult: 10 Peds (2-15years): 20 Infant: 25 DO NOT HYPERVENTILATE
☑ **Hypotension**: Adults: Keep SBP >= 90 mmHg Peds: 70 + (age x 2) = goal SBP Be aggressive with fluid resuscitation to avoid any hypotension Bolus: Adult 1L NS/LR bolus for even single SBP < 90mmHg Peds: 20 ml/kg bolus of NS or LR; repeat until goal SBP Start pressors to keep SBP above goal DO NOT TREAT HYPERTENSION WITH POSSIBLE TBI
Reference: EPIC TBI Study/Protocol found on epic.arizona.edu

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Ventilator Checklist

Vent Setup	
Ensure circuit and high pressure O2 line are present and connected	
Select either:	Volume Control—appropriate Vt based on IBW (see table next page)
	Pressure Control—set initially to 15-20 cmH2O and adjust to Vt
Set appropriate rate, FiO2, PEEP (min 5 unless asthmatic/COPD), iTime (~1:2 I:E)	
Set appropriate alarms: High pressure (5-10 above PIP), Low Pressure (5-10 below PIP), Vmin (ensure set when in pressure control)	
Vent Adjustments	
↓ pCO2	↑ Vmin = ↑ respiratory rate, ↑ Vt
↑ pCO2	↓ Vmin = ↓ respiratory rate, ↓ Vt
↑ pO2	↑ mean airway pressure = ↑ PEEP, ↑ iTime; ↑ FiO2 (ARDSnet table)
Air trapping	↓ PEEP, ↓ iTime
Considerations: permissive hypercapnia to prevent lung injury; maintain increased Vt in cases of significant metabolic acidosis (i.e. DKA), do NOT try to normalize pCO2 in COPD patients	
Vent Alarms	
For any alarm, be sure to check patient first. If patient is in distress or vent does not appear to be functioning properly, first disconnect patient from ventilator and ventilate with BV-ETT before troubleshooting	
High Pressure	Obstruction to flow: Kinked tube, mucus plug, fluid in line, biting ETT
	Decreased compliance: pneumothorax, pulmonary edema/ contusion
Low Pressure	Leak in circuit, dislodged tube, circuit disconnected, cuff leak
High Rate	pain, anxiety, consider physiologic causes (i.e. DKA), too low sensitivity
Low Volume	See low pressure; Cuff leak, decreased compliance (pressure control)
Auto PEEP	Breath stacking, incomplete exhalation, obstructive lung disease
High Plateau Pressure	Perform Inspiratory hold to check if >30 cmH20, decrease Vt

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Tidal Volume by IBW

ARDSnet Table

Height		6 ml/kg	8 ml/kg	Height		6 ml/kg	8 ml/kg
Ft	Inches			Ft	Inches		
4’ 10”	58	270	360	4’ 7	55	200	270
4’ 11”	59	290	380	4’ 8”	56	220	290
5’ 0”	60	300	400	4’ 9”	57	230	310
5’ 1”	61	310	420	4’ 10”	58	250	330
5’ 2”	62	330	440	4’ 11”	59	260	350
5’ 3”	63	340	460	5’ 0”	60	270	360
5’ 4”	64	360	470	5’ 1”	61	290	380
5’ 5”	65	370	490	5’ 2”	62	300	400
5’ 6”	66	380	510	5’ 3”	63	310	420
5’ 7”	67	400	530	5’ 4”	64	330	440
5’ 8”	68	410	550	5’ 5”	65	340	460
5’ 9”	69	420	570	5’ 6”	66	360	470
5’ 10”	70	440	580	5’ 7”	67	370	490
5’ 11”	71	450	600	5’ 8”	68	380	510
6’ 0”	72	470	620	5’ 9”	69	400	530
6’ 1”	73	480	640	5’ 10”	70	410	550
6’ 2”	74	490	660	5’ 11”	71	420	570
6’ 3”	75	510	680	6’ 0”	72	440	580
6’ 4”	76	520	690	6’ 1”	73	450	600
6’ 5”	77	530	710	6’ 2”	74	470	620
6’ 6”	78	550	730	6’ 3”	75	480	640

Oxygenation Goal: PaO2 55—80 mmHg OR SpO2 88—95%

Adjust PEEP and FiO2 together based on either table below

Lower PEEP / Higher FiO2							
FiO2	0.3	0.4	0.5	0.6	0.7	0.9	1.0
PEEP	5	8	10	12	14	16	18—24
Higher PEEP / Lower FiO2							
FiO2	0.3	0.4	0.5	0.5—0.8	0.8	0.9	1.0
PEEP	5—10	14	16	18—20	22	22	22—24

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