COUNTY OF MARIN

DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Promoting and protecting health, well-being, self-sufficiency, and safety of all in Marin County.

MARIN HEALTH & HUMAN SERVICES
Health, Well-being & Safety

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Date: July 1, 2015

To: Holders of EMS Policy and Procedure Manuals

From: Dustin Ballard, MD
EMS Agency Medical Director

Subject: **Update to Policy Manual, Change Notice #34**

Enclosed please find Update #34 to the EMS Policy and Procedure Manual. These new and revised policies and procedures are effective **July 1, 2015**. Please update the Record of Change page and replace the Table of Contents and Signature page.

Revised Policies and Procedures include:

- 3300 EMT-P Accreditation/Continued Accreditation
- 4606 Patient Transfer and Transportation
- 4606a Trauma Re-Triage Adult
- 4606b Trauma Re-Triage Pediatric
- 7006 PCR Policy
- 7006b Medical Abbreviations
- ALS PR 02 Adult IO Procedure
- ALS PR 10 IV Access Procedure
- ALS PR 11 External Cardiac Pacing
- ALS PR 12 12-Lead ECG Procedure
- ATG 1 Routine Medical Care ALS
- ATG 2 Adult Pain Management
- ATG 3 Adult Sedation Policy
- BLS PR 1 Authorized Procedures
- C 1 Ventricular Fibrillation/Pulseless Ventricular Tachycardia
- C 8 Chest Pain
- C 9 STEMI
- GPC Cardiac Arrest Guidelines
- GPC 10 Sexual Assault
- M2 Gastrointestinal Bleeding
- M 4 Poisons/Drugs
- N 4 CVA
- P 3 Pediatric Respiratory Distress
- P 4 Pediatric Bradycardia
- P 6 Pediatric Tachycardia Poor Perfusion
- P 8 Pediatric Allergic Reaction
- P 12 Pediatric Burns
- P 18 Pediatric Medication List
- R 7 Toxic Inhalation
- T 1 Traumatic Injury

New Guideline: Pediatric Dosing Chart (P18A)

DELETED: 5012 Lifesquare Policy

SPECIAL NOTIFICATION:

Important revisions to be implemented 7/1/2014 (not included in draft comment periods)

1. P 3 – (Pedi Respiratory Distress): NS changed from 3ml to 2.5ml; Epinephrine maximum dose of 0.6mg added)
2. P 6 – (Pedi Tachy, Poor Perfusion): maximum dose of 5 mg Midazolam added

If you have not received training on these changes, please contact your CQI Liaison or Training Officer. Please ensure that the changes are made in your manual.

EMS Policy & Procedures Manual

Errata Report

If any errors, (i.e.; typographical, grammatical, calculations or omissions) are noted in this manual, please inform this office immediately. To insure that the appropriate policy is changed, please make a copy of this form, fill in the required information and send it to us. Thank you.

Policy/Protocol Title	
Policy Number	
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Correction	
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EMS Policy & Procedures Manual

Record of Change

Keep your policy manual current. After receiving and filing additional or revised policies/protocols, initial and date the block following the appropriate change.

There should not be any blank boxes between initialed blocks; this means you either failed to record the CHANGE NOTICE or have not received it. Notify the Marin County EMS Office if you did not receive a CHANGE NOTICE.

No.	Initial	Date		No.	Initial	Date		No.	Initial	Date
1		11/94		19		07/2003		37		
2		08/95		20		09/2003		38		
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12		11/99		30		07/2011		48		
13		04/2000		31		07/2012		49		
14		10/2000		32		07/2013		50		
15		01/2001		33		07/2014		51		
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COUNTY OF MARIN

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Division of Public Health Services

Emergency Medical Services Agency

Policy and Procedure Manual

July 1, 2015

Miles Julihn, EMS Administrator, EMS Agency

Dustin Ballard, MD, Medical Director, EMS Agency

EMS Program Policy & Procedure Manual

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PARAMEDIC ACCREDITATION/CONTINUED ACCREDITATION

I. INITIAL ACCREDITATION

A. To be eligible for accreditation in Marin County an individual must:
   1. Provide evidence of possession of a valid California statewide paramedic license which is current.
   2. Provide proof of employment with a designated paramedic service provider within the local EMS jurisdiction.
   3. Apply to the local EMS Agency. Application includes the following:
      a. Completion of application form which includes a statement that the individual is not precluded from accreditation for reasons defined in Section 1798.200 of the Health and Safety Code.
      b. Check or money order payable to "County of Marin" in the amount as per fee schedule.
   4. Provide proof of completing an approved Marin County EMS System orientation not to exceed eight (8) hours.
   5. Comply with the following additional requirements:
      a. Permit verification of status with other certifying or accrediting agencies.
      b. Complete a written Protocol Quiz with 80% accuracy.

B. Accreditation procedure
   1. The local EMS Agency shall accredit the individual to practice in Marin County. Accreditation to practice shall be continuous as long as State of California paramedic licensure is maintained and local requirements are met. The paramedic may practice immediately in the basic scope of practice when working as a second paramedic during the accreditation process.
   2. The paramedic will be issued a sticker which will be attached to the upper front right corner of the state-issued paramedic license. Additionally the paramedic accreditation number will be changed to match the state-issued paramedic number and shall start with the letter “M”, i.e., M00000. The new sticker will be issued at the completion of initial or continuous accreditation application for each paramedic. Any existing accreditation cards will attrition out over time. The paramedic accreditation number may be verified in the ESO AdHoc reports database.
   3. The EMS agency shall notify individuals applying for accreditation of the decision to accredit within thirty (30) days of application. If requested by the applicant accreditation may be extended at the discretion of the EMS Program
   4. EMS Agency shall notify the EMS Authority within ten days of the accreditation action.

II. MAINTAINING ACCREDITATION

A. Accreditation is maintained when the following requirements are met:
   1. Successful completion of the paramedic licensure process. The paramedic shall forward proof of successful licensure and completion of local requirements to LEMSA prior to expiration date.
   2. Employment with a designated paramedic service provider within the local jurisdiction. Employer shall notify LEMSA within ten (10) days of paramedic leaving employment.
   3. Completion of the annual Policy and Procedure Update by July 1st of each year or as defined by the EMS Agency.

B. Inactive Accreditation
   1. Accreditation becomes inactive if one or more of the following occur:
      a. Paramedic is not currently employed by a Marin County provider OR
      b. Paramedic has not met the local requirements for continued accreditation as listed above and is less than one year into the new licensure period OR
      c. License renewal does not occur prior to the license expiration.
   2. Accreditation will be continued if, prior to 180 days into the new licensure period:
      a. Paramedic presents a copy of the new/current license.
      b. Paramedic presents proof of completion of the most recent annual Policy and Procedure Update Training.
      c. A letter confirming employment is received by the LEMSA if applicable.

C. Lapsed accreditation
   1. If accreditation becomes inactive for any reason and is not continued prior to 180 days into the new licensure period, the paramedic must provide proof of Policy and Procedure update which has been completed in the last year.
   2. If accreditation becomes inactive for greater than one year the paramedic must complete the initial accreditation process, as listed in section I.

Category: Program
Trauma System
Patient Transfer and Transportation

PATIENT TRANSFER AND TRANSPORTATION

I. PURPOSE

To provide guidance regarding the movement of injured patients from non-trauma facilities to trauma facilities and from one level of trauma facility to a different level of trauma facility and to review the availability of transportation for those purposes.

II. RELATED POLICIES

A. Interfacility Transfer, #8107
B. EMS Aircraft, #5100

III. DEFINITIONS

A. *Non-trauma facilities* are acute care facilities not holding a trauma center designation.
B. *Trauma facilities* are acute care facilities holding a trauma center designation of Level I, Level II, Level III or EDAT.

IV. POLICY

A. All acute care facilities in Marin County, as part of an inclusive trauma system, will provide care to injured patients and participate in the Trauma System Plan.

B. Prehospital care personnel will evaluate trauma patients on initial contact and determine the appropriate destination based on the apparent severity of the injury, the location of the patient, the time to transport to definitive care and the availability of transport resources related to the location of the appropriate facility.

C. On occasion, patients can be expected to receive maximal care subsequent to being transferred from the initial receiving facility to another acute care facility (including specialty care facilities) in one of the following ways:

1. Transfer from a non-trauma facility to a trauma facility. To facilitate this type of patient transfer, a rapid re-triage for adults and pediatrics patients may be used (see addendums A and B);
2. Transfer from a trauma facility to a trauma facility with a higher level designation (i.e., from an EDAT to a Level III center). Addendums A and B may be used to identify the types of patients which may benefit from the transfer;
3. Transfer, after stabilization and initial care, to a like facility of the patient's choosing;
4. Transfer, after definitive care, to a non-trauma facility for on-going care.

D. The transfer of patients from one facility to another must be based upon medical treatment decisions and not in whole or in part on the patient's financial or social status or their ability to pay for care or services. Decisions to transfer the patient at their request or the request of their insurer must, at all times, be made in a manner consistent with good medical practice.

E. As the lead agency, the EMS Agency will initiate and maintain contracts with Level I, Level II and specialty care facilities on behalf of the Marin County Trauma System Plan.

1. All contracts arranging for care of patients injured in Marin County will include provisions for the establishment of transfer guidelines indicating the type of patients or injuries anticipated to be transferred under the terms of the agreement.
2. Marin County facilities are required to have transfer agreements and to specify the type of patient or injury to be transferred under the terms of the agreement.
3. Additional transfer agreements must include provisions assuring that required trauma data is provided to the transferring facility to complete data collection and quality improvement processes.

F. In all instances of patient transfer, it is the responsibility of the transferring facility to assure the following:

1. That the transfers occur in accordance with all state and federal laws and regulations;
2. That all pertinent patient records are transferred with the patient;
3. That the receiving facility and receiving physician have accepted the patient
4. That the method of transfer is appropriate to the needs of the patient at the time that the transfer occurs; and
5. Arranging appropriate transportation for the patient

G. If expected patient care is within Paramedic Scope of Practice and timely transfer is needed, contact 9-1-1 to request *Emergency Interfacility Transfer*. If expected patient care exceeds Paramedic Scope of Practice, contact appropriate transport agencies (CCT Transport) or arrange for nursing staff and/or MD to accompany paramedic or EMT during transport to the receiving facility.

1. Patients being transferred should receive, during the transport, a level of care and attention equivalent to the level of care necessary before and following the transfer.
2. Level of care refers to the type of equipment and supplies needed and to the level of expertise of caregivers.

Policy 4606A: MARIN COUNTY EMS EMERGENCY TRAUMA RE-TRIAGE PROCEDURE—**ADULT**

Step 1

Emergency Level Re-Triage:

These are patients whose needs are generally known immediately or soon after initial arrival, based on clinical findings. Communication should be between Emergency Department (ED) and ED to avoid delay. Avoid any unnecessary studies (e.g. CT scans or angiograms). Request ambulance for transport.

Emergency Criteria:

Blood pressure / perfusion:

- Systolic pressure < 90 or
- Need for high volume fluid resuscitation (>2 L NS) or immediate blood replacement

GCS / Neuro:

- GCS Less than 9
- GCS Deteriorating by 2 or more during observation
- Blown pupil
- Obvious open skull fracture

Anatomic criteria:

- Penetrating injuries to head, neck, chest, or abdomen
- Extremity injury with ischemia evident or loss of pulses

Provider judgment:

- Patient's who have a high likelihood of need for emergent life or limb-saving surgery or other intervention with in 2 hours

Step 2

Contact Marin General Hospital Trauma Center at 415-925-7203

For ED to ED communication to confirm transfer

Step 3

Determine appropriate level of transport and arrange and transport

- If within Paramedic Scope of Practice and timely transfer needed - contact 9-1-1 to request *Emergency Interfacility Transfer*
- Transport should generally arrive within 10 minutes

If exceeds Paramedic Scope of Practice, contact appropriate transport agencies (CCT Transport) or arrange for nursing staff an/or MD to accompany paramedic or EMT ambulance

Step 4

Prepare patient, diagnostic imaging disk(s) and paperwork for transport

- Fax any additional paperwork that is not ready at the time of departure to

  MGH ED FAX Number: 415-925-7219

- Do not delay transport

Policy 4605B

MARIN COUNTY EMERGENCY MEDICAL SERVICES TRAUMA RE-TRIAGE PROCEDURE—PEDIATRIC (BELOW AGE 14 YEARS)

STEP 1

Determine if injured patient meets Emergency Re-Triage Criteria—Pediatric:

Blood pressure / perfusion:

- Hypotension or tachycardia (based on age-appropriate chart below) or clinical signs of poor perfusion (see below)
- Need for more than two crystalloid boluses (20 ml/kg each) or need for immediate blood replacement (10 ml/kg)

GCS / Neurologic—Head injury with:

- GCS less than 12 (pediatric scale—see verbal scale below)
- GCS deteriorating by 2 or more during observation
- Cervical spine injury with neurologic deficit
- Blown pupil
- Obvious open skull fracture

Anatomic criteria: Proximal penetrating injuries to head, neck, chest, or abdomen

Respiratory criteria: Respiratory failure or intubation required

Provider judgment: Patients, who in the judgment of the evaluating emergency physician, are anticipated to have a high likelihood for emergent life– or limb-saving intervention within 2 hours

IMPORTANT PEDIATRIC RE-TRIAGE EXCEPTIONS:

- ***Pregnant patients*** *of any age should be transferred to an adult trauma center*
- ***Major burns*** *should be preferentially transferred to a burn center**may require modification***
- *Contact hospital first for* ***major extremity injuries with vascular compromise **may require modification*****

NORMAL VITAL SIGNS				
Age	**Weight**	**Hr**	**Systolic BP**	**Broselow Color**
Newborn	3-5 kg	80-190	65-104	Grey or Pink
1 Year	10 kg	80-160	70-112	Purple
3 Years	15 kg	80-140	75-116	White
5 Years	20 kg	75-130	75-116	Blue
8 Years	25 kg	70-120	80-122	Orange
10 Years	30 kg	65-115	85-126	Green

PEDIATRIC CLINICAL SIGNS OF POOR PERFUSION	PEDIATRIC GCS—VERBAL SCALE (2< YO)	
♦ Cool, mottled, pale or cyanotic skin	5	Coos and babbles
♦ Low urine output	4	Irritable
♦ Lethargic	3	Only cries to pain
♦ Prolonged capillary refill	2	Only moans to pain
	1	None

STEP 2

Contact either Marin General Hospital (MGH) or Children's Hospital Oakland (CHO) Trauma Center:

MGH: 415-925-7203 Notify the Emergency Department that you have a "**Pediatric Trauma Re-Triage** " patient

CHO: 855-246-5437 Notify the Transfer Center at **CHO** that you have a "**Pediatric Trauma Re-Triage** " patient

They will connect the transferring physician with the appropriate accepting physician.

The direct line into CHO's Emergency Department is 510-428-3240

STEP 3

Determine appropriate level of transport and arrange transport (can be done simultaneous to MGH or CHO contact)

- If within Paramedic Scope of Practice and timely transfer needed—contact 9-1-1 to request ***Emergency Interfacility Transfer***
- Transport should generally arrive within 10 minutes

If exceeds Paramedic Scope of Practice, contact appropriate transport agencies (CCT-RN or Air Ambulance) or arrange for nursing staff and/or MD to accompany paramedic or EMT ambulance.

STEP 4

Prepare patient, diagnostic imaging disk(s), and paperwork for immediate transport

- Fax additional paperwork that is not ready at time of transport departure.
- Do not delay transport

PATIENT CARE RECORD (PCR)

I. PURPOSE

To establish requirements for completion, reporting, and submission of Marin County approved Patient Care Records.

II. RELATED POLICIES

ALS to BLS Transfer of Care, ATG 4
Against Medical Advise (AMA), GPC 2
Release at Scene (RAS), GPC 3

III. DEFINITIONS

A. Patient – someone who meets any one of the following criteria:
   1. Has a chief complaint or has made a request for medical assistance
   2. Has obvious symptoms or signs of injury or illness
   3. Has been involved in an event when mechanism of injury would cause the responder to reasonably believe that an injury may be present
   4. Appears to be disoriented or to have impaired psychiatric function
   5. Has evidence of suicidal intent
   6. Is dead

B. Emergency Medical (EM)/Authorization Order (AO) – a number assigned by a Marin County Communication's Center to identify each 9-1-1 call dispatched for medical assistance.

C. Electronic Patient Care Record (ePCR) - the permanent record of prehospital patient evaluation, care, and treatment.

D. Field Transfer Form (FTF) – a temporary, paper record of patient care

E. Triage Tag – a paper record for multi-casualty incidents involving 6 or more patients

IV. POLICY

A. An ePCR shall be completed for every call for which an EM/AO is issued.

B. For all patients transported, the ePCR will be completed by the personnel assigned to the transport unit.

C. For non-transported patients (e.g. AMA, RAS, Dead on Scene), the ePCR will be completed by the paramedic or EMT most involved in patient care and responsible for the patient's disposition.

D. For calls where there is no medical merit, the ePCR will be completed according to provider agency's policy.

E. The ePCR is the permanent PCR and will be filled out in a clear, concise, accurate, and complete manner and will include all care provided in the prehospital setting. When possible, it shall include all 12 lead ECGs and any ECG other than normal sinus rhythm.

F. The completed PCR includes all care rendered by the transporting providers as well as any care given prior to arrival of the transporting unit by bystanders and/or first responders. Documentation of care provided by first responders (of a different agency than the transport unit) may be required by their department policy.

G. When a patient is transported to a receiving facility, one copy of the PCR shall be left with the receiving facility upon transfer of care.
   1. In the event that personnel are unable to leave a completed PCR at the facility, a FTF will be completed in full and left in lieu of the ePCR. However, ALL critical

patients (e.g., cardiac arrest, Early Notification patients) MUST have a completed PCR left at the hospital upon transfer of care. If a FTF was utilized, an ePCR will be completed and received by the facility as soon as possible and no later than 3 hours of transfer of care.

H. For ground transportations to an out-of-county facility, a FTF will be given to the receiving provider and a completed ePCR shall be produced and sent to that facility within 3 hours of transfer of care.

I. For air ambulance transportations, a FTF will be given to the air ambulance personnel, and an ePCR will be created within 3 hours of transfer of care and sent to the receiving facility via ePCR program or FAX.

J. Personnel assigned outside of the county to provide medical-mutual aid (e.g. fire-line EMT/Paramedic), shall complete a FTF for each patient contact. The FTF will be created on site and a copy submitted to the provider agency as soon as possible after returning to the county.

K. Willful omission, misuse, tampering, or falsification of documentation of patient care records is cause for formal investigative action under Section 1978.200 of the California Health and Safety Code.

V. GENERAL INSTRUCTIONS

A. The patient care record is part of the patient's permanent medical record and is used for, but not limited to, the following purposes:
   1. Transfer of information to other healthcare providers
   2. Medical legal documentation
   3. Billing for services
   4. Development of aggregate data reports for Continuous Quality Improvement (CQI), including specific quality indicators and identification of educational needs
   5. EMS Agency case investigation

B. Reference to a Marin County EMS Notification Form or similar record should not be included on the patient care record.

C. If ALS to BLS transfer of care is determined to be appropriate, documentation of assessments and all care rendered must be completed by both the ALS and the BLS units according to policy ATG 4.

D. Provider agencies are responsible for training their employees in the initiation, completion, distribution of patient care records, HIPAA and any accompanying forms based on the EMS Agency's currently approved training curriculum.

APPROVED MEDICAL ABBREVIATIONS

PURPOSE

To identify the abbreviations and symbols which an Emergency Medical Technician (EMT) or Paramedic may use for documentation purposes in Marin County.

ABBREVIATIONS

Abbreviation / Symbol	Description
♀	female
♂	male
⊕	positive
⊖	negative
°C	degrees Celsius
°F	degrees Fahrenheit
Ⓛ	left
Ⓡ	right
1°	primary
2°	secondary
<	less than
>	greater than
@	at
Δ	change
↓	decrease(d)
↑	increase(d)
≈	approximately
x	times
ā	before
A/O	alert and oriented
A/S	at scene / arrived at scene
abd	abdomen
AC	antecubical
AFIB	atrial fibrillation
AICD	Automatic Internal Cardiac Defibrillator
AKA	above the knee amputation
ALOC	altered level of consciousness
ALS	Advanced Life Support
AM	morning
AMA	against medical advice
AMI	acute myocardial infarction
AOS	arrived on scene
approx	approximately
ASA	acetylsalicylic acid, aspirin
ASAP	as soon as possible
ATF	arrived to find
B/C	because
BBB	bundle branch block
BG	blood glucose
BGL	blood glucose level

Bilat	bilateral
BKA	below the knee amputation
BLS	Basic Life Support
BM	bowel movement
BP	blood pressure
bpm	beats per minute
BS	blood sugar
BSA	burn surface area
BVM	bag valve mask
c̄	with
C/C	chief complaint
C/O	complain of
C2	code two
C3	code three
CA	cancer
CAD	coronary artery disease
CHF	congestive heart failure
CHP	California Highway Patrol
CMPA	Central Marin Police Authority
CO	complain of / carbon monoxide
COPD	chronic obstructive pulmonary disease
CP	chest pain
CPAP	continuous positive airway pressure
CPR	cardio pulmonary resuscitation
CPSS	Cincinnati prehospital stroke scale
CSM	circulation, sensation, movement
CVA	cerebral vascular accident
DDM	designated decision maker
DKA	diabetic ketoacidosis
DM	Diabetes mellitus
DNR	do not resuscitate
DVT	deep vein thrombosis
dx	diagnosis
ECG	electrocardiogram
ED	emergency department
EKG	electrocardiogram
EMD	Emergency Medical Dispatch
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
EMT-P	Paramedic
ENRT	enroute
ER	Emergency Room
ESO	electronic PCR software
ET	endotracheal
ETA	estimated time of arrival
$ETCO_2$	end-tidal carbon dioxide
ETI	endotracheal intubation
ETOH	alcohol
ETT	endotracheal tube
F	female
FTF	Field transfer form

fx	fracture
G	Gram
G	gauge
GCS	Glasgow Coma Scale
GI	gastrointestinal
gm	gram
GSW	gunshot wound
gtt(s)	drop(s)
GU	genitourinary
h	hour
H/N/B	head, neck, back
H_2O	water
HA	headache
HHN	hand-held nebulizer
HOB	Head of bed
HR	heart rate
HTN	hypertension
Hwy	highway
hx	history
ICD	Internal Cardiac Defibrillator
ICU	intensive care unit
IM	intramuscular
IN	intranasal
IO	intraosseous
IV	intravenous
IVP	intravenous push
JVD	jugular venous distension
KED	Kendrick Extrication Device
kg	kilograms
KSR	Kaiser San Rafael
KTL	Kaiser Terra Linda
L	liter
L	left
lac	laceration
LKW	Last known well
LL	left lateral
LLQ	left lower quadrant
LOC	loss of consciousness / level of consciousness
LS	lung sounds
Lt	left
LUQ	left upper quadrant
m	min
M	male
m/o	Month old
mA	Milliamp
MAD	mucosal atomization device
MCSO	Marin County Sheriff's Office (deputy)
MD	medical doctor
mEq	milliequilvalent
mg	milligram
mg/Dl	milligrams per deciliter

MGH	Marin General Hospital
MI	myocardial infraction
MICU	mobile intensive care unit
MIN	minimum / minute
ml	milliliter
MOI	mechanism of injury
MPH	miles per hour
MS	morphine sulfate / multiple sclerosis
MSo4	morphine
MVA	motor vehicle accident
MVC	motor vehicle crash
MVPD	Mill Valley Police Department
N&V or N/V or NV	nausea and vomiting
NaCL	Sodium Chloride
NAD	no apparent distress
NC	nasal cannula
NCH	Novato Community Hospital
NEG	negative
Neuro	neurological
NITRO	nitroglycerin
NKDA	no known drug allergies
NPA	nasopharyngeal airway
NPD	Novato Police Departmet
NRB	non-rebreather mask
NS	normal saline
NSR	normal sinus rhythm
NTG	nitroglycerine
NVD	nausea, vomiting, diarrhea
O_2	oxygen
O_2 sat	peripheral capillary oxygen saturation
OD	overdose
ODT	orally disintegrating tablet
OPA	oropharyngeal airway
$\overline{p}$	after
P/W/D	pink warm dry
PAC	premature atrial contraction
PALP	palpitation
PARA	parity, e.g. gravid 2, para 1 means the patient has been pregnant twice and given birth once; also written G2P1
PCN	penicillin
PE	pulmonary edema / pedal edema / patient exam
PEA	pulseless electrical activity
PERL	pupils equal reactive to light
PERRL	Pupils equal, round, reactive to light
PJC	premature junctional contraction
PM	evening
PMD	primary/personal/private medical doctor
PO	by mouth
POC	position of comfort
POLST	Physician Orders for Life Sustaining Treatment
PRN	as needed

PSYCH	psychiatric
PT	patient
PTA	prior to arrival
PTS	patients
PTSD	post traumatic stress disorder
Pulse Ox	peripheral capillary oxygen saturation
PVC	premature ventricular contraction
PVH	Petaluma Valley Hospital
PVT	private
PX	pain
q	every
R	right
RA	room air
RAS	released at scene
RLQ	right lower quadrant
RMC	routine medical care
RN	registered nurse
ROM	range of motion
ROSC	return of spontaneous circulation
RP	reporting party
RPM	respirations per minute
RR	respiratory rate
Rt	right
Rx	prescription
$\bar{s}$	without
S. Brady	sinus brady
S. Tach	sinus tachycardia
S/NT/ND	Soft, non-tender, no distention
S/P	status post
S/S	signs and symptoms
SBP	systolic blood pressure
SC, SQ	subcutaneous
SL	sublingual
SM	small
SMR	spinal motion restriction
SNF	skilled nursing facility
SOB	shortness of breath
SPO_2	peripheral capillary oxygen saturation
SRPD	San Rafael PD
STEMI	ST Segment Elevation Myocardial Infarction
SVT	supraventricular tachycardia
TACH	tachycardia
TB	tuberculosis
TEMP	temperature
TIA	transient ischemic attack
TKO	to keep open
TOC	transfer of care
TRANS	transport / transfer
TTT	Trauma Triage Tool
TX	treatment
UCSF	University California San Francisco

UOA	upon our arrival
USGC	United States Coast Guard
UTI	urinary tract infection
UTL	unable to locate
UTO	unable to obtain
V	victim
V/S or VS	vital sign
VA	Veteran's Administration
VF	ventricular fibrillation
VT	ventricular tachycardia
W/	with
w/c	wheelchair
w/o	wide open
WBC	white blood count
WNL	within normal limits
Y/O or YO	Year(s) old

ROUTINE MEDICAL CARE (RMC)
ALS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- To define procedures indicated by ALS RMC per treatment guidelines or
- Patient condition warrants ALS care/assessment, but does not meet the indication of any other treatment policy

TREATMENT

- As indicated:
  - Vascular access
  - Blood glucose monitoring as indicated by ALOC or patient history
  - Cardiac monitor
  - Advanced airway management
  - Initiate oxygen therapy for respiratory distress, signs of hypoxia, suspected CO poisoning, or SpO2 saturation <94%
  - Temperature
  - $ETCO_2$
  - 12 lead ECG
  - For pediatric patients, use length based color-coded resuscitation tape and apply corresponding wrist band

ADULT PAIN MANAGEMENT

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient exhibits or is determined to have measurable or anticipated pain or discomfort

☎ PHYSICIAN CONSULT

- Patients with SBP < 100
- Patients with head trauma; multi-system trauma that includes abdominal/thoracic trauma; decreased respirations; ALOC (GCS < 15); or women in labor
- > 20 mg **Morphine Sulfate** is needed for pain management
- Concomitant administration of **Morphine Sulfate** and **Midazolam**

CRITICAL INFORMATION

- Origin of pain (examples: isolated extremity trauma, chronic medical condition, burns, abdominal pain, multi-system trauma)
- Mechanism of injury
- Approximate time of onset
- Complaints or obvious signs of discomfort
- Use Visual Analog Scale (0-10) or Wong/Baker Faces Pain Rating Scale if non-English speaking adult. Express results as a fraction (i.e. 2/10 or 7/10)
- Vital signs
- Presence of special infusion apparatus for narcotic or oncology agents may help to determine dosing

TREATMENT

- **Morphine Sulfate** IV/IO: 5 mg slowly; MR q 5 minutes, max. dose 20 mg.
  - If unable to establish IV/IO, administer Morphine Sulfate IM 5-10 mg; MR in 20 minutes, max. dose 20 mg
- ☎If significant pain persists after Morphine Sulfate 10 mg IV/IO, may consider **Midazolam** 1mg IV/IO with physician consult; MR in 3 minutes to maximum dose 2 mg.
- If nausea/vomiting, consider **Ondansetron** (Zofran ©) 4mg ODT/IM or slow IV/IO over 30 seconds; MR x1 in 10 minutes
- If patient unable to take Morphine Sulfate, refer to Sedation Policy, ATG3.
- Maintain O2 saturation ≥ 94%

DOCUMENTATION- ESSENTIAL ELEMENTS

- Initial and post treatment pain score, expressed in a measurable form (i.e. 7/10)
- Interventions used for pain management (i.e. ice pack, splint, Morphine Sulfate, Midazolam)
- Reassessment after interventions
- Initial and post treatment vital signs: BP, HR, RR, O2 Saturation, ETCO2 (and GCS in patients with ALOC)
- Physician consult if required

ADULT SEDATION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Cardioversion / Cardiac Pacing
- Agitation / combativeness interfering with critical ALS interventions and airway control or that endangers patient or caregiver
- Patients unable to tolerate Morphine Sulfate for pain management

☎ PHYSICIAN CONSULT

- Head injury (airway is stable)
- Multiple system trauma (airway is stable)
- Concomitant administration of **Morphine Sulfate** and **Midazolam**

CRITICAL INFORMATION

- Relative contraindications:
  - Nausea / vomiting
  - ALOC
  - Hypotension (SBP < 100)
  - Suspected drug / alcohol intoxication

TREATMENT

- ALS RMC, including ETCO2
- Cardioversion / cardiac pacing
  - If patient is conscious, administer **Midazolam** 1 mg slow IV/IO. May repeat 1 mg every 3 minutes to desired degree of sedation. Maximum dose = 0.05 mg/kg.
  - ☎**Morphine Sulfate** IV/IO/IM for pain management as needed; maximum dose of 5 mg.
- Agitation, combativeness or for patients unable to tolerate Morphine Sulfate- administer **Midazolam**
  - IV/IO: 1 mg slowly; MR q 3 minutes to maximum dose 0.05 mg/kg.
  - IN: 5 mg (2.5 mg in each nostril)
  - IM: 0.1 mg/kg; MR x 1 in 10 minutes
- Patients receiving sedation for airway management who have long transport times may receive sedation maintenance doses of **Midazolam** 1 mg IV/IO every 15 minutes

Midazolam for Sedation Weight Based Chart - MAXIMUM DOSE for IV/IO only

Kg	Lb	Dose (0.05 mg/kg)
40	88	2 mg
45	99	2.25 mg
50	110	2.5 mg
55	121	2.75 mg
60	132	3 mg
65	143	3.25 mg
70	154	3.5 mg
75	165	3.75 mg
80	176	4 mg
85	187	4.25 mg
90	198	4.5 mg
95	209	4.75 mg
>100	>220	5 mg

SPECIAL CONSIDERATION

- Sedation for airway management does not mandate intubation, but may require airway/ventilation support
- Patients receiving **Midazolam** may experience hypotension

RELATED POLICIES

- Patient Restraint GPC11
- Continuous Positive Airway Pressure (CPAP) Procedure ALS PR 13
- External Cardiac Pacing Procedure ALS PR 11

ADULT CARDIAC ARREST GUIDELINE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- To provide effective, quality cardiopulmonary resuscitation in a sequential and organized manner

CRITICAL INFORMATION

- Witnessed vs. unwitnessed
- Bystander CPR vs. No Bystander CPR
  - For documentation purposes, inappropriately given CPR = NO CPR

TREATMENT

- If unwitnessed arrest, complete 5 cycles (2 minutes) of CPR before rhythm analysis. If witnessed arrest with effective bystander CPR, immediately attach monitor/defibrillator.
- Compressions
  - Begin compressions at a rate of at least 110 per minute, using a metronome or other similar device that produces regular, metrical feedback at 110 beats per minute.
  - Consider mechanical CPR device if available
  - Compress the chest at least 2 inches and allow for full recoil of chest
  - Change compressors every 2 minutes
  - Minimize interruptions in compressions. If necessary to interrupt, limit to 10 seconds or less
  - Do not stop compressions while defibrillator is charging
  - Resume compressions immediately after any shock
- Monitor/Defibrillator
  - Priority of second rescuer is to apply pads while compressions are in progress
  - Determine rhythm and shock if indicated
  - Follow specific treatment guideline based on rhythm
- Basic Airway Management
  - During the first 5 minutes of resuscitation BLS airway management is preferred
  - Open airway and provide 2 ventilations after every 30 compressions
  - Ventilation should be about one second each- enough to cause visible chest rise. Avoid excessive ventilation.
  - Use two-person BLS Airway management (one holding mask and one squeezing bag) whenever possible
- Establish IV/IO Access (IO preferred)
- Advanced Airway Management
  - **Placement of advanced airway is not a priority during the first 5 minutes of resuscitation unless no ventilation is occurring with basic maneuvers**
  - King Airway is the preferred device if an advanced airway is required.
  - Laryngoscopy for endotrachael tube placement must occur with CPR in progress. Compressions should not be interrupted for more than 10 seconds for advancement of tube through the cords
  - AVOID EXCESSIVE VENTILATION – provide no more than 8-10 ventilations per minute
  - Maintain O2 saturation level of >94% and <100%.
  - Continuous monitoring of End-Tidal CO2 to monitor effectiveness of CPR and advanced airway placement.
- Treatment on Scene
  - Movement of patient during CPR may be detrimental to patient outcome.

- Provide resuscitation on scene until ROSC, patient meets Determination of Death criteria, or transport is indicated. Paramedic discretion to transport patients receiving CPR may be warranted in certain situations (refractory VF, unsafe scene conditions, hypothermic, etc.).
- Manual CPR is not advised in the back of a moving ambulance. If transporting a patient needing CPR, consider using mechanical CPR if available.
- To assure ROSC continues, remain on scene for 5-10' to assure ROSC, and then transport to a STEMI Receiving Center.

RELATED POLICIES/ PROCEDURES

- Determination of Death ATG6
- Determination of Death BLS5
- King Airway Procedure ALS14
- Ventricular Fibrillation / Pulseless Ventricular Tachycardia C1
- PEA C2
- Asystole C3
- Return of Spontaneous Circulation C10

SEXUAL ASSAULT

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patients with complaints consistent with sexual assault

CRITICAL INFORMATION

- Preserve possible evidence and advise patient not to clean, bathe or change clothes until after examination by hospital personnel
- Notify police and dispatch of nature of call

TREATMENT

- BLS / ALS RMC
- Calm/ reassure patient
- Assign responder of same gender as patient if possible
- Treat medical conditions, traumatic injuries per protocol
- Transport to an appropriate Marin County hospital, following the Destination Guidelines Policy.
- If patient/ Designated Decision Maker (DDM) refuses transport, instruct patient not to bathe, shower, or change clothes until after contact with and advice by law enforcement. Advise patient of alternative care/ transport options per AMA and RAS Policy.

SPECIAL CONSIDERATION

- If patient's clothing is removed and law enforcement is not at scene, place clothing in a paper bag and bring to the hospital. Do not use a plastic bag.
- A patient who requires/requests a specialized evidentiary examination will first be transported to a Marin County hospital. Once medically cleared the patient will be transported by the appropriate law enforcement agency to Kaiser Permanente Vallejo Medical Center.

DOCUMENTATION- ESSENTIAL ELEMENTS

- Date and time of alleged assault
- Details of injuries noted
- Patient description of mechanism of injury

RELATED POLICIES/ PROCEDURES

- AMA Policy GPC 2
- RAS Policy GPC 3
- Destination Guidelines Policy GPC 4
- ALS to BLS Transfer of Care ATG 4
- Trauma Triage and Destination Guidelines Policy 4613

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Pulseless, apneic with cardiac rhythm of ventricular fibrillation or wide complex tachycardia

CRITICAL INFORMATION

- Witnessed or unwitnessed
- Effective Bystander CPR

TREATMENT

- Witnessed arrest: CPR until defibrillator available
- Unwitnessed arrest: CPR for 2 minutes prior to defibrillation
- ALL arrests: CPR for 2 minutes between shocks. Do not check rhythm immediately after shock.
- If available, use mechanical CPR (contraindicated in pediatrics and traumatic arrests)
- Defibrillate as per manufacturer's recommendations:
  - LifePak: 200J, 300J, 360J
  - Zoll: 120J, 150J, 200J
  - Repeat defibrillations 30-60 seconds after drug administrations
- ALS RMC
- If VF/VT converts to another rhythm post defibrillation, refer to appropriate protocol for further treatment
- If VF/VT continues: **Epinephrine** 1:10,000 1.0 mg IV/IO; repeat q 3-5 minutes;
- If VF/VT persists after three defibrillations or recurs:
  - **Amiodarone** 300 mg IV/IO push (diluted in, or followed by, 20 to 30 ml **NS**). Initial dose can be followed by ONE 150 mg IV/IO push in 3 to 5 minutes
- If rhythm converts with return of pulses, refer to ROSC policy.
- If rhythm converts with return of pulses after **Amiodarone**, monitor and consider infusion of **Amiodarone** drip (150mg in 100 ml NS, 1 mg/minute= 40 gtts/min. with 60 drops ml/ tubing)

SPECIAL CONSIDERATIONS

- Establishment of IV/IO, airway and medication administration should occur during CPR and should not interrupt the CPR cycles
  - If rhythm converts without administration of **Amiodarone**, monitor and transport
  - Consider pre-cordial thump if witnessed and no defibrillator immediately available
  - Consider and treat possible contributing factors:

▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia	▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Trauma

DOCUMENTATION – ESSENTIAL ELEMENTS

- Bystander CPR
- Witnessed or unwitnessed

RELATED POLICIES / PROCEDURES

Return of Spontaneous Circulation C10

CHEST PAIN/ ACUTE CORONARY SYNDROME ALS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Chest discomfort or pain, suggestive of cardiac origin.
- Other symptoms of Acute Coronary Syndrome (ACS) which may include weakness, nausea, vomiting, diaphoresis, dyspnea, dizziness, palpitations, "indigestion"
- Atypical symptoms or "silent MIs" (women, elderly, and diabetics)

☎ PHYSICIAN CONSULT

- Additional treatment for ongoing pain when BP<100

TREATMENT

- ALS RMC
- **ASA** 162-325 mg (chewable), even if patient has taken daily ASA dose
- 12-lead ECG; if elevation in leads II, III, and AVF, suspect RVI and perform right-sided ECG.
- For chest discomfort or pain, **NTG** 0.4 mg SL/ spray, MR q 5 min. if systolic BP > 100
  - Withhold the NTG if the patient has RVI or has taken erectile dysfunction (ED) medication within the last 24 hrs (Viagra/Levitra) or 36 hrs (Cialis).
- If pain persists give **Morphine Sulfate** 2-5 mg slowly IV; MR q 2-3 minutes to a total of 10 mg.
- Consider NS 250cc IV fluid bolus if BP < 100.
- For recurrent episodes of ventricular tachycardia with persistent chest pain, administer **Amiodarone** 150 mg in 100 ml NS, IV/IO; infuse over 10 minutes. May repeat q 10 minutes as needed.

SPECIAL CONSIDERATION

- IV access before NTG if any one of the following applies:
  - SBP <120
  - Patient does not routinely take NTG
- Consider other potential causes of chest pain: pulmonary embolus, pneumonia, aortic aneurysm and pneumothorax.
- Infarctions may be present with normal 12-leads.
- Routine administration of oxygen is not indicated if saturation is >93%

DOCUMENTATION- ESSENTIAL ELEMENTS

- OPQRST information
- Vital signs before/after **NTG** administration
- Cardiac rhythm documentation
- ECG findings
- Erectile dysfunction medications taken
- Level of pain

RELATED POLICIES/ PROCEDURES

- 12-lead Electrocardiogram ALS PR 12
- Destination Guidelines GPC 4
- STEMI C 9

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patients with acute ST Elevation Myocardial Infarction (STEMI) as identified by machine read

☎ PHYSICIAN CONSULT

- If patient is symptomatic for STEMI, but computer interpretation is not in agreement, **transmit ECG** and consult the STEMI Receiving Center (SRC) receiving physician.
- If above findings occur, but transmission is not available, activate SRC with Early STEMI Notification.

TREATMENT/ PROCEDURE

- ALS RMC
- Treat patient under appropriate protocol
- Routine administration of oxygen is not indicated if saturation is >93%
- Determine if patient is stable or unstable, and transport to appropriate facility
- Provide Early STEMI Notification
  - If elevation in leads II, III, and AVF, suspect RVI and perform right-sided ECG.
- Transmit all STEMI ECGs to SRC if possible
  - To determine if patient is stable or unstable:

Stable	Unstable
▪ Stable VS and no indication of shock	▪ SBP< 90 (prior to **NTG** and **Morphine Sulfate** administration) ▪ Signs of acute pulmonary edema ▪ Ventricular tachyarrhythmia requiring defibrillation or antiarrhythmic therapy ▪ Patient's condition, based on paramedic judgment, requires immediate hospital intervention

  - Stable patient:
    - May go to preferred SRC if the estimated transport time is not more than 15 minutes longer than the nearest SRC
    - Preferred SRC defined:
      - Patient preference
      - SRC used by treating cardiologist.
  - Unstable patient:
    - Transport to the closest SRC

SPECIAL CONSIDERATION

- Early notification report to include: age, gender, symptoms (including presence or absence of chest pain), and 12-lead findings

DOCUMENTATION- ESSENTIAL ELEMENTS

- 12-lead findings
- How preferred SRC is determined

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- 12-lead ECG Procedure ALS PR 12
- Chest Pain / ACS C8

GASTROINTESTINAL BLEEDING

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- History of dark, tarry stools, frank bleeding, or vomiting blood, with or without abdominal pain

CRITICAL INFORMATION

- History of previous episodes of gastrointestinal bleeding
- Use of anticoagulant drugs
- History of syncope or falls

TREATMENT

- ALS RMC
- If hypotensive, fluid challenge, 250-500 ml recheck vital signs q 250 ml
- If in shock, start second large bore IV ; fluid challenge 500-1000 ml, recheck vital signs q 250 ml
- Shock position if tolerated, keep patient warm

DOCUMENTATION- ESSENTIAL ELEMENTS

- Estimated blood loss

RELATED POLICIES/ PROCEDURES

- Non-Traumatic Shock M 1
- Severe Nausea/Vomiting M 5

POISONS/DRUGS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Ingestion and/or exposure to one or more toxic substances

CRITICAL INFORMATION

- Identify substance/drug if possible and amount ingested
- Time of ingestion and length of exposure
- Risk of exposure to field providers

TREATMENT

- ALS RMC
- Consider contacting Poison Control Center at 1(800) 404-4646 for additional information. If information from Poison Control is outside of scope of practice, contact the intended receiving facility for consult.
- **Hydrocarbons or Petroleum distillates** (kerosene, gasoline, lighter fluid, furniture polish):
  - Do not induce vomiting.
  - Transport immediately.
- **Caustic/ Corrosives** (Ingestion of substances causing intra-oral burns, painful swallowing or inability to handle secretions):
  - Do not induce vomiting.
  - Consider dilution with no more than 1-2 glasses of water or milk if no respiratory compromise or change in mental status.
- **Insecticides** (organophosphates, carbonates; cause cholinergic crisis characterized by bradycardia, increased salivation, lacramation, sweating, muscle fasciculation, abdominal cramping, pinpoint pupils, incoherence or coma:
  - If skin exposure, decontaminate patient, remove clothing, wash skin, avoid contamination of prehospital personnel
  - **Atropine** 2 mg IV slowly. Repeat 2-5 minutes until drying of secretions, reversal of bronchospasm and reversal of bradycardia. Maximum dose 10 mg.
  - If seizures, **Midazolam (Versed)** 1 mg IV slowly; MR in 3 minutes to maximum dose 0.05 mg/kg
    - For IN: 5 mg (2.5mg in each nostril)
    - For IM: 0.1mg/kg; MR x 1 in 10 minutes
- **Cyclic Antidepressants** (frequently associated with respiratory depression, almost always tachycardic, widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions):
  - In the presence of life-threatening dysrhythmias (hemodynamically significant supraventricular rhythms, ventricular dysrhythmias or QRS > 0.10):
    - Hyperventilate if assisting ventilations or if intubated.
    - **Sodium bicarbonate** 1 mEq/kg IVP
  - If seizures, **Midazolam (Versed)** 1 mg IV slowly; MR in 3 minutes to maximum dose 0.05 mg/kg
    - For IN: 5 mg (2.5 mg in each nostril)
    - For IM: 0.1mg/kg; MR x 1 in 10 minutes

- **Phenothiazine reactions** (restlessness, muscle spasms of the neck, jaw, and back; oculogyric crisis, history of ingestion of phenothiazine, or unknown medication):
  - **Benadryl** 1mg/ kg slow IVP to max of 50 mg
- **Other non-caustic drugs** (patient awake and alert):
  - If within 1 hour of ingestion, consider **Activated charcoal** 1 GM/kg PO, not to exceed 50 GM
  - If level of consciousness diminishes, protect airway, suggest lateral position with head down.

DOCUMENTATION- ESSENTIAL ELEMENTS

- Obtain history of ingestion, substance, amount and time of ingestion, bring sample to hospital if possible
- Vomiting prior to ED arrival

RELATED POLICIES/ PROCEDURES

- Seizures N2

CEREBROVASCULAR ACCIDENT (STROKE)

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Positive finding per the Cincinnati Pre-hospital Stroke Scale (CPSS)

CRITICAL INFORMATION

- Criteria for Early Stroke Notification:
  - Evidence of hemispheric stroke per the CPSS (see below)
  - Last known well less than 4 hours
  - Blood glucose between 70 and 400 mg/dl
  - If patient presents with sudden, witnessed onset of coma or rapidly deteriorating GCS with high likelihood of intracranial bleed, transport to Marin General Hospital

TREATMENT

- ALS RMC
- If patient meets criteria listed above, rapid transport to patient's preferred Primary Stroke Center (PSC), as long as the estimated transport time is not more than 15 minutes longer than the nearest PSC.
  - Preferred PSC: patient's preference or PSC with patient's medical records
  - No preferred PSC: transport to the closest PSC
- Early Stroke Notification
- Routine administration of oxygen is not indicated if saturation is >93%

DOCUMENTATION- ESSENTIAL ELEMENTS

- Criteria for Early Stroke Notification
- Choose CVA as Primary Impression
- Documentation of CPSS results and hospital notification
- Last known well (document in military time)
- Blood glucose level
- GCS
- History of intracranial hemorrhage
- Serious head injury within 2 months
- Seizure within 6 hours of last known normal
- Taking anticoagulant medications (e.g. Warfarin/ Coumadin, Pradaxa, Xarelto, Eliquis)
- Improving neurological deficit

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- Prehospital / Hospital Contact Policy 7001
- Ambulance Diversion Policy 5400

Cincinnati Pre-Hospital Stroke Scale (CPSS)

Facial Droop (the patient shows teeth or smiles)
___Normal: both sides of the face move equally
___Abnormal: Right side of the face does not move as well as the left
___Abnormal: Left side of the face does not move as well as the right

Arm Drift (the patient closes their eyes and extends both arms straight out for 10 seconds)
___Normal: both arms move the same, or both arms do not move at all
___Abnormal: Right arm either does not move, or drifts down compared to the left
___Abnormal: Left arm either does not move, or drifts down compared to the right

Speech (the patient repeats “The sky is blue in Cincinnati.” or other sentence)
___Normal: the patient says the correct words with no slurring of words
___Abnormal: the patient slurs words, says the wrong words, or is unable to speak

TOXIC INHALATION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Respiratory distress caused by inhalation of toxic gases
- Symptoms may include headache, malaise, dizziness, nausea/vomiting, seizures, coma; ~~which~~ may be associated with cherry- red color of mucous membranes (late sign)
- Consider carbon monoxide (CO) poisoning with any patient exposed to products of combustion

TREATMENT

- Rapid removal of patient from toxic environment
- High flow oxygen; give oxygen despite normal oxygen saturation levels
- ALS RMC
- If wheezing - **Albuterol** 5 mg in 6 ml **NS** via HHN, repeat as indicated
- CO monitoring, if available
  High Suspicion of CO poisoning:
  - Any patient (non-smoker) with CO level >9%
  - Any patient (smoker) with CO level >12%

  At Risk for CO poisoning (at risk=pregnant, children <6y, elderly, patients with history of respiratory problems)
  - Any “at risk” patient (non smoker) with CO level >4%
  - Any “at risk” patient (smoker) with CO level >8%
  - Any patient with CO symptoms and confirmed source of CO

DOCUMENTATION – ESSENTIAL ELEMENTS

- Nature of exposure
- CO levels
- At-risk criteria

TRAUMATIC INJURIES

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Suspected or apparent injuries which meet conditions listed on the Marin County Trauma Triage Tool

CRITICAL INFORMATION

- Rapid transport to the appropriate trauma receiving facility is important and must be taken into account in the field management of trauma patients

TREATMENT

- ALS RMC
- Early trauma center notification
- Control of bleeding
- If SBP < 100, consider 2 large bore IVs; fluid challenge 250-500 ml
- Pain management as appropriate
- For head injury patients, consider **Zofran** to prevent vomiting which could increase ICP.
- Prepare for early and rapid transport to the appropriate trauma center

SPECIAL CONSIDERATION

- If injury may have resulted from abuse, neglect, assault, attempted suicide/ homicide and/ or other crimes, refer to Suspected Child/ Dependent Adult/ Elder Abuse Policy for reporting.

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- Suspected Child/ Dependent Adult/ Elder Abuse GPC 9
- Spinal Immobilization GPC 13
- Adult Pain Management ATG 2
- Trauma Triage Tool 4613a
- Severe Nausea and Vomiting M 5

PEDIATRIC RESPIRATORY DISTRESS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient exhibits any of the following:
  - Wheezing
  - Stridor
  - Grunting
  - Nasal flaring
  - Apnea

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years**;** adolescent = >14 years

TREATMENT

- ALS RMC
- Position of comfort to maintain airway
- Allow parent to administer oxygen if possible
- Upper Airway/ Stridor:
  - Mild to moderate respiratory distress: 3ml NS via HHN
  - Moderate to severe respiratory distress: **Epinephrine** 1:1,000 5 mg in 5 ml via nebulizer
- Lower Airway Obstruction/ Wheezing:
  - **Albuterol** 2.5 mg in 3 ml NS via HHN, mask, or bag-valve-mask; MR x 1 and
  - **Ipratropium** 500 mcg in 2.5 ml NS via HHN or bag-valve-mask
  - If response inadequate, **Epinephrine** 1:1,000 (0.01 mg/kg) IM, max. single dose 0.3 mg; maximum dose = 0.6 mg.
- Foreign Body Obstruction:
  - Attempt to clear airway:
  - < 1 year: 5 back blows and 5 chest thrusts
  - > 1 year: 5 abdominal thrusts
  - Visualize larynx and remove foreign body with Magill forceps
- Respiratory failure/ apnea/ complete obstruction.
  - Attempt positive pressure ventilation via bag-valve-mask, if unable to ventilate, attempt intubation

SPECIAL CONSIDERATIONS

- Assess key history factors: recent hospitalizations, asthma, allergies, croup, and medication usage

PEDIATRIC BRADYCARDIA

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- HR< 60 causing cardio-respiratory compromise

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years**;** adolescent = >14 years
- History of exposure to substances or medications

TREATMENT

- ALS RMC
- 12-lead ECG
- Obtain IV/IO access
- If responsive and no signs of shock
  - Monitor and transport
- If shock present:
  - Chest compressions if HR < 60 and patient is < 8 years with poor perfusion:
  - **Epinephrine** 1:10,000 IV/IO: 0.01 mg/kg (0.1 ml/kg); MR q 3-5 min.
  - If first degree block or Mobitz type I**, Atropine** 0.02 mg/kg IV/IO (max single dose: 0.5 mg; minimum single dose: 0.1 mg); MR x 1
  - Consider endotracheal intubation
- Consider cardiac pacing if no response to above treatment.

SPECIAL CONSIDERATIONS

- Consider and treat possible contributing factors:

▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia	▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Trauma

RELATED POLICIES/ PROCEDURES

- External Cardiac Pacing Procedure ALS PR 11

PEDIATRIC TACHYCARDIA
POOR PERFUSION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Rapid heart rate (HR> 220 infant: HR> 180 child) with pulse and poor perfusion

☎ PHYSICIAN CONSULT

- **Amiodarone**

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years**;** adolescent = >14 years
- Monophasic and biphasic doses are the same

TREATMENT

- ALS RMC
- 12-lead EKG
- If normal QRS ≤ 0.09 seconds; Probable Sinus Tachycardia or Supraventricular Tachycardia:
  - Consider vagal maneuvers, but do not delay other treatments
  - If vascular access readily available, **Adenosine** 0.1mg/kg IV/ IO; max first dose 6 mg. MR X 1; (double the dose), maximum dose 12 mg. Follow each dose with rapid 10 ml flush.
  - Premedicate with **Midazolam** 0.05 mg/kg IV/IO (maximum 1 mg per dose; Maximum total dose = 5 mg).
  - Do not delay cardioversion if patient unstable.
  - Cardiovert: 0.5-1J/kg; if not effective, increase to 2 J/kg
- Wide QRS ≥ 0.09 seconds; Probable Ventricular Tachycardia:
  - Cardiovert (see above)
  - ☎ **Amiodarone** if no response to cardioversion: 5 mg/kg IV over 20-60 minutes

SPECIAL CONSIDERATION

- Consider and treat possible contributing factors:

▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia	▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Pain ▪ Trauma

PEDIATRIC ALLERGIC REACTION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Exposure to allergens causing airway, breathing and/or circulatory impairment

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years**;** adolescent = >14 years
- Exposure to common allergens (stings, drugs, nuts, seafood, meds), prior allergic reactions
- Presence of respiratory symptoms (wheezing, stridor)

TREATMENT

- ALS RMC
- Mild (hives, rash)
  - **Benadryl** 1mg/kg IM (MR in 10 minutes; max. dose 50 mg)
- Moderate / Severe
  - **Epinephrine** IM (1:1000) 0.01mg/kg (MR in 15 minutes); max. dose 0.6 mg
  - **Benadryl** 1mg/kg IM/IV/IO (MR in 10 minutes; max. dose 50 mg)
  - **Albuterol** 2.5 mg/3 ml NS HHN if bronchospasms present; MR X1 if no improvement
  - If hypotensive, fluid challenge **NS** 20 ml/kg IV/IO, MR
  - If no palpable pulse or BP; **Epinephrine** IV/IO (1:10,000) 0.01mg/kg; MR q 3-5 minutes

SPECIAL CONSIDERATION

- **Glucagon** 0.03 mg/kg IM for patients on beta blockers to reverse blockage

DOCUMENTATION- ESSENTIAL ELEMENTS

- Allergen if known

PEDIATRIC BURNS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Second or third degree burns (i.e., caustic material, electricity or fire) involving 10% or more of body surface area or those associated with respiratory involvement

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years**;** Adolescent = >14 years
- Consider early intubation for severe facial burns
- Burns with trauma mechanism are to be transported according to the Marin County Trauma Triage Tool

TREATMENT

- ALS RMC
- Thermal/Electrical:
  - Remove patient to safe area
  - Eliminate source and stop the burning process (water may be used in the first few minutes to stop the burning process)
  - Remove all clothing/ jewelry
- Chemical:
  - Brush away any dry chemicals
  - Attempt to identify chemical; flush affected area with copious amounts of water unless contraindicated
- Support ventilation with high flow oxygen
  If wheezing consider bronchodilator therapy- **Albuterol** 2.5 mg HHN; MR x 1 ~~in 3 ml NS HHN~~
  - Re-evaluate airway frequently
- Expose affected area and apply clean dry sheet
- Keep patient warm to avoid hypothermia
- Fluid bolus 20 ml/kg **NS** IV/IO
- Pain management as indicated
- Transport by ground. If there is respiratory involvement, transport to the time closest ED by air or ground.

SPECIAL CONSIDERATION

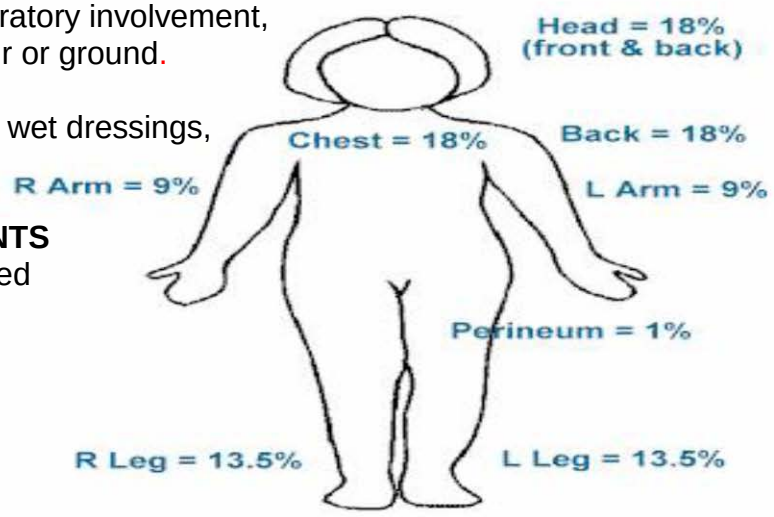
- Avoid hypothermia, do not use ice or wet dressings, and keep patient warm
- IV/IO required if BSA >10%

DOCUMENTATION- ESSENTIAL ELEMENTS

- Estimated percentage of BSA affected

RELATED POLICIES/ PROCEDURES

- Pediatric Pain Management P15
- Pediatric Shock P7



Child

PEDIATRIC MEDICATIONS
AUTHORIZED/ STANDARD INITIAL DOSE

DRUG	CONCENTRATION	STANDARD DOSE
Activated Charcoal	**25 GM/ bottle**	**1 gm/ kg PO; not to exceed 50 gm.**
Adenosine (Adenocard)	**6 mg/ 2 ml**	***Tachycardia Poor Perfusion:*** **0.1mg/kg; max. first dose 6mg. MR x 1 (double the dose); max. dose 12mg. (Rapid IV/IO push, each dose followed by 5 ml NS flush).** ***☎ Tachycardia Adequate Perfusion:*** **Dose as above after physician consult**
Albuterol	**2.5 mg/ 3 ml NS**	**2.5 mg/ 3ml NS**
Amiodarone	**150 mg/ 3 ml**	***Pulseless Arrest:*** **5 mg/ kg IV/ IO followed by or diluted in 20-30 ml NS. Maximum single dose 300 mg.** ***☎ Tachycardia with poor perfusion:*** **5mg/kg IV/IO over 20-60 min.**
Atropine	**1 mg/ 10 ml**	***Bradycardia:*** **0.02 mg/kg IV/ IO (minimum dose 0.1 mg.; single max. dose 0.5mg). MR X 1.** ***Organophosphate Poisoning:*** **0.5 mg/kg IV/IO; MR q 5-10 min. max. dose 4mg or until relief of symptoms**
Dextrose 10%	**D10%**	***ALOC (Neonate)*****: 2 ml/ kg IV/IO** ***ALOC (<2 years):*** **4ml/ kg IV/IO**
Dextrose 25%	**2.5 GM/ 10 ml**	***ALOC (< 2 years)*****: 2 ml/ kg IV/IO**
Dextrose 50%	**25 GM/ 50 ml**	***ALOC (> 2 years)*****: 1 ml/ kg IV/IO**
Diphenhydramine (Benadryl)	**50 mg/ 1 ml "or" 50 mg/ 10 ml**	**1 mg/ kg IV/IO/IM IV/ IO max. dose 25 mg/ min. IM max. dose, 50 mg.**

Epinephrine 1:1000	**1 mg/ 1ml** **EpiPen Jr.® 0.15mg**	***Allergic Reaction moderate/ severe/ anaphylaxis:*** **0.01 mg/ kg IM (0.01ml/ kg). Max. dose of 0.6 mg (0.6 ml). EpiPen Jr®.; repeat as needed in 5 min.** ***Upper Airway/ Stridor:*** **5mg in 5ml via nebulizer**
Epinephrine 1:10, 000	**1 mg/ 10 ml**	***Anaphylaxis:*** **If no response to Epi 1:1000, give 0.01mg/ kg (0.1ml/kg) of 1:10,000 IV/ IO.** ***Bradycardia:*** **0.01mg/ kg (0.1ml/kg) IV/ IO.** ***Cardiac Arrest:*** **0.01 mg/kg *(*0.1ml/kg) IV/ IO**
Glucagon	**1 mg/ 1 ml**	**0.03 mg/kg IM (max. dose 1 mg)**
Ipratropium (Atrovent)	**500 mcg per unit dose (2.5 ml)**	**Unit dose**
Midazolam (Versed)	**2 mg/ 2ml** **IN: 5 mg/1 ml**	***Cardioversion:*** **0.05 mg/kg slow IV/IO. Max.initial dose 1mg** ***Seizure (see policy for specifics):*** **IV/IO=0.05 mg/kg; MR q 3' (Max=5mg) IM=0.1mg/kg; MR in 10 minutes x1 IN= 0.2mg/kg; Max.= 5 mg.**
Morphine Sulfate	**10 mg/ 10 ml** **10 mg/ 1 ml**	***Pain Management*****: 0.1mg/ kg (0.1ml/ kg) slow IV/ IO/ IM. MR X 1 in 15 min. if IV/ IO or 30 min if IM.** ***Burns:*** **0.1 mg/kg IV/IO/IM in incremental doses up to 0.3mg/kg**
Naloxone (Narcan)	**2 mg/ 5 ml** **2mg/2ml**	***Suspected OD in non-neonate:*** **0.1 mg/ kg (0.25 ml/ kg) IV/ IO/ IM**
Ondansetron (Zofran)	**4 mg**	***Patients ≥ 4 yrs*****: 4 mg ODT or slow IV over 30 seconds** ***Patients 2-4yrs*****: 2mg ODT or slow IV over 30 seconds.**
Sodium Bicarbonate	**50 mEq/ 50 ml**	***Tricyclic Antidepressant OD with significant dysrhythmias:*** **1mEq/ kg IV/ IO**

NOTE: If the above concentrations become unavailable, providers may use alternate available concentrations or packaging.

P18A	MARIN COUNTY EMS PEDIATRIC DOSING GUIDE								July 2015
	Grey	Pink	Red	Purple	Yellow	White	Blue	Orange	Green
WEIGHT kg	3 - 5	6 - 7	8 - 9	10 - 11	12 - 14	15 - 18	19 - 23	24 - 29	30 - 36
WEIGHT lbs	6 - 11	13.2 - 15.4	17.6 - 19.8	22 - 24.2	26.4 - 30.8	33 - 39.6	41.8 - 50.6	52.8 - 63.8	66 - 79.2
Fluid (Volume Expansion Broselow Tape)	60, 80, 100 ml	130 ml	170 ml	210 ml	260 ml	325 ml	420 ml	530 ml	660 ml
Intubation tube size	3.5 uncuffed	3.5 uncuffed	3.5 uncuffed	4.0 uncuffed	4.5 uncuffed	5.0 uncuffed	5.5 uncuffed	6.0 cuffed	6.5 cuffed
DEFIBRILLATION 2-4 J/kg 1st/2nd	1st 6 - 10J 2nd 12- 20J	1st 13J 2nd 26J	1st 17J 2nd 33J	1st 20J 2nd 40J	1st 26J 2nd 52J	1st 33J 2nd 66J	1s 40J 2nd 80J	1st 53J 2nd 106J	1st 66J 2nd 130J
CARDIOVERSION 0.5 - 1 J/kg , 2 J/kg 1st/2nd	1st 3 - 5J 2nd 6 - 10J	1st 7J 2nd 13J	1st 9J 2nd 17J	1st 10J 2nd 20J	1st 13J 2nd 26J	1st 17J 2nd 33J	1st 20J 2nd 40J	1st 27J 2nd 53J	1st 33J 2nd 66J
ACTIVATED CHARCOAL 1 gm/kg PO, Max dose 50 gm Concentration: 50 gm/240 ml bottle (1 gm/4.8 ml)	4 gm	6.5 gm	8.5 gm	10.5 gm	13 gm	16.5 gm	21 gm	26 gm	33 gm
ml to give =	19 ml	31 ml	41 ml	50 ml	62 ml	79 ml	100 ml	124 ml	158 ml
ADENOSINE 0.1 mg/kg RIVP w/ 10ml NS flush, MRx1 double the dose (Max 1st dose 6 mg, max 2nd dose 12 mg) 1st	**0.3 -0.5 mg**	**0.65 mg**	**0.85 mg**	**1.0 mg**	**1.3 mg**	**1.7 mg**	**2.1 mg**	**2.7 mg**	**3.3 mg**
2nd	0.6-1 mg	1.3 mg	1.7 mg	2.1 mg	2.6 mg	3.4 mg	4.2 mg	5.4 mg	6.6 mg
Concentration: 6 mg/2 ml (3 mg/ml) *ml to give =* 1st	**0.14 ml**	**0.22 ml**	**0.28 ml**	**0.33 ml**	**0.43 ml**	**0.57 ml**	**0.7 ml**	**0.9 ml**	**1.1 ml**
2nd	0.25 ml	0.43 ml	0.57 ml	0.7 ml	0.87 ml	1.1 ml	1.4 ml	1.8 ml	2.2 ml
ALBUTEROL	Unit Dose 2.5 mg/3 ml								
AMIODARONE (Pulseless Arrest) 5 mg/kg IV/IO followed by 20 ml NS flush. MRx2 refractory rhythm (max single dose 300 mg)	15 - 25 mg	32 mg	42 mg	50 mg	65 mg	80 mg	105 mg	130 mg	165 mg
Concentration: 150 mg/3 ml (50 mg/ml) ml to give =	0.3 - 0.5 ml	0.64 ml	0.84 ml	1.0 ml	1.3 ml	1.6 ml	2.1 ml	2.6 ml	3.3 ml
ATROPINE (Bradycardia) 0.02 mg/kg IV/IO (Min. dose 0.1 mg, single max dose 0.5 mg)	0.1 mg	0.13 mg	0.17 mg	0.21 mg	0.26 mg	0.33 mg	0.42 mg	0.5 mg	0.5 mg
Concentration: 1 mg/10 ml (0.1 mg/ml) ml to give =	1.0 ml	1.3 ml	1.7 ml	2.1 ml	2.6 ml	3.3 ml	4.2 ml	5.0 ml	5.0 ml
ATROPINE (Organophosphate Poisoning) 0.5 mg/kg IV/IO; MR q 5-10 min	1.5 - 2.5 mg	3 - 3.5 mg	4 mg	4 mg	4 mg	4 mg	4 mg	4 mg	4 mg
Concentration: (Preload) 1 mg/10 ml (0.1 mg/ml)	20 ml	30 - 35 ml	40 ml	40 ml	40 ml	40 ml	40 ml	40 ml	40 ml
Concentration (multi-dose vial) 0.4 mg/ml	3.75 - 6.25 ml	7.5 - 8.75 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml
BENADRYL 1 mg/kg IM/IV/IO *Concentration 50 mg/ml* (IV/IO max dose=25 mg, IM max dose =50 mg)	4 mg	6.5 mg	8.5 mg	10.5 mg	13 mg	16.5 mg	21 mg	26 mg	33 mg
ml to give =	0.08 ml	0.13 ml	0.17 ml	0.21 ml	0.26 ml	0.33 ml	0.42 ml	0.52 ml	0.66 ml
DEXTROSE 50%, 25%, 10% * Do not Mix D50 to make D25 or D10 *	Neonates < 1 mo. D10W 2 ml/kg IV/IO		Child 1 mo. – 2 years D25W 2 ml/kg IV/IO D10W 4 ml/kg IV/IO			Child > 2 years D50W 1 ml/kg IV/IO			

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WEIGHT lbs	6 - 11	13.2 - 15.4	17.6 - 19.8	22 - 24.2	26.4 - 30.8	33 - 39.6	41. 8- 48.4	52.8 - 61.6	66 - 79.2
EPINEPHRINE (Cardiac Arrest/Bradycardia) 1:10,000	0.03 - 0.05 mg	0.065 mg	0.085 mg	0.1mg	0.13 mg	0.17 mg	0.21 mg	0.27 mg	0.33 mg
Concentration 1 mg/10 ml *ml to give =*	0.3 - 0.5 ml	0.65 ml	0.85 ml	1 ml	1.3 ml	1.7 ml	2.1 ml	2.7 ml	3.3 ml
EPINEPHRINE (Allergic Reaction & Asthma) 1:1000: 0.01 mg/kg IM	0.03 - 0.05 mg	0.07 mg	0.1 mg	0.1 mg	0.13 mg	0.16 mg	0.22 mg	0.26 mg	0.3 mg
Concentration 1 mg/10 ml *ml to give =*	0.03 - 0.05 ml	0.07 ml	0.1 ml	0.1 ml	0.13 ml	0.16 ml	0.22 ml	0.26 ml	0.3 ml
EPINEPHRINE "Nebulized Epi" (Stridor/URD) 1:1,000	5mg (5ml) Via Nebulizer								
GLUCAGON 0.03 mg/kg IM MRx2 q15 min (Max dose 1 mg)	0.09 - 0.15 mg	0.18-0.21 mg	0.25 mg	0.32 mg	0.4 mg	0.5 mg	0.6 mg	0.8 mg	1 mg
Concentration 1 mg/1 ml *ml to give =*	0.1 - 0.15 ml	0.2 ml	0.25 ml	0.32 ml	0.4 ml	0.5 ml	0.6 ml	0.8 ml	1 ml
IPRATROPIUM - *Atrovent* 500 mcg per unit dose (2.5 ml)	500 mcg 2.5 ml								
MIDAZOLAM - *Versed* (Seizure & Cardioversion) 0.05 mg/kg slow IV/IO	0.15 - 0.25 mg	0.33 mg	0.43 mg	0.53 mg	0.65 mg	0.83mg	1 mg	1 mg	1 mg
Concentration 2mg/2ml (1 mg/ml) *ml to give =*	0.15 -0.25 ml	0.33 ml	0.43 ml	0.53 ml	0.65 ml	0.83 ml	1 ml	1 ml	1 ml
MIDAZOLAM - *Versed* (Seizure) IN: 0.2mg/kg Split dose equally per nostril (Max dose 5mg)	0.6 - 1.0 mg	1.3 mg	1.7 mg	2.1 mg	2.6 mg	3.3 mg	4.2 mg	5 mg	5 mg
Concentration 5 mg/ml *ml to give =*	0.12 - 0.2 ml	0.26 ml	0.34 ml	0.42 ml	0.52 ml	0.66 ml	0.84 ml	1 ml	1 ml
MIDAZOLAM-*Versed* (Seizure) IM: 0.1 mg/kg MRX1 in 10 min	0.3 - 0.5 mg	0.65 mg	0.85 mg	1 mg	1.3 mg	1.7 mg	2.1 mg	2.6 mg	3.3 mg
Concentration 5 mg/ml *ml to give =*	0.06 - 0.1 ml	0.13 ml	0.17 ml	0.2 ml	0.26 ml	0.34 ml	0.42 ml	0.52 ml	0.66 ml
MORPHINE (Pain) 0.1 mg/kg IV/IO/IM MRx1 in 15 min (IV/IO) or in 30 min (IM)	0.3 - 0.5 mg	0.65 mg	0.85 mg	1 mg	1.3 mg	1.7 mg	2.1 mg	2.6 mg	3.3 mg
Concentration 10 mg/1 ml *ml to give =*	0.03 -0.05 ml	0.07 ml	0.08 ml	0.1 ml	0.13 ml	0.17 ml	0.21 ml	0.26 ml	0.33 ml
NARCAN- Naloxone 0.1 mg/kg IV/IO/IM MR q 5min up to 2mg	0.3 - 0.5 mg	0.65 mg	0.85 mg	1 mg	1.3 mg	1.7 mg	2 mg	2 mg	2 mg
Concentration 2 mg/2 ml *ml to give =*	0.3 - 0.05 ml	0.65 ml	0.85 ml	1 ml	1.3 ml	1.7 ml	2 ml	2 ml	2 ml
SODIUM BICARBONATE 1 mEq/kg IV/IO	3 - 5 mEq	6.5 mEq	8.5 mEq	10 mEq	13 mEq	17 mEq	21 mEq	26 mEq	33 mEq
Concentration 1 mEq/ml *ml to give =*	3 - 5 ml	6.5 ml	8.5 ml	10 ml	13 ml	17 ml	21 ml	26 ml	33 ml
ZOFRAN - Odansetron *Concentration 4mg tab ODT, 4 mg/2 ml IV*	Age 2<4 years: Give 2 mg ODT or SIVP / Age 4 and up: Give 4mg ODT or SIVP								

AUTHORIZED PROCEDURES FOR EMT-1 PERSONNEL

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

In addition to the items listed in the basic Scope of Practice of Emergency Medical Technician (EMT), EMTs may perform the following:

PROCEDURE

- Administer over the counter medications including Oral glucose or sugar solutions and aspirin.
- Monitor intravenous lines delivering glucose solutions or isotonic balanced salt solutions including Lactated Ringer's for volume replacement;
- Monitor, maintain, and adjust if necessary in order to maintain, a preset rate of flow and turn off the flow of intravenous fluid;
- Transfer a patient, who is deemed appropriate for transfer by the transferring physician, and who has nasogastric (NG) tubes, gastrostomy tubes, heparin locks, foley catheters, tracheostomy tubes and/or indwelling vascular access lines, excluding arterial lines;

EMT OPTIONAL SKILLS

- Accreditation for EMTs to practice optional skills shall be limited to those whose certificate is active and are employed within the jurisdiction of the LEMSA by an employer who is part of the organized EMS system.
- The following optional skills may be performed after the EMT has received training approved by the LEMSA.
    - Administration of epinephrine by auto-injector for suspected anaphylaxis and/or severe asthma. EMTs must demonstrate skills competency at least every two years to maintain accreditation.
    - Administration of prepackaged Atropine and Pralidoxime Chloride.

ADULT INTRAOSSEOUS PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATIONS

- Patient in extremis, cardiac arrest, profound hypovolemia, or septic and in need of immediate delivery of medications / fluids and immediate IV access is not possible

CONTRAINDICATIONS

- Absolute contraindications:
  - Recent fracture of involved bone (less than 6 weeks)
  - Vascular disruption proximal to insertion site
  - Inability to locate landmarks
- Relative contraindications:
  - Infection or burn overlying the site
  - Congenital deformities of the bone
  - Metabolic bone disease

EQUIPMENT

- Intraosseous infusion needle and/ or mechanical device
- Commercially prepared chlorhexidine with alcohol swab or ampule. If patient has allergy to chlorhexidine, use alcohol swab only.
- Sterile gauze pads
- 10-12 ml syringe filled with 10 ml saline
- IV NS solution and tubing with 3 way stopcock
- Supplies to secure infusion
- Pressure bag
- **Lidocaine 2%** (Preservative Free)

PROCEDURE

- Aseptic technique must be followed at all times
- Position and stabilize site
- Locate primary site, 1-2 cm medial to tibial tuberosity
- Locate secondary site according to manufacturer's specification
- Prepare insertion site using aseptic technique
- Air or gauze dry
- Insert IO needle according to manufacturer's directions
- Confirm placement
- Attach syringe with 10 ml of saline to needle
- Rapid bolus with 10 ml saline
  * If patient awake and/or responsive to pain, infuse 2% **Lidocaine** 20-40 mg over 30-60 seconds prior to 10 ml rapid saline bolus. Wait 30-60 seconds before fluid infusion. May repeat Lidocaine in 15 minutes if needed.
- If resistance is met, remove needle, apply pressure to site
- Disconnect syringe
- Attach pre-flooded IV tubing
- Stabilize as recommended by manufacturer
- Fluid administration may require pressure
- Monitor insertion site and patient condition

IV ACCESS PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- To describe a method for establishment of intravenous access in the pre-hospital setting

EQUIPMENT

- IV catheter
- Equipment to secure line
- Tourniquet
- Syringe
- IV fluid / IV tubing if indicated

PROCEDURE

- Select insertion site and needle size as appropriate to the patients condition using the smallest catheter and most distal site indicated
- Apply a tourniquet above the insertion site
- Don a clean pair of gloves
- Clean insertion site using a back and forth motion for 30 seconds with commercially prepared chlorhexidine with alcohol swab or ampule. If patient has allergy to chlorhexidine, clean with alcohol swab only.
- Allow the site to air dry for 2 minutes. If site is not dry after time, dry with sterile 2X2
- Insert IV catheter; assure patency
- Attach appropriate solution, begin flow, adjust rate or attach “lock” if saline lock appropriate
- Secure with anchoring tape, avoiding puncture site
- Apply occlusive sterile dressing over the needle insertion site. Do not put tape over the occlusive dressing.
- If saline lock was started, irrigate with 5 ml NS.
- Saline locks may be used in lieu of intravenous lines when:
  - Treatment protocol specifies IV NS TKO
  - Fluid resuscitation or challenge is not anticipated

EXTERNAL CARDIAC PACING PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Symptomatic bradycardia which may include: HR < 50 with decreasing perfusion, chest pain, shortness of breath, decreased LOC, pulmonary congestion or congestive heart failure

☎ PHYSICIAN CONSULT

- Concomitant administration of **Morphine Sulfate** and **Midazolam**

CRITICAL INFORMATION

- If patient is unstable, do not delay pacing for IV access

EQUIPMENT

- Cardiac monitor/ defibrillator/ external pacemaker
- Pacing capable electrode pads

PROCEDURE

- ALS RMC
- Administer **NS** 250 ml bolus IV/IO
- If patient is conscious, administer **Midazolam** 1 mg slow IV/IO. May repeat 1 mg every 3 minutes to desired degree of sedation. Maximum dose = 0.05 mg/kg.
- ☎**Morphine Sulfate** IV/IO/IM for pain management as needed; maximum dose of 5 mg.
- If tolerated, position patient supine, applying pacing electrodes to bare chest according to manufacturers recommendations (anterior/ posterior or sternal/ apex).
- Confirm and record ECG.
- Set pacing rate at 80, turn on pacing module, and confirm pacer activity on monitor.
- Increase output control until capture occurs or maximum output is reached.
- Once capture is confirmed, increase output by 10%
- Confirm pulses with paced rhythm.
- Monitor vital signs and need for further sedatives or pain control.

DOCUMENTATION

- MiliAmps needed for capture
- Time pacing started/ discontinued

RELATED POLICIES/ PROCEDURES

- Bradydysrhythmia C 4
- Adult Sedation ATG 3

12-LEAD ECG PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patients with a medical history and/ or presenting complaints consistent with Acute Coronary Syndrome (ACS). Indications for the procedure may include one or more of the following:
  - Chest or upper abdominal pain, described as pressure or tightness
  - Nausea or vomiting
  - Diaphoresis
  - Shortness of breath and/ or difficulty with ventilation
  - Anxiety, feeling of "doom"
  - Syncope or dizziness
  - Other signs or symptoms suggestive of ACS

☎ PHYSICIAN CONSULT

- If interpretation of ECG is inconclusive and ST segment elevation is present, seek immediate consultation with STEMI Receiving Center (SRC)

CONTRAINDICATIONS

- Life threatening conditions including ventricular tachycardia, ventricular fibrillation, or 3rd degree AV block
- Uncooperative patients
- Any situation in which a delay to obtain ECG would compromise care of the patient

EQUIPMENT

- ECG machine and leads

PROCEDURE

- Attach ECG limb leads to arms and legs
- Attach ECG chest leads as follows:
  - V1: right of sternum, 4th intercostal space
  - V2: left of sternum, 4th intercostal space
  - V3: halfway between V2 and V4
  - V4: left 5th intercostal space, mid-clavicular line
  - V5: horizontal to V4, anterior axillary line
  - V6: horizontal to V5, mid- axillary line
  - V4R- V6R: right 5th intercostal space, mid-clavicular line to mid axillary line (for suspected right ventricular infarction (RVI) and/ or physician request). Lead V4R must be obtained whenever ST segment elevation is noted in leads II, III, and AVF

SPECIAL CONSIDERATIONS

- If the 12-lead ECG demonstrates ST elevation and an acute ST elevation Myocardial Infarct is suspected refer to STEMI Policy C 9
- Infarctions may be present with a normal 12-lead ECG. Consider taking a 15-lead ECG.

RELATED POLICIES/ PROCEDURES

- Chest Pain/ Acute Coronary Syndrome C 8
- STEMI Policy C 9