2011

San Juan County Pre-Hospital Treatment Guidelines



Michael Sullivan, MD, FACEP Medical Program Director

Effective: FINAL DRAFT

Receipt for San Juan County Prehospital Treatment Guidelines

TO: Michael Sullivan, MD, FACEP San Juan County Medical Program Director 45 Lavender Lane. PO Box 217 East Sound, WA 98245

ATTN: San Juan County MPD

SUBJECT: Prehospital Treatment 2011 Guidelines

The purpose of this memo is to inform you that I have received the Prehospital Treatment Guidelines for 2011.

I have reviewed these guidelines and will abide by their direction. I understand that all prior guideline sets are voided upon DOH approval of the 2010 San Juan County Prehospital Treatment Guidelines.

(Sign, provide agency and date, and return this receipt to the San Juan County MPD Office. Your receipt of the Guidelines must be entered into your CME records maintained at the MPD office.)

Signature

Printed Name

Agency

Date

INTRODUCTION

Foreword
Guidelines for Use

EMS SYSTEM

General Overview
EMS System
EMS Medical Control
Continuous Quality Improvement
Interaction Conflicts at the Scene
Patient Advocacy/Treatment Rights
Patient Care Responsibilities
Receiving Medical Facility
Transfer of Care Responsibility and Delegation

GENERAL PATIENT MANAGEMENT

Patient Assessme	ent (Adult - P e	ed.)	 	 	
Clinical Priorities (Adult - Ped.)	 	 	

ADMINISTRATIVE

Hospital Capabilities Chart
Medical Communications
Medical Incident Report Format
Medical Professionals at the Scene
Transport Guidelines/Considerations
Transfer of Care Policy
Consent / Refusal of Care Policy
Air Transport Utilization
Legal Blood Draw
Change in Response Code/Cancellation/Diversion

TREATMENT GUIDELINES

CARDIAC EMERGENCIES

Page

IREATMENT GUIDELINES – RESPIRATORY EMERGENCIES
Airway Obstruction (Adult - Ped.)
Bronchospasm Asthma / COPD (Adult - Ped.)
Croup / Upper Airway Compromise (Pediatric)
Respiratory Failure / Arrest (Adult - Ped.)
TREATMENT GUIDELINES – MEDICAL EMERGENCIES Abdominal Pain (Non-traumatic) (Adult - Ped.) Altered Mental Status / Syncope / Unconscious (Adult - Ped.) Anaphylaxis / Allergic Reaction (Adult - Ped.)
Brain Attack / CVA
Hypertensive Crisis
Hypoperfusion (Non-Traumatic) (Adult - Ped.)
Pain Management (Adult - Ped.)
Seizures (Adult - Ped.)
Diabetic Emergencies
TREATMENT GUIDELINES – ENVIRONMENTAL EMERGENCIES
Hyperthermia (Adult - Ped.)
Hypothermia (Adult - Ped.)
DIOWINIO / NEAL DIOWINIO (AQUIL - FEG.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.)
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications > Pre-Eclampsia / Eclampsia.
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications Pre-Eclampsia / Eclampsia Pre-term labor Pre-term labor
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications Pre-Eclampsia / Eclampsia Pre-term labor Prolapsed Cord
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications Pre-Eclampsia / Eclampsia Pre-term labor Prolapsed Cord Limb Presentation Pre-periode
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications Pre-Eclampsia / Eclampsia Pre-term labor Pre-term labor Prolapsed Cord Elimb Presentation Breech Delivery
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications > Pre-Eclampsia / Eclampsia > Pre-term labor > Prolapsed Cord > Limb Presentation > Breech Delivery > Uterine Inversion
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications > Pre-Eclampsia / Eclampsia > Pre-term labor > Prolapsed Cord > Limb Presentation > Breech Delivery > Uterine Inversion Management of Vaginal Hemorrhage
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) Management of Uncomplicated Delivery Management of Vaginal Hemorrhage Newborn Resuscitation
TREATMENT GUIDELINES – TOXICOLOGY EMERGENCIES Overdose / Poisoning (Adult - Ped.) Envenomations / Bites / Stings (Adult - Ped.) Carbon Monoxide (CO) Exposure (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) Smoke Inhalation (Cyanide Exposure) (Adult - Ped.) TREATMENT GUIDELINES – OB/GYN EMERGENCIES Management of Uncomplicated Delivery Management of Obstetric Complications > Pre-Eclampsia / Eclampsia > Pre-term labor > Prolapsed Cord > Limb Presentation > Breech Delivery > Uterine Inversion Management of Vaginal Hemorrhage Newborn Resuscitation TREATMENT GUIDELINES – TRAUMA EMERGENCIES Amputations (Adult - Ped.)

Eye Ir	njuries (Adult - Ped.)
Geria	tric Gudelines?
Single	e / Multiple System Trauma (Adult - Ped.)
Traun	natic Cardiac Arrest (Adult - Ped.)
Traun	na in Pregnancy
Traun	natic Brain Injuries (TBI) (Adult - Ped.)
Selec	tive Spinal Immobilization (Adult - Ped.)
Traun	na Decision Tree Algorithm (Adult - Ped.)
SPECIAL C	ARE PROTOCOLSGUIDELINES
Behav	vioral / Psychological Emergencies (Adult - Ped.)
Crime	Scene Activities
Trans	porting Handcuffed Patients
Guide	lines for TasedTasered patients and Taser Dart Removal
Death	in the Field
\succ	Termination of Resuscitation
\triangleright	Presumed Dead on Arrival (PDOA) (Adult - Ped.)
\triangleright	Do Not Resuscitate (DNR)/ Comfort of Care
Childr	en with Special Healthcare Needs
Suspe	ected Child / Elderly Abuse
Perso	nal Protective Equipment (PPE)/ Exposure Control
Rash	Identification
Illnes	s Isolation Guidelines

MAJOR INCIDENT OPERATIONS

Mass Casualty Incidents/ START and JumpSTART Triage	
Incident Rehabilitation	
WMD Emergencies	138
> Chemical	
Biological	140
Radiological	142
Pandemic Influenza	143

MEDICAL / SURGICAL PROCEDURES

Airway Management

Capnography (ALS)	145
Carbon Monoxide (CO) Oximeter (ALS - BLS)	148
Combitube (ALS - BLS)	149
Continuous Positive Airway Pressure (CPAP) (ALS)	151
Surgical Cricothyroidotomy Melker (ALS)	152
Drug-Assisted Intubation (ALS)	153
Glidescope	
King LTS and LTS-D Airway Device (ALS - BLS)	154
Meconium Suctioning (ALS)	156
Nasotracheal Intubation (ALS)	157
Needle Thoracostomy (ALS)	159

Orogastric/nasalgastric Tube Insertion (ALS)	50
Orotracheal Intubation (ALS)	61
Endotracheal Tube Introducer (Bougie) (ALS)	32
$\frac{1}{2}$	34
Fuise Oximetry (ALS - DLS)	94
Epistaxis Control Rhino Rocket	
Carboxyhemoglobin Monitoring (RAD 57) (ALS – BLS)	
Stoma Airway Maintenance (ALS - BLS)	65
Cardiac Management	
Defibrillation Automated (AED) (ALC DLC)	7
	57
Defibrillation - Manual (ALS)16	80
EKG - 12 lead (ALS)16	69
Impedance Threshold Device (ITD) (ALS - BLS)	71
Synchronized Cardioversion (ALS)	72
Transcutaneous Cardiac Pacing (ALS)	72
Devices di contesis	5
Pericardiocentesis	
Venous Access Management	
Blood Glucose Analysis (ALS - BLS)	75
Venous Access - Existing Catheters (ALS)	76
Vonous Accoss - External Jugular (ALS)	77
Venous Access - External Jugulai (\mathbf{ALS})	70
Venous Access - EZ-IO (ALS)	0
Venous Access - Intraosseous (Jamshidi) (ALS)	30
EMS Procedures	
Broselow Pediatric Emergency Tape (ALS - BLS)	31
Spinal Immobilization (ALS - BLS)	32
Mechanical Advantage Tourniquet (MAT)	
Polvic Slipa	
	.
Heimet Removal (ALS - BLS)	53
Physical Restraint (ALS - BLS)18	35
Medication Administration	
Endotracheal Drug Administration (ALS)	
Intranasal Medication Administration (ALS)	
Medication Administration - $\frac{1}{10}$	
Madiaatian Formulary	
Approved Medication List	
Acetaminophen	
Activated Charcoal	
Adenosine (Adenocard)	
Albuteral Sulfate (Proventil)	
Amiodarone	
Ammonia Inhalants	
Amyl Nitrate (WMD)	

Antacid (OTC liquid)
Aspirin (Acetylsalicylic Acid)
Atropine Sulfate
Bacitracin Ointment
Calcium Chloride 10%
Cetirizine (Zyrtec)
Clopidogrel (Plavix)
Dextrose 50%, 25%, 10%, 5%
Diazepam(Controlled Substance)
Diltiazem (Cardizem)
Diphenhydramine HCL (Benadryl)
Dopamine (Intropin)
Epinephrine HCL 1:1,000 / 1:10,000 (Adrenalin)
Epinephrine BLS(Epi-Pen & Epi-Pen Jr.)
Etomidate
Famotidine (Pepcid)
Fentanyl(Controlled Substance)
Furosemide (Lasix)
Glucagon HCL
Glucose Gel (Oral)
Haloperdiol (Haldol)
Hydromorphone (Dilaudid) (Controlled Substance)
Hydroxocobalamin (Cyanokit)
Intravenous Fluid Therapy
Ipratropium Bromide (Atrovent)
Ketorolac Tromethamine (Toradol)
Labatelol (Normodyne)
Levalbuterol tartrate (Xopenex)
Lidocaine HCL (Xylocaine)
Lorazepam (Ativan) (Controlled Substance)
Magnesium Sulfate
Methylprednisone Sodium Succinate (Solu-Medrol)
Metoprolol Tartrate (Lopressor)
Midazolam HCL (Versed) (Controlled Substance)
Morphine Sulfate (Controlled Substance)
Naloxone HCL (Narcan)
Nitroglycerin (Nitrostat, Nitrospray, Nitropaste, Nitro drip)
Nitrous Oxide Gas(Controlled Substance)
Ondansetron (Zofran)
Oxygen
Oxymetazoline (Afrin)
Oxytocin (Pitocin)
Pralidoxime Chloride / 2-Pam CL (WMD)
Promethazine (Phenergan)
Racemic Epinephrine (Inhaled)
Rocuronium (Zemuron)

Appendix

Abdominal Pain Differential
Chest Pain Differential
Glasgow Coma Score Chart
Dopamine Infusion Chart
Lidocaine Infusion Chart
Epinephrine Infusion Chart
Normal Vital Signs Chart
APGAR Scoring Chart
Pediatric Cardiac Arrest Chart
ET, Suction and, Orogastric Tube Size Chart
Burn Assessment Chart
Brain Attack Alert Form
Thrombolytic Checklist
Thrombolytic Consent Form
EMS Field Guide for Therapeutic Hypothermia
Infectious Diseases
Bioterrorism Syndromes
Abbreviations (approved for use)

These protocols were developed under the guidelines of the Medical Program Director for the San Juan County EMS Agencies. The sources of the manual represent the consolidation of medical procedures and emergency pre-hospital guidelines and publications from many local and national sources.

The following is an adaptation of the protocol for EMS approved by Washington State Department of Health. The Scope of Practice will meet or exceed the standards of the Department of Transportation (DOT) and the National Registry of EMT's. This Pre-Hospital Patient Care Manual establishes the recommended guidelines for patient care that should be provided by all Emergency Medical Services providers under the authority of the Medical Program Director for the San Juan County EMS Agencies.

The following procedures are to be used as guidelines for operation during EMS responses that require medical direction and those covered by standing orders. They are also intended to be guidelines to ensure that personnel are trained in proper patient care. Procedures are not considered rigid rules, but rather established standards against which EMS practice can be measured.

Treatment protocols are specific orders directing the actions pertaining to techniques and/or medications used by EMS personnel who are required to practice under direct supervision of a physician with Medical Control Authority. Treatment protocols may and should be initiated without prior direct Medical Control contact unless specifically specified. It is imperative that if a situation that is not covered in these protocols exists, contact must be established with Medical Control for confirmation of medical care and further medical direction.

When an emergency is declared through official channels and mutual aid is requested outside of San Juan County, these protocols become portable. You should follow these protocols while providing care in another county.

Our objective is not only to serve the citizens and visitors of the San Juan Islands, but also to give them our best possible service. Thank you for your hard work and dedication to duty that will allow the San Juan County Fire and EMS Departments to become one of the top providers of Emergency Medical Services in the country.

> Michael Sullivan, MD, FACEP Medical Program Director

The purpose of this protocolguideline manual is to provide EMS personnel with guidelines in the pre-hospital treatment of the majority of patients. Providers should rely on knowledge gained from training, consultation with medical control, and common sense when encountering situations not covered in these protocolsguidelines. Always do what is right for the patient and within your scope of practice. Deviation from this manual requires prior approval from Medical Control, documentation in the medical incident report, and completion of a Special Report to the Medical Program Director.

Emergency medicine continues to evolve at a rapid pace. This document is subject to change as new information becomes available and accepted by the medical community.

These guidelines are intended to:

- Standardize as much as possible, pre-hospital care in San Juan County.
- Provide pre-hospital personnel with a framework for care and an anticipation of supportive orders from Medical Control
- Provide Local Medical Control, clinic physicians and nurses with an understanding of what the treatment capabilities of pre-hospital personnel may be.
- Provide the basic framework on which Medical Control can audit the performance of pre-hospital personnel.
- Be carried out in the appropriate clinical setting prior to contacting Medical Control, except when approval from Medical Control is specified.
- Expedite patient delivery to institutions best equipped to handle their specific problems.

These guidelines are NOT intended to:

- Be absolute treatment doctrines, but rather guidelines with sufficient flexibility to meet the needs of complex cases.
- Be a teaching manual for EMT's or Paramedics. It is expected that each pre-hospital care provider is trained to his/her level of certification and that they will continue to meet the requirements of the State for continuing education. It is further assumed that Medical Control will provide continuing education based on the results of patient care audits and run reviews

This manual is divided into three main sections as follows: Treatment Guidelines, Medical Procedures, and Medication Formulary. The Treatment and Medical/Surgical Procedures sections are further divided into subsections for ease of use.

Treatment ProtocolGuideline Section

The treatment guideline section provides guidance for the pre-hospital treatment of the majority of patients. This section is also organized around certification levels listed in headings. The treatments are outlined in chronological steps. The order of the steps should be considered as suggestions rather than requirements. Using the steps out of order or electing not to use a specific step is not considered deviation from guideline unless doing so would cause foreseeable harm to the patient.

Interpreting Headings in Treatment ProtocolGuideline Sections
ALL PROVIDER LEVELS (For BLS, EMT-AdvancedAdvanced EMT and ALS Paramedic Providers)
ADVANCED LIFE SUPPORT PROVIDERS (For ALS Paramedic Providers)
MEDICAL CONTROL OPTIONS (By Physician orders only)

Medical/Surgical Procedures Section

The medical procedures section lists the indications and contraindications, and describes the procedure and any special notes for the majority of skills used by field providers. Skills within each subcategory have a heading that indicates the provider level that is allowed to utilize the skill.

Medication Formulary

The medication formulary lists indications, dosage, contraindications, side effects, and any special notes for all medications that are permitted to be administered in the field. Keep in mind many of the contraindications listed for specific drugs are relative to the patient's condition. Contact medical control if there is a concern regarding a listed contraindication. Emergency medical services in San Juan County is provided by:

Lopez Island

San Juan County Fire Protection District 4

 Lopez Island Fire and EMS

Orcas Island

San Juan County Fire Protection District 2

 Orcas Island Fire & Rescue

Shaw Island

San Juan County Fire Protection District 5

 Shaw Island Aid Team

<u>San Juan Island, and Brown, Henry, Pearl, Spieden, Johns, and Stuart Islands</u>

- San Juan County Public Hospital District 1
 - San Juan Island EMS
 - Island Air Ambulance Service
- San Juan County Sheriff
 - San Juan County Sheriff's boat P/V Guardian (licensed under San Juan Island EMS)
 - o 911 Communications Center

EMS Medical Program Director

The Medical Program Director (MPD) for San Juan County is Michael Sullivan, MD, FACEP.

The MPD is a physician designated by the State Department of Health and approved by the San Juan EMS and Trauma Care Council.

The MPD has the ultimate responsibility for all the activities in the EMS system including "off-line" and "on-line" medical control, developing written guidelines, directing patient care and being a conduit of information from local EMS/TC systems to state staff for purposes of training, certification, audit and discipline of EMS providers.

MPD duties are required by statute <u>**RCW 18.71.212</u>** and are described in <u>**WAC**</u> <u>**246-976-920**</u></u>

EMS Medical Control

Medical control by local physicians for the purposes of "on-line" medical control is authorized in writing by the San Juan County MPD and filed with the Department of Health [WAC 246-976-920 (2)]

The following physicians are authorized for Local Online Medical Control

Lopez Island:

- Robert Wilson, MD
- Island Hospital NEP Physician Group
- Michael Sullivan, MD, FACEP

Orcas Island:

• Michael Sullivan, MD, FACEP

Shaw Island:

• Michael Sullivan, MD, FACEP

San Juan Island:

• Michael Sullivan, MD, FACEP

Medical Control may be contacted at any step in patient care, and if a patient's condition is unusual and is not covered by a specific guideline. When a patient's presentation is atypical and the guideline treatment may not be the best treatment for the patient or in any situation where the EMS provider is not sure about the best treatment for the patient for the patient, contact Medical Control.

Each Island will establish its own Medical Control. If genuinely unable to contact Medical Control, proceed with standing orders only, <u>DO NOT</u> initiate Medical Control options. In the event of a communications failure, notify the receiving Emergency Department upon arrival.

Purpose of Medical Control contact:

- EMS personnel will provide care within their scope of practice and will follow Department of Health-approved guidelines or Medical Control orders when delivering EMS care.
- Medical Control must order any ALS or BLS treatment (medication or procedure) that an EMS provides when that treatment is not included in or is a deviation from the approved guidelines.
- In certain circumstances, as defined by the guidelines, Medical Control shall be contacted by EMS (BLS or ALS) personnel.
- Guidelines cannot adequately address every possible patient scenario. EMS personnel can contact Medical Control when confronted with a situation that is not addressed by the guidelines or when the EMS personnel have any doubt about the appropriate care for a patient.

Contact with Medical Control may be particularly helpful in the following situations:

- > Patients who are refusing treatment.
- Patients with time-dependent illnesses or injuries who may benefit from transport to a specific facility with special capabilities (e.g. acute stroke, acute ST-elevation MI).
- Patients with conditions that have not responded to the usual guideline treatments.
- > Patients with unusual presentations that are not addressed in guidelines.
- Patients with rare illnesses or injuries that are not frequently encountered by EMS personnel.
- Patients who may benefit from uncommon treatments (e.g. unusual overdoses with specific antidotes).

To maximize the quality of care in EMS, it is necessary to continually review all EMS activity in order to identify areas of excellence and potential sources of errors. This method allows optimal and continuous improvement. CQI is defined as a proactive involvement in issues and applications to constantly assess the value and direction of the EMS system. Components of CQI include: active communication, documentation, case presentations, guideline review and refinement, medical direction involvement, medical community involvement, continuing education and reassessment of expected goals and outcomes. Participation in the CQI process is mandatory to function within the system.

The primary focus of CQI is on "system performance". Specifically, CQI focuses on the bigger picture of our system, including protocols, guidelines, equipment, training and standard operating procedures.

The EMS Medical Director may request additional documentation, typically an incident report, for the purposes of gathering information about a call, event or procedure in question. Failure to cooperate with the CQI process may result in withdrawal of Medical Direction.

All Paramedic personnel will be required to pass a written test on these guidelines. Paramedics applying for their first certification in San Juan County must pass the guideline test before approval. Thereafter, the state test recertification requirements must be passed .with each subsequent Paramedic re-certification.

Interaction Conflicts at the Scene

Any disagreements or potential conflicts at a scene should be discussed after the call in a setting of privacy. Efforts should be made to resolve interpersonal conflicts at the lowest possible level. One-on-one discussions are encouraged whenever possible. In the event the conflict cannot be resolved, the appropriate department/service chain of command shall be utilized. Medical Control shall be contacted immediately for patient care issues that cannot be resolved.

Critiques and debriefings play a valuable role in solving system issues after a particular call. These should preferably take place within 72 hours after a call. Notify the appropriate chain of command to set up these meetings.

Patient Advocacy/Treatment Rights

Our patients are our primary focus! Their requests must be heard and should be honored. Patients deserve to be fully informed of all decisions affecting their care, outcome and potential complications, whenever possible. Competent, rational adults have a right to accept or refuse treatment recommendations.

The patient's immediate family should be considered an extension of the patient in notification and scene management. Whenever possible, family members should be included and informed of events and supported in their role as patient advocates.

A rational patient has the right to select a medical facility to which to be transported (exceptions: medical facility not appropriate to problem, i.e. trauma, pregnancy, etc.). When in doubt, contact Medical Control and fully document all of your actions.

If a patient is a minor (under age 18), no consenting adult is available and the minor refuses treatment, the provider should contact Medical Control.

Patient Care Responsibilities

The authorized individual with the highest level of certification as recognized by the Washington State Department of Health is in charge of patient care.

These protocolsguidelines shall take effect:

 Upon arrival on a scene by a certified EMS provider who is duly dispatched or requested within the EMS system standard operating procedures and with affiliation to an EMS department/service participating in these protocolsguidelines.

- In no case should a higher certified EMS provider who is duly dispatched or requested within the EMS be prevented from making patient contact, regardless of patient condition.
- The most highly trained provider first on scene shall be in charge of patient care. If that provider is off-duty or out of district, he/she may be relieved upon the arrival of another responder with equal or higher training.
- Attendance of the patient during transport will be appropriate to the degree of illness. EMS personnel qualified and certified by the WAC to provide the appropriate level of care will attend all transports. The only exceptions may occur during mass casualty incidents (MCI), search and rescue or other special operational circumstances. Inappropriate assignment of EMS personnel will be grounds for suspension.

Receiving Medical Facility

In general, patients with non-life threatening injuries or disease states will be delivered to the medical facility of their or their family's choice or the medical facility indicated by the private physician. In cases of life-threatening injury or medical condition, the patient will be delivered to the closest appropriate facility hospital with the capability to deal with the problem, or to provide stabilization prior to transfer for definitive care. At times, patients may be diverted to other area hospitals depending on availability of hospitals' facilities or because patient guidelines mandate diversion to a Level I Trauma System. In cases where there is a question about the appropriate destination for a patient, Medical Control should be consulted.

Transfer of Care Responsibility and Delegation

An EMS provider will remain with the patient and remain responsible for patient care until another certified EMS provider of equal or higher training and capability receives an oral report and assumes responsibility for patient care.

Paramedics are not required to remain with a patient if ALS care is not warranted. Following a full patient assessment and examination, a Paramedic or EMT-AdvancedAdvanced EMT may transfer a patient to an EMT-BasicEMT level of care if there is no reasonable expectation that the patient will require a higher level of care. The assessment and decision for transfer of care shall be documented.

In the event of a transfer from ALS/ILS to a lower level of care, the Paramedic/EMT-AdvancedAdvanced EMT will be held responsible for the appropriateness of care provided. Transfer to a lower level of care is acceptable in a MCI to ensure the greatest benefit for the greatest number of patients. Law enforcement has NO AUTHORITY in transport decisions unless a law enforcement officer elects to take a patient into custody. The law enforcement officer is then responsible for ALL actions and decisions occurring as a result of his/her direct orders. Liability and system consequences should be clearly relayed to law enforcement officers. Whenever a conflict exists, contact Medical Control.

EMS Personnel will maintain charge and control of the patient until:

- Proper patient transfer to receiving personnel has occurred.
- A full patient report is provided to the appropriate receiving personnel

A written copy of the EMS report shall be sent/left with the receiving hospital upon delivery of the patient.

I. Initial Scene Survey

- 1. Survey the scene for possible hazards and re-survey periodically.
- 2. Protect yourself first, then victims, from hazards. Do not become a victim.
- 3. Identify all potential patients.
- 4. Assess mechanism of injury and/or nature of illness.
 - Medical determine nature of the illness from the patient, family or bystanders. Why EMS was activated?
 - Trauma determine the mechanism of injury from the patient, family or bystanders, and inspection of the scene.
- 5. Identify mechanism of injury, if applicable. If injury or illness is the result of exposure to a hazardous chemical, the patient should be completely decontaminated before treatment.
- 6. If there is more than one patient, prioritize them using the START method. If inadequate resources are available to treat multiple, severely injured patients, treat cardiac arrest victims last.
- 7. Summon additional resources as necessary to manage the incident. Additional resources include, but are not limited to: fire, rescue, advanced life support, or law enforcement.

II. Initial Patient Assessment

- 1. Form a general impression of the patient (sick/not sick; hurt/not hurt).
- 2. Determine the chief complaint/apparent life threats.
- 3. Assess mental status (AVPU)
 - > A----Alert
 - V----Responsive to verbal stimulus
 - P----Responsive to painful stimulus
 - > **U**----Unresponsive
- 4. Briefly note body position and extremity movement.

Airway

- 1. Assess airway status. **If cervical spinal trauma is suspected, manually stabilize the spine.** If the airway is blocked, adjust the head or jaw position to relieve the obstruction.
- 2. Inspect the mouth for foreign objects, vomitus or blood. If present, remove it, suction. Utilize mechanical aids such as direct laryngoscopy (ALS), or any other approved method of obstruction relief.

- 3. If none of these are successful, advanced life support providers should consider advanced airway alternatives.
- 4. When the airway is open, insert an oral or nasopharyngeal airway as tolerated.

Breathing and Ventilation

- 1. Assess adequacy of breathing. If the patient's respiratory rate is normal or near normal, administer oxygen as per the specific protocolguideline.
- 2. If the patient's respiratory rate is unusually rapid or slow for the age, size and condition of the patient, or if the patient is not breathing, ventilate with a bag-valve-mask.
- 3. Seal sucking wounds with gloved hand, then an occlusive dressing.
- 4. Splint flail segments with gloved hand, then a heavy bulky dressing.
- 5. If tension pneumothorax is suspected, perform an immediate needle thoracostomy (ALS).
- 6. Frequently reassess the patient's breathing.

Circulation

- 1. Assess for the presence of a pulse. If absent, immediately begin CPR and proceed with cardiac resuscitation. If the patient is very cold, assess the pulse for 45 seconds before determining that it is absent.
- 2. Heart rate: compare to normal rate for age and situation.
- 3. Central/truncal pulses (brachial, femoral, carotid): strong, weak or absent.
- 4. Distal/peripheral pulses: present/absent, thready, weak, strong.
- 5. Check perfusion by evaluating skin color, temperature, and moisture
- 6. Hydration status: anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output history.
- 7. Identify the priority of the patient based on assessment findings.
- 8. Determine patient disposition. Expedite transport for high priority patients.
- 9. Continue to assess and provide care.

Disability

- 1. Evaluate neurological status by noting:
 - > Mental status and level of consciousness.
 - Presence or absence of movement in the extremities, either spontaneously or in response to stimuli.
 - Pupil size and reactivity.
 - > General evidence of trauma to the head or neck.
- 2. Initiate spinal movement restrictions, if indicated.

Expose and Examine

- 1. Remove as much clothing as necessary to determine the presence or absence of an emergency condition or injury. Consider environmental factors.
- 2. Proceed to the Focused History and Physical Exam.

III. Focused History

- 1. Conduct the physical examination.
- 2. Medical (unresponsive patient): perform a rapid physical examination to determine life-threatening problems.
- 3. Medical (responsive patient): assess body systems related to the patient's complaints.
- 4. Trauma (significant mechanism of injury MOI): perform rapid trauma physical examination to determine life-threatening injuries. Perform a detailed physical examination en route to the hospital or at the landing zone (fly-out) only after lifesaving assessments and interventions have been completed.

Baseline Vital Signs

- 1. Respiratory rate, depth, equality and rhythm (pattern).
- 2. Pulse rate and quality (strength, rhythm, equality). **<u>DO NOT</u>** utilize pulse oximetry as a sole means for determining heart rate.
- 3. Skin color, temperature and moisture.
- 4. Capillary refill status (for adults, not a substitute for blood pressure).
- 5. Obtain blood pressure. The initial blood pressure should be obtained by auscultation on all patients. Subsequent blood pressures can be obtained manually or by electronic non-invasive blood pressure devices.
- 6. Blood pressures should be monitored at a minimum of every 5 minutes for all critical patients and every 10 minutes for all other patients.

7. Normal Vital Signs:

	Respirations	Pulse	Systolic BP*
Adult	12 - 20	60 -100	90 - 140
Adolescent	12 - 24	60 -100	>90
Children (1 to 10 years)	22 - 34	80 -140	>75
Infants (1 month to 1 year)	24 - 40	90 -150	>70
Neonate (0 to 28 days)	30 - 60	100 -160	>60

* For children 1 to 10 years of age, you can determine the lower limit of an acceptable blood pressure using the following formula:

Minimal systolic blood pressure = $70 + (2 \times age in years)$.

- 8. In addition to obtaining vital signs, providers should perform these additional skills to assist with patient assessment as needed:
 - Cardiac Monitoring (ALS)
 - ➢ 12 Lead EKG (ALS)
 - Pulse Oximetry
 - Capnography
 - Blood Glucose Monitoring
 - Temperature as needed
- 9. Investigate the history of the present illness or event. You may use the mnemonic, "OPQRST".
 - > Onset When did the pain/discomfort begin?
 - Provocation/Palliative Palliation What worsens or lessens the pain/discomfort?
 - Quality What does the pain/discomfort feel like?
 - Region/Radiation/Referral Where is the pain/discomfort? Does it move anywhere?
 - Severity How severe is the pain/discomfort?
 - Timing How long/often has this been occurring?
- 10. Inquire about pertinent past medical history. You may use the acronym, "SAMPLE".
 - Signs/Symptoms
 - > Allergies
 - Medication
 - Past medical history
 - Last oral intakeintake and outputs
 - Events leading up to illness or injury
- 11. Inquire about current health status.

IV. Focused Physical Examination

- 1. Performed to detect non-life threatening conditions and to provide care for those conditions/injuries. Perform enroute to the medical facility if the patient is unstable.
- 2. Inspect and palpate each of the major body systems for the following:
 - > D--Deformities
 - C--Contusions
 - > A--Abrasions
 - > P--Penetrations/punctures
 - B—Burns
 - T--Tenderness
 - L--Lacerations
 - S--Swelling/edema
 - > I--Instability
 - > C--Crepitus

Head

- 1. Inspect facial features for symmetry.
- 2. Note color of face.
- 3. Note presence of swelling or excessive perspiration.
- 4. Assess the pupils and observe their size, equality and reactivity.
- 5. If evidence of head trauma, have suction ready and prepare for seizure activity.

Neck

- 1. Inspect the neck of the upright patient for jugular venous distention.
- 2. Observe supra-sternal areas for retractions or use of accessory muscles.
- 3. Note the trachea's position.

Chest

- 1. Observe chest wall movement for symmetry, and auscultate breath sounds on both sides of the chest. Assess rate, depth and pattern of breathing, as well as the integrity of the chest wall.
- 2. Control serious external bleeding.

Abdomen and Pelvis

- 1. Palpate abdomen for pain, guarding, pulsations, masses, distention, rigidity and tenderness; and, using gentle pressure, the pelvis for crepitus and instability. (These indicate potential sources of significant blood loss).
- 2. Control serious external bleeding.

Extremities

1. Inspect and palpate extremities for tenderness, gross deformity, swelling, lacerations and abrasions. Note motor, sensory, and vascular integrity in each extremity. Dress and splint extremity injuries as required and as time allows. When possible, elevate injured extremities.

Back

- 1. Examine the patient's back, if possible, for gross deformities or penetrating injuries.
- 2. Initiate spinal movement restrictions if indicated.

V. Ongoing Assessment

- To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed at least every 5 minutes on the unstable patient, and at least every 15 minutes on the stable patient.
- 2. Reassess mental status.
- 3. Reassess airway.
- 4. Reassess breathing for rate and quality.
- 5. Reassess circulation including pulses, hemorrhage control and skin perfusion.
- 6. Re-establish patient priority.
- 7. Reassess and record vital signs.
- 8. Repeat focused assessment regarding patient complaint or injuries.
- 9. Assess interventions.
- 10. Assess response to management.
- 11. Maintain or modify management plan.

VI. Transport Decision

- For medical or minor trauma patients <18 years of age, transport to a medical facility capable of handling pediatric patients. Sexual assault patients <18 years of age should be transported to Children's Regional Medical Center (CRMC).
- 2. For trauma alert or burn patients ≥15 years of age (adult sized), transport to a trauma or burn facility capable of handling adult patients. Patients <15 years of age should be transported to Harborview Medical Center (HMC).

VII. Special Considerations

- 1. This guideline manual defines adult and pediatric patients based on age and/or weight:
 - Adult: \geq 15 years of age.
 - Pediatric: <15 years of age.
- 2. Medication dosing for pediatric patients:
 - Pediatric doses apply to pediatric patients weighing less than 40 kg (88 lbs).
 - For pediatric patients equal to or greater than 40 kg (88 lbs), utilize adult dosing.
- 3. Initial assessment may take 30 seconds or less in a medical patient or victim of minor trauma. In the severely traumatized patient, however, assessment and treatment of life threatening injuries evaluated in the initial assessment may require rapid intervention, with treatment and further assessment en route to the hospital.
- 4. In the patient that is awake, the initial assessment may be completed by your initial greeting to the patient. This may make it clear that the ABC's are stable and emergency intervention is not required before completing assessment.
- 5. Neck should be immobilized and secured during airway assessment or immediately following initial assessment if indicated.
- 6. Vital signs should be obtained during the focused and detailed assessment. If immediate intervention for profound shock or hypoventilation is required, this may need to be initiated before numerical vital signs are taken.

After assessment of a patient, the ALS or BLS provider must assign a treatment priority. The following examples of priorities are not inclusive and sound judgment should be used when assessing patients.

I. Priority 1: Unstable Patients

- 1. Cardiac Arrest.
- 2. Post arrest with successful resuscitation.
- 3. Unconscious or GCS <13 and does not respond to therapy.
- 4. Moderate to severe respiratory distress with a respiratory rate >24, cyanosis, use of accessory muscles, or altered mental status.
- 5. Hypotensive (BP <90 systolic) with signs and symptoms of hypoperfusion.
- 6. Hypertensive (BP >230 systolic or >130 diastolic) with altered mental status or neurological deficit.
- 7. Cardiac related chest pain unrelieved by therapy with hypotension or cardiac dysrhythmia.
- 8. Suspected acute myocardial infarction.
- 9. Obstructed or uncontrolled airway.
- 10. Continuous vaginal hemorrhage with signs and symptoms of hypoperfusion.
- 11. Abnormal deliveries.
- 12. Evidence of prolapsed cord.
- 13. Eclampsia.
- 14. Allergic reaction with acute respiratory distress and hypotension (BP <90 systolic).
- 15. Status epilepticus.
- 16. Uncontrolled hemorrhage following trauma.
- 17. Multiple trauma patient(s).
- 18. Unstable chest injuries.
- 19. Penetrating wounds head, neck, chest, abdomen or pelvis.

- 20. Burn patients:
 - Respiratory burns.
 - $> 2^{nd}$ degree burn with greater than 20% BSA any age.
 - 3rd degree burn with greater than 10% BSA in patients <10 or >50 years of age.
 - Electrical burns.
 - Chemical burns.
 - > 2^{nd} or 3^{rd} degree burns hands, face, feet or perineum.
- 21. Acute neurological deficit less than three (3) hours.
- 22. Unstable fracture with neurovascular compromise.
- 23. Any patient that is deemed unstable by the senior provider.

II. Priority 2: Potentially Unstable Patients

- 1. Cardiac related chest pain.
- 2. Respiratory distress (mild to moderate).
- 3. Hypertensive (BP >220 systolic or >120 diastolic) without signs and symptoms.
- 4. Patients involved in trauma with a GCS of 15, without signs and symptoms of hypoperfusion and associated with one of the below:
 - \blacktriangleright MVC >40 mph.
 - \blacktriangleright Hit by vehicles >20 mph.
 - > Patients thrown from moving vehicles.
 - ➢ Rollover MVC.
 - > Falls ≥20 feet without altered mental status or hypoperfusion.
- 5. Burn patients.
 - $> 2^{nd}$ or 3^{rd} degree burns <10% BSA patients <10 or >50 years of age.
- 6. Any patient that is deemed potentially unstable by the senior provider.

III. Priority 3: Stable Patients

- 1. Uncomplicated fractures.
- 2. Minor burns.
- 3. Lacerations requiring suturing, with bleeding controlled.
- 4. Seizure patients with a return of a GCS 15.
- 5. Any patient that is deemed stable by the senior provider.

San Juan County EMS Guidelines General Patient Management

Hospital Designation Level	Medical Facility	Location	Adult Medical	Adult Major Trauma	Ped. Medical < 18 Years	Ped. Major Trauma <15 Years	Critical Burns	STEMI Facility	Stroke Center	Hyperbaric Medicine	Obstetrics	Adult Sexual Center	Ped. Sexual Center <18 Years	
N/A	Ballard Community - Part of Swedish Med. Ctr		Y	Ν	Y	Ν	Ν	Y	Y	Y	Y	Ν	Ν	
I	Harborview	Seattle	Y	Y	N*	Y	Y	Y	Y	N	Y*	Y	N*	Ped. Medical/Ped. Sexual Center - Agreement with Seattle Children's to transfer all Ped. Medical or Sexual patients Obstetrics - No routine obstetrics/seek to transfer anything unrelated
IV	Northwest Hospital Medical Center	Seattle	Y	N*	N*	N*	N*	Y	Y	Y	Y	Y	Y	All Categories Marked N* - Treat and transfer only
III	Overlake Hospital	Bellevue	Y	Y	N*	N*	N*	Y	Y	Ν	Y	Y	N*	All Categories Marked N* - Treat and transfer only
III	Providence Everett Medical Center	Everett	Y	Y	Y	N*	Ν	Y	Y	Ν	Y	Y	Y	All Categories Marked N* - Treat and transfer only
N/A	Seattle Children's	Seattle	Ν	Ν	Y	N*	Ν	Ν	Ν	Ν	Ν	Ν	Y	All Categories Marked N* - Treat and transfer only
III	Skagit Valley Hospital	Mt. Vernon	Y	N*	N*	N*	N*	Y	Y	Ν	Y	Y	N*	All Categories Marked N* - Treat and transfer only
III	St. Joseph Hospital	Bellingham	Y	Y	Y	N*	N*	Y	Y	Y	Y	Y	Y	All Categories Marked N* - Treat and transfer only
N/A	Swedish	Seattle	Y	Ν	Y	Ν	N	Y	Y	Y	Y	Ν	Ν	All Categories Marked N* - Treat and transfer only
IV	United General Hospital	Sedro Woolley	Y	N*	N*	N*	N*	N*	N*	N	N	Y	N	All Categories Marked N* - Treat and transfer only
N/A	University of Washington	Seattle	Y	Ν	Y	Ν	N	Y	Y	Ν	Y	Ν	Ν	
N/A	University Washington Pediatric Comm. Ctr	Seattle	Ν	Ν	Y	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Y	
N/A	VA Hospital	Seattle	Y	Ν	Ν	Ν	N	Y	Y	Ν	Ν	Ν	Ν	
N/A	Virginia Mason	Seattle	Y	Ν	Y	Ν	Ν	Y	Y	Y	Ν	Ν	Ν	

Medical communications is a vital component of pre-hospital care. Information reported should be concise and provide an accurate description of the patient's condition as well as treatment rendered. Therefore, a complete patient assessment and set of vital signs should be completed prior to contacting Medical Control or a receiving facility. Regardless of the destination, early and timely notification of Medical Control or the receiving hospital is essential for prompt care to be delivered by all involved.

- 1. Medical Communications with Medical Control or a receiving facility should be conducted for every Priority 1 or 2 patient.
- 2. Contact Medical Control as soon as feasible in accordance with guidelines for medication or treatment modality orders. For seriously injured or critically ill patients notification of the receiving facility is required. It is preferred that this be accomplished by the transport unit, however, notification through Medical Control is acceptable.
- 3. When communicating with Medical Control or a receiving facility, a verbal report should include these essential elements:
 - > Identify unit, level of provider and name.
 - Destination hospital and ETA.
 - > Activation of ALNW or other transport option.
 - > Patient's age, sex, mental status and chief complaint.
 - > Brief pertinent history of the present illness.
 - Baseline vital signs to include EKG, glucose, or other pertinent assessments.
 - > Pertinent findings of the physical exam.
 - > Past medical history, current meds and allergies.
 - > Treatment rendered in the field.
 - > Patient response to emergency care given.
 - > Orders requested, repeat granted orders back to physician.
 - > If Medical control is obtained, document the physician's name.
- 4. Advise receiving facility of change occurring in patient's status en route to the medical facility.
- 5. When transmitting patient information, <u>**DO NOT**</u> include personal or sensitive information (e.g. Name, Social Security number, address, race, etc).

Following all calls, a medical incident report (MIR) form is to be completed. The Paramedic/EMT/FR in charge of patient care will document their report on one of the following MIR's:

- State of Washington DOH Medical Incident Report
- Medical Incident Report (paper or electronic) approved by the MPD

The Medical Program Director or CQI (Continuous Quality Improvement Committee) may periodically request for review ALS and BLS transports for the purpose of improved patient care.

For BLS attended EMT transports, the narrative portion of the MIR will be formatted consistent with the S.O.A.P. format. All ALS attended paramedic transports will use the expanded S.O.A.P. format. EMT's may also use the expanded format to improve documentation.

S.O.A.P. Format

S = SUBJECTIVE: This is the information you have received from dispatch, law enforcement, bystanders, family members, and of course, the patient. In other words, this is the information that has been told to you. This will include the chief complaint, events that led to the event, past history, allergies, and medications (with dosages and times taken each day).

O = OBJECTIVE: The objective information you obtain is that information that you and/or your team of responders personally see, hear, feel or smell from performing a patient assessment. This will include such things as patient exam, lung sounds, vital signs, odors on breath, blood loss, blood glucose, pulse oximetry, etc.

A = ASSESSMENT: After taking a history and doing an exam, what is your impression as to what is wrong with the patient. Remember that when stating/writing your conclusions/impressions it must be prefaced by the word "possible" or "R/O" (Rule-Out), unless the injury or illness is obvious, e.g.: fracture/laceration

P = PLAN: This will include the actual treatment/ intervention that was performed for the patient. Include all methods of treatment, equipment used as well as patient response to the treatment and the patient's disposition (where did you leave them and what kind of condition). Be very specific and detailed with this information. The general rule is, "**IF IT ISN'T WRITTEN DOWN, IT WASN'T DONE.**

Expanded S.O.A.P Format

<u>C/C - Chief complaint</u> – This portion of the form should be used for documenting why you were called. When possible, you should use a quote from the patient, such as, "My chest hurts." If the patient is unconscious, that becomes the chief complaint.

HPI – History of present illness (This is the "S" or subjective part of the

SOAP format) Include the **AGE**, **SEX**, **SAMPLE** and **OPQRST** information as well as pertinent positive and negative symptoms and signs that relate to the chief complaint. MOI (mechanism of injury) including damage done to vehicles or objects causing trauma, seat belt use, airbag deployment etc. is included here. In addition, you may use this area to document any secondary or associated complaints.

<u>Meds</u> – Use the designated area on the MIR. Include dose and frequency of CURRENT medications and include the amount of alcohol or illicit drugs the patient admits to taking, if any.

<u>Allergies</u> – Use the designated area on the MIR. This area would also be suitable for documenting any do-not-resuscitate (DNR) or supportive care orders. Try to bring a copy of these orders with you to the hospital if at all possible.

<u>PMH/PSH – Past medical history and Past surgical history</u> – Document all pertinent medical problems, paying particular attention to heart and lung disease, diabetes, renal failure, seizure disorders and any communicable diseases, if such information can be elicited.

<u>PE = Physical Exam</u> (may also be designated "Exam") This is the "O" or objective part of the SOAP format.

The initial "**primary**" exam includes the "**ABC's**." You should include where you found the patient, their position (sitting, standing, in bed etc...), the patient's level of consciousness (alert and oriented to person, place, time and event – A&O to PPTE - also include the Glascow Coma Scale (GCS) for trauma patients), the patient's skin color, temperature and moisture (skin warm, dry, pink – skin W/D/P), and finally the initial vital signs – **Blood pressure (BP), Pulse or heart rate (P or HR)** include a comment on if the pulse is regular or irregular, respiratory rate **(RR)** including effort (shallow, regular, labored etc...), **Pulse oximetry (SpO2), Temperature** – if indicated by chief complaint, and finally the finger stick glucose measurement if indicated **(DEX).**

HEENT – Head/Eyes/Ears/Nose/Throat

May include exam of **scalp** (atraumatic), **pupils** – mid equal and reactive (M=R) or more commonly recorded (PERL – pupils equal, reactive to light), **Conjunctiva** (pale, pink, any discharge), **Sclera** (clear, jaundice, hemorrhagic), **throat or oral pharynx** (OP) – (clear, red or "injected" which means there is erythema or redness. You can also comment on if there is pus on the **tonsils** which is called exudates and if the **uvula** is midline). Other optional things to comment on depending on the chief complaint (Trauma) include if there is facial trauma/swelling, fluid from the **nose or ears**, epistaxis (nose bleeding), deformity or swelling to the nose.

<u>Neck</u> – If this is a trauma patient you can use the heading <u>C/T/L</u> - cervical/thoracic/lumbar spine. You can comment on if the neck is supple, has full range of motion, trachea is midline, presence of JVD (jugular venous distension), midline or lateral tenderness of the cervical spine to palpation. (No "POP" pain on palpation to C/T/L). If this is a trauma patient you can also add trauma signs like abrasions, swelling, or ecchymosis (bruising).

<u>Chest</u> – Include comments on inspection, palpation and auscultation. Don't state the patient denies SOB as this should be in the HPI under pertinent negative signs or symptoms. A normal exam would be: Chest (or thorax) intact and non-tender to palpation, lungs clear and equal in all fields (BS = bilat.). In trauma patients you can also comment on crepitus, subcutaneous air, flail segments, abrasions and ecchymosis (seatbelt patterns).

<u>Abd or Abdomen</u> – This should be assessed on all patients and could be as simple as – soft and non-tender. Depending on the chief complaint, you could report on if the abdomen is obese, flat, tender (indicate which quadrants), the presence of guarding, rigidity, or rebound tenderness. You can indicate the presence of bowel sounds (normoactive, hyper or hypoactive). If this is a trauma patient, comment on abrasions, or ecchymosis. If this is a medical patient you can comment on masses, bruits (see H&P handout), or organomegaly (enlargement of the liver or spleen).

<u>GI/GU</u> – (Optional/As Indicated) You can examine the genital area if indicated by trauma or the chief complaint. You can comment on the time of last meal which is important if you think the patient will ultimately nee to go to the OR or require sedation to treat a fracture. You could also comment on their last BM or urine output but this should really be in the HPI.

<u>**Pelvis**</u> – This is assessed on all trauma patients – you can record – stable in all axes or stable to AP and lateral compression (AP = anterior/posterior), report the presence of crepitus, pain, deformity, abrasions etc...

Ext or Extremities – Document PMS (pulses/motor/sensory) in all 4 extremities, look for edema and range of motion in the extremities. Document any trauma or rash in the extremities. This means you need to look at skin.

<u>**Neuro**</u> – Document clear (or slurred) speech, is the tongue midline? hand grips, motor strength in extremities, gait if tested. Also remember facial muscle symmetry in the setting of stroke.

Impression – (the "A" or assessment in the SOAP format) This is where you state what you think is going on with the patient. Using "possible" or "R/O" for problems that are not 100% clear. You can avoid this jargon if it is clear to both you and your partner that the problem is obvious i.e. laceration of the arm, angulated forearm fracture, etc...

<u>Plan</u> – The plan (the "P" in the SOAP format) will always start out stating you examined the patient (exam). You will include everything you did for the patient – Exam, O2, splinting, spinal immobilization, re-assessment, pain scale, repeat vital signs (although, you can place the repeat vital sign data in the VS section of the MIR), BLS or ALS transport, contact Med Control (name of MD). For EMT transport, you should add here if the patient received an ALS evaluation and if paramedics determined that the patient could be transported BLS. Basically, document anything you did as far as treatment for the patient including transport response code – yellow or red.

Disposition – This tells us what happened to your patient and who is now responsible for the patient's care. Include who received your pre-hospital report i.e.; Patient transferred to ALNW 5, report to nurse John or care transferred to IIMC, report to nurse Nancy. You can include if the patient remained without clinical changes or if the patient is in improved or worsening condition. Should a patient decide not to be transported by ambulance to the hospital, be sure that your charting is meticulous. Indicate any advice you give them (instruction sheets) including the risks of their decision and how many times you advised transportation. Document their response.

Medical professionals at the scene of an emergency call may provide assistance to the EMS team and should be treated with professional courtesy. Medical professionals who offer assistance should identify themselves. If on scene physicians wish to assume or retain responsibility for direction of patient care, they should provide proof of identification, follow the guidelines below, and accompany the patient to the receiving hospital.

When the patient's private physician is in attendance and has identified him/herself, the EMS team will comply with the private physician's instructions for the patient. Medical Control will be contacted for reporting. If orders are given by the private physician which are in conflict with San Juan County EMS Patient Care ProtocolsGuidelines, clearance must be obtained through Medical Control.

In such cases, the physician at the scene may:

1. Request to talk directly to the Medical Control physician to offer advice and assistance,

2. Offer assistance to the EMS team with another pair of eyes, hands and/or suggestions, yet leave the EMS team under Medical Control and established patient care protocolsguidelines,

3. Take total responsibility for the patient with the concurrence of the Medical Control Physician. (Remember: If the on scene/private physician wishes to take total responsibility for patient care, they will accompany the patient to the receiving hospital. If, during transport, the patient's condition should warrant treatment other than that 0requested by the private physician, then Medical Control will be contacted for information and for concurrence with the requested treatment.

These guidelines will also apply to cases where a physician may happen upon the scene of ongoing EMS care and chooses to interact/assist the EMS team. Medical professionals, other than physicians, may offer assistance to the EMS providers but are not authorized to give orders to the EMS team except in preapproved circumstances (e.g. a critical care RN accompanying the patient and EMS crew on an inter-facility transport, or arrival of Air Transport/Helicopter flight crews operating under San Juan County ProtocolsGuidelines for On Scene/Field Air Transport). Thank you for offering assistance card. These cards are to be available in the ambulance.

(Front of Card)

THANK YOU FOR YOUR OFFER OF ASSISTANCE

This Advanced Life Support (ALS) team is operating under Washington State Law and Emergency Medical Service policy approved by the San Juan County Emergency Medical Services Council. The ALS team is functioning under standing orders from the Medical Program Director of San Juan County and is in direct radio or telephone contact with an authorized Medical Control Physician at their base hospital emergency center. If you wish to assist, please see the other side for options.

> Michael Sullivan, M.D. Medical Program Director San Juan County EMS

(Back of Card)

In general, the physician who has the most expertise in management of the emergency should take control. This is usually the base hospital physician (Medical Control Physician).

You May:

A. Request to talk directly to the base hospital physician to offer your advice and assistance;

B. Offer your assistance to the ALS team with another pair of eyes, hands, or suggestion, but allow the ALS team to remain under Medical Control of the base hospital physician;

C. If you have an area of special expertise for the patient's problem, you may take total responsibility, if delegated by the base hospital physician, and accompany the patient to the hospital.
San Juan County EMS Guidelines General Patient Management

This guideline is to allow responders to consistently apply standards to decisions regarding basic life support transportation. It is not mentmeant to be all-inclusive but rather a guide for general practice. Each responder needs to be familiar with normal vital sign ranges and request advanced life support when the patient falls outside of those parameters.

Parameters for BLS Transport

- Systolic BP greater than 90mmHg
- Heart rate between 60-110
- Respiratory rate less than 30 without distress
- > Oxygen saturation greater than 91% after oxygen administration
- Blood glucose greater than 50mg/dl

Considerations for upgrade to Advanced Life Support

> Will time make a difference? Time critical patients always need to have rendezvous with paramedic considered.

Do you feel patient would benefit from paramedic history and physical exam?

Does patient have complex medical history that may contribute to current illness?

- Is the problem acute or chronic?
- Does the patient require IV access or meds?
- > Would patient benefit from ALS pain management?
- > Do vitals fall within BLS parameters and is the patient stable for transport?

ALS Indicators = "Sick Patient"

- Poor general impression
- Unresponsive with no gag or cough reflex
- Difficulty breathing
- Signs of poor perfusion
- Complicated childbirth
- Uncontrolled bleeding
- Severe pain
- Chest pain
- Inability to move any parts of the body

Standard Criteria for Transport Decisions

Leave At Scene

- > Minor illness or injury with little or no potential for patients to worsen
- BLS indicators
- > EMT feels confident that patient is responsible for self-care or that another responsible party is present
- > EMT urges patient to call back if further concerns or problems arise
- > EMT recommends patient to follow-up with private physician

San Juan County EMS Guidelines General Patient Management

- > Patient receives appropriate after-care instruction sheet
- Patient refusal signed ONLY if:
- > EMT believes patient should go to medical facility
- Patient refuses treatment/transportation
- Paramedic/Medical Control contacted

Privately Owned Vehicle (POV)

- Minor illness or injury with little or no potential for patient to worsen
- Clearly a minor BLS patient with BLS indicators
- > Further evaluation or treatment needed
- > Responsible and capable driver and transportation is available

BLS Ambulance

- BLS indicators (no suspicion of ALS)
- Further evaluation or treatment needed
- > Continued BLS assessment, oxygen or other treatment needed en route
- > No other responsible transport available
- > Patient requires stretcher for transport

ALS Ambulance

- ALS indicators (IV, cardiac monitoring, indications that the patient may worsen)
- Continued ALS assessment or treatment needed during transport

Responsibility for patient care in the pre-hospital setting may be transferred between pre-hospital personnel according to established procedures. These procedures are applicable for turnover responsibility to or from EMS providers or to hospital staff.

I. ALS Provider Transfer of Care to an equal or higher level provider

- 1. Patients must be stable with complaints that would be cared for at the ALS level. Prior to transferring care to another ALS provider, the examining paramedic will reasonably determine that there are no anticipated changes in the patient's present condition that would deem the patient unstable. Transfer of care can take place if:
 - Transport is being made by a medivac helicopter with an ALS provider or nurse on board.
 - > Transport is by another provider with the same level of training.
 - > The patient has a secured airway.
 - The ALS provider provides the equal or higher level provider a full patient report to include vital signs and physical assessment.
 - > Notify San Juan Dispatch when transfer of care is complete.

II. ALS Provider Transfer of Care to a BLS provider

- Patients must be stable with complaints that would be cared for at the BLS level. Prior to transferring care to the BLS provider, the examining paramedic will reasonably determine that there are no anticipated changes in the patient's present condition that would deem the patient unstable. No patient will be turned over once ALS or advanced scope interventions have been initiated. Transfer of care can take place if:
 - If 3 lead rhythm monitor is used as a part of assessment, patient care can be transferred if the rhythm is normal sinus.
 - Except during declared MCI's or when no other ALS transport alternative exists, patients meeting trauma criteria will be considered ALS patients and treated accordingly.
 - The patient has a patent airway, maintained without assistance or adjuncts.
 - The patient is hemodynamically stable. Vital signs should be steady and commensurate with the patient's condition.
 - The patient is at his or her baseline mental status and not impaired as a result of medications or drug ingestion.
 - > No mechanism or injury warrants a trauma alert or activation.
 - No cardiac, respiratory, or neurological complaints that warrant ALS intervention.
 - The ALS provider provides the BLS provider with a full patient report to include vital signs and physical assessment.

The EMT who will be attendance is comfortable with the patient's condition and will assume care.

III. Transfer of Care at the Medical Facility

- EMS providers will continue any and all pre-hospital care initiated during the transport until the patient has been triaged or until the time-limit detailed below is reached, whichever occurs first. Examples include prehospital O₂; maintaining IV's begun in the field until they run out, and maintaining of splints applied in the field.
- Hospitals/Clinics will designate personnel to assess patients brought by EMS transport units with the goal of transferring care and releasing the unit within 25 minute of the patient's arrival to the Emergency Department (ED). Transfer of care includes movement of the patient to the hospitalowned equipment, i.e. bed, stretcher, waiting room etc.
- 3. Transfer of care will be document by the EMS provider who will submit a completed Medical Incident Report (MIR) to hospital triaging personnel.

I. Purpose:

To establish guidelines for the management and documentation of situations where patients refuse treatment or transportation, or insist on transportation to a destination other than that recommended by the EMS provider.

II. Guidelines:

- 1. Obtain Consent
 - A. Informed Consent when a competent patient or guardian is informed of the potential benefits and risks of a process or procedure, alternatives to that procedure, and the possible consequences related to each.
 - B. Expressed Consent written or verbal request to be evaluated and treated.
 - C. Implied Consent when a patient is unable to express consent because of altered mental status or severe distress.
- 2. Patient Assessment
 - A. Providers should attempt to obtain a history and perform a physical assessment in as much detail as is permitted by the patient.
 - B. Conduct Three Assessments: Providers should attempt to assess the following three major areas prior to permitting a patient to refuse care and/or transportation:
 - Legal competence
 - Ensure that the patient is at least 18 years of age in order to refuse care.
 - Or, if a minor, patient may refuse care if he or she is married, is a parent, or is currently pregnant.
 - Patients subject to a court decree of incapacity are not legally competent to refuse care.
 - Mental competence
 - Start with the presumption that all patients are mentally competent unless your assessment clearly indicates otherwise.
 - Ensure that patient is oriented to person, place, time and purpose.
 - Establish that patient is not a danger to himself or others.
 - Ensure that patient is capable of understanding the risks of refusing care or transportation and any proposed alternatives.
 - Check to be sure that patient is exhibiting no other signs or symptoms of potential mental incapacity, including drug or alcohol intoxication, unsteady gait, slurred speech, etc.

- Medical or situational competence
 - Ensure that patient is suffering from no acute medical conditions that might impair his or her ability to make an informed decision to refuse care or transportation.
 - If possible, rule out conditions such as hypovolemia, hypoxia, head trauma, unequal pupils, metabolic emergencies (e.g., diabetic shock); hypothermia, hyperthermia, etc.
 - Attempt to determine if patient lost consciousness for any period of time.

III. Medical Control

- 1. Contact Medical Control for:
 - A. Refusals of ALS care.
 - B. Patients that you believe are in need of further medical attention yet refuses care; medical control may be able to help persuade patient.
 - C. Any refusal where required by protocolguideline.

IV. Who May Refuse Care

- 1. The Patient:
 - A. If patient is legally, mentally and situationally competent, the patient has a right to refuse care. Obtain refusal signature.
 - B. Implied consent -- if patient is unconscious and seriously injured or in need of further medical attention, treat and transport patient despite patient's inability to consent or the unavailability of another party to provide consent.
- 2. Parent:
 - A. A custodial parent (i.e., a parent with a legal right to custody of a minor child) may refuse care on behalf of a minor child. Obtain refusal signature from parent.
 - B. A parent of a patient who is 18 years of age or older may not refuse care on behalf of his or her child (unless the parent also happens to be a legal guardian see below).
 - C. A minor (i.e., under 18 years of age) may refuse care for his or her child. Obtain refusal signature from the minor parent.

- 3. Guardian:
 - A. A legal guardian is one who is appointed by a court to act as "guardian of the person" of an individual who has been found by a court to be incapacitated.
 - B. Legal guardian may also be appointed in lieu of parents for a minor. If a person indicates they are a legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.). If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.
- 4. Health Care Agent ("Attorney in Fact"):
 - A. A person appointed by the patient in a durable power of attorney document may refuse care on behalf of the patient if the power of attorney contains such authorization.
 - B. Attempt to obtain a copy of the durable power of attorney document to attach to the medical incident report (MIR). If no such documentation is available, you may obtain refusal signature from a health care agent ("attorney-in-fact") as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as the health care agent or "attorney-in fact" of the patient.
- 5. Incompetent Patient:
 - A. If a patient is incompetent, and no other authorized individual is available to provide a refusal signature, the patient may be treated and transported as long as you act in good faith and without knowledge that the patient or authorized individual would refuse care.
 - B. Take all reasonable steps to secure treatment or transportation for a patient who is legally or mentally incompetent to refuse care, but do not put yourself or your crew in jeopardy.

V. Refusal Procedures

- If patient refuses care, or insists on being transported to a facility that is on diversion, closure or a facility other than the destination recommended by EMS personnel, have the patient or designee complete the refusal of treatment or transport form.
 - A. Conduct a thorough patient assessment to include vital signs.
 - B. Contact Medical Control if necessary.
 - C. Review form with patient or designee.

- D. Provide detailed explanation of possible risks and danger signs to patient or other designee.
- E. Inform the patient to call 911, call their doctor or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear.
- F. Obtain the signature of the patient or designee. If the patient refuses to sign, document this fact on the refusal form.
- G. Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, and who watched the patient sign the form. Witnesses may include law enforcement personnel. All witnesses should be 18 years of age or older if possible.
- H. Complete the medical incident report and include the following documentation:
 - Competency assessments.
 - Results of history and physical exam to include:
 - Vital signs including pulse oximetry.
 - EKG, if required.
 - Breath alcohol measurement if required.
 - Blood glucose readings, if required.
 - The clinical symptoms upon which the need for transport was based.
 - Information provided to fully inform the patient and/or other authorized individual of the consequences of their refusal of treatment/transport.
 - The patient understands the risk and complications of his/her choice to refuse.
 - Medical Control instructions, if any.
 - Alternatives offered by EMS.
 - Crew signatures on the medical incident report (MIR).

Air-Medical transport will be utilized when available if conditions are favorable to reduce transport time for critically ill or injured patients. It is important to consider the risk/benefit ratio when making this decision.

Basic considerations for air transport:

- Would the amount of time needed to transport a patient by ground transportation to an appropriate medical facility pose a threat to the patient's survival and/or recovery?
- Would weather, road conditions, or other factors affecting the use of ground transportation seriously delay the patient's access to tertiary medical care?
- Does the available ground ambulance have the clinical skills, equipment or extra personnel to care for the patient during transport from the scene?
- If the seriously injured patient is trapped, would the extrication time allow for the helicopter to arrive at the scene and speed delivery of the patient to a trauma receiving?
- Is a crew available to conduct the transport and what potential issues arise with the extended loss of apparatus and personnel in the district?
- > Would utilization of air crew deplete needed personnel back in the district?

Indications for requesting AeroAero medicalaero medical evacuation of a patient include:

- Patient injury evaluation by the first-arriving EMT or Paramedic meets criteria for trauma center destination as outlined in Field Trauma Triage Decision ProtocolGuideline.
- Type of injury/illness may dictate immediate transport to one of the local hospitals. Medical control should be contacted as soon as possible for instruction and/or concurrence.
- > A multi-casualty incident (MCI) requiring additional ALS providers.

Contraindications for requesting AeroAero medicalaero medical evacuation of a patient include:

- Patients in cardiac arrest.
- > Patients contaminated by hazardous materials.
- > Patients with violent or erratic behavior.

Helicopter safety and landing zones:

- When a helicopter has been requested, indicate a safe landing zone by taking into account, crowds, trees and overhead hazards.
- > Never approach a helicopter until instructed by the flight crew to do so.
- If the rotors are turning, never approach a helicopter from the rear or from above.
- > See County Operating Procedures (COP) for additional information.

Procedure for activation of Aeroaero medical transport

- Contact San Juan Dispatch and request Airlift Northwest (ALNW)
- In unusual situations ALNW can be dispatched by calling 1-800-426-2430 (Airlift dispatch) and requesting dispatch directly.
- > If ALNW is unable to respond, refer to COP for additional transport options
- > Requesting agency will be required to provide the following:
 - 1. Location

Pre-designated Island LZ site or GPS Coordinates for scene response

- 2. Destination Hospital
- 3. Patient Age, Weight and Chief Complaint
- 4. Ground Contact
- 5. Radio Frequency

Do you want info on Island Air Ambulance in here as well?

Blood for Legal Alcohol and/or Drug levels shall be drawn at the request of Law Enforcement as mandated and provided for by RCW 46.61.502, RCW 46.61.520, and/or RCW 46.61.522.

Blood for Legal Alcohol and/or Drug levels in San Juan County shall be drawn only by personnel certified by the State of Washington and the San Juan County EMS Medical Program Director at the Paramedic level under WAC 246-976-080 and WAC 246-976-200. If the request for legal blood draw is invoked by Law Enforcement, then the patient shall be under arrest before such blood draw is accomplished by Paramedic personnel.

Blood draws should be accomplished using sterile technique. A non-alcohol based skin prep must be used in preparing the skin for venipuncture. The preferred agent is povidone-iodine solution. Cleansing solutions which do not contain alcohol are acceptable alternatives in patients allergic to iodine, e.g. Shur Clens. Avoid cleansing solutions which contain isopropyl alcohol (cross reacts on test and reads as ethanol), e.g. Hibiclens. Two gray top blood tubes, containing the preservatives Sodium Fluoride and Potassium Oxalate shall be drawn. The expiration date on the blood tubes must be checked and verified that the blood tubes are in-date prior to the blood draw. A minimum of three cubic centimeters of blood shall be injected into each gray top blood tube.

Each blood tube shall be marked as follows:

- 1. The name of the subject from whom the blood was drawn
- 2. The date of the blood draw
- 3. The time of the blood draw using 24-hour clock
- 4. The cleansing agent used to prepare the skin prior to the draw
- 5. The name of the Paramedic drawing the blood

Chain of evidence shall be from the hands of the Paramedic drawing the blood, directly into the hands of the Law Enforcement Officer requesting the blood draw. The Paramedic shall document on the Medical incident report, the blood draw, and shall also sign and complete any forms required by Law Enforcement. If the incident scene where a blood draw is requested is also a scene where patient care is required, patient care shall take precedence over any request for blood draws. If a patient's condition is stable enough to accommodate a request for blood draw, the Paramedic may perform the procedure according to his best judgment. If, in the Paramedic's judgment, it is not in the best interest of the patient to delay transport for a requested blood draw, the Paramedic must exercise his authority to defer the request for blood draw and initiate patient care and transport as needed.

It is recognized that it is in the best interest of public safety and ultimately patient care to respond to all incidents in a safe and prudent manor at all times. To accomplish this, units responding Code Red (lights and sirens) may be lowered to a Code Yellow response by the first EMTPublic Safety unit on the scene to determine that the patient does not require IMMEDIATE Emergency Medical Services for life or limb threatening conditions.

1. First responding EMT's may lower/cancel response of responding units when the patient does not require IMMEDIATE PATIENT CARE (BLS/ALS) INTERVENTIONS. (i.e.: non-injury accident) I suggest we remove as this aks non-medical personnel to make a medial decision.

2. First responders (fire or police) may cancel responding units, to include BLS and ALS, when there is no patient.

3. BLS first response or BLS transporting units may downgrade responding ALS units when their evaluation **clearly** indicates a lack of potential need by the following BLS criteria:

- a. Warm, pink, dry skin
- b. Heart rate 60-100 and regular
- c. Respiratory rate 10-24, deep and easy
- d. Blood pressure greater than 100 mm/Hg, systolic
- e. Blood pressure less than 180 mm/Hg, systolic
- f. Blood pressure less than 110 mm/Hg, diastolic
- g. Patient is awake, alert, talking and making sense
- h. No loss of consciousness now or prior to arrival
- i. No seizure activity now or prior to arrival
- j. No chest pain
- k. No shortness of breath
- I. No abdominal pain
- m. No drug overdose/suicide attempt
- n. No significant mechanism of injury or multiple trauma
- o. No signs or symptoms of CVA or stroke

The patient may then be transported by the BLS unit **only after consult with onduty Paramedic or Medical Control** Contact.

A responding EMS unit may be diverted from one 911 call to a second call when all conditions below are met:

1. It is obvious the second call is of a greater life threatening emergency than the first call.

- 2. The first EMS unit is decidedly closer to the second call.
- 3. A second EMS unit is immediately dispatched to the first call.

4. The diversion and response of the first unit to the second call might be vital to the patient's outcome.

This protocolguideline applies to adult patients with non-traumatic chest pain that is suspected cardiac in etiology. The overall goal is to provide therapy in an effort to reduce ischemia, provide pain relief and rapidly identify and treat a patient suffering from a suspected cardiac event.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. In chest pain patients, administer **Oxygen** by nasal cannula at 2-4 lpm.
- 3. Place the patient in a position of comfort.
 - BLS providers should assist patients in taking their own previously prescribed Nitroglycerin provided that the patient's systolic blood pressure is ≥110 mmHg.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish 2 IV's of Normal Saline KVO or Saline Lock.
- 2. Administer **Aspirin 324 mg** PO (chewed and swallowed) if not taken during the previous 24 hours or has a known allergy.
- 3. Provide **continuous EKG monitoring**. Treat life threatening dysrhythmiasdysrhythmia as indicated.
- 4. Obtain **12 lead EKG's** pre-treatment and post-treatment. If myocardial injury is suspected because of ST elevation which is evident in two or more contiguous leads, the patient shall be transported to the nearest appropriate cardiac interventional facility.
- Administer Normal Saline Boluses of 250 ml as needed to maintain a systolic blood pressure of ≥100 mm/Hg in cases of cardiogenic shock with or without right ventricular involvement (RVI). Continuously assess lung sounds and monitor vital signs before and after administration. Maximum total of 2000 ml.
- Administer Nitroglycerin 0.4 mg SL every 3-5 minutes as long as the patients symptoms persist and the systolic blood pressure is ≥110 mmHg. No more than 3 doses (1.2 mg) of Nitroglycerin shall be administered without Medical Control order.
- 7. Apply **Nitroglycerin paste 0.5**" for persistent symptoms after 2 SL doses of Nitroglycerin have been previously administered. Ensure that the systolic blood pressure is ≥110 mmHg prior to application.
- 6. "Caution" Withhold Nitroglycerin and consult Medical Control if:

- > The patient has a systolic blood pressure <100 mmHg.
- The patient has taken erectile dysfunction medications within the past 24 hours (Viagra, Cialis, or Levitra).
- 7. Administer **Morphine Sulfate 2 mg IV**, up to a maximum of 6 mg for chest pain not relieved by Nitroglycerin that is likely of cardiac etiology.
 - Withhold from patients suffering from suspected or actual cocaine induced chest pain with agitation.
 - If the patient exhibits signs / symptoms of hypoperfusion omit Morphine Sulfate.

Wall affected	Leads	Artery(s) involved	Reciprocal changes
Anterior	$V_2 - V_4$	Left coronary artery, Left anterior descending (LAD)	II, III, AVF
Anterolateral	I, AVL, V ₃ – V ₆	Left anterior descending (LAD) and diagonal branches, circumflex and marginal branches	II, III, AVF
Anteroseptal	$V_1 - V_4$ Left anterior descending (LAD)		
Inferior	II, III, AVF	Right coronary artery (RCA)	I, AVL
Lateral	I, AVL, V ₅ , V ₆	Circumflex branch or left coronary artery	II, III, AVF
Posterior	V ₈ , V ₉	Right coronary artery (RCA) or circumflex artery	$V_1 - V_4$ ST segment depression (R > S in V ₁ and V ₂).
Right ventricular	V ₄ R	Right coronary artery (RCA)	

8. For nausea / vomiting consider Ondansetron (Zofran) 4mg IV.

MEDICAL CONTROL OPTIONS

STEMI THROMBOLYTIC PROTOCOLGUIDELINE

Contact ED for Cath Lab Notification ASAP / Transmit ECG to Medical Control (FAX/ I-phone e-mail photo of ECG)

TNKase (dosing based on patient's weight) 30-50mg IVP over 5 seconds. Use following dosing:

<u>Patient</u> Weight(kg)	<u>Patient</u> <u>Weight(lbs)</u>	<u>TNKase (mg)</u>	<u>Reconstituted</u> <u>TNKase (ml/cc)</u>
<60	<132	30	6
≥60 to <70	≥132 to <154	35	7
≥70 to <80	≥154 to <176	40	8
≥80 to <90	≥176 to <198	45	9
≥90	≥198	50	10
(note	e: dosing based on a	ctual or estimated	patient weight.)

- 1. Lopressor (5 mg IV q5 min X 3 if BP > 100 and P > 60)
- 2. Heparin Bolus 4000 u IV OR Lovenox (1 mg / kg SQ)
- 3. Plavix 600mg P.O.
- 4. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion
- 5. **Midazolam (Versed) 2-5 mg IV/IN**, up to a maximum single dose of 5 mg in lieu of Morphine Sulfate, if chest pain is suspected due to CNS stimulants (cocaine, methamphetamine, etc.).
- 6. Reperfusion arrhythmias do not treat unless sustained or lifethreatening.
- 7. Repeat EKG at least q30 min. Document reperfusion arrhythmias with rhythm strips.
- 8. Time is of the essence.

This protocolguideline applies to patients experiencing a non-traumatic cardiac arrest. Patients' ≥12 yrs of age or shows signs of puberty, should follow adult resuscitation guidelines. If the patient meets the criteria for being Presumed Dead on Arrival (PDOA), resuscitative efforts shall **not** be attempted and notification of MPD shall be made. If at any time the patient has a return of spontaneous circulation (ROSC), refer to the ROSC protocolguideline.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment ensuring that the patient is pulseless and apneic (agonal).
- Initiate immediate CPR with an oral airway, BVM and 100% oxygen (≥15 lpm). Attach Impedance Threshold Device (ITD) to BVM if patient is ≥12 years of age.
- 3. In cases of an un-witnessed cardiac arrest, CPR shall be performed for at least 2 minutes at a rate of 100 compressions per minute. This will be 5 cycles of CPR:

<u>Adult</u>	<u>Pediatric</u>
30:2	15:2

- When performing compressions, providers are to "push hard and fast" allowing the chest to fully recoil.
- 4. Attach **AED** and analyze the rhythm. If "no shock" is advised, immediately continue CPR. Reassess rhythm after 2 minutes or 5 cycles of CPR:

<u>Adult</u>	Pediatric
30:2	15:2

ALS providers should utilize their manual cardiac monitor / defibrillator to confirm asystole in two or more leads.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of >10 mmHg.
- 2. Establish an IV of Normal Saline KVO. Consider fluid boluses.
 - > ALS providers can initiate **IO access**.

3. Administer **Epinephrine** every 3-5 minutes for the duration of the arrest.

<u>Adult</u>	<u>Pediatric ≤12 yrs</u>
Epinephrine 1:10,000 1 mg IV/IO or Epinephrine 1:1,000 2 mg ET. Diluted with 5 ml saline.	Epinephrine 1:10,000 0.01 mg/kg IV/IO or Epinephrine 1:1,000 0.1 mg/kg ET. Diluted with 5 ml saline.

4. Administer **Atropine** every 3-5 minutes:

I	<u>Adult</u>	<u>Pediatric</u>
	1 mg IV/IO or 2 mg ET, up to a maximum of 3 mg IV/IO or 6 mg ET.	Not indicated under these guidelines.

- 5. Consider **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is suspected to have been in cardiac arrest >10 minutes. Flush the IV line after administration.
- 6. Identify and treat the following contributing factors (6 H and 5 T's).

<u>Causes</u>	Treatment
Hypovolemia	.Normal Saline Boluses IV/IO.
Нурохіа	.Ventilate with 100% Oxygen.
Hyperkalemia (dialysis patient)	.Sodium Bicarbonate and Calcium Chloride. After administration of either medication ensure that the IV line is completely flushed. <u>Medical Control</u> .
Hypoglycemia	.Dextrose IV/IO.
Hypothermia	.Remove clothing with gradual re- warming. Handle patient gently.
Hydrogen Ion (acidosis)	Normal Saline IV/IO Boluses. Sodium Bicarbonate IV/IO.
Tension Pneumothorax	.Needle Thoracostomy.
Cardiac Tamponade	.Normal Saline IV/IO Boluses and rapid transport. In-hospital pericardiocentesis.
Thrombosis	.In-hospital fibrinolysis.
Trauma	.Provide treatment per trauma protocolsguidelines.
Toxins	.Sodium Bicarbonate for tricyclic. Calcium Chloride for calcium channel blockers. Glucagon for beta blockers. <u>Medical Control Required</u> .

- 7. Consider Termination of Resuscitation.
- 1. Contact Medical Control for further orders when necessary.

This protocolguideline applies to patients experiencing a non-traumatic cardiac arrest. Patients' \geq 12 yrs of age or shows signs of puberty, should follow adult resuscitation guidelines. The goal of managing a patient in PEA is to identify and treat the patient's contributing cause of arrest. If at any time the patient has a return of spontaneous circulation (ROSC), refer to the ROSC protocolguideline.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment ensuring that the patient is pulseless and apneic (agonal).
- Initiate immediate CPR with an oral airway, BVM and 100% oxygen (≥15 lpm). Attach Impedance Threshold Device (ITD) to BVM if patient is ≥12 years of age.
- 3. In cases of an un-witnessed cardiac arrest, CPR shall be performed for at least 2 minutes at a rate of 100 compressions per minute. This will be 5 cycles of CPR:

<u>Adult</u>	<u>Pediatric</u>
30:2	15:2

- When performing compressions, providers are to "push hard and fast" allowing the chest to fully recoil.
- 3. Attach **AED** and analyze the rhythm. If "no shock" is advised immediately continue CPR. Reassess rhythm after 2 minutes or 5 cycles of CPR:

<u>Adult</u>	<u>Pediatric</u>
30:2	15:2

> ALS providers should utilize their manual cardiac monitor / defibrillator.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of >10 mmHg.
- 2. Establish an IV of Normal Saline KVO.
 - > ALS providers can initiate **IO access**.

3. Consider Normal Saline fluid boluses:

Adult	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum	20 ml/kg as needed to maintain or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

4. Administer **Epinephrine** every 3-5 minutes for the duration of the arrest.

<u>Adult</u>	<u>Pediatric ≤12 yrs</u>
Epinephrine 1:10,000 1 mg IV/IO or Epinephrine 1:1,000 2 mg ET Diluted with 5 ml saline.	Epinephrine 1:10,000 0.01 mg/kg IV/IO or Epinephrine 1:1,000 0.1 mg/kg ET Diluted with 5 ml saline.

5. If the PEA rate is <60, administer **Atropine** every 3-5 minutes:

Adult	<u>Pediatric</u>
1 mg IV/IO or 2 mg ET, up to a maximum of 3 mg IV/IO or 6 mg ET.	Not indicated under these guidelines.

- 6. Consider **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is suspected to have been in cardiac arrest >10 minutes. Flush the IV line after administration.
- 7. Identify and treat the following contributing factors (6 H and 5 T's).

<u>Causes</u>	Treatment
Hypovolemia	Normal Saline Boluses IV/IO.
Нурохіа	.Ventilate with 100% Oxygen.
Hyperkalemia (dialysis patient)	.Sodium Bicarbonate and Calcium Chloride. After administration of either medication ensure that the IV line is completely flushed. <u>Medical Control</u> .
Hypoglycemia	.Dextrose IV/IO.
Hypothermia	.Remove clothing with gradual re- warming. Handle patient gently.
Hydrogen Ion (acidosis)	Normal Saline IV/IO Boluses. Sodium Bicarbonate IV/IO.
Tension Pneumothorax	.Needle Thoracostomy.

Cardiac Tamponade	Normal Saline IV/IO Boluses and rapid transport. In-hospital pericardiocentesis.
Thrombosis	In-hospital fibrinolysis.
Trauma	Provide treatment per trauma protocolsguidelines.
Toxins	Sodium Bicarbonate for tricyclic. Calcium Chloride for calcium channel blockers. Glucagon for beta blockers. <u>Medical Control Required</u> .

MEDICAL CONTROL OPTIONS

1. Consider **Dopamine infusion 5-20 mcg/kg/min** for patients that are deemed pulseless and have substantial electrical activity. *Research has shown that some patients that are pulseless with electrical activity occasionally have mechanical contractions that are too weak to detect palpable pulses or produce a blood pressure.*

This protocolguideline applies to patients that are pulseless and exhibiting a wide complex tachycardia or ventricular fibrillation. Patients' \geq 12 yrs of age or shows signs of puberty, should follow adult resuscitation guidelines. If at any time the patient has a return of spontaneous circulation (ROSC), refer to the ROSC protocolguideline.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment ensuring that the patient is pulseless and apneic (agonal).
- Initiate immediate CPR with an oral airway, BVM and 100% oxygen (≥15 lpm). Attach Impedance Threshold Device (ITD) to BVM if patient is ≥12 years of age.
- 3. In cases of an un-witnessed cardiac arrest, CPR shall be performed for at least 2 minutes at a rate of 100 compressions per minute. This will be 5 cycles of CPR:

<u>Adult</u>	<u>Pediatric</u>
30:2	15:2

- In the event of a witnessed cardiac arrest, proceed immediately to defibrillation with the AED (BLS) or manual cardiac monitor defibrillator (ALS).
- When performing compressions, providers are to "push hard and fast" allowing the chest to fully recoil.
- 4. Attach **AED** and analyze the rhythm. If "no shock" is advised immediately continue CPR. Reassess rhythm after 2 minutes or 5 cycles of CPR:

<u>Adult</u>	Pediatric
30:2	15:2

ALS providers should utilize their manual cardiac monitor / defibrillator and defibrillate if the patient is in a "shockable" rhythm. Immediately continue CPR post defibrillation.

<u>Adult</u>	<u>Pediatric</u>
200 J .	2 J/kg (manual) or AED.

BLS providers are to continue with "shock" and CPR therapy for the remainder of the arrest, until the rhythm is no longer "shockable" or until patient care is taken over by ALS providers.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of >10 mmHg.
- 2. Establish an IV of Normal Saline KVO.
 - > ALS providers can initiate **IO access**.
- 3. Administer Epinephrine every 3-5 minutes for the duration of the arrest.

<u>Adult</u>	<u>Pediatric ≤12 yrs</u>
1:10,000 1 mg IV/IO or 1:1,000	1:10,000 0.01 mg/kg IV/IO or
2 mg ET. Diluted with 5 ml	1:1,000 0.1 mg/kg ET. Diluted
saline.	with 5 ml saline.

4. Repeat **defibrillation** for recurrent VF/VT after 2 minutes of quality CPR and after each drug administration is circulated for at least 60 seconds.

<u>Adult</u>	<u>Pediatric</u>
200 J (increase energy as	4 J/ka.
needed).	i onigi

5. Administer **Amiodarone**:

<u>Adult</u>	<u>Pediatric ≤12 yrs</u>
300 mg IV/IO	5 mg/kg IV/IO

6. Administer **Magnesium Sulfate** for suspected Torsades de Pointes or hypomagnesemia.

<u>Adult</u>	<u>Pediatric ≤12 yrs</u>
2 gm slow IV/IO . Mix 2 gm in 10 ml of Normal Saline and administer over 2 minutes.	25-50 mg/kg IV/IO , up to a maximum single dose of 2 gm .

7. Consider **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is suspected to have been in cardiac arrest >10 minutes. Flush the IV line after administration.

MEDICAL CONTROL OPTIONS

- 1. Consider administration of **Calcium Chloride 10 mg/kg IV/IO** for patients that have a history of renal failure or hemodialysis. After administration, ensure that the IV line is completely flushed.
- 2. Contact Medical Control for further orders when necessary.

San Juan County EMS Guidelines Cardiac Emergencies

VENTRICULAR FIBRILLATION PULSELESS V-TACH CARDIAC ARREST



San Juan County EMS Guidelines Cardiac Emergencies

VENTRICULAR FIBRILLATION PULSELESS V-TACH CARDIAC ARREST



Effective Date: Revision Date: N/A Revision Number: NA Page: 63 This protocolguideline applies to patients with a pulse, experiencing a wide complex tachycardia with or without hemodynamic compromise.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in a position of comfort. .

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an IV of Normal Saline KVO or Saline Lock.
 - > ALS providers can initiate **IO access** if the patient is unstable
- 2. Provide continuous EKG monitoring.
- 3. Obtain **12 lead EKG's** pre-treatment and post-treatment if time and patient condition permits. Use Brugada criteria to determine VT
- If the patient has a GCS ≤14 or the patient appears hemodynamically unstable (SBP< 90), proceed immediately to a sedation option if time and patient condition permits.
 - Midazolam (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV/IO/IN , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN , up to a maximum single dose of 5 mg .

5. Perform Synchronized Cardioversion for patients that are unstable:

<u>Adult</u>	<u>Pediatric</u>
100 J, 120 J, 150 J and 200 J.	0.5 J/kg, 1 J/kg and 2 J/kg.

- 5. If the rhythm converts to a non-lethal rhythm, monitor the patients EKG and vital signs.
- 6. If the rhythm fails to convert after synchronized cardioversion, proceed to antiarrhythmic medication administration (Amiodarone).

7. Administer Lidocaine

<u>Adult</u>	<u>Pediatric</u>
1 mg/kg IV/IO every 5 minutes,	1 mg/kg IV/IO every 5 minutes,
up to a maximum total dose of 3	up to a maximum total dose of 3
mg/kg.	mg/kg.

8. Administer **Magnesium Sulfate** for suspected Torsades de Pointes or hypomagnesemia.

<u>Adult</u>	<u>Pediatric</u>
2 gm slow IV/IO Infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min over 20 minutes.	25-50 mg/kg IV/IO over 20 minutes, up to a maximum single dose of 2 gm .





MEDICAL CONTROL OPTIONS

- 1. Amiodarone:
- 2. Procainamide:

<u>Adult</u>	<u>Pediatric</u>
20-30mg IV until: • Dysrhythmia is suppressed • Hypotension ensues • The QRS is widened by 50% of its original width • A total of 17mg/kg administered Infusion: 1gm in 250ml in NS at 1-4mg/min	NA

This protocolguideline applies to patients exhibiting a narrow complex supraventricular tachycardia with a heart rate \geq 180 160 ? in adults and children or \geq 220 in infants with or without hemodynamic compromise.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock.
 - > ALS providers can initiate **IO access** if the patient is unstable.
- 2. Provide continuous EKG monitoring.
- 3. Obtain **12 lead EKG's** pre-treatment and post-treatment if time and patient condition permits.
- If the patient has a GCS ≤14 or the patient appears hemodynamically unstable, proceed immediately to a sedation option if time and patient condition permits.
 - > Midazolam (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV//IN , up to a maximum dose of 5 mg .	0.1 mg/kg IV//IN , up to a maximum single dose of 5 mg .

5. Perform Synchronized Cardioversion for patients that are unstable:

<u>Adult</u>	<u>Pediatric</u>
100 J, 120 J, 150 J and 200 J.	0.5 J/kg, 1 J/kg and 2 J/kg.

- 6. If the rhythm converts to a non-lethal rhythm, monitor the patients EKG and vital signs.
- If the patient is in a narrow complex tachycardia without evidence of A-Fib / A-Flutter and is hemodynamically stable without critical signs and symptoms attempt vagal maneuvers first.

8. Administer **Adenosine** in the absence of atrial fibrillation, atrial flutter or multifocal atrial tachycardia (MAT).

Adult	<u>Pediatric</u>
6 mg rapid IV followed by a rapid 20 ml Normal Saline bolus. Repeat 12 mg rapid IV after 2 minutes if the rhythm fails to convert after the initial dose. May repeat once more at 12 mg if the rhythm fails to covert after the 2 nd dose.	Contact Medical Control.

- Withhold Adenosine if the patient has a history of Wolff Parkinson White Syndrome (WPW) or if delta waves are present.
- 9. If refractory, administer Diltiazem (Cardiazem)

<u>Adult</u>	<u>Pediatric</u>
0.25mg/kg slow IV, may repeat if unchanged, repeat at 0.35mg/kg slow IV	Contact Medical Control.

10. If the patient begins to deteriorate or exhibit signs of rate related cardiovascular compromise, revert to **Synchronized Cardioversion**.

MEDICAL CONTROL OPTIONS

- 1. Contact Medical Control for further orders when necessary.
- 2. Contact Medical Control if WPW is suspected.

This protocolguideline applies to patients who have a return of spontaneous circulation (ROSC) after cardiac arrest.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** of Normal Saline if not previously performed and provide Normal **Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

- 3. Provide continuous EKG monitoring.
- 4. Obtain a **12 lead EKG** if time and patient condition permits.
- If the patient was resuscitated during an episode of VF/VT without profound bradycardia or high-grade heart block (2nd degree Type II or 3rd degree) :
 - Without previously receiving anti-arrhythmic medications administer Amiodarone:

<u>Adult</u>	<u>Pediatric</u>
150mg IV/IO.	5mg/kg IV/IO (max 150mg)

> Establish an Amiodarone infusion:

<u>Adult</u>	Pediatric
Medical Control Option.	Medical Control Option.

- 6. If the patient was resuscitated from any other rhythm and returns to a rhythm displaying bradycardia with hypotension:
 - > Administer **Normal Saline boluses**, reassess rate and blood pressure.

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 1000 ml.	of 3 boluses.

7. If bradycardia still does not resolve, administer the following medications:

Adult	<u>Pediatric</u>
Atropine 0.5 mg IV/IO.	Epinephrine 1:10,000 0.01 mg/kg IV/IO. If bradycardia is due to increased vagal tone or primary AV block administer Atropine 0.02 mg/kg IV/IO. Minimum dose of 0.1 mg and a maximum dose of 0.5 mg in a child and 1 mg in an adolescent.

8. If no change after medication administration, proceed immediately to **Transcutaneous Pacing (TCP)**:

<u>Adult</u>	Pediatric
Rate 80, 20 mA. Increase at 5	Rate 100, 5 mA. Increase at 5
mA increments until capture is	mA increments until capture is
obtained.	obtained.

MEDICAL CONTROL OPTIONS

- 1. **Dopamine infusion 5-20 mcg/kg/min** for persistent hypoperfusion after sufficient volume replacement.
- 2. Medical Control may ask to initiate the therapeutic hypothermia protocolguideline.

This protocolguideline applies to patients experiencing bradycardia for their specific age group with signs and symptoms of hypoperfusion and/or hypoventilation.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. For patients <12 months of age with signs and symptoms of hypoperfusion and a heart rate of <60 beats per minute: Initiate chest compressions after 2 minutes of aggressive oxygenation / ventilation.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock.
 - > ALS providers can initiate **IO access** if the patient is unstable.
- 2. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 1000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 3. Provide continuous EKG monitoring.
- 4. Obtain **12 lead EKG's** pre-treatment and post-treatment if time and patient condition permits.
- 5. If the patient is symptomatic without high-degree heart block (2nd degree Type II or 3rd degree) administer:

<u>Adult</u>	<u>Pediatric</u>
Atropine 0.5 mg IV/IO. Repeat 0.5 mg IV/IO in 5 minutes if the patient remains symptomatic.	Epinephrine 1:10,000 0.01 mg/kg IV/IO. If bradycardia is due to increased vagal tone or primary AV block administer Atropine 0.02 mg/kg IV/IO. Minimum dose of 0.1 mg and a maximum dose of 0.5 mg in a child and 1 mg in an adolescent.

6. If the patient remains symptomatic, consider a sedation option if time and patient condition permits.

a. Midazolam (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV/IO/IN , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN , up to a maximum single dose of 5 mg .

7. Initiate Transcutaneous Pacing (TCP):

Adult	<u>Pediatric</u>
Rate 80, 20 mA. Increase at 5	Rate 100, 5 mA. Increase at 5
mA increments until capture is	mA increments until capture is
obtained.	obtained.

 If the patient is symptomatic with a high-degree heart block (2nd degree Type II or 3rd degree), proceed immediately to **Transcutaneous Pacing** (**TCP**) # 5.

MEDICAL CONTROL OPTIONS

- 1. **Dopamine infusion 5-20 mcg/kg/min** for persistent hypoperfusion and/or bradycardia.
- 2. Epinephrine infusion for persistent hypoperfusion and/or bradycardia.

<u>Adult</u>	<u>Pediatric</u>
2-10 mcg/min .	0.1-1 mcg/kg/min.

3. Contact Medical Control for further orders when necessary.
This protocolguideline applies to patients experiencing pulmonary edema secondary to congestive heart failure (CHF). The goal is to ultimately reduce the preload and after-load pressures of the myocardium. In pediatric patients, congenital heart defects are generally the culprit of CHF. Contact medical control before any treatment regiment is rendered to pediatric patients.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 3. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

 If the patient is conscious and in moderate to severe respiratory distress with adequate respiratory effort, apply Continuous Positive Airway Pressure Device (CPAP) and titrate to a pressure of:

<u>Adult</u>	<u>Pediatric</u>
10 cmH₂O .	Medical Direction required.

- 2. Establish an **IV** of Normal Saline KVO or Saline Lock.
- 3. Administer **Nitroglycerin** if the systolic blood pressure is ≥140 mmHg (One time only for EMT-A).

<u>Adult</u>	<u>Pediatric</u>
0.4 mg SL.	Not indicated under these guidelines.

- 4. Provide continuous EKG and ETCO₂ monitoring.
- 5. Obtain a **12 lead EKG** if time and patient condition permits. If myocardial injury is suspected because of ST elevation demonstrated in two or more contiguous leads, transport the patient to the nearest cardiac interventional facility.

6. Administer **Nitroglycerin**:

<u>Adult</u>	<u>Pediatric</u>
0.4 mg SL every 5 minutes as	
long as the patients symptoms	
persist and the systolic BP is	Not indicated under these
≥140 mmHg. Do not administer	
more than 4 doses (1.6 mg) of	guidennes.
Nitroglycerin without Medical	
Control order.	

7. Apply Nitroglycerin paste:

<u>Adult</u>	<u>Pediatric</u>
1" for persistent symptoms after 2 doses (0.8 mg) of Nitroglycerin has been previously	Not indicated under these
administered. Ensure that the systolic blood pressure is ≥140	guidelines.
mm/Hg prior to application.	

- 8. "Caution" Withhold Nitroglycerin and consult Medical Control if:
 - > The patient has a systolic blood pressure <100 mm/Hg.
 - The patient has taken erectile dysfunction medications within the past 24 hours (Viagra, Cialis, or Levitra).
- 9. Administer Furosemide (Lasix):

Adult	<u>Pediatric</u>
40 mg IV over 2 minutes if the	
mmHg. If the patient is currently	Contact Madical Control
prescribed Furosemide or any	Contact Medical Control.
Furosemide 80 mg IV.	

- In the event that a patient suffers from chronic renal failure and does not produce urine, omit Lasix administration and provide aggressive medication therapy directed toward vascular dilatation such as Nitroglycerin (Adult Only) and Morphine.
- 10. Administer Morphine Sulfate:

<u>Adult</u>	<u>Pediatric</u>
2 mg IV, up to a maximum of 10 mg as long as the patients systolic BP is ≥140 mmHg.	Contact Medical Control.

11. In instances where bronchospasm is present with wheezing, administer **Albuterol 2.5 mg** via nebulizer.

MEDICAL CONTROL OPTIONS

- 1. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.
- 2. Contact Medical Control for further orders when necessary.

The survivor of pre-hospital cardiac arrest with VF or pulseless VT is the most appropriate candidate for therapeutic hypothermia; other cardiac arrest rhythms, including PEA, asystole, and survivors of inpatient (clinic) cardiac arrest, can be considered for therapeutic hypothermia.

Inclusion Criteria– Those patients who MAY benefit from this treatment:

1. Cardiac arrest with return of spontaneous circulation (ROSC).

Cardiac arrest is defined as absence of pulses requiring chest compressions.

2. Initial arrest rhythm involving VF or pulseless VT; PEA and asystole can be considered.

3. Patients aged >18 years. Women of childbearing age (18-50 years) should not be pregnant.

4. Unresponsive after ROSC

Unresponsive is defined as total GCS < 10 or motor score < 4 if intubated. Does not follow verbal commands.

5. Endotracheal intubation with mechanical ventilation and ETCO2 reading > 20 mmHg

6. SBP \geq 90 either spontaneously or with fluid and/or infused vasopressors.

7. Known time of cardiac arrest (excludes "found down" and / or arrest of unknown duration). Importantly, no limit on duration of resuscitation for pulseless state is suggested; an arrest time, however, of less than 30 minutes is most desirable.

8. Core temperature > 34 °C at time of initiating protocolguideline

Exclusion Criteria – Those patients who should NOT receive this treatment:

1. Any other reason for coma (e.g., drug overdose, sepsis, head trauma, stroke, overt status epilepticus).

- 2. Pregnancy
- 3. Temperature of <30 C after cardiac arrest
- 4. Unstable blood pressure or rhythm unresponsive to therapy
- 5. Known, pre-existing coagulopathy or active bleeding

6. A known terminal illness preceding the arrest

7. Do not resuscitate (DNR) code status and patient not intubated as part of resuscitation efforts

8. Known primary respiratory arrest event

9. Pulmonary edema

ADVANCED LIFE SUPPORT PROVIDERS

(Refer to Therapeutic Hypothermia Field Guide in Appendix)

1. **Document Post-resuscitation Neurologic Status** prior to the initiation of patient cooling

2. Assess Patient for Comfort: Consider the administration of a narcotic analgesic. (Call Medical Control)

3. Assess Patient for Agitation: Consider the administration of a sedative agent (Call Medical Control)

4. **Consider Chemical Paralysis:** Once sedation has been achieved, consider the administration of a paralytic agent. The administration of a paralytic agent is not necessary in all instances of therapeutic hypothermia and is considered for the patient with excessive movement and / or shivering. (**Call Medical Control**) **Vecuronium 0.1mg/kg to max of 10 mg**

5. **Cooling Method**: Choose and apply the most clinically appropriate method(s) depending upon the patient scenario (ice packs, cooling blankets, chilled IV fluid therapy).

To expedite the cooling process, infuse 30cc/kg of cold 0.9% normal saline up to 2 liters rapidly through either IV or IO route -- Place ice packs to the axilla, neck, torso, groin, and limbs.

 Maintain MAP > 90-100mmHg: Dopamine 10-20 mcg/kg/min for MAP 90-100

7. **Cessation of Hypothermia:** Patients with suspected sepsis or other significant infectious event, or who develop hemodynamic or cardiac electrical instability should be withdrawn from the cooling protocolguideline. Other clinical events can warrant cessation of therapeutic hypothermia.

THERAPEUTIC HYPOTHERMIA AFTER CARDIAC ARREST

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.

This protocolguideline applies to patients with a suspected or actual foreign body airway obstruction or airway obstructions due to trauma, burns, or severe anaphylactic reactions. Do not delay transport for patients that are unconscious with a complete airway obstruction. Perform BLS and/or ALS skills en route to the medical facility.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. If the patient is experiencing an incomplete / partial airway obstruction, encourage the patient to cough in an attempt to relieve the obstruction.
- 3. If the patient in conscious and the airway is completely obstructed due to a foreign body, perform **BLS obstructed airway techniques** until the obstruction is relieved or the patient goes unconscious.
- 4. If the patient is unconscious, perform BLS obstructed airway techniques while utilizing **BVM and 100% oxygen** (≥15 lpm).
- 5. Provide immediate transportation to the nearest appropriate medical facility if the foreign body obstruction is not relieved or closed due to trauma or severe anaphylaxis. Monitor the patient for cardiac arrest.

- 1. If the patients airway is still obstructed due to a foreign body and is unconscious, perform the following advanced airway techniques in order:
 - Perform Direct Laryngoscopy and remove any foreign body obstruction seen with Magill forceps if possible.
 - Perform Endotracheal Intubation and attempt to push the obstruction into one of the main stem bronchus so that ventilation and oxygenation could occur through one lung if a foreign body is present.
 - Perform an emergent Surgical Cricothyroidotomy. This is the last resort when a foreign body airway obstruction is present.
- 2. If the patients airway is obstructed due to trauma, burns, or severe anaphylaxis:
 - > Perform an emergent **Surgical Cricothyroidotomy**.
- 1. Contact Medical Control for further orders when necessary.

This protocolguideline applies to patients experiencing respiratory distress associated with Asthma or COPD.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
 - For patients with a history of COPD, administer the patients prescribed dose of **Oxygen**. If severe distress is present, administer 100% supplemental Oxygen.
- 3. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock for patients that are experiencing significant respiratory distress and those with a significant cardiac history.
- If the patient presents with respiratory distress with suspected bronchospasm / wheezing, administer a combination of Albuterol and Ipratropium Bromide (Atrovent) via nebulizer one time only for prehospital care.

<u>Adult</u>	<u>Pediatric</u>
Albuterol 2.5 mg and Atrovent 500 mcg.	Albuterol 2.5 mg and Atrovent 500 mcg. Patient's 1-2 yrs administer Atrovent 250 mcg.

- EMT-A providers can administer one additional Albuterol 2.5 mg via nebulizer if the patient's symptoms are still present.
- If the patient with a history of asthma, without a significant cardiac history (MI, etc.) still presents with respiratory distress and is in extremis, administer Epinephrine:

<u>Adult</u>	<u>Pediatric</u>
BLS: Epinephrine 1:1,000	BLS: Epinephrine 1:1,000
0.3 mg IM	0.15 mg IM ≤3 yrs.
ALS: Epinephrine 1:1,000 0.3-	ALS: Epinephrine 1:1,000 0.01
0.5 mg SQ.	mg/kg SQ.

4. Provide continuous EKG and ETCO₂ monitoring.

- 5. Providers may repeat **Albuterol 2.5 mg via nebulizer** to a total of 3 doses or 7.5 mg. Reassess and determine the need for additional administration.
- 6. For COPD patients experiencing significant respiratory distress, consider **Continuous Positive Airway Pressure Device (CPAP)** and titrate to a pressure of **5 cmH₂O** with an in-line nebulizer.
 - Some COPD patients have lung problems that may be worsened by CPAP. If the patient worsens on CPAP, it must be removed immediately.
- 7. Consider administration of Methylprednisolone (Solu-Medrol):

<u>Adult</u>	<u>Pediatric</u>
125 mg IV/IM.	2 mg/kg IV/IM , up to a maximum single dose of 80 mg .

8. Consider a **Normal Saline Bolus** for patients that require hydration without signs of pulmonary edema.

<u>Adult</u>	<u>Pediatric</u>
250 ml.	20 ml/kg .

MEDICAL CONTROL OPTIONS

1. Consider administration of Magnesium Sulfate:

<u>Adult</u>	<u>Pediatric</u>
2 gm slow IV Infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min over 20 minutes.	25-50 mg/kg IV over 20 minutes, up to a maximum single dose of 2 gm .

- 2. Consider additional or continuous doses of Albuterol as needed.
- 3. Contact Medical Control for further orders when necessary.

This guideline applies to pediatric patients that present with a loud cough that mimics the "bark of a seal", respiratory distress, grunting, wheezing or stridor on inspiration. The major concern of this illness is the possibility of airway obstruction.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
 - Humidified blow-by oxygen in a position of comfort will be first option for transport.
- 3. Move the patient to a cool environment.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Consider establishing an **IV** of Normal Saline KVO or Saline Lock.
- If the patient presents with respiratory distress with clinical evidence of croup, administer Normal Saline 3 ml via Nebulizer. Repeat 2 additional times as necessary if the patient improves with the initial administration
- 3. Provide continuous EKG and ETCO₂ monitoring.
- 4. If the patient is unconscious or impending respiratory failure, administer **Epinephrine 1:1000 0.01 mg/kg SQ**.
- If no improvement after nebulized saline, administer Epinephrine 1:1000
 0.5 ml (diluted in 3 ml Normal Saline) via Nebulizer.
- 6. Consider **Albuterol 2.5 mg via nebulizer** to a total of 3 doses or 7.5 mg for evidence of lower airway bronchoconstriction. Reassess and determine the need for additional administration.

MEDICAL CONTROL OPTIONS

- 1. Contact Medical Control for further orders when necessary.
- 2. Decadron 0.6mg/kg IM

This guideline applies to patients who exhibit signs and symptoms of respiratory failure with impending or actual respiratory arrest.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** of Normal Saline KVO or Saline Lock.
- 3. If a narcotic (opiate) overdose is suspected, administer **Naloxone** (Narcan):

Adult	<u>Pediatric</u>
2 mg IV/IN or IM. If no response from the initial dosage within 5 minutes, administer an additional dose of Narcan 2 mg IV/IN or IM.	0.1 ml/kg IV/IN or IM , up to a maximum single dose of 2 mg .

- 4. Provide continuous EKG and ETCO₂ monitoring.
- If the patient presents with respiratory distress and is in extremis with a GCS of <9 without suspected head injury, consider the following sedation option and attempt Orotracheal or Nasotracheal Intubation (Adults Only).
 - > Midazolam (Versed) 2-5 mg IV/IO/IN, up to a maximum of 10 mg.
- 1. Contact Medical Control for further orders when necessary.

This Page Intentionally Blank

This guideline applies to patients who are experiencing abdominal pain. There are many causes of abdominal pain and vomiting, some of which are life threatening. See Abdominal Pain Differential sheet. Obtain thorough history to identify the cause:

- GI or urinary tract (kidney stone)
- GI bleeding
- Referred Cardiac pain
- Aortic aneurysm or rupture
- Possible Pregnancy / Ectopic
- Recent trauma / surgery
- > Pain associated with passing blood, syncope, and diaphoresis

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$, as needed.
- 3. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an IV of Normal Saline KVO or Saline Lock.
- 2. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

Adult	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

3. For nausea / vomiting consider **Ondansetron (Zofran):**

<u>Adult</u>	<u>Pediatric</u>
4 mg IV, over 30 seconds.	Contact Medical Control.

1. Contact Medical Control for pain management as needed.

This guideline applies to patients that present with altered mental status, syncope or unconsciousness that is non-traumatic.

ALL PROVIDER LEVELS

- Perform an accurate patient assessment and rule out trauma as a suspected etiology. If stroke is suspected, proceed to Brain Attack / CVA ProtocolGuideline.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 3. Place the patient in a position of comfort if possible.
- If the patient is ≥12 years of age with a blood glucose level of <70 mg/dl and displays signs / symptoms of hypoglycemia, administer Oral Glucose 24 gm PO if the patient is conscious enough to swallow.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** Normal Saline KVO or Saline Lock, and ensure that a blood glucose reading is obtained.
- 3. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

4. If a narcotic (opiate) overdose is suspected, administer **Naloxone** (Narcan):

<u>Adult</u>	<u>Pediatric</u>
2 mg IV/IN or IM. If no response from the initial dosage within 5 minutes, administer an additional dose of Narcan 2 mg IV/IN or IM.	0.1 ml/kg IV/IN or IM , up to a maximum single dose of 2 mg .

- 5. If the patient's blood glucose level is <70 mg/dl and is not conscious enough to swallow, administer **Dextrose 50% 25 gm IV** (Adults Only):
- 6. For patients with suspected malnutrition or chronic alcoholism, consider administration of **Thiamine**:

<u>Adult</u>	<u>Pediatric</u>
100 mg IV or IM.	Not indicated under these guidelines.

7. If IV access is unobtainable, administer Glucagon:

Adult	<u>Pediatric</u> (≥25 kg)	<u>Pediatric</u> (<25 kg)
1 mg IN/IM.	1 mg IN/IM.	0.5 mg IM.

- Use caution when administering Dextrose to patients that are suffering from hypoglycemia with signs / symptoms of CVA or head injury, because of the potential to increase cerebral edema. Contact medical control for direction.
- If the patient's blood sugar is ≥300 mg/dl in the non-diabetic, or >400 mg/dl in the adult diabetic patient with symptoms, administer a Normal Saline bolus of 500 ml, followed by a drip of 100 ml/hr.
- 9. After successful treatment of a diabetic emergency (hypoglycemia), the patient may refuse further treatment or transport if all of the following criteria are met:
 - Patient is >17 years of age with a GCS 15.
 - After a repeated physical assessment, the patient's blood sugar is within an acceptable range (>70 mg/dl).
 - > Have no other signs and symptoms of illness (i.e. chest pain).
 - Patient must be observed to eat without vomiting by a responsible adult.
 - > Patient must not be driving a vehicle or operating machinery.
- 10. Provide **continuous EKG monitoring**. Treat life threatening dysrhythmias as indicated.

If the event is suspected cardiac related, obtain **12 lead EKG's** pretreatment and post-treatment if possible.

12. Identify and treat the following contributing factors (6 H and 5 T's).

<u>Causes</u>	<u>Treatment</u>
Hypovolemia	Normal Saline Boluses IV/IO.
Нурохіа	Ventilate with 100% Oxygen.

ALTERED MENTAL STATUS SYNCOPE / UNCONSCIOUS NON-TRAUMATIC

Hyperkalemia (dialysis patient)	.Sodium Bicarbonate and Calcium Chloride. After administration of either medication ensure that the IV line is completely flushed. <u>Medical Control</u> .
Hypoglycemia	.Dextrose IV/IO.
Hypothermia	.Remove clothing with gradual re- warming. Handle patient gently.
Hydrogen Ion (acidosis)	Normal Saline IV/IO Boluses. Sodium Bicarbonate IV/IO.
Tension Pneumothorax	.Needle Thoracostomy.
Cardiac Tamponade	.Normal Saline IV/IO Boluses and rapid transport. In-hospital pericardiocentesis.
Thrombosis	.In-hospital fibrinolysis.
Trauma	.Provide treatment per trauma guidelines.
Toxins	.Sodium Bicarbonate for tricyclic. Calcium Chloride for calcium channel blockers. Glucagon for beta blockers. <u>Medical Control Reguired</u> .

13. If the patient's blood glucose level is low and not conscious enough to swallow, administer **Dextrose**:

	<u>Adult</u> (>12 yrs) <70 mg/dl	<u>Pediatric</u> (1 mo12 yrs)<60 mg/dl	<u>Neonate</u> (<1 mo.)<45 mg/dl
	50% 25 gm IV.	25% 2 ml/kg IV.	10% 5 ml/kg IV.
Dextrose Dilution Procedures			
	De	xtrose Dilution Procedure	es

 $D_{10}W$ - Waste 40 ml $D_{50}W$. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

1. Contact Medical Control for further orders as necessary.

The guideline applies to patients suffering from anaphylaxis as a result of an allergic reaction to a known or unknown allergen. It is imperative that when looking for signs and symptoms be cognizant that 10-20% of all anaphylaxis cases will not present with hives or other skin manifestations. Signs and symptoms of anaphylaxis / allergic reaction may include oral manifestations such as; itching of the lips, tongue and palate; edema of the lips and tongue or a metallic taste in the mouth. Skin related manifestations may include flushing, itching, hives, swelling or rash.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment and determine a suspected cause of the reaction.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 3. Place the patient in a position of comfort. If signs of hypoperfusion exist, place the patient in the shock position if possible.
- 4. If patient presents with a severe anaphylactic reaction with associated hypoperfusion and/or respiratory distress, proceed to the following treatment regiment:
 - > BLS providers, administer /Intramuscular injection

<u>Adult</u>	<u>Pediatric</u>
0.3 mg IM.	0.15 mg IM ≤3 yrs

ALS providers can administer Epinephrine. May be repeated once in 5 minutes if there is no improvement:

<u>Adult</u>	<u>Pediatric</u>
	Epinephrine 1:1,000 0.01
Epinephrine 1:1,000 0.3 - 0.5	mg/kg IM up to a maximum
mg IM or Epinephrine 1:10,000	single dose of 0.3 mg or
0.5 mg IV/IO/ET.	Epinephrine 1:10,000 0.01
	mg/kg IV/IO/ET.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg. If ET intubation cannot be accomplished due to a completely obstructed airway, perform an emergent Cricothyroidotomy.
- 2. Establish an **IV** Normal Saline KVO.
- 3. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

 If the patient presents with respiratory distress with suspected bronchospasm / wheezing, administer a combination of Albuterol and Ipratropium Bromide (Atrovent) via nebulizer one time only for prehospital care.

<u>Adult</u>	<u>Pediatric</u>
Albuterol 2.5 mg and (Atrovent) 500 mcg.	Albuterol 2.5 mg and Atrovent 500 mcg. Patient's 1-2 yrs administer Atrovent 250 mcg.

- EMT-A providers can administer one additional Albuterol 2.5 mg via nebulizer if bronchospasm is still present.
- ALS providers may repeat Albuterol 2.5 mg via nebulizer to a total of 3 doses or 7.5 mg, if bronchospasm is still present.
- 5. Provide continuous EKG monitoring.

6. Administer **Diphenhydramine (Benadryl)** to patients suffering from mild to severe allergic / anaphylactic reactions:

Adult	<u>Pediatric</u>
25-50 mg IV/IM.	1 mg/kg IV/IM , up to a maximum single dose of 50 mg .

7. For patients who present with signs and symptoms of a Dystonic (Extrapyramidal) reaction, administer **Diphenhydramine (Benadryl)** to relieve the patient's discomfort:

<u>Adult</u>	<u>Pediatric</u>
50 mg IV/IM.	1 mg/kg IV/IM , up to a maximum single dose of 50 mg .

8. Administer **Methylprednisone (Solu-Medrol)** if the patient exhibits with skin manifestations and/or bronchospasm:

<u>Adult</u>	<u>Pediatric</u>
125 mg IV/IM.	2 mg/kg IV/IM , up to a maximum single dose of 80 mg .

MEDICAL CONTROL OPTIONS

- 1. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.
- 2. Epinephrine infusion for persistent symptoms or hypoperfusion.

<u>Adult</u>	<u>Pediatric</u>
2-10 mcg/min .	0.1-1 mcg/kg/min.

3. Cetirizine (Zertec) Non-sedating antihistamine option for mild to moderate allergic reaction.

<u>Adult</u>	<u>Pediatric</u>
10mg oral	5mg oral

4. Famotidine (Pepcid) Histamine Type 2 blocker for moderate to severe allergic reaction

<u>Adult</u>	<u>Pediatric</u>
20mg oral	NA

5. Contact Medical Control for additional doses of Epinephrine, Albuterol or for further orders when necessary

This guideline applies to adult patients exhibiting signs and symptoms of a cerebral vascular accident or bleed. It is very difficult in some patients to determine the time of onset of the new symptoms, but try to establish the time interval of the new deficit. Treatment for strokes is time dependent, and will be carried out at a verified stroke center. In many cases, it will be up to the hospital providers to determine more precisely when the patient had first onset of new symptoms. FEMS providers should provide and document any information they have.

ALL PROVIDER LEVELS

1. Perform an accurate patient assessment to include the Pre-hospital Stroke Screen.

Pre-hospital Stroke Screen

Obtain history from the patient, family members, or other persons who are present on the scene.

- > Date and time at baseline or symptom-free and awake.
- > Age ≥18.
- Symptom duration \leq 24 hours.
- > Blood glucose is between 70 and 400 mg/dl.
- > Patient has one or more of the following abnormalities.
 - Facial weakness or droop on left or right side.
 - $\circ~$ Arm weakness (drifts or falls) on left or right side.
 - Leg weakness on left or right side.
- Patient has unilateral weakness.
- > Reassess patient every 5 minutes.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in a position of comfort.
- 4. Complete Brain Attack Alert Form (See Appendix)
- 5. Transport to a verified stroke center. The current hospitals in San Juan County identified as designated stroke centers are St. Joseph Hospital Bellingham, Swedish Hospital, Harborview Medical Center.
- 6. Pre-notify the medical facility and be sure to include vital signs and suspected time of onset of symptoms to allow activation of the stroke team.

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock and ensure that a blood glucose reading is obtained.
- 2. Do not attempt to administer glucose preparations to patients unless their blood glucose is <70 mg/dl. If the blood glucose level is <70 mg/dl, administer **Oral Glucose**, **Dextrose IV** or **Glucagon IM/IN** per guideline.
- 3. Provide continuous EKG monitoring.
- 4. Do not attempt to lower the blood pressure in the hypertensive patient or increase the heart rate of the patient in bradycardia (Cushing's Triad).
- 5. For nausea / vomiting consider **Ondansetron (Zofran) 4 mg IV**.
- 1. Contact Medical Control for further orders when necessary.

This guideline applies to adult patients experiencing an isolated hypertension emergency without signs and symptoms of CVA (Stroke).

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. If signs / symptoms of CVA are present, refer to the Brain Attack / CVA guideline.
- 3. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 4. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV** Normal Saline KVO or Saline Lock.
- 2. Provide continuous EKG monitoring.
- Consider Nitroglycerin 0.4 mg SL once every 5 minutes up to 1.2 mg if the patient's blood pressure is ≥220 systolic and/or ≥120 diastolic and the patient is exhibiting signs / symptoms of an acute hypertensive emergency such as a headache OR if the blood pressure is ≥230 systolic and/or ≥130 diastolic without signs / symptoms of an acute hypertensive emergency.
- 4. "Caution" Withhold Nitroglycerin and consult Medical Control if:
 - The patient has taken erectile dysfunction medications within the past 24 hours (Viagra, Cialis, or Levitra).

MEDICAL CONTROL OPTIONS

- 1. Consider **Nitroglycerin Paste 0.5**" for persistent symptoms after 2 doses (0.8 mg) of Nitroglycerin has been previously administered.
- 2. Consider labetolol after consulting Medical Control.
- 3. Contact Medical Control for further orders when necessary.

This guideline applies to patients exhibiting signs and symptoms of hypoperfusion that is non-traumatic in nature.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 3. Place the patient in the shock position unless respiratory distress is present; then the preferred method shall be the position of comfort.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an IV of Normal Saline KVO.
 - > ALS providers can perform **IO access** for unstable patients.
- 3. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 4. Provide continuous EKG and ETCO₂ monitoring.
- 5. Obtain a **12 lead EKG** if time and patient condition permits. If an acute coronary syndrome is confirmed, revert to the Acute Coronary Syndrome (ACS) protocolguideline.

MEDICAL CONTROL OPTIONS

- 1. **Dopamine infusion 5-20 mcg/kg/min** for persistent hypoperfusion after sufficient volume replacement.
- 2. Epinephrine infusion for persistent hypoperfusion.

<u>Adult</u>	<u>Pediatric</u>
2-10 mcg/min .	0.1-1 mcg/kg/min.

3. Contact Medical Control for further orders when necessary.

This guideline applies to patients experiencing an acute onset of severe pain. **Patients with head injuries, diminished level of consciousness, respiratory depression, non-traumatic abdominal pain, multi-system trauma and hypotension are excluded from this guideline**. Providers must use sound judgment when determining if a patient is indeed a candidate for pain management. Patients that will likely require pain management will often include those experiencing a sickle cell crisis, kidney stones, burns and isolated musculoskeletal injuries. All patients treated under this guideline must be transported to the hospital/clinic unless medical control releases patient.

ALL PROVIDER LEVELS

1. Perform an accurate patient assessment to include an accurate pain rating.



Infant Pain Rating Scale

- 0 Restful, sleep
- 1 2 Quiet, awake, calm face
- 3 4 Restless, occasional grimace or whimper.
- 5 6 Irritable with intermittent crying and occasional grimace (easily consolable).
- 7 8 Frequent crying, constant grimace, tense muscles (difficult to console).
- 9 10 Constant high-pitched cry, thrashing of limbs, constant grimace (unable to console).
- 2. Administer oxygen as needed. For sickle cell patients administer 100% via NRB.
- 3. Place the patient in a position of comfort.

ADVANCED LIFE SUPPORT PROVIDERS

1. Establish an **IV** Normal Saline KVO or Saline Lock.

2. Sickle cell patients experiencing severe pain, administer a **Normal Saline Bolus**:

<u>Adult</u>	<u>Pediatric</u>
500 ml.	20 ml/kg.

- 3. Provide **ETCO₂ monitoring** if the patient begins to exhibit any change in level of consciousness.
- 4. For pain management associated with kidney stones, severe nontraumatic back pain or dislocations without any significant trauma, consider **Ketorolac (Toradol)**:

<u>Adult</u>	<u>Pediatric</u>
30 mg IV or 60 mg IM.	Not indicated under these guidelines.

5. For pain management associated with burns, sickle cell crisis, isolated fractures or dislocations, consider **Dilaudid**:

<u>Adult</u>	<u>Pediatric</u>
	0.01 mg/kg IV. Repeat as
1 mg IV . Repeat as needed until	needed until pain is relieved or a
pain is relieved or a maximum of	maximum of 0.5 mg is reached.
3 mg is reached.	Contact Medical Control for
	patients <5yrs.

6. For pain management associated with burns, sickle cell crisis, isolated fractures or dislocations, consider **Morphine Sulfate**:

<u>Adult</u>	<u>Pediatric</u>
	0.1 mg/kg IV. Repeat as
2 mg IV. Repeat as needed until	needed until pain is relieved or a
pain is relieved or a maximum of	maximum of 5 mg is reached.
10 mg is reached.	Contact Medical Control for
	patients <5yrs.

If the patient exhibits signs / symptoms of hypoperfusion omit Morphine Sulfate and Dilaudid. Contact Medical Control.

7. For nausea / vomiting consider Ondansetron (Zofran):

<u>Adult</u>	<u>Pediatric</u>
4 mg IV.	Contact Medical Control.

MEDICAL CONTROL OPTIONS

- 1. Contact Medical Control for further orders when necessary.
- 2. Fentanyl may be a valuable option for patients in spinal immobilization.

This guideline applies to patients with unusually prolonged altered mental status after seizure activity, and patients experiencing multiple or continuous seizure activity.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment and protect the patient from injury.
- 2. Consider manual stabilization and spinal immobilization if the possibility of suspected head or c-spine injury exists.
- 3. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- If the patient is ≥12 years of age, with a blood glucose level of <70 mg/dl and displays signs / symptoms of hypoglycemia, administer Oral Glucose 24 gm PO if the patient is conscious enough to swallow.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** Normal Saline KVO or Saline Lock, and ensure that a blood glucose reading is obtained.
- 3. For patients with suspected malnutrition or chronic alcoholism, consider **Thiamine**:

<u>Adult</u>	<u>Pediatric</u>
100 mg IV or IM.	Not indicated under these guidelines.

- 4. If the patient's blood glucose level is <70 mg/dl and is not conscious enough to swallow, administer **Dextrose 50% 25 gm IV** (Adults Only):
 - Use caution when administering Dextrose to patients who are suffering from hypoglycemia with signs / symptoms of CVA or head injury, because of the potential to increase cerebral edema. Contact medical control for direction.

5. If IV/IO access is unobtainable, administer Glucagon:

	<u>Adult</u>	<u>Pediatric</u> (≥25 kg)	<u>Pediatric</u> (<25 kg)
1.	1 mg IM.	1 mg IM.	0.5 mg IM.

- 6. Provide continuous EKG and ETCO₂ monitoring.
- 7. If the patient's blood glucose level is low and not conscious enough to swallow, administer **Dextrose**:

<u>Adult</u> (>12 yrs) <70 mg/dl	<u>Pediatric</u> (1 mo12 yrs)<60 mg/dl	<u>Neonate</u> (<1 mo.)<45 mg/dl
50% 25 gm IV.	25% 2 ml/kg IV.	10% 5 ml/kg IV.

Dextrose Dilution Procedures

 $D_{25}W$ - Waste 25 ml $D_{50}W$. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.

 $D_{10}W$ - Waste 40 ml $D_{50}W$. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

8. If the patient is experiencing active seizure activity, administer **Midazolam** (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV/IO/IN or IM , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN or IM , up to a maximum single dose of 5 mg .

9. If eclampsia is suspected, administer **Magnesium Sulfate 4 gm infusion**. Mix 4 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min over 20 minutes.

MEDICAL CONTROL OPTIONS

- 1. Consider administration of **Sodium Bicarbonate IV/IO** for tricyclic antidepressant overdose, **Calcium Chloride IV/IO** for calcium channel blocker overdose or **Glucagon IV/IO** for beta blocker overdose.
- 2. Contact Medical Control for further orders when necessary.

This guideline applies to patients with a known or suspected diabetic emergency.

ALL PROVIDER LEVELS

- 5. Perform an accurate patient assessment and protect the patient from injury.
- 6. Consider manual stabilization and spinal immobilization if the possibility of suspected head or c-spine injury exists.
- 7. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 8. If the patient is ≥12 years of age, with a blood glucose level of <70 mg/dl and displays signs / symptoms of hypoglycemia, administer Oral Glucose 24 gm PO if the patient is conscious enough to swallow.

- 6. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 7. Establish an **IV** Normal Saline KVO or Saline Lock, and ensure that a blood glucose reading is obtained.

This guideline applies to patients suffering from a suspected heat related emergency. Hyperthermic reactions generally relate to heat cramps, heat exhaustion or in severe cases, heat stroke.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. If heat exhaustion or cramps are suspected, move the patient to a cool environment and obtain a temperature.
- 3. Place the patient in a position of comfort. If signs of hypoperfusion exist, place the patient in the shock position if possible.
- Administer supplemental Oxygen maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 5. If heat stroke is suspected, initiate immediate aggressive cooling techniques such as removing as much clothing as possible, cold packs at the groin, under the axilla and around the neck; covering the patient with a cool wet sheet and set windows and ventilation system in the EMS unit to provide mechanical cooling.

- 1. Establish an IV of Normal Saline KVO.
- 2. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 3. Provide **continuous EKG monitoring**. Treat life threatening dysrhythmias as indicated.
- 4. If the patient is experiencing active seizure activity, administer **Midazolam** (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV/IO/IN or IM , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN or IM , up to a maximum single dose of 5 mg .

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.

This guideline applies to patients suffering from cold-related emergencies such as mild frostbite to severe hypothermia. Hypothermia is defined as a core temperature below 95°F. Moderate to severe hypothermia often presents with altered mental status and occasionally a decreased pulse, respiratory rate and blood pressure. Patients in cardiac arrest with suspected severe hypothermia shall not be considered dead until re-warming has been completed at a medical facility.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment and handle the patient gently.
- 2. Remove any wet clothing and cover the patient in blankets to prevent heat loss.
- 3. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 4. If the patient is in cardiac arrest, attach **AED** and analyze the rhythm. If the AED advises "shock advised" ensure that all providers are clear of the patient and depress the shock button. If no response from the first defibrillation, defer from further attempts until the patient's core temperature is increased.
 - ALS providers should utilize their manual cardiac monitor / defibrillator and **defibrillate** if the patient is in a "shockable" rhythm. Immediately continue CPR post defibrillation.

<u>Adult</u>	Pediatric
200 J .	2 J/kg (manual) or AED.

 If the patient ≥12 years of age with a blood glucose level of <70 mg/dl and displays signs / symptoms of hypoglycemia, administer Oral Glucose 24 gm PO if the patient is conscious enough to swallow.

- 1. Establish an **IV** of Normal Saline KVO and infuse warm IV fluids if possible.
- 2. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

- If the patient's blood glucose level is <70 mg/dl and is not conscious enough to swallow, administer Dextrose 50% 25 gm IV (Adults Only):
 - Use caution when administering Dextrose to patients that are suffering from hypoglycemia with signs / symptoms of CVA or head injury, because of the potential to increase cerebral edema. Contact medical control for direction.
- 4. Provide continuous EKG monitoring.
- 5. If the patient is suffering from severe hypothermia (at the hospital, this patient will likely be found to have a temperature of <86°F or 30°C) and in cardiac arrest, withhold medication delivery until the patient is re-warmed in the medical facility.
- 6. If the patient's blood glucose level is low and not conscious enough to swallow, administer **Dextrose**:

Adult	Pediatric	<u>Neonate</u>
(>12 yrs) <70	(1 mo12 yrs)<60	(<1 mo.)<45 mg/dl
mg/dl	mg/dl	
50% 25 gm IV.	25% 2 ml/kg IV.	10% 5 ml/kg IV.

Dextrose Dilution Procedures

 $D_{25}W$ - Waste 25 ml $D_{50}W$. Use pre-filled syringe (with remaining 25 ml) to withdraw 25 ml of NS from IV bag. Gently agitate syringe to mix solution.

 $D_{10}W$ - Waste 40 ml $D_{50}W$. Use pre-filled syringe (with remaining 10 ml) to withdraw 40 ml of NS from IV bag. Gently agitate syringe to mix solution.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.

This guideline applies to patients suffering from an accidental or intentional submersion in any liquid. Pre-hospital management of these patients shall be directed toward correcting the hypoxia associated with drowning. All patients suffering from a drowning or near drowning episode should be transported to a medical facility. In the event of cold water drowning, the patient shall not be considered deceased until re-warming has been completed at a medical facility.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Consider manual stabilization and spinal immobilization if the possibility of suspected head or c-spine injury exists.
- 3. Administer supplemental **Oxygen** at or near 100%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 4. If hypothermia is suspected, revert to hypothermia protocolguideline.
- 5. If the patient is in cardiac arrest, follow the appropriate cardiac arrest guidelines.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- If the patient is conscious and in severe respiratory distress with adequate respiratory effort, apply Continuous Positive Airway Pressure Device (CPAP) and titrate to a pressure of:

<u>Adult</u>	<u>Pediatric</u>
10 cmH₂O.	Medical Direction required.

- 3. Establish an **IV** of Normal Saline KVO.
- 4. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

- 5. Provide continuous EKG monitoring.
- 6. Administer **Sodium Bicarbonate 1 mEq/kg IV/IO** if the patient is suspected to be severely acidotic.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.
This protocolguideline applies to patients that have been exposed to a poison, overdosed on a medication or exhibits signs and symptoms related to the affects of drugs of abuse.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment and attempt to identify any medications or products taken or exposed to. Save samples if possible.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- Contact Poison Control on channel H-11 or call 1-800-222-1222 for assistance in managing specific overdoses. Any medication orders from Poison Control must first be cleared by Medical Control.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** Normal Saline KVO or Saline Lock, and ensure that a blood glucose reading is obtained.
- 3. If the patient presents with signs and symptoms of hypoperfusion administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

4. If a narcotic (opiate) overdose is suspected, administer Naloxone:

<u>Adult</u>	<u>Pediatric</u>
2 mg IV/IN or IM. If no response from the initial dosage within 5 minutes, administer an additional dose of Naloxone 2 mg IV/IN or IM.	0.1 ml/kg IV/IO/IN or IM , up to a maximum single dose of 2 mg .

5. Provide continuous EKG monitoring.

6. If organophosphate poisoning is suspected, administer **Atropine**:

<u>Adult</u>	<u>Pediatric</u>
2-4 mg IV/IO/IM every 5 -10 minutes until symptoms are relieved.	0.02-0.05 mg/kg IV/IO/IM , up to a maximum single dose of 2 mg . May repeat once in 5-10 minutes if symptoms persist.

7. If the patient is experiencing active seizure activity, administer **Midazolam** (Versed):

<u>Adult</u>	Pediatric	
2-5 mg IV/IO/IN or IM , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN , up to a maximum single dose of 5 mg .	

MEDICAL CONTROL OPTIONS

1. Administration of Activated Charcoal (without sorbitol).

<u>Adult</u>	<u>Pediatric</u>
25-50 gm PO.	0.5-1gm/kg.

- 2. Consider administration of **Sodium Bicarbonate IV/IO** for tricyclic antidepressant overdose, **Calcium Chloride IV/IO** for calcium channel blocker overdose or **Glucagon IV/IO** for beta blocker overdose.
- 3. Contact Medical Control for further orders when necessary.

This protocolguideline applies to patients experiencing venomous or nonvenomous, bites or stings from animals, snakes or spiders.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- Attempt to identify the insect, reptile or animal that caused the injury, if safe to do so. <u>DO NOT</u> transport a living snake/animal/spider to the hospital. Determine if the patient has access to anti-venom that can be transported to the hospital with them.
- 3. If an anaphylactic reaction occurs as a result of a bite or sting, refer to the allergic reaction / anaphylaxis protocolguideline.
- 4. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 5. Have the patient remain calm and immobilize the effected extremity.
- 6. Remove any rings, bracelets, jewelry and constricting clothing from the affected extremity.
- 7. Do not apply tourniquets, cold packs, or make incisions around the affected area.
- 8. Contact Poison Control on channel H-11 or call at 1-800-222-1222 for assistance in managing specific envenomations. Any medication orders from Poison Control must first be cleared by Medical Control.
- 9. Provide rapid transport to the appropriate medical facility if the patient is symptomatic. Notification of the receiving facility is required.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an IV of Normal Saline KVO.

3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 4. Provide continuous EKG monitoring.
- 5. Administer **Midazolam (Versed)** for patients experiencing severe muscle spasms:

<u>Adult</u>	Pediatric	
2-5 mg IV/IO/IN or IM , up to a maximum dose of 5 mg .	Contact Medical Control.	

MEDICAL CONTROL OPTIONS

Carbon monoxide is an odorless, tasteless, colorless gas produced from incomplete combustion. It is present in the environment in various concentrations mainly due to automotive exhaust. Most poisonings occur in the home, from intentional exposure or from faulty fuel fed heating appliances. Additionally victims and rescue personnel who are found or working at a fire ground have a high probability of carbon monoxide poisoning. Carbon monoxide easily binds to the hemoglobin molecule. It has an affinity for hemoglobin that is 200 times that of oxygen. Once bound to the receptor sites on the hemoglobin, it can no longer transport oxygen.

I. General Indicators of Carbon Monoxide Exposure:

- Victims who have been rescued from or had a prolonged exposure to smoke at a fire ground.
- Victims who have been exposed to carbon monoxide due to a faulty heating system, automobile exhaust or other sources of incomplete combustion.

II. Clinical Indicators of Carbon Monoxide Exposure:

- After a patient has been exposed to carbon monoxide, his/her symptoms may range from minimal to life threatening and may include:
 - Headaches, irritability, vomiting.
 - Errors in judgment.
 - Chest pain.
 - > Confusion.
 - Loss of coordination.
 - Loss of consciousness.
 - > Seizures.
 - > Cyanosis.

III. Treatment and Transport Decision

- 1. The following percentages refer to the saturation percentage of CO (SpCO) in the hemoglobin.
 - > 0-3% No treatment required
 - <6% For smokers or during fireground rehab No treatment required</p>
 - > 4-12% without signs/symptoms AND no history of exposure Observe
 - 4-12% with signs/symptoms OR history of exposure Treat with 100% oxygen and transport to hospital
 - > 12%-25% Treat and transport all regardless of symptoms
- For any history of CO exposure regardless of measured CO level on the RAD-57, transport to a hyperbaric facility (Virginia Mason – Seattle) for CO exposure if there is:
 - History of unconsciousness.
 - > Objective neurologic deficit or altered mental status.

- > Chest pain or ischemic EKG changes.
- Pregnant patient with CO level of >15% regardless of symptoms.
- > Pediatric patient with CO level of >15% regardless of symptoms.
- > Any patient with CO level of >25% regardless of symptoms.

ALL PROVIDER LEVELS

- 1. Remove the patient from the environment.
- 2. Perform an accurate patient assessment. Pulse oximetry monitors may give false readings in patients exposed to cyanide and/or carbon monoxide.
- 3. Administer supplemental **Oxygen** at 100%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** of Normal Saline KVO or Saline Lock.
- 3. Provide continuous EKG, CO and ETCO₂ monitoring.
- 4. If the patient is exhibiting signs and symptoms of a high cyanide exposure, administer **Hydroxocobalamin**:

<u>Adult</u>	<u>Pediatric</u>
Initial dose is 5 gm IV/IO over 15 minutes. Each 2.5 gm vial of Hydroxocobalamin for injection is to be reconstituted with 100 ml of NS and administered at 10-15 ml/minute.	70 mg/kg IV/IO , up to a maximum of 5 gm. Each 2.5 gm vial of Hydroxocobalamin for injection is to be reconstituted with 100 ml of NS and administered at 10-15 ml/minute.

MEDICAL CONTROL OPTIONS

Cyanide is a cellular toxin; it halts respiration at the cellular level. Cyanide may also be found in university laboratory facilities. This may be a common method of suicide attempt in those who have access to the substance, such as laboratory workers and chemists. Cyanide also has an important role in causing death and incapacitation in fires. The speed of onset is related to the severity of exposure (inhalation or ingestion) and may have dramatic, immediate effects causing early hypertension with subsequent hypotension, sudden cardiovascular collapse or seizure/coma.

I. Non-specific and early signs of cyanide exposure:

1. The following are early signs and symptoms of cyanide exposure: anxiety, vertigo, weakness, headache, tachypnea, nausea, dyspnea, vomiting, and tachycardia.

II. Suspected High Cyanide Exposure:

- 1. The following are signs and symptoms of high cyanide exposure:
 - Markedly altered level of consciousness.
 - Seizures.
 - Respiratory depression or respiratory arrest.
 - > Hypotension.
 - > Cardiac dysrhythmia (other than sinus tachycardia).

III. Suspected Low Cyanide Concentrations:

1. If patient has a reported oral cyanide ingestion and does not manifest signs and symptoms meeting administration criteria (high exposure), medical consultation is required for administration of hydroxocobalamin (consider simultaneous consultation with poison control and medical consultation).

ALL PROVIDER LEVELS

- 1. Remove the patient from the contaminated area if safe to do so.
- Perform an accurate patient assessment. Pulse oximetry monitors may give false readings in patients exposed to cyanide and/or carbon monoxide.
- 3. Administer humidified **Oxygen** at 100%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish an **IV** of Normal Saline KVO or Saline Lock.
- 3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 4. Provide continuous EKG, and ETCO₂ monitoring.
- 5. If the patient is exhibiting signs and symptoms of a high cyanide exposure, administer **Hydroxocobalamin (Cyanokit)**:

<u>Adult</u>	<u>Pediatric</u>
Initial dose is 5 gm IV/IO over 15 minutes. Each 2.5 gm vial of Hydroxocobalamin for injection is to be reconstituted with 100 ml of NS and administered at 10-15 ml/minute.	70 mg/kg IV/IO , up to a maximum of 5 gm. Each 2.5 gm vial of Hydroxocobalamin for injection is to be reconstituted with 100 ml of NS and administered at 10-15 ml/minute.

MEDICAL CONTROL OPTIONS

- 1. Dopamine infusion 5-20 mcg/kg/min for persistent hypoperfusion.
- 2. Contact Medical Control for further orders when necessary.

This protocolguideline applies to female patients that are in labor, with delivery of a newborn being imminent. The most important decision to make with a patient in labor is whether to attempt delivery in the field or transport the patient to the hospital. Factors that effect that decision include; number of previous deliveries, frequent contractions that are less than 2 minutes apart and lasting 30-45 seconds, crowning or bulging, or mother has the urge to push or move her bowels (Do not allow the patient to utilize the toilet).

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%.
- 3. Place the patient supine with knees widely separated. Elevated the patient's buttocks if needed.
- 4. Carefully assist expulsion of the newborn from the birth canal in its natural progression. Do not push or pull the newborn.
- 5. As the head emerges, encourage the mother not to push so that the delivery process can continue slowly and with minimal trauma to the perineal area.
- 6. Once the head emerges, suction the newborns mouth then nose to clear secretions.
 - If the cord is wrapped around the newborns neck, attempt to unwrap it from the neck. If unable to remove the cord, attach the 2 umbilical clamps and cut the cord between the clamps.
- 7. Gently guide the head downward until the upper shoulder delivers.
- 8. Gently guide the head upwards until the lower shoulder delivers.
- 9. Once delivery is accomplished, clamp the cord at 6" and 8" from the navel and cut between the clamps.
- 10. Dry and wrap the newborn in a blanket to preserve body temperature.
- 11. Record the delivery time and gender of the newborn.
- 12. Proceed immediately to **Newborn Resuscitation ProtocolGuideline** if resuscitation is necessary.
- 13. Record **APGAR score** at 1 minute and at 5 minutes.
- 14. Ensure that the placenta is transported to the hospital with the mother and newborn if delivered prior to arrival at the hospital.

This protocolguideline applies to patients with pregnancy and/or delivery complications requiring immediate care. The following emergencies include but are not limited to pre-eclampsia / eclampsia, prolapsed cord, limb presentation, breech presentation or uterine inversion.

Pre-Eclampsia / Eclampsia

Generalized edema is usually the presenting sign and can be often noted in the patients face, hands, sacral area, lower extremities, and abdominal wall. Patient may also complain of a frontal lobe headache, blurred vision or any other visual disturbances, nausea, vomiting, irritability, difficulty breathing and hypertension.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in the left lateral recumbent position if possible.
- 4. During transport, dim the lights in the transport unit because bright lighting and loud noises can produce seizures in the pre-eclamptic patient.
- 5. Provide immediate transport to the closest appropriate facility.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock.
- If the patient is experiencing active seizure activity, administer Midazolam
 2-5 mg IV/IO/IN or IM, up to a maximum dose of 5 mg.
- 3. If eclampsia is suspected, administer **Magnesium Sulfate 4 gm IV/IO infusion**. Mix 4 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min
- 4. If equipment is available, obtain and document fetal heart tones.

MEDICAL CONTROL OPTIONS

Prolapsed Cord

A prolapsed cord occurs when the umbilical cord presents itself outside of the uterus while the fetus is still inside. It can happen when the water breaks – with the gush of water the cord comes along. Usually, thereafter the fetus will engage and squash the cord, cutting off oxygen supplies and leading to brain damage of the fetus.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in the knee-chest position.
- 4. Do not attempt to push the cord back into the vagina. Wrap the cord in a saline soaked dressing.
- 5. Palpate the cord for a pulse. If no pulse is obtained, push the newborn's head or presenting part back into mother only far enough to regain a pulse in the umbilical cord.
- 6. Provide immediate transport to the closest appropriate facility while maintaining pressure on the newborn.

ADVANCED LIFE SUPPORT PROVIDERS

1. Establish an **IV** of Normal Saline KVO or Saline Lock.

Limb Presentation

When faced with a newborns limb as the presenting part, do not attempt delivery and transport the patient immediately to the closest appropriate facility.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient supine with hips elevated.
- 4. Do not attempt to deliver the newborn in the pre-hospital setting.
- 5. Keep the patient calm and encourage not to push during contractions.
- 6. Provide immediate transport to the closest appropriate facility.

Breech (Buttocks) Presentation

When faced with a newborns buttock as the presenting part, let the delivery occur naturally and ensure that an open airway is provided until delivery is completed.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient supine with knees widely separated. Elevated the patient's buttocks if needed.
- 4. Allow the delivery to proceed normally while supporting the newborn with the palm or your hand and arm.
- 5. If the head is not delivered within 3 minutes, place a gloved hand in the vagina, with your palm toward the newborn's face utilizing a "V" technique with your fingers. Push the vaginal wall away from the newborns face to create a space until delivery of the head.
- 6. Check the cord to ensure that it is not wrapped around the newborns neck.
- 7. Provide immediate transport to the closest appropriate facility if there is a delay in delivery of the head.

Uterine Inversion

Uterine inversion is a condition when the uterus protrudes through the vagina with the placenta still attached. This condition can produce severe hemorrhage and hypoperfusion.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient supine.
- 4. If the placenta is still attached, do not remove it.
- 5. Cover any protruding tissue lightly with moist sterile dressings.

- 1. Establish an **IV** of Normal Saline KVO.
- 2. Administer **Normal Saline Boluses at 250 ml** as needed to maintain or restore perfusion. Maximum total of 2000 ml. Reassess before and after every administration.

This protocolguideline applies to female patients with unusually heavy vaginal bleeding as a result of pregnancy (abrupto placenta, placenta previa and uterine rupture), miscarriage or post-partum hemorrhage.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 3. Place the patient in the left lateral recumbent position if the patient is in the third trimester of pregnancy. If the patient is not in the third trimester and is exhibiting signs / symptoms of hypoperfusion, place the patient in the shock position.
- 4. In the event of active post-partum hemorrhage from the vagina, apply a firm uterine massage starting from the pubis toward the umbilicus clockwise.
- 5. In the event that the patient has experienced a miscarriage and the fetus is ≤20 weeks in gestation:
 - Ensure that the fetus is pulseless and apneic. If so, do not attempt resuscitative measures.
 - If there is any question as to the approximate gestation of the fetus, provide resuscitative measures.
 - If the fetus presents with spontaneous respirations and/or pulses, provide newborn resuscitative measures and transport to the closest appropriate hospital. If there is a question as to whether the fetus is viable or not, contact Medical Control for direction.
- 8. In the event that the patient has experienced a miscarriage and the fetus is >20 weeks in gestation:
 - Provide newborn resuscitative measures and transport to the closest appropriate hospital.

- 1. Establish an IV of Normal Saline KVO.
- 2. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses at 250 ml** as needed to maintain or restore perfusion. Maximum total of 2000 ml. Reassess before and after every administration.

This protocolguideline applies to newborn patients who do not respond to initial stimulation and resuscitative efforts. Prompt initiation of resuscitative steps is critical to the successful outcome of a neonatal resuscitation.

ALL PROVIDER LEVELS

- 1. Position the newborn on his/her back, with the neck in a neutral position.
- 2. Ensure a patent airway by gentle suctioning of the mouth then the nose utilizing a bulb syringe. If Meconium stained fluid is present, suction the patient's hypopharynx.
 - ALS providers should utilize a Meconium Aspirator attached to an endotracheal tube. With the assistance of a laryngoscope and blade, insert the endotracheal tube into the trachea and suction while removing the tube. Do not perform in a newborn with a vigorous cry.
- 3. Dry the infant, place on a dry blanket, cover the head and keep the infant warm.
- 4. Provide tactile stimulation, if the newborn is not responding to drying.
- 5. If the infant is ventilating adequately, administer free flow (blow-by) 100% oxygen at a minimum of 6 liters per minute close to the face. If ventilations are inadequate or if the chest fails to rise, reposition the head and neck, suction, and initiate bag-valve-mask ventilations with high flow oxygen at 40-60 breaths per minute.
- 6. If heart rate 60-80 and rapidly rising:
 - Continue manual ventilation and supplemental oxygen
- 7. If heart rate less than 60, or 60-80 and not rapidly rising:
 - > Initiate CPR with bag-valve-mask ventilations with high flow oxygen.
- 8. Determine the 1 minute **APGAR score**. Repeat at the 5 minute interval.

Test	0 Points	1 Point	2 Points
Activity (Muscle Tone)	Absent	Arms & legs extended	Active movement with flexed arms & legs
Pulse (Heart Rate)	Absent	Below 100 bpm	Above 100 bpm
G rimace (Response Stimulation or Reflex Irritability)	No Response	Facial grimace	Sneeze, cough, pulls away

Appearance (Skin Color)	Blue-gray, pale all over	Pink body and blue extremities	Normal over entire body – Completely pink
Respiration (Breathing)	Absent	Slow, irregular	Good, crying

ADVANCED LIFE SUPPORT PROVIDERS

- 1. Establish an **IV/IO** of Normal Saline and administer 10 ml/kg if ventilation and heart rate are not improving after 3 minutes.
- 2. Provide **continuous EKG monitoring** and treat life threatening dysrhythmias as indicated.
- 3. Perform **ET Intubation** if the patient does not respond to assisted ventilations and/or CPR after 3 minutes.
- 4. Administer **Epinephrine 1:10,000 0.01 mg/kg IV/IO**, if the heart rate remains <80 beats per minute after assisted ventilations and/or CPR for 3 minutes.
- 5. For suspected narcotic (opiate) overdose, administer Narcan 0.1 mg/kg IV/IO/ET.

MEDICAL CONTROL OPTIONS

- 1. Medical Control may request that providers obtain a blood sugar. If the result is low, and transport time is still lengthy, Medical Control may request that dextrose 10% be administered to the newborn.
- 2. Contact Medical Control for further orders when necessary.

This protocolguideline applies to patients with near or complete amputations.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Control bleeding with:
 - Direct pressure, elevation, pressure points and a tourniquet as the last resort.
- 3. If c-spine injury is suspected, provide spinal immobilization.
- 4. Administer supplemental **Oxygen** maintaining a $SpO_2 > 96\%$.
- 5. Provide extremity splinting as required.
- 6. Care or the amputated part if recovered shall include:
 - Removing gross contaminations with saline.
 - Wrap the part in moist sterile dressings and place the part in a plastic bag or container.
 - If possible, place that bag or container into a separate bag or container with ice packs to keep the part cool. Do not allow the part to freeze.
- 7. Transport to the closest appropriate facility with trauma capabilities if the patient has abnormal vital signs, multi-system trauma or amputations of the toe or finger tip at the distal end.
- 8. Consider transportation to a specialty referral center for stable patients that present with the following:
 - Complete of incomplete amputation, degloving, crushing or devascularization injuries.
 - Specific injuries might include, complete or incomplete hand amputation, partial or complete proximal finger or thumb amputation at the joint that meets the hand, degloving, crushing or de-vascularization injuries of hand, clean cut amputation at the ankle.
 - Ensure that the specialty referral center is notified and willing to accept the patient prior to transport.

- 1. Establish an **IV** of Normal Saline KVO or Saline Lock.
- 2. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

San Juan County EMS Guidelines Trauma Emergencies

		_
<u>Adult</u>	Pediatric	
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.	

3. For pain management, administer Morphine Sulfate:

<u>Adult</u>	<u>Pediatric</u>
	0.1 mg/kg IV. Repeat as
2 mg IV until pain is relieved or	needed until pain is relieved or a
a maximum of 10 mg is	maximum o f 5 mg is reached.
reached.	Contact Medical Control for
	patients <5yrs.

If the patient exhibits signs / symptoms of hypoperfusion omit Morphine Sulfate.

MEDICAL CONTROL OPTIONS

This protocolguideline applies to patients sustaining burns as a result of thermal or chemical components. Indications for referral to a burn center applies to patients with 2^{nd} or 3^{rd} degree burns >10% in patients under 10 or over the age of 50 and >20% in any patient, electrical injury (greater than 200 volts), suspected inhalation injury, or significant burns to the hands, face feet or perineum. In the event that there is associated trauma in the burned patient, transport to a trauma center for immediate care if unstable.

ALL PROVIDER LEVELS

- 1. Remove the patient from the source of injury. Decontaminate if the injury occurred as a result of a hazardous material or chemical if safe to do so.
- 2. Perform an accurate patient assessment.
- 3. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen. If smoke inhalation is suspected, provide humidified Oxygen.
- 4. Remove items that may constrict swelling tissue.
- 5. Determine the degree and body surface area percentage burned.
- If the burns are ≤10% body surface area, cover with sterile dressings soaked in a saline solution.
- If the burns are >10% body surface area, cover with sterile dry dressings or burn sheet. Ensure that the patient is kept covered and warm to prevent the loss of body heat.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg. If ET intubation cannot be accomplished due to a completely obstructed airway, perform an emergent Cricothyroidotomy.
- 2. Establish an IV Normal Saline KVO.
- 3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

Adult	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

4. Consider continuous EKG monitoring.

5. For pain management, administer Morphine Sulfate:

Adult	<u>Pediatric</u>
	0.1 mg/kg IV. Repeat as
2 mg IV until pain is relieved or	needed until pain is relieved or a
a maximum of 10 mg is	maximum of 5 mg is reached.
reached.	Contact Medical Control for
	patients <5yrs.

If the patient exhibits signs / symptoms of hypoperfusion omit Morphine Sulfate.

MEDICAL CONTROL OPTIONS



This protocolguideline applies to patients sustaining injury as a result of high voltage electricity (>200 volts) or lightning strikes. In addition to burns, these patients have a high probability of cardiac rhythm disturbances and penetrating trauma as a result of the electrical injury.

ALL PROVIDER LEVELS

- 1. Remove the patient from the source of injury, if safe to do so.
- 2. Perform an accurate patient assessment.
- 3. Consider spinal immobilization if the mechanism of injury exists.
- 4. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 5. If the patient is in cardiac arrest, attach **AED** and analyze the rhythm. If the AED advises "shock advised" ensure that all providers are clear of the patient and depress the shock button. Reassess rhythm after 2 minutes or 5 cycles of CPR (30:2).
 - ALS providers should utilize their manual cardiac monitor / defibrillator and defibrillate if the patient is in a "shockable" rhythm. Immediately continue CPR post defibrillation.

<u>Adult</u>	<u>Pediatric</u>
200 J (increase energy as needed).	2 J, and 4 J/kg.

BLS providers are to continue with "shock" and CPR therapy for the remainder of the arrest, until the rhythm is no longer "shockable" or until patient care is taken over by ALS providers.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35 – 45 mmHg.
- 2. Establish an **IV** Normal Saline KVO.

3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

4. Provide continuous EKG and ETCO₂ monitoring.

MEDICAL CONTROL OPTIONS

Compartment Syndrome (CS) is a limb- and life-threatening condition seen when perfusion pressure falls below tissue pressure in a closed anatomical space. This can lead to tissue necrosis, permanent impairment, and eventually renal failure and death. All providers should maintain a high index of suspicion when dealing with complaints of severe extremity pain. Initial symptoms of pain and burning may progress to weakness and paralysis. *All treatment should be initiated prior to extrication*.

Consider activation of the "Go Team" for a patient involved in an unusual extrication, prolonged crush injury, or possible field amputation. This team will bring the necessary equipment needed for unusual field care.

Common mechanisms of injury leading to Compartment Syndrome are:

- Long bone fractures
- > High energy trauma
- Penetrating injuries / GSW's / stab wounds
- Venous injury
- Crush injuries

ALL PROVIDER LEVELS

- 1. Refer to Trauma Assessment ProtocolGuideline.
- 2. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish at least one large bore **IV** Normal Saline KVO.
- 3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 4. Once extricated, do not delay transport to the closest available trauma facility.
- 5. Provide **continuous EKG monitoring** and treat life threatening dysrhythmias as indicated.
- 6. For pain management, administer Morphine Sulfate:

<u>Adult</u>	<u>Pediatric</u>
	0.1 mg/kg IV. Repeat as
2 mg IV until pain is relieved or	needed until pain is relieved or a
a maximum of 10 mg is	maximum of 5 mg is reached.
reached.	Contact Medical Control for
	patients <5yrs.

- If the patient exhibits signs / symptoms of hypoperfusion omit Morphine Sulfate.
- 7. Consider **Albuterol 2.5 mg via nebulizer** to a total of 3 doses or 7.5 mg for suspected hyperkalemia.
- 8. Consider Sodium Bicarbonate 1 mEq/kg IV.
 - > May be repeated at 0.5 mEq/kg after 10 minutes.

MEDICAL CONTROL OPTIONS

This protocolguideline applies to patients with eye injuries as a result of trauma or burns (including pepper spray).

ALL PROVIDER LEVELS

- 1. All providers shall utilize proper PPE at all times.
- 2. If the injury is related to a chemical exposure:
 - Remove patient from exposure source if safe to do so.
 - Remove contact lenses if possible and transport them with the patient.
 - Irrigate the eye(s) immediately with Normal Saline for a minimum of 20 minutes utilizing IV tubing or a nasal cannula.
 - For significant eye pain, administer 2 drops of Tetracaine HCL in the affected eyes(s).
 - Determine the chemical involved. If MSDS is available transport with patient.
- 3. If the eye injury is related to trauma:
 - > Do not irrigate or use Tetracaine HCL if penetrating trauma.
 - Cover the injured eye. Do not use a pressure or absorbent dressing on any eye that may have ruptured, or have penetrating trauma.
 - > Cover both eyes to limit movement.
 - > Transport the patient with head elevated at least 30°.

This protocolguideline applies to patients injured as a result of trauma with a GCS of ≤15, penetrating injuries to the head, neck, chest, and abdomen, extremities proximal to the elbow or knee. Patients with 2 or more proximal long bone fractures flail chest, combination or trauma with burns, pelvic fractures, amputation or crush injuries proximal to the wrist or ankle and limb paralysis. Automobile crashes >40 mph with major deformity to the vehicle >20 inches, intrusion into passenger compartment >12 inches, vehicle rollover and ejection from a vehicle. When in doubt, transport the patient to the closest open trauma center for evaluation and treatment. **Transport to Harborview for patients <15 years of age**.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Ensure that spinal immobilization is performed if the mechanism of injury warrants. This would also include penetrating injuries to the head, chest or abdomen with or without neurological deficit.
- 3. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 4. Treat all life threatening injuries as soon as possible such as decompression of a tension pneumothorax (ALS), sealing of a sucking chest wound, stabilization of a flail chest, and stabilization of a protruding object from a head, neck, eye, chest or abdomen. Consider "load and go" option.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish 1 or 2 IV's of Normal Saline. Do not delay transport performing IV access. Perform IV access enroute to the trauma center or aero medical evacuation when available.

3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses**:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or	20 ml/kg as needed to maintain
restore perfusion. Maximum	or restore perfusion. Maximum
total of 2000 ml.	of 3 boluses.

- 4. If a tension pneumothorax is suspected, perform a **needle decompression** of the pleural space at the 2nd intercostal space, midclavicular on the affected side, utilizing an appropriate size gauge angiocath or commercial device.
- 5. Provide continuous EKG monitoring if time or conditions permit.

MEDICAL CONTROL OPTIONS

This protocolguideline applies to patients in cardiac arrest as a result of penetrating or blunt trauma. Rapid assessment, airway management, critical interventional skills (needle decompression, etc.) and immediate transport to a trauma center is essential to improve the patient's outcome. **Transport to Harborview for patients <15 years of age**.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- Initiate immediate CPR with an oral airway, BVM and 100% oxygen (≥15 lpm) in conjunction with spinal immobilization. This will be 5 cycles of CPR:

<u>Adult</u>	<u>Pediatric</u>
30:2	15:2

- When performing compressions, providers are to "push hard and fast" allowing the chest to fully recoil.
- 3. If the arrest is believed to be medical in nature, attach **AED** and analyze the rhythm. If "no shock" is advised immediately continue CPR.
 - ALS providers should utilize their manual cardiac monitor / defibrillator for all patients.
- 6. Transport immediately to the closest open trauma center.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- 2. Establish 1 or 2 IV/IO's of Normal Saline. Do not delay transport performing IV access. Perform IV access enroute to the trauma center.
 - > ALS providers can initiate **IO access**.
- 3. Administer Normal Saline Boluses to treat hypovolemia:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml	20 ml/kg as needed to maintain or restore perfusion. Maximum

- 4. If a tension pneumothorax is suspected, perform a **needle decompression** of the pleural space at the 2nd intercostal space, midclavicular on the affected side, utilizing an appropriate size gauge angiocath or commercial device.
- 5. Consider **bilateral needle decompressions** for patients in cardiac arrest with penetrating or blunt trauma to the chest.
- 6. Interpret EKG and treat dysrhythmias according to the appropriate protocolguideline.
- 7. If the patient presents in asystole (confirmed in 2 or more leads) consider **Termination of Resuscitation** for patient's ≥18 years of age.

MEDICAL CONTROL OPTIONS

ADVANCED LIFE SUPPORT PROVIDERS

INDICATIONS:

Pericardial tamponade in a patient who is in shock and progressively deteriorating, or who is in full arrest.

DIAGNOSIS OF PERICARDIAL TAMPONADE:

The following <u>must</u> be present:

- High venous pressure (neck veins)
- Low or absent BP
- Tachycardia or PEA
- Distant heart tones

Where a BP is obtainable, pulsus paradoxus (drop of systolic BP or more than 10 mm Hg with inspiration) should be observed. Note that cardiogenic shock with CHF can have similar findings as above.

Setting of pericardial tamponade:

- > Acute trauma to the heart.
- Cardiac rupture from MI.
- Other medical causes, usually with a less acute presentation: Pericardial metastases, viral pericarditis, uremia (renal failure - chronic), collagenvascular disease, rheumatic fever, tuberculous pericarditis or bacterial (rare).

Fluid is bloody in the first two, usually serous or serosanguineous in the others. Pericardial tamponade should be considered in all cases of cardiac arrest with pulseless electrical activity, particularly if there is sinus or supraventricular rhythm. In such situations, hypovolemia, profound cardiogenic shock, and tension pneumothorax should be ruled out first.

TECHNIQUE:

- If possible, the patient should be semi-upright which increases pooling of fluid toward the inferior and anterior surface, thus maximizing fluid drainage. The procedure may be done supine.
- Use the sub xiphoid approach at an angle of 30 45 degrees to the skin. The needle should be advanced toward the shoulder at an angle 15-20° from the abdominal wall. While advancing the needle toward the pericardial space, aspirate the syringe.
- Continue to advance the needle until fluid is aspirated in the syringe or (if using alligator clip attached to monitor) the ECG monitor shows ST elevation. A hemostat may be then clamped on the needle at the skin surface to prevent accidental over penetration of the needle.

PERICARDIOCENTESIS



NOTE: If available, the hub of the needle should be attached via alligator clamp to the "V" lead of an ECG monitor. ST elevation on the monitor indicates the heart has been touched by the needle and the needle should be withdrawn slightly. PVC's should be treated with Lidocaine and the needle withdrawn slightly.

Bloody fluid from the pericardium should not clot, as opposed to blood aspirated from the heart itself.

A removal of only 30 cc of pericardial fluid should bring a dramatic improvement in vital signs in tamponade, although in some settings, fluid can re accumulate rapidly. In acute tamponade, the pericardial sac generally contains about 150 cc of fluid, with larger amounts the accumulation of fluid will have occurred more gradual.

MEDICAL CONTROL OPTIONS

This protocolguideline applies to pregnant patients that are 20 weeks or greater in gestation. In the event of cardiac arrest secondary to trauma, these patients do not apply to the Presumed Dead on Arrival (PDOA) ProtocolGuideline, except in instances where there is apparent dependent lividity and rigor mortis. These patients must be resuscitated and transported to the nearest trauma facility in an effort to save the unborn child.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Ensure that spinal immobilization is performed if the mechanism of injury warrants. This would also include penetrating injuries to the head, chest or abdomen with or without neurological deficit.
- 3. Administer supplemental **Oxygen** maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance with a BVM and 100% Oxygen.
- 4. Treat all life threatening injuries as soon as possible such as decompression of a tension pneumothorax (ALS), sealing of a sucking chest wound, stabilization of a flail chest, and stabilization of a protruding object from a head, neck, eye, chest or abdomen. Consider "load and go" option.
- Patients should be transported on their left side, either left lateral recumbent or tilted left on a long spine board to displace the uterus off the vena cava thus enhancing venous return (Supine Hypotensive Syndrome or Vena Cava Syndrome). In cases of cardiac arrest or when airway maintenance requires the patient to be supine, tilting shall be omitted.

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35-45 mmHg.
- Establish 1 or 2 IV/IO's of Normal Saline and titrate to a systolic blood pressure of 100 mmHg. Do not delay transport performing IV access. Perform IV access enroute to the trauma center.

- 3. If the patient presents with signs and symptoms of hypoperfusion, administer **Normal Saline Boluses at 500 ml** intervals as required to maintain or restore perfusion. Maximum total of 2000 ml. Reassess before and after every administration.
- 4. If a tension pneumothorax is suspected, perform a **needle decompression** of the pleural space at the 2nd intercostal space, midclavicular on the affected side, utilizing a 14 gauge angiocath or commercial device.
- 5. Consider **bilateral needle decompressions** for patients in cardiac arrest with penetrating or blunt trauma to the chest.

MEDICAL CONTROL OPTIONS

This protocolguideline applies to patients with a suspected brain injury due to blunt or penetrating trauma. **Transport to CNMC for patients <15years of age**.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Ensure that spinal immobilization is performed. If isolated TBI is suspected, attempt to keep the head of the backboard elevated to reduce intracranial swelling.
- Administer 100% Oxygen maintaining a SpO₂ >96%. If respiratory effort is inadequate provide ventilatory assistance at 12 breaths per minute with a BVM and 100% Oxygen.
- If the head injured patient has a Glasgow Coma Score of ≤8 and one or more of the following signs of brain herniation is present, hyperventilate the patient at a rate of:

<u>Adult</u>	<u>Pediatric</u>
20 breaths per min.	25 breaths per min.

- Seizure activity.
- > Pupils that are fixed or asymmetric (unequal).
- > Abnormal flexion or extension (posturing).
- > Hypertension and bradycardia (Cushing's Syndrome).
- > Intermittent apnea (periodic breathing).
- 5. **Transport immediately to the closest open trauma center**. Should this also be a County Defined protocol which changes re: capability?

- 1. Initiate advanced airway management if the airway cannot be managed properly utilizing BLS airway maintenance.
 - ALS providers should utilize advanced airway management with ET intubation and attach ETCO₂ device, maintaining a level of 35 – 45 mmHg. Do not perform Nasotracheal Intubation in pediatric patients or patients with maxial-facial trauma or evidence of a basilar skull injury.
- 2. Establish IV of Normal Saline. Do not delay transport performing IV access. Perform IV access enroute to the trauma center.
 - > ALS providers can initiate **IO access**.

3. Administer Normal Saline Boluses:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	20 ml/kg as needed to maintain or restore perfusion. Maximum of 3 boluses.

- 4. Provide continuous EKG and ETCO₂ monitoring.
- 5. If the patient is experiencing active seizure activity, administer **Midazolam** (Versed):

<u>Adult</u>	<u>Pediatric</u>
2-5 mg IV/IO/IN , up to a maximum dose of 5 mg .	0.1 mg/kg IV/IO/IN , up to a maximum single dose of 5 mg .

MEDICAL CONTROL OPTIONS

EMS providers may withhold spinal immobilization if the following algorithm is applied and the end-point is "Consider no immobilization." Algorithm may be applied to patients 5 years of age or older.


San Juan County EMS Guidelines Trauma Emergencies

TRAUMA DECISION TREE ALGORITHM



TRAUMA DECISION TREE ALGORITHM



This Page Intentionally Blank

This protocolguideline applies to patients exhibiting behavior that presents a danger to self and others. Careful assessment is required to determine the cause of the mental disturbance. In all cases, substance induced disorders (alcohol intoxication or drugs), organic causes (cerebral lesions), endocrine emergencies (hypoglycemia or hyperglycemia), hypoxia or trauma must be ruled out to determine if the condition is truly psychological. Excited Delirium is a condition in which a person is in a psychotic state or extremely agitated. The person's inability to process rational thought precludes normal de-escalation procedures alone. High body temperatures and instant tranquility (this is when a previously combative patient becomes quiet and docile) in these patients are key findings in predicting a high risk of sudden death in excited delirium. Ensure that the San Juan County Sheriff is summoned to all responses involving potentially combative patients.

ALL PROVIDER LEVELS

- 1. Perform an accurate patient assessment.
- 2. Attempt to de-escalate verbally aggressive behavior with a calm and reassuring approach and manner. Utilize family members or friends known to the patient if is safe to do so.
- 3. Do not leave the patient alone unless there is a risk or harm to prehospital personnel or others.
- 4. Administer supplemental **Oxygen** maintaining a SpO₂ >96% if indicated.
- 5. Place the patient in a position of comfort unless combative.
- 6. If patient restraint is necessary to prevent harm to the patient and others, provide soft four-point restraints or handcuffs (law enforcement) and transport the patient in a supine position. Do not transport the patient in a prone position or restrict the patient in taking full tidal volume breaths. Circulation and motor sensory function shall be checked every 10 minutes while in physical restraints.
- 7. Ensure that a blood glucose reading is obtained.
- 8. Consider use of Sheriff Boat transport by SJCS if there is an isolated behavioral problem, and no medical problems or injuries that need to be evaluated at the hospital.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. If the patient continues to present a danger to self or others on scene due to combativeness, consider chemical sedation:
 - a. Midazolam (Versed):

<u>Adult</u>	<u>Pediatric</u>	
5 mg IN/IM.	Contact Medical Control.	

OR

b. Haloperidol (Haldol):

Adult	<u>Pediatric</u>
5 mg IM , up to a maximum dose of 10 mg .	5 mg (>12 yrs) and 2 mg (6-12 yrs). Medical Direction Required.

2. Provide continuous EKG monitoring.

MEDICAL CONTROL OPTIONS

1. Contact Medical Control for further orders when necessary.

The basic objective of crime scene protection is to preserve physical evidence that may be used to develop investigative leads and to prosecute defendants in court. Physical evidence must be protected from accidental or intentional alteration from the time it is first discovered to its ultimate disposition at the conclusion of an investigation.

Often, emergency medical service personnel are the first to arrive at potential crime scenes. EMS personnel may be unaware that the incident that has necessitated the request for medical aid is a result of a criminal act.

While emergency aid may be imperative, medial personnel should exercise extreme caution in approaching scenes suspected or known to involve any violent act.

Sniper incidents have often resulted in multiple injuries among those trying to rescue the victim.

Responding emergency personnel must consider their own safety as well as the methods they will use in aiding victims.

Personnel should consider evidence preservation and crime scene protection while enroute to such an emergency. While saving life is paramount, personnel should do all they possibly can to prevent the loss of related evidence.

ERRORS:

Most errors are unintentional, but they still complicate the investigation. A brand of cigarettes determined from butts found at the scene may be important, but if they were left by law enforcement, EMS responder, or FF, they are merely a waste of time, money and effort to analyze. Being aware of the problems commonly found at scenes and the needs of the investigating officers should help to prevent some of these difficulties. Descriptions of the two primary types of mistakes, which damage crime scenes are:

Errors of commission: occur when citizens, witnesses, officers, or emergency personnel, smear fingerprints, step on evidence, add their own fingerprints, rearrange the scene, drop cigarette ashes and butts at the scene, etc. Any time anyone destroys existing evidence or adds "evidence" (cigarette butts, gum), a serious mistake has damaged the crime scene.

➢ Errors of omission: occur when personnel fail to notice the scent of perfume or cigar smoke, fail to listen to persons standing near the scene discussing the crime, or fail to take efforts to protect existing evidence which may otherwise be destroyed.

APPROACH - (CRIME/ACCIDENT SCENE):

Stop/listen - the suspect(s) may be fleeing the crime or noise may indicate flight via vehicle / foot, etc.

Minimize on scene personnel - designate only one paramedic / aid person to check the body (if death is apparent).

Route - All emergency personnel should use the same route in and out of the crime scene whenever possible. This will minimize the destruction of evidence, i.e., tire tracks.

If weapons are being used and / or violent suspect(s) still on the scene:

- Report to a designated staging area or
- Establish a staging area and notify your dispatcher of arrival and location. Be sure staging area is out of the line of fire and sight of scene.
- Report any suspect activity, especially weaponry seen or heard.
- > Await instructions from officer.
 - Officers will bring victim to you.
 - Officers will request you approach when scene is under control and deemed safe.
 - Officers will coordinate an operation to rescue victim in hazard zone.

PARKING/POSITIONING OF EMERGENCY VEHICLE:

Check with the officer-in-charge to determine where your vehicle should be positioned at the crime scene.

Be conscious of accident debris, skid/scuff marks from tires, as you approach.

Place items of evidentiary value (pill bottle, beverage cans, etc., found in vehicle) in a secure area while treating the victim. Whenever possible leave items where they are; do not touch with hand. If you have to move them, mark the spot.

Check with the office in charge of the scene before hosing / washing vehicle debris from the road or pavement. (Cover if raining, without touching).

When it is apparent that the incident / scene is a crime and further investigation is required, evidence preservation becomes essential.

WHEN THE CRIME SCENE IS INDOORS OR SHELTERED - EMERGENCY RESPONSE PERSONNEL SHOULD:

Ensure that items of evidence (spent cartridges, weapons, clothes, etc.) are not stolen or destroyed, moved or inadvertently stepped in.

Contain the area and restrict/stop pedestrian traffic.

Note body position and only disturb when necessary to give first aid. Mark, if you can.

Note position of clothes on the body before disturbing for medical aid and check for any foreign substances that may be on the body.

If you move the body, be aware that pertinent evidence is often found underneath a body. Mark its location.

Do not use bathroom facilities or sinks.

WHEN CRIME SCENE IS OUTDOORS OR NOT SHELTERED - EMERGENCY PERSONNEL SHOULD:

Restrict vehicle / pedestrian traffic in the area.

Call for assistance to control onlookers and bystanders.

Seek guidance from the on-scene police officer about travel routes.

Inform the officer in charge about any material (coat, sheet, blanket, etc.) used to cover / protect the victim from the elements. Officer may want those items as evidence.

EVIDENCE:

Chalk or tape the location where evidence/items required moving in order to give aid to the victim.

Avoid using the telephone and items in and around the crime scene.

Designate a garbage spot for all non-essential or non-evidentiary items.

If the victim is deceased, bag hands prior to moving the body if law enforcement personnel are not at the scene (use paper only). If possible the penis should be wrapped to prevent loss of urine (useful for toxicology evaluation).

Liquids found near or at the crime scene should not be used for washing / cleaning your hands or equipment.

Check with the officer in charge of the crime scene if you had close contact with the victim / deceased (your clothes may contain fibers and trace evidence).

If clothing must be cut, do not cut through bullet holes or knife cuts. These are critical pieces of evidence.

If a rope <u>must</u> be cut, do not cut it at the knot.

At a hanging, if the possibility of life exists, cut the rope at lease 18 inches above the knot and in the bight. The knot is important evidence. If the rope is over a tree limb or a beam, do not pull it down. Cut the victim down, if necessary, but do not pull the remaining rope down.

Do not move evidence unless necessary. Point the evidence out to the officer <u>where it is found</u>. Obviously a gun on a crowded sidewalk probably should be secured, but use common sense. It the item is not going to be dangerous, stepped on, lost or stolen where it is, leave it there for the officer.

At a crime scene, if a patient is deceased or dies during your resuscitation, do not remove ET tube, IV's etc. Mark all sites of IV attempts.

Crime Scene Assignment Completion and Recording:

- Note the number of people under your control at the crime scene and their specific assignments(s).
- Seek direction from the on-scene police officer when you have questions / doubts about items / evidence at the crime scene.
- Check with officer in charge of the crime scene prior to leaving. If you have information about the crime, do not leave the scene before giving it to an officer.
- Remember that the suspect (perpetrator) always leaves something behind.
- Non-police personnel are reminded that these protocolsguidelines do not preclude their use of judgment and appropriate response determined by the conditions at the incident site.

Decision to transport with handcuffs should be based on patient care needs, security requirements and risk assessment. This decision should be reached through consultation with law enforcement and the EMS provider should consider if another means of restraint would allow for better treatment and still address safety issues.

Once the decision to transport with handcuffs has been made, a SJC Sheriff Officer Deputy needs must be physically present with the patient with means to umlock the cuffs. provide escort. The officer should be in the ambulance with the patient. If that is not possible, they may provide escort by following directly behind the ambulance. Do not leave the scene with the patient until the officer is also ready to follow.

San Juan County	GUIDELINES FOR TASED
EMS Guidelines	PATIENTS ANDTASER
Special Care	DART REMOVAL

Most of the individuals you evaluate will need to be transported to the ED. This is due to the potentially dangerous factors that led to the tasingtasering and the potentially dangerous factors (such as a fall) that occurred immediately after the tasing. To help you accurately evaluate the patient who has been tasedtasered and determine transport needs, use the following approach:

1. Find out what happened before the patient got tasedtasered

Consider any report of extreme, irrational behavior prior to the tasingtasering as significant, regardless of the patient's current presentation 2. Approach the patient with caution

3. Complete a thorough physical exam and history

a) This includes a full set of VS, basic neurological exam, skin signs, pupil assessment and a close look for traumatic injuries

b) It is normal to find minor first-degree burns located between the Taser probes.

c) It is abnormal to find:

- Anything that looks worse than a mild sunburn
- Incontinence
- Chest pain or shortness of breath
- Vomiting
- Headache
- 4. Consider potential for sudden unexpected death syndrome.
 - a) Assess for presence of excited delirium

Pre-existing psychiatric disorders with breakthrough psychosis Non-compliance with psychiatric medications

History of current use of amphetamines, cocaine, PCP, LSD or ecstasy b) Stages of excited delirium include:

- Stage 1 Euphoria episode of exertion, feeling euphoric from early rush of epinephrine release
- Stage 2 Paranoia as body temperature rises, brain triggers paranoia and fear responses, delusions and generalized fear occur.
 Due to body heat may disrobe or engage in inappropriate behaviors, like rolling in snow.
- Stage 3 Rhabdomyolysis insensitivity to pain and exhaustion results in pushing muscles past normal limits. Patient may have unusual strength. The muscles begin to breakdown due to need for energy. The resulting cellular breakdown results in a phenomenon known as rhabdomyolysis.
- Stage 4 Acidosis and death Prolonged anaerobic metabolism produces metabolic acidosis. Body core temperature may reach 105° F. The patient may lapse into a state of calm listlessness as toxins begin to clog the renal system. At this point the patient is at risk for lethal

cardiac rhythms, unconsciousness and death. Patients who undergo a prolonged phase of agitation should be considered in danger of sudden death, even after the combativeness has resolved.

5. Remove probes if indicated.

a) The barb of the Taser probe is a standard, Eagle Claw #8 fishhook.
b) Grab firmly and pull straight back in a quick fashion, using the other hand as a brace and counter-pressure area on the skin surface. If probes are resistant to removal with a single, sharp but gentle tug, leave in place and transport.

c) If the barbs have implanted in a sensitive area, i.e. face, throat, eye, groin, breast, hands or feet, leave them in place and pad and secure as you would any other impaled object.

d) The single use wires can be broken between the thumbs and forefingers or cut with trauma shears. Probes should be considered sharps and disposed of in the sharps container.

- 6. Consider transport if any of the following is present:
 - a) Evidence of excited delirium prior to being tasedtasered;

b) Persistent, abnormal vital signs;

c) History or physical findings consistent with amphetamine/cocaine or hallucinogenic drug use;

d) Cardiac history

e) Altered level of consciousness or aggressive, violent behavior including resistance to evaluation;

f) Evidence of hyperthermia; and

g) Abnormal, subjective complaints, including chest pain, shortness of breath, nausea/vomiting or headaches.

Termination of Resuscitation

This protocolguideline addresses when field resuscitation may be discontinued. If the patient does not meet the **PDOA** criteria, every effort should be made to resuscitate the patient. Studies have shown that rapid transport for in-hospital resuscitation after unsuccessful prehospital advanced cardiac life support (ACLS) rarely, if ever, results in survival to hospital discharge. These guidelines have been established to determine when terminating resuscitation in the field is appropriate.

All of the following must be met to consider "Termination of Resuscitation":

- > Pulseless and apneic prior to EMS arrival.
- 18 years of age or older.
- Patient is not visibly pregnant.
- > Patient is not hypothermic due to an environmental extreme.
- >20 minute resuscitation (by EMS) following appropriate pulseless protocolguideline. Time starts with the first arrival of ALS on the scene.
- Successful placement of endotracheal tube or supraglottic airway (Combitube or King Airway device), confirmed by approved methods (including capnography).
- Patient IV / IO line.
- > Patient could not have been in a perfusing rhythm at anytime.
- Patient displays no signs of organized cardiac electrical activity (persistent VF/VT, any QRS complexes ≥30/min).
- > Patient displays no signs of neurologic function.
- If cardiac arrest is witnesses by EMS personnel, full resuscitative efforts and transport will be initiated.
- If the patient is in law enforcement custody, full resuscitative efforts and transport will be initiated.
- Continue resuscitation efforts and transport the patient, if provider safety becomes an issue.
- Continue resuscitation efforts and transport the patient if cardiac arrest occurs in a crowded public place, excluding nursing homes or extended care facilities.

If all of the above not are met, contact Medical Control for permission to terminate resuscitation.

Once death has been determined:

- 1. Immediately notify law enforcement and remain on the scene until they arrive.
- 2. Do not remove any property or medical devices from the body for any reason (e.g. endotracheal tube/combitube/king airway, IV/IO, jewelry, etc).
- Document time of death, and badge number of the reporting law enforcement officer.

Dealing with family and loved ones:

- Briefly describe the circumstances leading to the death. Avoid euphemisms such as "passed on or no longer with us." Instead use the terms "death, dying or dead."
- Allow time for questions/discussion and for the shock to be absorbed. Make eye contact and consider sharing your feelings. Use phrases such as "you have our sincere sympathy."
- Allow the family to see the patient. Explain that medical equipment is still attached to the patient prior to the viewing.
- Be prepared to explain the death certificate process (e.g. waiting for police/medical examiner).

Presumed Dead on Arrival (PDOA)

This protocolguideline address when field resuscitation should not be initiated. Sound judgment and assessment skill must be utilized when presuming a patient dead on arrival (PDOA). If a patient is determined to be PDOA, the San Juan County Sheriff shall be requested to the scene to investigate and assume responsibility for the deceased person. Complete all necessary documentation and obtain the SJCSD officer name and badge number who the patient was left with.

ALL PROVIDER LEVELS

- 1. Criteria for determining a patient presumed dead on arrival (PDOA) shall include those that are pulseless and apneic with one or more of the following:
 - Rigor Mortis.
 - Dependant Lividity.
 - > Decomposition.
 - Traumatic injuries incompatible with life such as organ destruction of the brain or thoracic contents, decapitation.
 - Incineration.
 - > Submersion ≥24 hours.
 - > Valid out-of-hospital DNR order is present.
 - A valid licensed physician, on scene orders that resuscitation not be attempted.
- 2. When the patient meets any of the above criteria, EMS personnel are not required to continue resuscitation efforts initiated by others. This includes bystander or health care facility CPR.

- 3. If the patient is pregnant >20 weeks in gestation or hypothermic, resuscitation efforts shall be provided and transport initiated to the closest appropriate facility unless criteria is met in line 1.
- 4. If there is any question whether or not to resuscitate patient, resuscitation efforts should be initiated and the patient transported to the closest appropriate facility.

Do Not Resuscitate (DNR)/Comfort Care Order (POLST)

- Medical Control contact must be made on all patients in cardiac arrest where CPR is not initiated.
- Full resuscitation should not be initiated if EMS POLST (Physician Orders for Life-Sustaining Treatment) or EMS – No CPR guidelines are in effect (see Washington State EMS – POLST Guidelines).
- Living wills must be present and will be honored.
- If resuscitation efforts were begun by EMS personnel, they can be terminated only with the agreement of Medical Control.
- All documentation is to be made on an approved MIR.

Comfort Care Measures

The following interventions may be provided to a patient with a verified DNR/Comfort Care POLST form to provide comfort of care or alleviate pain:

- Clear the Airway
- Exclude artificial ventilation or airway adjuncts
- Suction as needed
- Provide Oxygen
- Administer pain medication
- Control Bleeding
- Make Comfort Adjustments

Children with special health care needs refers to children who have or are suspected of having a serious or chronic condition of: physical, developmental, behavioral, or emotional health that requires health-related services of a type or amount beyond that generally required by children. Technology-assisted children refer to those children who depend on medical devices to support bodily function. In all cases utilize the caregiver to assist or perform necessary troubleshooting measures because they are often trained in performing those functions.

Emergencies in Children with Ventilators

ALL PROVIDER LEVELS

- 1. Children on mechanical ventilation may exhibit sudden or gradual deterioration, cardiac arrest, increased oxygen demand, increased respiratory rate, retractions, and change in mental status.
- 2. Examine the child quickly for possible causes of distress which may be easily correctable (e.g. detached oxygen source) the caretakers will often have done this but double check.
- 3. Medications the child is presently taking may be the cause of deterioration.
- 4. Try to establish the child's baseline; the child may never look age appropriate.
- 5. If on a ventilator, remove the child from the ventilator and bag the child with a secure oxygen source; if the child improves there may be a problem with the ventilator or oxygen source.
- 6. Suction the child as accumulation of debris is a common cause of obstruction; if the tracheostomy tube has a cannula, remove it; if it is the cause of obstruction, there should be immediate improvement.
- 7. If still no improvement provide immediate transport to the closest appropriate facility.
- 8. Initiate appropriate resuscitation as needed.

ADVANCED LIFE SUPPORT PROVIDERS

1. If there is no improvement the tube should be removed; attempt bag-valve mask ventilation; if another tube is available insert into the stoma and resume ventilation (a standard endotracheal tube may be used or the used tracheostomy tube after being cleaned).

2. If there is no improvement, immediately transport to the nearest appropriate medical facility and initiate appropriate resuscitation as needed.

Emergencies in Children with In-dwelling Catheters

ALL PROVIDER LEVELS

- 1. Children may have central lines in several locations and some complications are due to location; some central lines are located under the skin and can be felt but not seen.
- 2. The most common emergencies with central lines include, blockage of the line, complete or partial accidental removal, or complete or partial laceration of the line.
- 3. Always evaluate child for cardiovascular stability as some complications may be life threatening.
- 4. Children may be experiencing complications from their underlying medical condition; ask caretakers about the child's condition.
- 5. If line is blocked, do not attempt to force the catheter open, transport to a facility capable of managing central lines.
- 6. For complete removal, do not attempt to reinsert; transport to the nearest emergency department.
- 7. Infections are a common complication; don't try to push a line back in, even if it is only slightly out.
- 8. For complete removal, maintain pressure on site until bleeding has stopped; transport child and catheter to nearest emergency department (part of the catheter may have broken off).
- 9. Always bring the line with you to the hospital.
- 10. For partial or complete laceration of the line, clamp proximally to laceration and transport child and catheter to the closest appropriate facility.
- 11. For children with sudden deterioration begin resuscitation and transport to the closest appropriate facility (child may have pneumothorax or internal bleeding).

Emergencies in Children with Gastrostomy Tubes

ALL PROVIDER LEVELS

- 1. Children with gastrostomy tubes may have complications of obstruction or dislodgment; obstruction is usually not an emergency but the child may require transport; dislodgment is not life threatening but the tube should be replaced as soon as possible. Both conditions are easily recognized.
- 2. The child should be examined for any other possible problems.
- 3. Children who have problems with their tubes may have problems with regurgitation or aspiration.
- 4. Be aware of and address any other possible problems from their underlying medical condition.
- 5. Transport the child and the tube to the nearest facility capable of replacing the tube; this is not an emergency transport.
 - Do not attempt to replace the tube; it is not as easy as it seems and there may be other complications.

All Fire/EMS personnel are required to report cases of suspected child / elder abuse or neglect to the Police agency responsible for the area in which the call occurred. A Police Officer must complete a report in these cases. Do not initiate the report in front of the patient, parent, or caregiver. **DO NOT CONFRONT OR BECOME HOSTILE TO THE PARENT OR CAREGIVER**.

ALL PROVIDER LEVELS

Physical Assessment Suggestive of Abuse:

- 1. Fractures in children under 2 years of age.
- 2. Repeated fractures not explained well.
- 3. Injuries in various stages of healing.
- 4. Frequent injuries.
- 5. Bruises or burns in patterns (eg. iron or cigarette burns, cord marks, bite or pinch marks, and bruised to head, neck, back or buttocks).
- 6. Widespread injuries over the body.
- 7. Obvious physical neglect (malnutrition, lack of cleanliness).
- 8. Inappropriate dress (eg. very little clothes in winter).

History Suggestive of Abuse:

- 1. The history does not match with the nature or severity of injury.
- 2. The parents' and/or caregivers' account is vague or changes.
- 3. The "accident" is beyond the capabilities of the patient (eg. a 12 month old that burns self by turning on the hot water in the bath tub).
- 2. There is a delay in seeking help.
- 3. The parent and/or caregiver may be inappropriately unconcerned about the patient's injury.

Characteristics of the Abused:

- 1. If less that 5 years old, is likely to be passive.
- 2. If over 5 years of age, is likely to be aggressive.
- 3. Does not look to the abuser for support, comfort, or reassurance.
- 4. May cry without any expectation of receiving help.
- 5. May be quiet and withdrawn.
- 4. May be fearful of the abuser.

SUSPECTED CHILD / ELDERLY ABUSE

Characteristics of the Abuser:

- 1. Crosses all religious, ethnic, occupational, educational, and socioeconomic boundaries.
- 2. May resent or reject the child.
- 3. May have feelings of worthlessness about self or about the child.
- 4. May have unrealistic expectations of what the child is capable of doing.
- 5. May be very critical of the child.
- 6. Oftentimes the abuser is repeating what was learned as a child (the abuser was more than likely abused as a child).
- 7. May be overly defensive rather than concerned.

Presentation:

The patient may present with patterned burns or injuries suggesting intentional infliction, such as, injuries in varying stages of healing, injuries scattered over multiple areas of the body, fractures or injuries inconsistent with stated cause of injury. The patient, parent, or caregiver may respond inappropriately to the situation. Malnutrition or extreme lack of cleanliness of the patient or environment may indicate neglect. Signs of increased intracranial pressure (bulging fontanel and altered mental status in an infant may suggest Shaken Baby Syndrome) may also be seen.

Patient Management:

- 1. Treat and stabilize injuries according to the appropriate Patient Care Guideline(s).
- 2. If sexual abuse is suspected, document the reasons for concern.
- 3. Document the following information on the Medical incident report (MIR):
 - All verbatim statements made by the patient, the parent or caregiver(s) shall be placed in quotation marks, including statements about how the injury may have occurred.
 - Any abnormal behavior of the patient, parent(s), or caregiver(s) must be documented.
 - Document the condition of the environment and other residents that are present.
 - Document the time MPD was notified and the name of the officer completing the report.
 - Document the name of the hospital personnel that received the patient and any statements made.
 - Document the level / type of interaction between the patient and the caregiver(s).

Type and Use of Personal Protective Equipment

- Gloves For any patient contact, and when cleaning/disinfecting contaminated equipment. Puncture resistant gloves will be worn in situations where sharp or rough edges are likely to be encountered, i.e., auto extrication.
- Face Mask & Eye Protection Facial protection will be used in any situation where splash contact with the face is possible. This protection may be afforded by using both a face mask and eye protection, or by using a full-face shield. When treating a patient with a suspected or known airborne transmissible disease, particulate facemasks should be used. For respiratory illnesses (TB, SARS) it is beneficial to mask the patient.
- Coverall/fluid resistant gowns Designed to protect clothing from splashes, gowns may interfere with, or present a hazard to, the member in some circumstances. The decision to use gowns to protect clothing will be left to the member. Structural fire fighting gear also protects clothing from splashes and is preferable in fire, rescue, or vehicle extrication activities.
- Shoe/Head Coverings Fluid barrier protection will be used if suspected contamination is possible.

General Precautions against disease

- If it's wet, it's infectious use gloves
- If it could splash onto your face, use eye shields and mask or full face shield.
- > If it's airborne, mask yourself or patient.
- > If it can splash on your clothes, use a gown or structural fire fighting gear.
- > If it could splash on your head or feet, use appropriate barrier protection.

Post Exposure Management

- Provide First Aid.
- Secure area to prevent further contamination. (Stop bleeding with direct pressure).
- Remove contaminated clothing and flush.
- Wash the contaminated area well with soap and water, or waterless hand cleanser, and apply and antiseptic.
- If the eyes, nose, or mouth are involved, flush them well with large amounts of water.
- Notification and relief of duty. The worker's supervisor should be immediately notified if a worker experiences an exposure involving potentially infectious source material. The supervisor should determine if the worker needs to be relieved of duty.
- Report the Exposure. The worker or immediate supervisor should promptly complete an Exposure Report, appropriate for the agency, and submit it to the designated Infection Control Officer.
- Seek Medical Attention, Counseling, Consent and Testing per agency protocolguideline

Measles or Rubeola (also known as Hard Measles, Red Measles or 9-day Measles)

The illness usually begins with a 3-4 day period of symptoms such as fever, coryza, conjunctivitis and/or cough. Fever can be as high as 105 degrees and will usually fall 1-2 days after rash onset. The rash usually begins around the ears and hairline 3-4 days after onset of illness and spreads down to cover face, trunk and arms by the second day. The rash itself is colored and raised and tends to merge by the third day. The rash is usually confined to the face, trunk and proximal ends of the arms and legs. Color progresses from pink to dusky red to reddish brown. To help establish a diagnosis, look for "Koplik's Spots" (tiny blue/white pinpoint swellings within a reddened area) on the mucous membranes of the mouth. The rash will usually last about 5 days.

Rubella (also known as German Measles or 3-day Measles)

Rash begins on the face and rapidly (within 24hrs) spreads to trunk. Rubella frequently causes swelling of the lymph nodes in the neck and behind the ears. Fever, if present, is low grade (below 101).

Note: Key differences between Rubella and Measles (Rubeola):

1. Rubella rash tends to remain as small fine pink spots as opposed to large blotches of Measles (rubeola).

- 2. When areas of rash emerge, rubella rash remains pink.
- 3. Rubella rash is usually gone by the third day.
- 4. Koplik's Spots are never seen in Rubella.

Chicken Pox (Varicella Zoster Virus – VZV [part of herpes family])

Initial rash may be accompanied by flush or measles-like eruption that develop into small pimples then pustules. Lesions appear in crops with the greatest concentration on the trunk. The face and extremities are usually less affected. Lesions will be found in all stages of development, from small pink teardrop

shaped pimples to crusted pox by the 10th day. Some children have only a few lesions and show little evidence of illness while others are covered and have high fever, swelling of lymph nodes, severe itching and discomfort.

Shingles (Varicella Zoster [part of herpes family])

Occurs when the dormant varicella zoster virus (hibernates in the spinal nerve roots) reactivates and causes recurrent disease. Severe pain occurs prior to the outbreak of the rash. The rash follows dermatomes and occurs on one side of the body. Secretions from the rash are infectious. Factors associated with recurrent disease include aging, immunosuppression, intrauterine exposure to VZV and varicella at a young age (younger than 18 months).

Roseola (Human Herpes Virus 6 or 7)

Illness is marked by sudden onset of high fever, 104 - 105, convulsions are not uncommon. There is a rapid disappearance of fever by the 4th day at which time a rash appears. Most cases are in children 6 months to 3 years old. The rash, which is composed of small pink spots, is generally found on the chest and abdomen and resolves within 1-2 days.

Scarlet Fever (Group A Streptococcus)

The illness begins with a fever and sore throat and occurs in conjunction with strep throat. It is frequently accompanied by vomiting, headache, and abdominal pain. A rash appears within the first 24hrs as a pink red flush containing lesions the size of pinheads (looks like sunburn with goose pimples and fees like sandpaper). The rash may involve all parts of the body including the hands and feet. It is usually cleared by the end of the first week of illness and is followed by desquamation (peeling). The tongue is first coated white, it then sheds the white coat by the 5th day revealing a glistening red strawberry color.

Fifths Disease (Human Parvovirus B19)

Rash begins as a solid bright area of eruption on cheeks (slapped cheek appearance) spreading to upper arms, legs, trunk and feet. The rash frequently disappears, becoming lace like in appearance and then reappears often within a few hours. It generally fades completely within one week of onset. A low grade fever, headache and gastrointestinal symptoms may accompany the rash. Chickenpox - Mask worn until all lesions have crusted

Influenza - Mask worn for the duration of illness

Measles (Rubeola) - Mask worn for 4 days after rash starts

Meningitis - Mask worn for 24hrs after start of effective antibiotics

Mumps - Mask worn for 9 days after onset of swelling

Tuberculosis - Mask worn for 2-3 weeks after therapy has begun

ADDITIONAL INFORMATION CAN BE FOUND IN THE APPENDIX UNDER INFECTION CONTROL

Purpose:

To provide structure to the triage and treatment of persons involved in a multiple or mass casualty incident or a multiple patient scene.

Responsibility:

All personnel are responsible for the information set forth in the following procedures. During an MCI primary care givers will be overwhelmed and all additional personnel will be expected to assist in the triage and treatment of patients.

Definitions:

A multiple or mass casualty incident is an emergency scene that creates a number of patients sufficient to significantly overwhelm available resources.

Multiple Casualty Incident: <9 patients (does not need to be declared)

Mass Casualty Incident: 9 or more patients (needs to be declared)

Triage: The process of sorting and categorizing patients based on the severity of their symptoms. Patients will be categorized into the four following groups. Each group has a color designation to assist in the rapid sorting of triaged patients.

- Red (Immediate) Critically injured patients who must be transported as soon as resources allow.
- Yellow (Delayed) Severely injured patients who must be evaluated and treated but may not need immediate treatment.
- Green (Minor) Those patients who need minor treatment or prophylactic evaluation.
- Black (Deceased) Patients who are or will be deceased before appropriate treatment would be available.

Procedure:

Patients will be triaged according to START and JumpSTART triage criteria during every MCI. During primary triage, providers should spend no more than 30 seconds with each patient. Only after all patients have been triaged and staged per Command, may patients be treated on the scene. ALS providers should consider providing care at a BLS level in order to give care to as many patients as possible.

START Triage should be used for all adult patients

- 1. Walking wounded should be encouraged to congregate in a designated location under their own power and triaged in the **GREEN** (minor) category.
- 2. Patients with no respiratory effort should be triaged in the **BLACK** (deceased) category following an attempt to open the airway.
- 3. Patients with difficulty in respirations, perfusion or mental status as specified below should be triaged in the **RED** (immediate) category.
 - Respirations >30/min
 - Perfusion No radial pulse or capillary refill times >2 seconds
 - Mental Status Unable to follow simple commands
- 4. All patients who cannot walk, have respiratory effort, and do not meet criteria for the **RED** category should be triaged to the **YELLOW** (delayed) category.



JumpSTART Triage should be used for all pediatric patients (≤14 years old)

- Walking wounded should be encouraged to congregate in a designated location under their own power and triaged in the GREEN (minor) category.
- 2. Patients with no respiratory effort or peripheral pulse should be triaged in the **BLACK** (deceased) category.
- 3. Patients with difficulty in respirations, perfusion or mental status as specified below should be triaged in the **RED** (immediate) category.
 - Respirations >45/min or <15/min</p>
 - Perfusion No peripheral pulse or capillary refill times >2 seconds
 - Mental Status unresponsive or responsive to painful stimulus
- 4. Patients with a peripheral pulse but without respiratory effort should receive 5 ventilations then categorized as **RED** (immediate) if respiratory effort resumes or **BLACK** (deceased) if apnea continues.
- 5. All patients who cannot walk, have respiratory effort, and do not meet criteria for the **RED** category should be triaged to the **YELLOW** (delayed) category.



Background:

The physical and mental demands associated with emergency operations coupled with the environmental dangers of extreme heat and humidity or extreme cold with wind chill conditions creates an adverse working environment. Members who are not provided adequate rest and hydration during emergency operations and training exercises are at increased risk for illness or injury, and may jeopardize the safety and integrity of the operation. Rehabilitation is an essential element for any incident to prevent more serious conditions such as heat stroke from occurring.

Guidelines:

This protocolguideline applies to all emergency operations and training exercises where strenuous physical activity or exposure to heat or cold exists. Members will be sent to the rehab area after:

- > 1 SCBA bottle and/or 45 minutes of strenuous activity
- SCBA failure
- Signs and symptoms of fatigue
 - o Weakness
 - o Dizziness
 - \circ Syncope
 - Chest pain
 - Shortness of breath
 - Altered mental status
 - o Nausea/Vomiting
 - Muscle Cramps
- Any chief complaint
- Discretion of the Incident Commander

Evaluation:

After the initial evaluation, members will be reassessed after 20 minute rest periods. If vital signs have not returned to normal after two 20 minute rest periods, the member should be transported to the closest appropriate facility. Have the member remove all protective gear and assess the following.

- GCS and mental status
- > Pupil response
- Skin condition
- > Temperature
- Lung sounds
- Vital signs
 - Blood pressure
 - Heart rate
 - o Respiratory rate
 - Pulse Oximeter
 - o Carbon Monoxide Oximeter
 - Blood glucose level

Critical Vital Signs:

Members may not be returned to incident operations unless vital signs return to normal ranges.

- \blacktriangleright GCS = 15, Alert and Oriented to person/place/time/event.
- Temperature <100.6 F</p>
- Heart Rate <120</p>
- ➢ SpO2 >95%
- > SpCO <5%
- \blacktriangleright BP >100 or <160 (systolic)
- > No medical complaints or signs/symptoms.

Treatment:

- 1. 20 minute rest period
- 2. Cooling
 - a. Remove from environment.
 - b. Air conditioning or shaded area.
 - c. Submerge forearms in cool water
 - d. Rinse with cool water.
- 3. Oral rehydration 1-2 quarts
 - a. Water
 - b. Electrolyte solution (Gatorade/Powerade)
 - c. 50/50 mixture of water with electrolyte solution
 - d. NO alcohol, caffeine or carbonated beverages
- 4. Oxygen as needed.
- 5. Additional 20 minute rest period.
- 6. Follow appropriate protocolsguidelines as needed for additional medical complaints.

ADVANCED LIFE SUPPORT PROVIDERS

- 1. If vital signs have not returned to normal ranges, establish an **IV** and transport to the closest appropriate facility.
- 2. Administer Normal Saline Boluses:

<u>Adult</u>	<u>Pediatric</u>
250 ml as needed to maintain or restore perfusion. Maximum total of 2000 ml.	Not applicable

Organophosphate, Pesticide and Nerve Agent Poisoning

Organophosphate and Carbamate Poisoning

Organophosphates and carbamates are widely used commercially and by consumers as insecticides for pets, homes, and businesses. These chemicals are among the most toxic currently used in pesticides. Both classes of compounds have similar pharmacological actions, in that they both inhibit the effects of acetylcholinesterase, which is an enzyme that degrades acetylcholine at nerve terminals. When acetylcholinesterase is inhibited, acetylcholine accumulates at the synapses, resulting in the characteristic S/S of organophosphate and carbamate poisoning.

Examples of Organophosphates and Carbamates:

Malathion / Parathion / TEPP / OMPA / Dipterex / Chlorthion / Di-Syston / Co-ral / Phosdrin/ Methylparathion / Systex / EPN / Diazinon / Guthion / Trithion.

The antidotes kits are to be used in incidents of exposure to a nerve agent or organophosphate material. Auto-injectors contain Atropine Sulfate, and Pralidoxime Chloride. Specific criteria will trigger this Medical ProtocolGuideline.

- > The decision to utilize the antidote should be done with Medical Direction
- Use of the antidote kit is to be based on signs and symptoms of the patient. Suspicion or the simple presence of a nerve agent is not sufficient reason to administer these medications.
- > Use of antidotes will not protect responders from anticipated exposures.

Symptoms of a Nerve Agent Poisoning

When a nerve agent is present, it interferes with the normal instructions of chemical transmitters that direct the muscle or gland to return to an unstimulated, relaxed state. The action of toxic nerve agents is to over-stimulate the nerve endings and central nervous system. Overstimulation of the nervous system causes muscles and certain glands to overreact and cause predictable symptoms. The symptoms of the poisoned patient have been characterized by an acronym:

- S salivation (excessive drooling)
- L lacrimation (tearing)
- U urination (lose control of urine)
- D defecation / diarrhea
- G GI upset (cramps)
- E emesis (vomiting)
- M muscle (twitching, spasm, "bag of worms")

+

RESPIRATION - difficulty breathing / distress (short of breath, wheezing)

+

AGITATION + CNS SIGNS - confusion, agitation, seizures, coma.

Treating the Nerve Agent Poisoned Patient

The emergent treatment for a nerve agent exposure consists of a two part antidote:

- 1. Atropine, packaged in 2 mg injectors.
- 2. 2-PAM Chloride, packaged in 600 mg injectors.

Initial Treatment

Signs/Symptoms	Atropine Dose Monitor Interval	2-Pam Dose
Severe respiratory distress, agitation, SLUDGEM	3 Auto-Injectors (6 mg) Monitor every 5 minutes	3 Auto-Injectors (1.8 grams)
Respiratory distress, SLUDGEM	2 Auto-Injectors (4 mg) Monitor every 10 minutes	1 Auto-Injector (600 mg)
Asymptomatic	Monitor for signs/symptoms every 15 minutes	None

Ongoing Treatment

Signs/Symptoms	Atropine Dose Monitor Interval	2-Pam Dose	Atropine Repeat Dosing Frequency
Severe respiratory distress, agitation, SLUDGEM	1 Auto-Injector (2 mg) Monitor every 5 minutes	Up to maximum of 3 Auto-Injectors (1.8 grams)	Atropine 3-5 minutes as needed
Mild respiratory distress, SLUDGEM, no CNS or agitation	1 Auto-Injector (2 mg) Monitor every 5- 15 minutes	Up to a maximum of 1 Auto-Injector (600 mg)	Atropine 5-10 minutes as needed
Asymptomatic	None Monitor every 15 minutes	None	Atropine 5-15 minutes as needed

Anthrax Poisoning

Anthrax is an acute infectious disease caused by the spore-forming bacterium Bacillus anthracis. The serious forms of human anthrax are inhalation, cutaneous, and intestinal. Direct person-to-person spread of anthrax is extremely unlikely, if it occurs at all. There is no need to immunize or treat contacts of persons ill with anthrax.

- No treatment for household contacts
- No treatment for friends
- No treatment for coworkers, unless they also were exposed to the same source of infection

Provide supportive patient care and decontamination as needed.

Ricin Poisoning

Ricin is a very potent protein toxin made from mash left over after processing castor beans for oil. Ricin is considered a threat as a biological weapon primarily because it is widely available; it is a category B agent/disease with a high fatality. It is water-soluble, odorless, tasteless and not inactivated by heat. Ricin inhibits protein synthesis. It is very toxic to cells. The toxin may be inhaled, ingested, or in some instances directly introduced into the body as by injection. It is not transmissible person to person. Ricin should be particularly suspected when severe pulmonary distress occurs in previously healthy individuals. Signs, symptoms and pathology manifestations of ricin toxicity vary with dose and route of exposure. Symptoms may mimic pneumonia or food poisoning depending on the route of transmission:

- > Fever
- Cough/congestion
- > Wheezing/shortness of breath
- > Nausea/vomiting/diarrhea
- Hypotension (severe cases)
- Pulmonary Edema/Failure (severe cases)

Provide supportive patient care and decontamination as needed.

SARS

The cause of this illness is a coronaviruscorona virus, and identification has been precise, thus paving the way for potential development of a diagnostic test. A vaccine remains far in the future, it at all. Early signs and symptoms are influenza-like and are followed by hypoxia, pneumonia, and occasionally acute respiratory distress requiring mechanical ventilation. A significant number of young and otherwise healthy persons have had an aggressive course ending in death. This includes the original physician working to identify this illness. Close contacts, especially healthcare workers, have developed the illness. The most alarming characteristics of this illness as it relates to emergency care are its high degree of contagiousness, its recognized spread to health care workers, and its severe degree of illness. This virus has come to infect buildings and fixtures, but the details of its contamination are not known at this time. It is also unclear if this

agent will contaminate transport units. It is also unknown how to decontaminate the patient and objects the patient comes into contact with.

Procedure:

- 1. Obtain a rapid history asking for fever, dry cough, shortness of breath, or difficulty breathing. The early symptoms of SARS may also include muscle aches, headache, and sore throat. In severe cases these patients have progressed to hypoxia, pneumonia, and severe respiratory distress.
- 2. Obtain a travel and exposure history. SARS has been identified by its aggressive clinical course, and at present, by a travel history to an endemic area. The infection is spreading, but at this time the identified high risk areas are: China, especially Hong Kong and Guangdong Province, Taiwan, Vietnam, Singapore, and Toronto, Canada. Exposures would have occurred within 10 days of the onset of symptoms.
- 3. Place a paper surgical mask on patient, explaining the need to the patient.
- 4. If the patient is in no distress, request that he/she wash hands and face with soapy water and rinse. If the patient cannot safely accomplish this, have the patient wash his/her hands with waterless hand sanitizers OR ask the patient to don a pair of clean gloves.
- 5. Limit Fire/EMS staff having direct contact with patient. If the patient is not in distress, have only one person in contact with the patient.
- 6. Fire/EMS staff with direct patient contact should don N-95 (or greater) mask, disposable fluid resistant gowns, safety goggles, and gloves.
- 7. If the patient is in severe distress and coughing, or in need of breathing treatment or intubation, more staff members will need to don protective gear. These shall not be removed until the patient interaction is complete at the Emergency Department, and these protective materials will be disposed of safely.
- 8. Administer oxygen by cannula, under the patient's surgical mask; if high flow oxygen is necessary, utilize a non-rebreather mask.
- Listen to the patient's chest. If wheezing or poor air movement, patient may need subcutaneous epinephrine. <u>DO NOT</u> administer nebulized medications because they may generate humidified air that potentially could be infectious.
- 10. Provide respiratory support as needed. If patient needs intubated, the ALS provider should don a higher level of respiratory protection such as a Self Contained Breathing Apparatus SCBA or Powered Air Purifying Respirator PAPR.
- 11. If the EMS system uses ventilators, the equipment manufacture should confirm appropriate filtration capability and airflow exhaust. It would be best to avoid the use of a ventilator, if bag-valve mask ventilation is effective.
- 12. All Respiratory Care Equipment, including oxygen masks, should be "red bagged".
- 13. Start an intravenous line only if needed immediately for IV hydration. It is better to leave this procedure to protected ED staff in a negative pressure room.

Acute Radiation Syndrome

During victim prioritization, first responders can use available radiation detection equipment to determine the presence of significant amounts of contamination on an individual. The monitoring equipment may also be used to qualitatively compare the amount of contamination on one victim to the contamination on other victims. This may aid in prioritizing victims for decontamination. At the post-decontamination monitoring point, first responders may use detection equipment to grossly assess the progress made in decontaminating victims. If operationally feasible, individuals who remain significantly contaminated following decontamination procedures should be subjected to additional decontamination. This will typically involve the victim returning to the contaminant removal/shower station for additional washing. Decontamination efforts should be reevaluated or suspended if contamination levels are not being significantly reduced. The EPA recommends that no more than two additional decontamination attempts be performed for individuals with significant contamination remaining following the first decontamination attempt. An inability to reduce the measured radiation levels to near-background levels may suggest that the remaining contamination is internal.

Although lukewarm soapy water solution is considered ideal for most radiological decontamination scenarios, its use may not be practical or even recommended in certain cases. Unless soapy water is readily available or easy to make, it may not be practical to use it as a decontaminant. The incident commander should consider using alternative decontaminants or techniques in light of operational constraints.

Following decontamination, if practical, check each victim for remaining Contamination, using appropriate meter. If considerable contamination remains on a victim, the victim should return to the shower station for additional washing; however, decontamination efforts for that individual should be reevaluated or suspended if contamination levels are not being significantly reduced. Multiple decontamination attempts are not generally recommended, since they are usually neither practical nor warranted. After decontamination, victims can be released to the clean area for drying with clean towels, redressing with clean replacement clothing or blankets, and medical evaluation. If possible, privacy and modesty should be preserved throughout the decontamination process – from undressing to redressing.

Provide supportive patient care as needed.

Pandemic Influenza

There is a continuous stream of information regarding the approaches to an outbreak of severe viral respiratory diseases, especially Pandemic Influenza. This disease outbreak would require significant operational changes in Fire and EMS operations, in conjunction with Public Health programs. There would be a variety of programs that would allow Fire and EMS providers to receive appropriate vaccination, prophylaxis, or treatment as the threat of the disease evolves. Discussion of this topic is beyond the scope of this handbook, and would be accomplished at the time of the event in conjunction with the District Public Health leaders, the Department's leadership and medical direction, and local infectious disease experts.

I. Triggers

- A. Activation of the EMS Viral Respiratory Disease, Pandemic SOPs is made by the MPD or Local Medical Control in consultation with the Public Health Officer.
- B. Communications
 - 1) 9-1-1 Operations/Dispatch
 - a. Activate "Severe Respiratory Distress (Flu Like Symptoms)" protocolguideline and advise emergency responders of positive symptom(s) patients.
 - 2) Situation Reports
 - a. The Incident Command Post (ICP) or Regional Emergency Operations Center (EOC) will provide situation reports to emergency responder agencies to distribute to stations/personnel.
 - 3) Shift Briefings All EMS agencies will provide ongoing shift briefings to include:
 - a. Status of outbreak including last 24 hour activity
 - b. Hospital status
 - c. PPE, Infection Control
 - d. Status of EMS Pandemic SOP

II. Worker Safety/Infection Control

- A. Personal Protective Equipment (PPE):
 - 1) Enhanced PPE Procedures:
 - a. All Patient Contact standard universal precautions or PPE including: gloves, NIOSH approved mask, and eye protection. http://www.cdc.gov/swineflu/masks.htm
 - b. Patients with respiratory/GI symptoms PPE outlined above, plus: disposable gown/overalls and shoe covers; cover patient with surgical face mask.
 - c. Change in response configuration to minimize personnel exposure at each call.

- d. Every job regardless of Pt. Contact PPE including: NIOSH approved mask, eye protection, regular hand washing, and cleaning of work surfaces (minimum prior to each shift/staff change)
- B. Vaccination / Antiviral Therapy:
 - Emergency Responder Points of Distribution (POD) Agency management in consultation with the County Health Department will consider/coordinate activation of the Emergency Responder PODs for appropriate vaccination/antiviral therapy.
 - 2) Staff Entry Control Process:
 - a. All EMS agencies shall establish a decontamination and health care screening site(s) to clear employees prior to entering the work site and start of each shift.
- C. Decontamination and Cleaning of Equipment/Work Areas
 - 1) Enhanced Decontamination Procedures:
 - 2) Clean off all surfaces and equipment (including glasses, BP cuff and stethoscope) using the approved bio spray or alcohol based hand cleaner.
 - 3) Dispose of all cleaning supplies in red hazardous waste bag.
 - 4) Use bio-wipes or alcohol based hand cleaner to clean hands and forearms until soap and water are available.
 - 5) Responders:
 - a. Driver Prior to Transport/Attending Technician at end of Transport/patient care:
 - i. Remove disposable gown/overalls, face mask, gloves and into hazardous waste bag and secure.
 - b. First Responders:
 - i. Place all equipment used during the call in a red hazardous waste bag until decontamination prior or enroute to next call.
 - c. Driver on arrival at receiving facility: Use new suit, gloves, face mask, and eye protection.
 - 6) Once patient has been transferred, decontaminate inside of ambulance patient care area and equipment prior to arrival at next call.

III. Patient Care and Transport (Respiratory Distress (Flu Like) Symptoms

- A. Personal Protective Equipment
 - 1) Each agency should adopt day-to-day infection control and decontamination procedures consistent with the most recent CDC and OSHA guidance:
 - a. www.osha.gov and www.cdc.gov/flu
- b. HHS Pandemic Influenza Plan, Supplement 4: Infection Control (pp 220-225) See: <u>http://www.nhtsa.gov/people/injury/ems/Pandemicl</u> <u>nfluenzaGuidelines/Task61136Web/PDFs/AppK.pd</u> f
- B. Assess Patient for Priority Symptoms:
 - 1) Chief Complaint
 - 2) Vital Signs (including check for orthostatic changes and temperature)
 - 3) Medical History Travel History
- C. Local Medical Control will advise 9-1-1 and Fire/EMS agencies which of the following Care and Transport options to use:
 - 1) Care and Transport to ED
 - a. Allow patient to achieve position of comfort
 - b. Cover patient with surgical face mask, or administer O2 via face mask, to reduce aerosolization of virus.
 - c. EKG, IV TKO (if patient is dehydrated provide fluid challenge based on shock guidelines).
 - d. Proper cooling techniques based on temperature.
 - e. Provide "Infection Control Guidance for Families".
 - f. If time allows based on patient condition-mouth and throat swabs of members within the immediate patient living/work area.
 - g. Use proper patient isolation techniques
 - i. Close off ambulance driver's compartment
 - ii. Drape patient / Isolation Pod
 - h. Early EMS Report to Local Medical Control.
 - 2) Care and No Transport
 - a. Provide a hand out explaining the demand of limited resources and decision of no transport.
 - b. Provide "Home Care and Protective Equipment for Families Packet" and explain contents and use:
 - i. Provide masks and gloves if available
 - ii. Recommend stay at home for at least seven days after illness except to seek medical care if necessary.
 - iii. If going to a medical visit, wear a mask
 - iv. When possible, stay in a separate room and use a separate bathroom
 - v. Use respiratory/cough hygiene (cover cough, clean hands)
 - vi. Care giver advice should include:
 - i. If possible, only one caregiver should have contact (caregiver should not be pregnant).

PANDEMIC INFLUENZA

,•						
	ii.	Minimize time in the room with the				
		patient, avoid face-to-face contact				
		(prevent children from coughing directly				
		into your face), try to wear a mask, and				
		thoroughly clean hands after providing				
		care.				
	iii.	Use a mask if providing nebulizer or				
		inhaler treatment.				
	iv.	Clean hands frequently, including after				
		removing a mask or handling linens.				
	V.	Clean surfaces in the patient's room				
		frequently with a household				
		disinfectant.				
	vi.	Minimize handling of used linens or				
		dishes and use hot settings to wash and				
		dry.				
	vii.	Everybody in the house should follow				
		respiratory hygiene measures.				
	viii.	For drying hands use paper towels or				
		have one designated towel per person.				
	c. Advise to c	call 9-1-1 should priority symptoms occur				
	d. Advise Ho	 Advise Home Health Care of patient condition and 				
	location fo	r in home support and care.				
	e. If time allo	ws based on patient condition-mouth and				
	throat swa	bs of members within the immediate				
	area patier	nt living/work area.				
IV.	Influenza testing may be reque	sted by SJCHD and is recommended				
	in the following situations					
	A. Persons presenting with sev	A. Persons presenting with severe respiratory illness (i.e., fever >37.8				
	[100°F] plus shortness of breath, hypoxia, or radiographic evidence					
	of pneumonia) that may be due to influenza.					
	B. Unexplained deaths in people	le less than 50 years of age that appear				
	due to severe respiratory illness, respiratory failure, or pneumonia.					
	C. Persons seen in clinic or field settings with influenza-like illness (i.e.,					
	D Consult Modical Control fo	gn and/or sole (moat).				
V	Contact with a confirmed or pro	bable case of swine influenza				
۷.	A Determine if the patient is wi	thin 7 days of illness onsot (if within 7				
	A. Determine if the patient is within / days of liness onset (if Within /					
	uays, lesting should be done). Builte appropriate infection control procedutions when obtaining					
	b. Use appropriate infection control precautions when obtaining					
	1) When collecting energinene wear a NO5 disposable gown					
	gloves and eve protection					
	2) Lise an NG5 respirat	for when doing direct natient care and in				
	2° Use an two respirator when doing direct patient care and in					

particular aerosol generating activities such as intubating, nebulizer treatments, or suctioning.

- 3) For patients with risk factors seen in outpatient clinics or field setting, collect a single nasopharyngeal specimen using a synthetic (not cotton or calcium alginate) swab, place in viral transport medium and refrigerate. After contacting the San Juan County Health Department (SJCHD) to notify them that there is a suspected case of influenza, SJCHD will assist the healthcare provider to send the sample directly to the Washington State Public Health Laboratory (WSPHL).
- 4) For persons with unexplained deaths, collect nasopharyngeal and if possible tracheal specimens using synthetic (not cotton or calcium alginate) swabs. Place in viral transport medium, refrigerate and notify SJCHD to arrange for shipping directly to WSPHL for rapid flu testing.
- VI. Contact Local Medical Control or San Juan County MPD if issues or questions arise

A. SJCMPD – Dr. Michael Sullivan 360-317-8111

This Page Intentionally Blank

Clinical Indications:

- Capnography should be used when available with all endotracheal and nasotracheal airways, those with respiratory distress or seizures.
- Capnography should be considered for use on patients treated with CPAP, Epinephrine, Narcotics and Midazolam.

Procedure:

- 1. Attach capnography sensor to a patient or endotracheal tube.
- 2. Note CO2 level and waveform changes. These should be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
- 3. The capnometer should remain in place with the airway and be monitored throughout the pre-hospital care and transport.
- 4. Any loss of CO2 detection or waveform indicates an airway problem and should be documented.
- 5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
- 6. In perfusing patient's end-tidal CO2 levels are 35-45 are considered normal.
- 7. The numerical value can aid in assessing hypoventilation (increased $EtCO_2$), or hyperventilation (decreased $EtCO_2$) in perfusing patients.
- 8. Hyperventilation shall be avoided in patients in cardiac arrest or those with head injuries without signs / symptoms of herniation.
- 9. Document the procedure and results on the medical incident report (MIR).

Normal Capnogram:



END-TIDAL CO ₂ WAVEFORM / CHANGES							
	Normal EtCO ₂	Normal perfusion					
45-0	Loss of previous waveform with EtCO ₂ near zero	 Endotracheal tube disconnected, dislodged, kinked or obstructed Loss of circulatory function 					
	Sudden increase in EtCO ₂	Return of spontaneous circulation					
	Slow rate with increased EtCO ₂	 Hypoventilation If elevated above normal levels, need for increased ventilation Partial airway obstruction 					
	Rapid rate with decreased EtCO ₂	 Effects of hyperventilation 					
	CPR Assessment	 Cardiac arrest Attempt to maintain minimum of 10 mmHg 					
	"Sharkfin" wa∨eform	AsthmaCOPD					
	Decreasing EtCO2 with loss of plateau.	 ET tube cuff leak or deflated cuff ET tube in the hypopharynx Partial obstruction 					

Certification Requirements:

Utilization of Carbon Monoxide Oximeter:

This is a noninvasive instrument used for the detection of capillary carbon monoxyhemoglobin in a patient with a pulse.

Clinical Indications:

Carbon Monoxide Oximeter should be used on patients with smoke inhalation or inhalation of other hydrocarbon exhaust. Consider use for firefighters during incident rehabilitation.

Procedure:

- Apply finger probe to patient's finger (preferably the non-dominant ring finger, or another finger with a large clean nail.
- > A reading of >12% indicates mild carbon monoxide inhalation.
- > A reading of >25% indicates severe carbon monoxide inhalation.

Special Considerations:

- > Pediatrics: Not intended for use on patients weighing less then 30 kg.
- Pregnancy: Fetal SpCO may be 10-15% higher than the maternal reading.
- Smokers: Heavy smokers may have a baseline SpCO level up to 10%.
- > A misapplied or dislodged sensor will cause inaccurate readings.
- Never use tape to secure the sensor.
- > Do not place the sensor on the thumb.
- Factors which may reduce the reliability of the reading include:
 - a) Poor peripheral circulation (blood volume, hypotension, hypothermia)
 - b) Excessive external lighting, particularly strobe/flashing lights
 - c) Excessive pulse oximeter sensor motion
 - d) Fingernail polish (may be removed with acetone pad)
 - e) Irregular heart rhythms (atrial fibrillation, SVT, etc.)
 - f) Jaundice
 - g) Placement of BP cuff on same extremity as pulse ox probe.

Certification Requirements:



Clinical Indications:

The combitube dual lumen airway should be used on unconscious patients after at least two initial attempts at endotracheal intubation have failed. It is the intent that, if tracheal intubation is unsuccessful, placement of the combitube or king airway device should be attempted.

Contraindications:

- Patients under 16 years of age
- Patients under 4 feet (Combitube SA 37 Fr)
- > Patients under 5 feet (Combitube 41 Fr)
- > Patients who are conscious or who have an intact gag reflex
- Patients with known esophageal disease (esophageal varices, alcoholics, etc.)
- > Patients who have ingested caustic substances

Procedure:

- 1. Assure a patent airway and provide hyperventilation with 100% O2 before attempting placement of the combitube.
- 2. At least two (2) attempts at endotracheal intubation should precede combitube placement.
- 3. Prepare combitube for insertion by lubricating distal end with water-soluble gel.
- 4. Maintain neck in a neutral, semi-flexed position (only if there is no chance of cervical injury).
- 5. Lift the tongue and mandible anteriorly with one hand (CAUTION: When facial trauma has resulted in sharp broken teeth or dentures, remove dentures and exercise extreme caution when passing the combitube into the mouth to prevent the cuff from tearing).
- 6. With the other hand, hold the combitube so that it curves in the same direction as the natural curvature of the pharynx. Insert the tip into the mouth and advance gently until the printed ring is aligned with the teeth. (CAUTION: DO NOT FORCE THE COMBITUBE). If the tube does not advance easily, redirect it or withdraw and reinsert).
- 7. Inflate line 1, (the blue pilot balloon leading to the pharyngeal balloon) with 100cc of air using the 140cc syringe. (This may cause the combitube to move slightly from the patient's mouth).
- 8. Inflate line 2, (the whole pilot balloon leading to the distal cuff) with approximately 15cc of air using the 20cc syringe.
- 9. Begin ventilation through the longer blue connecting tube. If auscultation of breath sound is positive and auscultation of gastric insufflation is negative, continue ventilation. (If possible, confirm by observing chest rise). Under this

usage condition, the second clear connecting tube may be used for the removal of gastric fluids with the suction catheter provided in the kit.

- 10. However, if auscultation of breath sounds is negative, and gastric insufflation is positive, immediately begin ventilation through the shorter clear connecting tube. Confirm tracheal ventilation by auscultation of breath sounds and absence of gastric insufflation
- 11. Continue to provide 100% O2 with bag-valve mask and monitor for changes in breathing or airway status.

Certification Requirements:

CONTINUOUS POSITIVE AIRWAY PRESSURE CPAP

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- The CPAP device should be applied to patients when inadequate ventilation is suspected due to pulmonary edema (CHF), COPD, pneumonia or near drowning.
- ▶ Patient is \geq 15 years of age.

Contraindications:

- Asthma.
- Respiratory Arrest / Apnea.
- Patient has a tracheotomy.
- > Active vomiting or upper GI bleeding.
- > Patient has a suspected pneumothorax or chest trauma.

Procedure:

- 1. Ensure adequate oxygen supply to ventilation device.
- 2. Explain the procedure to the patient.
- 3. Consider placement of a nasopharyngeal airway.
- 4. Place the delivery mask over the mouth and nose. Oxygen should be flowing at this point.
- 5. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.
- 6. Titrate device up to 5 cm H₂O in patients <12 years of age and 10 cm H₂O in patient's ≥12 years of age (Consider lower settings for COPD patients).
- 7. Continuously evaluate the patient's response to therapy. Assess breath sounds, oxygen saturation, and general appearance of the patient.
- Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complication. The patient must be breathing for optimal use of the CPAP device.
- 9. Administer appropriate medications as required (nebulized albuterolAlbuterol for COPD or nitroglycerin for CHF).
- 10. If the patient begins to deteriorate due to respiratory failure, remove the CPAP device, provide BVM ventilations and assess the need for advanced airway management.
- 11. Document time and response on medical incident report (MIR).

Certification Requirements:



Clinical Indications:

- Unconscious adult patient with immediate life threatening airway compromise
- Acute upper airway obstruction, which cannot be relieved using basic airway maneuvers, finger sweep, or endotracheal visualization and Magill forceps removal.
- Respiratory arrest with facial or neck injury, or abnormal anatomy, which make endotracheal intubation impossible.
- Inability to ventilate patient with a bag valve mask.

Procedure:

- 1. Expose the neck.
- 2. Identify the cricoid membrane/ligament located between the cricoid cartilage and the thyroid cartilage.
- 3. Prep the skin, if time permits.
- 4. Make a **vertical** incision through the skin over the cricothyroid membrane 2-3cm in length with sufficient depth to expose the cricothyroid membrane
- 5. **Horizontally** puncture the membrane with the scalpel to facilitate access to the trachea.
- 6. push into membrane(scissors, hemostat, etc.) and spread open airway.
- 7. Insert and maintain airway with a cuffed endotracheal tube (in most adults, a 6mm tube will suffice). Advance cuff 2cm past the opening.
- 8. Check for chest excursion and auscultate lung fields. Inflate cuff.
- 9. Reassess (visualize, palpate, auscultate, check compliance)
- 10. Confirm tube placement by required methods including waveform capnography and document.
- 11. Secure the tube and ventilate with high flow oxygen.
- 12. The MPD will review all cricothyrotomy attempts immediately.

Certification Requirements:

Clinical Indications:

- > Apnea.
- Inability to maintain a patent airway by other means.
- Need to prevent aspiration.
- Impending compromise of airway.
- Closed head injury (GCS<9) requiring assisted ventilation.</p>
- > Inability to maintain adequate oxygenation by other means.
- Patient >8 years old.

Procedure:

- 1. Determine the need for drug assisted intubation.
- 2. Pre-Oxygenate with 100% supplemental oxygen.
- NRB For patients with adequate respiratory rate/effort. BVM – For patients requiring ventilatory support.
- 4. Monitor EKG, pulse oximetry, and vital signs.
- 5. Obtain IV access.
- 6. Pre-Medication.
 - A. Administer sedative: Etomidate 0.3mg/kg IV
 - If Etomidate contraindicated, use Midazolam (Versed) 2-5 mg slow IVP. May repeat dose in increments of 2-5 mg to a maximum total of 10 mg to achieve adequate sedation.
 - B. For patients with head injuries, administer Lidocaine 100 mg IV at least 90 seconds prior to intubation attempt. (optional)
 - C. Administer paralytic: Succinylcholine 1-1.5mg/kg IV
- 7. Perform Sellick maneuver as the patient becomes more sedated.
- 8. Perform orotracheal intubation.
- 9. Confirm tube placement with ETCO₂ detector, lung sounds and symmetric chest rise.
- 10. Secure the endotracheal tube.
- 11. Administer additional sedatives and paralytics as needed (Medical Control required).
- 12. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

Clinical Indications:

- > Following unsuccessful endotracheal intubation:
 - Endotracheal intubation provides a definitive airway. Every attempt should be made to secure an airway with an endotracheal tube. Following two (2) unsuccessful attempts to place an endotracheal tube, or if it appears additional endotracheal intubation attempts would be unsuccessful, use of the King Airway should be considered.
- The King Airway may be considered the initial airway of choice in the cardiac arrest patient.

Contraindications:

- > Patients who are conscious or who have an intact gag reflex.
- > Patients under three (3) feet in height.
- Patients with known esophageal disease (varices, alcoholism, cirrhosis etc.) or ingestion of caustic substances.

Product Patient Height		Size	Color	Cuff Volume
LT-D	35 to 45 inches	2	Green	25-35 ml
LT-D	41-51 inches	2.5	Orange	30-40 ml
LT-D	4 to 5 feet	3	Yellow	45-60 ml
LT-D	5 to 6 feet	4	Red	60-80 ml
LT-D	Over 6 feet	5	Purple	70-90 ml

Size Chart:

Procedure:

- 1. Body Substance Isolation (BSI).
- 2. Attach pulse oximeter and/or EtCO₂ to monitor oxygen saturation and/or CO₂ readings.
- 3. Choose the correct KING LT-D size, based on patient height.
- 4. Test cuff inflation system by injecting the maximum volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
- Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
- 6. Pre-oxygenate patient with 100% oxygen for at least 1 minute.
- 7. Position the head. The ideal head position for insertion of the KING LT-D is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.

- 8. Hold the KING LT-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.
- 9. With the KING LT-D rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.
- 10. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
- 11. Without exerting excessive force, advance KING LT-D until proximal opening of gastric access lumen is aligned with teeth or gums.
- 12. With a syringe inflate the KING LT-D; inflate cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure employed (just seal volume).
- 13. Attach the BVM to the 15 mm connector of the KING LT-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
- 14. Depth markings are provided at the proximal end of the KING LT-D which refers to the distance from the distal ventilatory openings. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.
- 15. Attach ITD (unless contraindicated by the patient with spontaneous pulses) directly to the King Airway.
- 16. Attach EtCO₂ monitoring device to adaptor and follow guidelines for its use.
- 17. Confirm proper position by auscultation, chest movement and verification of EtCO₂ by capnography. **Note: Do not let go of the King Airway until secured.**
- 18. Secure the KING LT-D to patient using tape or an approved commercial device.
- 19. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

Clinical Indications:

- Non-vigorous Neonatal patients with thick meconium stained amniotic fluid.
- NOTE: If the newborn is vigorous, suction with a bulb syringe, do not intubate. If thick meconium stained amniotic fluid is present, do not stimulate the infant to breathe. Use appropriate aspiration adapter.

Procedure:

- 1. Intubate immediately with appropriate size endotracheal tube.
- 2. Connect endotracheal tube to meconium aspiration adapter and to suction.
- 3. Withdraw endotracheal tube while suctioning.
- 4. If the endotracheal tube is filled with meconium, re-intubate with a new endotracheal tube and suction again until clear.
- 5. Resume Neonatal Resuscitation protocolguideline.
- 6. If intubating and suctioning takes longer than 90 seconds or heart rate <80, initiate BVM with oxygen therapy.
- 7. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

NASOTRACHEAL INTUBATION

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- CNS trauma.
- Rigidity or hypoxia from seizures (e.g. "clenched teeth").
- > Poisonings.
- Metabolic disturbance.
- > Patients with severe respiratory distress.

Contraindications:

- > Non-breathing or near apneic patient.
- > Known or likely fracture/instability of mid-face secondary to trauma.
- Suspected basilar skull fracture.
- Children <15 years of age.</p>
- Relative contraindications:
 - Blood clotting abnormalities.
 - Nasal Polyps.
 - Upper neck hematomas or infections.

Procedure:

- 1. Prepare, position and oxygenate the patient with 100% Oxygen.
- 2. Choose proper ET tube about 1 mm less than for oral intubation.
- 3. For patients with suspected intracranial pressure, administer Lidocaine 1 mg/kg IV/IO.
- 4. Lubricate ET tube generously with water-soluble lubricant such as Lidocaine Jelly.
- 5. Pass the tube in the largest nostril with the beveled edge against the nasal septum and perpendicular to the facial plate.
- 6. Use forward and lateral back and forth rotational motion to advance the tube. **Never force the tube**.
- 7. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist you.
- 8. Apply firm, gentle cricoid pressure and advance the tube quickly past the vocal cords during inspiration.
- 9. Inflate the cuff with 5-10 cc of air and secure the tube to the patient's face.
- 10. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag valve mask.
- 11. Check placement by EtCO₂ monitor and record readings at the scene, enroute to the hospital, and at the hospital.
- 12. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.



13. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

<u>NEEDLE</u> THORACOSTOMY

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Patients with hypotension (SBP <90), clinical signs of shock, and at least one or more of the following signs:
 - Jugular vein distention.
 - Tracheal deviation away from the side of the injury (often a late sign and difficult to see).
 - Absent or decreased breath sounds on the affected side.
 - Hyper-resonance to percussion on the affected side.
 - o Increased resistance when ventilating a patient.
- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Procedure:

- 1. Don personal protective equipment (gloves, eye protection, etc.).
- 2. Administer high flow oxygen.
- 3. Identify and prep the site:
 - Locate the second intercostals space in the mid-clavicular line on the same side as the pneumothorax.
 - Prepare the site with alcohol or betadine solution. NOTE: If unable to place anteriorly, lateral placement may be used at the fourth ICS midaxillary line.
- 4. Insert the catheter into the skin over the third rib and direct it just over the top of the rib (superior border) into the pleura space.
- 5. Advance the catheter through the parietal pleura until a "pop" is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
- 6. Remove the needle, leaving the plastic catheter in place.
- 7. Secure the catheter hub to the chest wall with dressings and tape.
- Consider placing a finger cut from an exam glove over the catheter hub. Cut a small hole in the end of the finger to make a flutter valve. Secure the glove finger with tape or a rubber band. NOTE: do not waste time preparing the flutter valve; if necessary control the air flow through the catheter hub with your gloved thumb.

Certification Requirements:



OROGASTRIC TUBE INSERTION

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

> Gastric decompression in intubated patients.

Contraindications:

- Suspected or known esophageal varices.
- Penetrating neck trauma.

Procedure:

- 1. Determine the correct size of orogastric tube.
 - Pediatric Refer to Broslow tape (8f, 12f or 14f).
 - Adult -16f or 18f.
- 2. Estimate insertion length by placing the tube over the body from the mouth to the stomach and mark the distance with tape.
- 3. Lubricate the distal end of the tube and pass the tube past the tongue into the patient's orophyarnx.
- 4. Continue to advance the tube gently until the appropriate distance is reached.
- Confirm placement by injecting 5-20cc of air and auscultate for the swish or bubbling of the air over the stomach and lungs. Do not administer medications through the tube.
- 6. Secure the tube.
- 7. Decompress the stomach of contents by connecting the tube to suction and provide continuous low suction at 80-100 mmHg (Pediatric), 150 mmHg (Adult) or manually aspirate with the large catheter tip syringe.
- 8. Document the procedure, time, and result on the medical incident report (MIR).

Certification Requirements:



OROTRACHEAL INTUBATION

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Cardiac arrest.
- Respiratory arrest.
- Hypoxic or obtunded patients.
- Patients with possible increasing ICP.

Contraindications:

- Presence of gag reflex.
- Clinched teeth.



Procedure:

- 1. Prepare, position and oxygenate the patient with 100% Oxygen.
- 2. Select proper endotracheal tube (and stylette, if used), have suction ready.
 - Pediatric Refer to Broslow tape.
- 3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver to assist you).
- 4. Limit each intubation attempt to 30 seconds with BVM between attempts.
- 5. Visualize tube passing through vocal cords.
- 6. Inflate the cuff with 5-10 cc of air and secure the tube to the patient's face.
- 7. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag valve mask.
- 8. Consider using an alternate airway device if endotracheal intubation efforts are unsuccessful.
- 9. Apply EtCO₂ monitor and record readings on scene, enroute to the hospital, and at the hospital.
- 10. Document endotracheal tube size, time, results, and placement location by the centimeter marks either at the patient's teeth or lips on the medical incident report (MIR). Document all devices used to confirm initial tube placement.
- 11. Consider placing an orogastric tube to clear stomach contents after the airway is secured with an ET tube.
- 12. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

ENDOTRACHEAL TUBE INTRODUCER BOUGIE

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Difficult intubation with a restricted view of the glottic opening. This may occur due to:
 - Short, thick (bull) neck.
 - Pregnancy.
 - Laryngeal edema (anaphylaxis, burns).
 - Normal anatomical variation.
 - Supra-glottic neoplasms (tumors above the glottic opening).
 - Inability to position patient appropriately (e.g. entrapment, confined space).



Pediatric patients under the age of 14.



Procedure:

- 1. Hyperventilate the patient with 100% oxygen for at least one minute prior to each intubation attempt. Note, however, that this step should be omitted when ventilation (demonstrated by rise and fall of the chest) proves impossible.
- 2. Prepare the ET tube and other intubation equipment (minimum 6.0 mm ET tube).
- 3. Curve the bougie and ensure the distal tip is formed into a "J" shape;
- 4. Perform a laryngoscopy, obtaining the best possible view of the glottic opening.
- 5. Advance the bougie, continually observing its distal tip, with the concavity facing anteriorly;
- 6. Visualize the tip of the bougie passing the vocal cords.
- 7. Once the tip of the bougie has passed the epiglottis, continue to advance it in the mid-line so that it passes behind the epiglottis but in an anterior direction.
- 8. As the tip of the bougie enters the glottic opening you will either feel 'clicks' as it passes over the tracheal rings or the tip will arrest against the wall of the airways ('hold-up'). This suggests correct insertion, although cannot be relied upon to indicate correct positioning with 100% accuracy. HOWEVER, FAILURE TO ELICIT CLICKS OR HOLD-UP IS INDICATIVE OF ESOPHAGEAL PLACEMENT. If hold-up is felt, the bougie should then be withdrawn approximately 5 cm to avoid the ET tube impacting against the carina.
- 9. Hold the bougie firmly in place and **MAINTAIN LARYNGOSCOPY**.
 - Instruct your colleague to pass the endotracheal tube over the proximal end of the bougie.

- As the proximal tip of the bougie is re-exposed, the assistant should carefully grasp it, assuming control of the bougie and passing control of the ET tube to the intubator.
- The ET tube should then be carefully advanced ('rail-roaded') along the bougie and hence through the glottic opening, taking care to avoid movement of the bougie.
- SUCCESSFUL INTUBATION MAY BE CONSIDERABLY ENHANCED BY ROTATING THE ET TUBE 90°, SO THAT THE BEVEL FACES POSTERIORLY. In so doing the bougie may also rotate along the same plane but should not be allowed to move up or down the trachea.
- 10. Once the ET tube is fully in place hold it securely as your colleague withdraws the bougie.
- 11. Withdraw the laryngoscope.
- 12. Inflate the cuff. Then verify correct positioning of the ET tube using auscultation of the lung fields and epigastrium and observing for chest wall movement.
- 13. Secure the ET tube. The tip of the ET tube can move up to 6.0 cm once placed and this is certainly sufficient to dislodge it from the trachea.
- 14. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

Background:

Pulse Oximeters are noninvasive instruments used for the detection of arterial oxyhemoglobin. Each hemoglobin (Hgb) molecule can carry up to 4 oxygen molecules. A Hgb molecule carrying 4 oxygen molecules is "fully saturated." A Hgb molecule carrying less than 4 oxygen molecules is "unsaturated." Pulse oximetry measures the concentration of bound Hgb. It does not measure oxygen concentration.

Clinical Indications:

- Include SpO2 as a vital sign.
- All patients who require oxygen.
- All patients requiring EKG monitoring.
- All patients with respiratory, cardiovascular or neurological complaints.
- All patients with abnormal vital signs.
- All patients who receive respiratory depressants (Morphine, Diazepam, Midazolam).
- Critical trauma patients.

Procedure:

- 1. Apply probe to index finger or thumb.
- 2. A normal SpO2 on room air is 96-100%.
- 3. Moderate hypoxemia is characterized by values <90%.
- 4. Severe hypoxemia is characterized by values <80%.
- 5. Document the results on the medical incident report (MIR).

Special Considerations:

The following circumstances may result in low/absent SpO2 readings:

- Motion at the sensor site.
- Hypoperfusion
- Cold temperature.
- Edema.
- Anemia.
- Carbon monoxide poisoning.
- Methemoglobinemia.

Certification Requirements:

Clinical Indications:

Persons with suspected or known exposure to carbon monoxide.

Procedure:

1. Apply probe to patient's ring finger or any other digit as recommended by the device manufacturer. If near strobe lights, cover the finger to avoid interference and/or move away from lights if possible.

2. Allow machine to register percent circulating carboxyhemoglobin.

3. Record "CarboxyHb" (SpCO) procedure in call report or on the fire scene rehabilitation form.

4. Verify pulse rate on machine with actual pulse of the patient.

5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.

6. Document percent of carboxyhemoglobin every time vital signs are recorded and in response to therapy to correct CO exposure.

7. Use the pulse oximetry feature of the device as an added tool for patient evaluation. Treat the patient, not the data provided by the device.

8. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.

9. Factors which may reduce the reliability of the reading include:

- (a) Poor peripheral circulation (blood volume, hypotension, hypothermia)
- (b) Excessive external lighting, particularly strobe/flashing lights
- (c) Excessive pulse oximeter sensor motion
- (d) Fingernail polish (may be removed with acetone pad)
- (e) Irregular heart rhythms (atrial fibrillation, SVT, etc.)
- (f) Jaundice
- (g) Placement of BP cuff on same extremity as pulse ox probe.

Certification Requirements:

Background:

Tracheostomy patients with an In-Dwelling Tube or Stoma.

- Most patients with a permanent tracheostomy (with tube or stoma) can adequately breathe through the opening.
- Some of these patients have complete surgical reconstruction of the airway and breathe only through the tube or stoma, while other patients may have the opening to the mouth and can breathe through the tracheostomy tube, stoma, nose, or mouth.
- If air escaping is felt or heard at the nose or mouth when ventilating a partial neck breather, the nose and mouth must be sealed (pinching the nose closed and closing the mouth using a jaw lift) prior to ventilating the patient.
- Tracheostomy patients requiring ventilatory assistance require specialized techniques be employed in order to be properly ventilated.
 - EMS personnel must identify the tracheostomy site and tube (if present).
 - Check the tracheostomy tube or stoma for any blockage.
 - Look, listen, and feel for breathing at the tube or stoma site.
 - Assess for breathing and adequacy of respirations.

Clinical Indications:

- Respiratory arrest.
- Cardiac arrest.
- > Hypoventilation.
- > Severe respiratory distress due to an obstructed tracheostomy tube.

Procedures:

If a tracheostomy tube has the standard 15 mm adapter and the patient can be ventilated through the tube:

- 1. Attach a BVM to the adapter.
- 2. Ventilate with a bag-valve mask and 100% oxygen.
- 3. Assess for adequacy of ventilations and check for leaks.
- 4. If the tube is cuffed, inflate the cuff until there is no air leak.

If the patient cannot be ventilated through the tube:

- 1. Visually inspect the tube and tracheostomy for any obstructing material and remove if possible.
- 2. Attempt to ventilate with 2 breaths.
- 3. If successful, continue to ventilate as required.

If there is no obvious obstructing material and the patient cannot be ventilated:

- 1. Suction the airway and attempt to ventilate with 2 breaths.
- 2. If successful, continue to ventilate as required.

If the patient still cannot be ventilated: BLS Providers should:

- 1. Remove the tube carefully.
- 2. Suction the stoma.
- 3. Place a pediatric sized mask over the stoma site.
- 4. Ventilate with a bag-valve mask and 100% oxygen.
- 5. Load and go should be initiated as soon as possible.
- 6. On scene times should be kept to a minimum.
- 7. Treat other life-threatening conditions en route.
- 8. Transport the patient to the nearest appropriate health care facility.
- 9. Notify the receiving health care facility of the patient's status as soon as possible.
- 10. Monitor and treat the patient en route.

ALS Providers should:

- 1. Remove the tube carefully.
- 2. Place a pediatric mask over the stoma site.
- 3. Ventilate with a bag-valve mask and 100% oxygen.
- 4. Choose the appropriate sized endotracheal tube.
- 5. Insert the tube into the stoma until the cuff is just inside the stoma (cuffed tubes only).
- 6. Inflate the cuff and check for air leaks.
- 7. Ventilate the patient checking for chest rise and fall.
- 8. Auscultate lung sounds for equal bilateral breath sounds and no sounds over the epigastrium.

If a tracheostomy tube is not present (i.e. a stoma):

- 1. Place a pediatric mask over the stoma site.
- 2. Ventilate with an appropriately sized bag-valve mask and 100% oxygen.
- 3. Suctioning can be done through the tracheostomy tube or stoma.
- 4. Care must be taken to insert the suction catheter no more than 5 cm (2 inches) beyond the lower edge of the opening.

Certification Requirements:

Clinical Indications:

- > Patients in cardiac arrest (pulseless, apneic).
- Age 1 to 8 years, use reduced energy Pediatric Pads.

Contraindications:

- Traumatic cardiac arrest.
- > Patients with a fully obstructed airway.
- Hazardous environments.



Procedure:

- 1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
- 2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
- 3. Remove any medication patches on the chest and wipe off any residue.
- 4. Activate AED for analysis of rhythm.
- 5. Stop CPR and clear the patient for rhythm analysis. Keep interruption in CPR as brief as possible.
- 6. Defibrillate if appropriate by depressing the "shock" button. Assertively state "CLEAR" and visualize that no one, including yourself, is in contact with the patient prior to defibrillation. The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
- 7. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
- 8. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
- 9. If "no shock advised" appears, perform CPR for 2 minutes and then reanalyze.
- 10. Transport and continue treatment as indicated.
- 11. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation. If a spontaneous pulse returns: See return of spontaneous circulation protocolguideline (ROSC).
- 12. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

DEFIBRILLATION MANUAL

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia.

Procedure:

- 1. Ensure chest compressions are adequate and interrupted only when necessary.
- 2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
- 3. Apply hands free pads to the patient's chest in the proper position (Anterior -Lateral or Anterior-Posterior position).
- 4. Set the appropriate energy level.
- 5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.
- 6. Hold compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.
- 7. Deliver the desired energy by depressing the shock button for hands free operation.
- Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.
- 9. Repeat the procedure every two minutes as indicated by patient response and EKG rhythm.
- 10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
- 11. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:



<u>EKG</u> 12 LEAD

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Suspected cardiac event.
- Suspected tricyclic overdose.
- Electrical injuries.
- Syncope.
- CHF.

Procedure:

- 1. Assess patient and monitor cardiac status.
- 2. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead EKG.
- 3. Prepare EKG monitor and connect patient cable with electrodes.
- 4. Expose chest and prep as necessary. Modesty of the patient should be respected.
- 5. Apply chest leads and extremity leads using the following landmarks:
 - RA -Right arm
 - ➤ LA -Left arm.
 - RL -Right leg.
 - ➤ LL -Left leg.
 - > V1 -4th intercostal space at right sternal border.
 - > V2 -4th intercostal space at left sternal border.
 - V3 -Directly between V2 and V4.
 - > V4 -5th intercostal space at midclavicular line.
 - > V5 -Level with V4 at left anterior axillary line.
 - > V6 -Level with V5 at left midaxillary line.
- 6. Instruct patient to remain still.
- 7. Press the appropriate button to acquire the 12 Lead EKG.
- 8. Interpret the EKG and if STEMI is suspected, transmit the EKG to an interventional cardiology facility/Medical Control per ACS Protocol if possible.
- 9. Document the procedure, time, and interpretation on the medical incident report (MIR).



Wall affected	Leads	Artery(s) involved	Reciprocal changes
Anterior	$V_2 - V_4$	Left coronary artery, Left anterior descending (LAD)	II, III, AVF
Anterolateral	I, AVL, V ₃ – V ₆	Left anterior descending (LAD) and diagonal branches, circumflex and marginal branches	II, III, AVF
Anteroseptal	$V_1 - V_4$	Left anterior descending (LAD)	
Inferior	II, III, AVF	Right coronary artery (RCA)	I, AVL
Lateral	I, AVL, V ₅ , V ₆	Circumflex branch or left coronary artery	II, III, AVF
Posterior	V ₈ , V ₉	Right coronary artery (RCA) or circumflex artery	$V_1 - V_4$ ST segment depression (R > S in V_1 and V_2).
Right ventricular	V ₄ R	Right coronary artery (RCA)	

Certification Requirements:

Clinical Indications:

- The Impedance Threshold Device (ITD) should be utilized to assist with control of ventilatory rate and improve cardiac preload for patients who are receiving CPR.
- > It may be utilized with an endotracheal tube or with a BVM.
- > Patient's ≥12 years of age.

Contraindications:

- The ITD should not be utilized for patients who have spontaneous respirations. It should be removed from the endotracheal tube or BVM once spontaneous respirations and/or circulation have returned.
- > Traumatic cardiac arrest.

Procedure:

- 1. Ensure that the airway is open and assisted ventilations are adequate.
- 2. Place the ITD between the BVM and the EtCO₂ detector for intubated patients or between the bag and mask for patients ventilated with the BVM only.
- 3. Flip the red switch to the "on" position so that the respiratory timing lights flash.
- 4. Provide a rapid breath after each flash of the LED timing lights.
- 5. Perform chest compression per the CPR guidelines.
- 6. Once there is return of spontaneous circulation and the EtCO2 climbs above 40, *remove the ITD*. Allow the EtCO₂ value to control your respiratory rate (ventilate faster if $EtCO_2 > 50$, ventilate slower if $EtCO_2 < 30$). The ITD should be immediately removed if the patient has spontaneous respirations.
- 7. Carefully monitor the placement of the endotracheal tube after movement of the patient, placement of the ITD, and/or removal of the ITD.
- 8. Document the procedure and results on the medical incident report (MIR).

Certification Requirements:

SYNCHRONIZED CARDIOVERSION

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia or ventricular tachycardia).
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e. defibrillation).



Procedure:

- 1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
- 2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.
- 3. Consider the use of pain or sedating medications.
- 4. Set energy selection to the appropriate setting.
- 5. Set monitor/defibrillator to synchronized cardioversion mode.
- 6. Make certain all personnel are clear of patient.
- 7. Press and hold the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/defibrillator several cardiac cycles to "synchronize", so there may a delay between activating the cardioversion and the actual delivery of energy.
- 8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.
- 9. If the patient's condition is unchanged, repeat steps 4 to 8 above, using escalating energy settings.
- 10. Document the procedure, response, and time on the medical incident report (MIR).

Certification Requirements:

TRANSCUTANEOUS CARDIAC PACING (TCP)

ADVANCED LIFE SUPPORT PROVIDERS

Clinical Indications:

- Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
 - Chest pain
 - Hypotension
 - Pulmonary edema
 - AMS, disorientation, confusion, etc.
 - Ventricular ectopy.
- Witnessed Asystole, pacing must be done early to be effective.



- 1. Attach standard four-lead monitor.
- 2. Apply defibrillation/pacing pads:
 - Anterior / Posterior: Anterior electrode on left precordium below the left nipple. Avoid placing on the nipple. Posterior electrode below left scapula, lateral to spine at heart level.
 - Anterior / Lateral: Lateral (apex) electrode lateral to left nipple with the center of the electrode on the midaxillary line. Anterior electrode below the right clavicle lateral to sternum.
- 3. Press pacer button and observe for sensor markers on each QRS complex.
- 4. Press rate or slowly rotate selector knob and adjust rate to 80 BPM for an adult and 100 BPM for pediatric.
- 5. Press current or slowly rotate selector knob until capture is obtained.
- 6. Slowly increase output until capture of electrical rhythm on the monitor.
- 7. If unable to capture while at maximum current output, stop pacing immediately.
- 8. If capture observed on monitor, check for corresponding pulses and assess vital signs, skin color and capillary refill for improved perfusion.
- 9. Consider the use of sedation or analgesia if patient is uncomfortable.
- 10. Document the dysrhythmia and the response to external pacing with EKG strips on the medical incident report (MIR).

Certification Requirements:


This Page Intentionally Blank

Clinical Indications:

Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.).

Procedure:

- 1. Gather and prepare equipment.
- 2. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access when possible.
- 3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
- 4. Time the analysis as instructed by the manufacturer.
- 5. Document the glucometer reading and treat the patient as indicated by the analysis and protocolguideline.
- 6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocolguideline.
- 7. If after dextrose administration the glucose level is substantially low per a reading in a cool digit, utilize a more centrally located alternate site for testing.
- 8. Perform Quality Assurance on glucometers at least once every 7 days, if any clinically suspicious readings, and/or as recommended by the manufacturer and document in log.

Certification Requirements:

Clinical Indications:

> Access of an existing venous catheter for medication or fluid administration.

Procedure:

- 1. Clean the port of the catheter with an alcohol wipe.
- 2. Using 5cc of normal saline, access the port with sterile technique and gently attempt to flush the saline.
- 3. If there is no resistance, no evidence of infiltration (e.g., no subcutaneous collection of fluid), and no pain experienced by the patient; then proceed to step 4. If there is resistance, evidence of infiltration, pain experienced by the patient, or any concern that the catheter may be clotted or dislodged, do not use the catheter.
- 4. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
- 5. Record procedure, any complications, and fluids / medications administered on the medical incident report (MIR).

Certification Requirements:

Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient >8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

Procedure:

- 1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
- 2. Turn the patient's head toward the opposite side if no risk of cervical injury exists.
- 3. Prep the site with alcohol.
- 4. Apply pressure to the vein lightly with one finger above the clavicle to allow the vein to engorge.
- 5. Align the catheter with the vein and aim toward the same side shoulder.
- 6. Puncture the vein midway between the angle of the jaw and the clavicle and consulate the vein in the usual method.
- 7. Attach the IV tubing or saline lock and secure the catheter with taping and/or dressing.
- 8. Document the procedure, time, and result (success) on the medical incident report (MIR).

Certification Requirements:

Clinical Indications:

- Patients where peripheral IV access is unobtainable with any of the following:
 - Cardiac arrest.
 - Single or Multi-system trauma with severe hypovolemia.
 - Any unconscious or seriously ill patient requiring immediate medication therapy or fluid replenishment.
 - Respiratory failure / Respiratory arrest.

Contraindications:

- > Fracture proximal to proposed intraosseous site.
- History of Osteogenesis Imperfecta.
- Current or prior infection at proposed intraosseous site.
- Previous intraosseous insertion or joint replacement at the selected site.

Procedure:

- 1. Locate landmarks.
 - > Adult ≥40 kg (AD or LD Needle)
 - Proximal Tibia The insertion point is 2 fingerbreadths below the patella, 1-2 cm medial of the tibial tuberosity.
 - Distal Tibia Identify the major structures of the lower leg, the distal tibia (anterior or most forward lower leg bone) and the medial malleolus (medial ankle bone or protrusion). The insertion point is two finger widths proximal to the medial malleolus and midline on the tibia.
 - Proximal Humeral Palpate and identify the mid-shaft humerus and continue palpating toward the proximal aspect or humeral head. As you near the shoulder you will note a protrusion. This is the base of the greater tubercle insertion site.
 - Pediatric 3-39 kg (PD Needle)
 - Proximal Tibia 1 cm distal to tibial tuberosity and then medial along the flat aspect. Gently guide the driver, do not push. If NO tuberosity is present the insertion is located two finger widths below the patella and then medial along the flat aspect of the tibia. Carefully feel for the "give" indicating penetration into the medullary space.
 - Distal Tibia Identify the major structures of the lower leg, the distal tibia (anterior or most forward lower leg bone) and the medial malleolus (medial ankle bone or protrusion). The insertion point is one finger width proximal to the medial malleolus for pts less than 12 kg. As the patient reaches the 39 kg mark, the insertions point is two finger widths from the medial malleolus.







- Proximal Humeral Palpate and identify the mid-shaft humerus and continue palpating toward the proximal aspect or humeral head. As you near the shoulder you will note a protrusion. This is the base of the greater tubercle insertion site. The greater tubercle may be difficult to palpate on patients weighing less than 25 kgs.
- 2. Prepare the skin with alcohol.
- 3. Load the needle onto the driver.
- 4. Firmly stabilize the leg near (not under) the insertion site
- 5. Firmly press the needle against the site and operate the driver. Use firm, gentle pressure.
- 6. As the needle reaches the bone, stop and be sure that the 5 mm marking on the needle is visible; if it is, continue to operate the driver.
- 7. When a sudden decrease in resistance is felt and the flange of the needle rests against the skin, remove the driver and the stylette from the catheter.
- 8. Confirm placement by aspiration of bone marrow.
- Flush the EZ-IO needle. 5 ml EZ-IO PD and 10 ml EZ-IO AD (Consider IO administration of 2-4 ml 2% Lidocaine for conscious patients prior to flush).
- 10. Attach primed extension set.
- 11. If no infiltration is seen, attach the IV line and infuse fluids and/or medications as normal.
- 12. IV bag may need to be under pressure for infusion.
- 13. Secure the needle.
- 14. Document the procedure, time, and results on the medical incident report (MIR).

Certification Requirements:

Clinical Indications:

Life threatening illness or injury in a child <8 years of age or <40 kg in weight.</p>

Procedure:

- 1. Expose the lower leg.
- 2. Identify the tibial tuberosity (bony prominence below the knee cap) on the proximal tibia. The insertion location will be 1-2 cm (2 finger widths) below this and medially.
- 3. Prep the site with alcohol.
- 4. Hold the intraosseous needle perpendicular to the skin, twist the needle with a rotating grinding motion applying controlled downward force until a "pop" or "give" is felt indicating loss of resistance. Do not advance the needle any further.
- 5. Remove the stylette and attach a 10cc syringe filled with 5 cc of Normal Saline.
- 6. Attempt to extract marrow into the syringe; then inject the saline while observing for infiltration.
- 7. Stabilize and secure the needle.
- 8. Document the procedure, time, and result (success) on the medical incident report (MIR).

Certification Requirements:

Background:

The Broselow Pediatric Emergency Tape is designed to be used as a quick reference to drug dosing and equipment sizing on pediatric patients. The Broselow tape is calibrated in different colors according to different lengths. The color that corresponds to the patient's length is used. If the Broselow bag is also used, the color on the tape can be matched with the color on the pouch that contains the appropriately sized equipment and drugs.

Procedure:

- 1. Place the patient in a supine position.
- 2. Remove tape from package and unfold.
- 3. Place tape next to patient, ensuring that the multicolored side is facing up.
- 4. Place red end of tape even with the top of the patient's head.
- 5. Place the edge on one hand on the red end of the tape.
- 6. Starting from the head, run the edge of your free hand down the tape.
- 7. Stop hand even with the heel of the patient's foot (if patient is larger than tape, stop here and use appropriate adult technique).
- 8. Verbalize the color block (on edge of tape) and weight range where your free hand has stopped. If patient falls on the line, go to the next higher section.
- 9. Use color block (on edge of tape) to identify the weight range of the patient.
- 10. Use weight range to determine appropriate sized of equipment and approximate dosages for medications.

Certification Requirements:

Background:

The purpose of spinal immobilization is to effectively splint the entire body to minimize movement of the spine for patients with suspected spinal cord injuries.

Indications for Immobilization:

- Altered mental status.
- Serious multi-system trauma.
- Neck pain secondary to significant MOI (i.e., spider-webbed windshield, dash deformity, rollover, passenger space intrusion greater than 12 inches, etc).
- Any mechanism that produced a violent impact to the head, neck, chest, torso or pelvis (i.e., assault, entrapment in structural collapse, etc).
- Incidents producing sudden acceleration, deceleration or lateral bending forces to the head, neck or torso (i.e., high speed MVC, pedestrian struck, involvement in explosion).
- Ejection or fall from any motorized or human powered transportation device (i.e., scooters, skateboards, motor vehicles, motorcycles or recreational vehicles).
- Major injury that may distract patient's awareness to neck/back pain (i.e., pelvic fracture, femur fracture, extensive burns, extensive soft tissue injury, acute abdomen, significant chest injury, degloving or crush injury, etc).
- > Pain upon palpation to any part of cervical spine.
- > Neck pain to patient's range of motion.
- Inability to communicate (speech or hearing impaired, foreign language, small children).
- > Any fall that is 3 times the patient's height.
- Victim of shallow water diving incident.
- > When in doubt Immobilize!!
- > See Selective Spinal Immobilization protocolguideline.

Certification Requirements:

INDICATIONS

The Mechanical Advantage Tourniquet (MAT) is a device which is used for life threatening appendage hemorrhage that cannot be controlled with direct pressure and conventional bandaging techniques.

PROCEDURE (Apply to site after initial bandaging techniques have been completed):

- 1. Place the device on the injured appendage.
- 2. Click the device buckle into place.
- 3. Pull strap tight.
- 4. Turn to tighten.
- 5. Monitor the site.



SECURING THE MAT (AFTER APPLICATION):



- > Wind strap around turnkey stem and fold turnkey down.
- > Turn strap underneath tightened MAT (anywhere).
- > Wrap excess strap over turnkey and tuck under MAT (anywhere).

REMOVING/RESETTING THE MAT:



PROCEDURE

- 1. Push release (or lift buckle).
- 2. Reset: Push RELEASE pull strap all the way out.
- 3. Replace device

KEY POINTS

- The C-clip and belt design of the MAT provides easy application to both arm and legs.
- The MAT fits a wide appendage range-from a 4" diameter forearm to a 36"+ circumference thigh.
- The C-clip base and simple belt latch and turn-key operation provides fast, one-hand application.
- Testing has consistently produced complete application and occlusion in under 10 seconds.
- A series of tests conducted by both Army and Navy medical teams have provided 100% successful blood flow occlusion with proper application of the MAT.
- The turnkey mechanism provides for easy and safe controlled tightening of the tourniquet.
- The MAT has been designed for easy use by everyone, in all applications including everyday first aid kits emergency services, backpacking, military medicine and hospital use.
- The MAT tightening system can be released and reapplied. Two easy and fast means of releasing the MAT are provided:
 - Simply pushing the "Release" tab on the side of the MAT automatically releases the winding (usually accompanied by immediate unwinding of the mechanism).

- The buckle attachment can be simply lifted up (and off) of the attachment base.
- The MAT can be used for multiple applications. Simply reset by pushing the release tab and pulling the tightening strap all the way out (to the indicator area marked on the strap).
- The MAT has been designed and developed with the highest grade materials, components and manufacturing quality, to military-spec regulations, including integrated mechanism fail-safe redundancies.
- Make sure that the MAT is fully reset before application and follow the above procedure for applying.

FOR BIOHAZARD REASONS, REUSE OF THE MAT IS EXPRESSLY NOT RECOMMENDED

INDICATIONS

Suspected adult pelvic fractures and dislocations

PROCEDURE

1. Unfold SAM Sling with white surface facing up.

2. Place white side of SAM Sling beneath patient at level of buttocks.

3. Firmly close SAM Sling by placing black Velcro side of flap down on the black Velcro strip (fold material and center at midline).

4. Grab orange handle on outer surface of flap and release from flap by pulling upward.

5. Firmly pull both orange handles in opposite directions to tighten the SAM Sling.

6. Keep pulling free handle until you feel or hear the buckle click.

7. As soon as the buckle clicks, maintain tension and firmly press orange handle onto the black Velcro strip.

TO REMOVE SAM SLING

1. Lift orange free handle away from flap by pulling upward. Maintain tension and slowly allow SAM

Sling to loosen.

KEY POINTS

1. Of 120,000 pelvic fractures reported in the U.S. in a typical year, 21,000 were pelvic ring fractures.

2. The mortality rate of pelvic fractures is reported to be more than 25%.

3. The combination of pelvic ring fractures with other injuries increases the mortality rate.

4. Stabilizing pelvic fractures reduces blood loss.

5. Victims are often confused or unconscious making it difficult to diagnose pelvic fractures without X-rays or CT

scans. Physical examination is inaccurate approximately 90% of the time.

6. Trauma surgeons and emergency department physicians have recognized the benefits of circumferential

pelvic compression.

7. At the time of initial evaluation, the exact type of facture is usually unknown. In some cases, too little force will

not close or stabilize the fracture, in others, too much force can collapse the pelvic ring.

8. Because of the potentially devastating hemorrhage associated with pelvic fractures, standard first aid protocolguideline

has included applying some type of circumferential binder around the victim's hips.

9. Cannot be over-tightened. The force applied is safe and correct.

10. Standard size fits 95% of the population without cutting or trimming.

NOT RECOMMENDED FOR USE ON CHILDREN



Background:

The helmet removal procedure is a guideline designed in two parts. Part I is for those patients wearing a motorcycle, bicycle, or other non-football type head protective device. Part II is designed for those patients wearing a football helmet.

Non-Football Helmets

- 1. Perform a Primary Survey if possible. Also, if the situation permits, ascertain if the victim has the ability to move their extremities. If unable to perform a primary survey, go to step 2.
- 2. The in-charge rescuer should designate a trained rescuer (Rescuer II) to manually control the cervical spine. The in-charge rescuer should kneel beside the patient and remove the chin strap device. A third rescuer should prepare padding for use to keep the spine in a neutral position.
- 3. The in-charge rescuer should then take control of the cervical spine from a side position to the patient. Rescuer II should then relinquish control of the cervical spine to the in-charge rescuer.
- 4. Rescuer II should remove the helmet by spreading the sides of the helmet and removing the helmet using caution not to manipulate the cervical spine. The in-charge rescuer should be prepared to hold the head, as when the helmet is removed there will be an increase in weight.
- 5. A pad may need to be inserted under the patient's head to maintain position of the c-spine. Cervical spine control should then be maintained by rescuer II.
- 6. The in-charge rescuer should then resume the primary survey, further assessment and interventions.

Football Helmets

- 1. Perform a Primary Survey. Also, if the situation permits, ascertain if the victim has the ability to move all extremities.
- 2. If the football helmet fits and the airway is maintainable with the helmet in place, do not remove the helmet. Immobilize manually and complete the primary survey. If transportation is necessary, the cervical spine should be immobilized with the helmet and shoulder pads in place. A CID, towels, or blanket rolls may be used to immobilize the head on a back board. The face mask may be removed.
- 3. If the football helmet does not fit correctly or the airway is not maintainable with the helmet in place, then the helmet needs to be removed.
- 4. The in-charge rescuer should designate an trained rescuer (rescuer II) to manually control the cervical spine. The in-charge rescuer should kneel beside the patient and remove the chin strap, ear pads, and remove the face mask retainers. (If not already done) A third rescuer should prepare padding for use to keep the spine in a neutral position.

- 5. The in-charge rescuer should then take control of the cervical spine from a side position to the patent. Rescuer II should then relinquish control of the cervical spine to the in-charge rescuer.
- 6. Rescuer II should remove the helmet by spreading the sides of the helmet and removing it from the head without moving the cervical spine. The incharge rescuer should be prepared to hold the head, as when the helmet is removed there will be an increase in weight. Padding may need to be inserted under the patient's head to maintain neutral position. Cervical spine control should then be maintained by rescuer II.
- 7. If shoulder pads need to be removed, the helmet should be removed prior to the shoulder pads. When removing shoulder pads, remove the straps and lift on side of the pads prior to log-rolling. Then after rolling the patient on their side, finish removing the shoulder pads. A CID pad or a 1" pad may be sufficient to maintain neutral alignment of the cervical spine.
- 8. Immobilize on a long backboard using a cervical collar, straps, and a cervical immobilization device. Continue the assessment.

Certification Requirements:

Combative Patient Restraint - Adult & Pediatric:

There are many reasons why a patient may be combative – mental illness, drug/alcohol ingestion, postictal state, hypoxia, traumatic head injuries or from an unknown etiology. The priority when caring for medical patients who present with combative behavior is to identify and treat the underlying cause.

A high degree of suspicion for personal protection must be weighed and maintained. Scene safety is paramount.

Note: Prior to restraining a patient, the EMS provider must 1) assess the patient's mental status and 2) determine whether the patient presents a potential or definite life threat to themselves or others. When a patient is being transported via aero medical route, the safety of the crew and pilot must also be considered.

Patient Management:

If patient has an altered mental status:

- > Ensure adequate assistance is available to restrain the patient.
- All personnel should be instructed as to how the patient will be restrained. This will ensure the safety of the patient as well as emergency personnel.
- Restrain the patient.
- Document.
- Assess the patient continuously to prevent complications until turned over to ED personnel.

Restraint procedure:

- 1. Soft medical restraints only are secured to each extremity.
- 2. Place patient supine on a Long backboard (LBB).
- 3. Secure torso and hips to the backboard, paying careful attention for adequacy of respiratory motion and efficacy.
- 4. Both lower extremities are secured to the LBB.
- 5. Left arm is secured to the LBB beside the patient's body.
- 6. Right arm is flexed above the patient's head and secured to the LBB by the wrist.
- 7. Patient's body is secured to the LBB using straps.
- 8. Perform a complete assessment on the patient and reassess every 5 minutes.
- 9. Notify the receiving facility of transport.
- 10. Consider the use of chemical restraint (See Behavioral / Psychological Emergencies ProtocolGuideline).
- 11. The use of medication mandates continuous observation by the paramedic, to prevent respiratory arrest, insufficiency, or aspiration.

Suicidal patient who is alert and oriented as normal and refusing transport:

- 1. Attempt to convince the patient to allow transport, use family and/or friends to assist. However, family/friends may agitate the patient and need to be distanced.
- 2. Request the assistance of the San Juan County Sheriff.
- 3. All personnel should be instructed as to how the patient will be restrained. This will ensure the safety of the patient as well as emergency personnel.
- 4. Restrain the patient.
- 5. Perform a complete assessment on the patient and reassess every 5 minutes.
- 6. Notify the receiving facility of transport and ask for security personnel to be available upon arrival, if needed.

Documenting a Restraint Procedure:

- 1. Reason(s) why restraint was necessary.
- 2. Any assessment findings obtained through observation (injuries, behavior, mental status, etc.) prior to restraining.
- 3. Describe the position in which the patient was restrained.
- 4. Time the patient was restrained.
- 5. Assessment findings after the patient was restrained and during transport.
- 6. Once the patient is restrained, one EMS provider must remain with the patient at all times.

Note: Do not place or allow any restraint to impair circulation or respirations. The dignity of the patient must be considered during and after the restraining process.

Certification Requirements:

Clinical Indications:

Cardiac arrest when an endotracheal tube has been placed and venous or IO access is unobtainable.

Medications that can be administered by endotracheal route:

- Narcan
- > Atropine
- > Epinephrine
- Lidocaine
- Midazolam

Procedure:

- 1. Ensure that the correct medication, patient, dosage, time is identified.
- 2. Hyperventilate the patient with 4-5 breaths and remove BVM.
- 3. If the BVM has a supplied medication port, administer medication through the medication port and ventilate the patient.
- 4. If the BVM does not have a supplied medication port:
 - A. Hyperventilate the patient
 - B. Disconnect the BVM
 - C. Administer medication via the endotracheal tube.
 - D. Re-attach the BVM and ventilate the patient to allow the medication to reach the bronchial tree so it can be absorbed into the bloodstream
- 5. Medications administered via endotracheal route, should be administered at twice the IV dose and should be diluted with sterile normal saline to a volume of at least 10 ml for adults and 5 ml for pediatric patients

Certification Requirements:

Clinical Indications:

Patient without IV access requiring urgent medication administration (e.g., active seizure, respiratory arrest secondary to opiate overdose, hypoglycemia).

Medications that can be administered by intranasal route:

- > Narcan
- > Glucagon
- Midazolam (Versed)

Procedure:

- 1. Determine appropriate medication dose per applicable protocolguideline.
- Draw medication into syringe and carefully dispose of sharps if the medication is drawn from a vial. If medication is needle-less, attach mucosal atomizer device directly to syringe.
- 3. Gently insert the atomizer into the nare and stop once resistance is met.
- 4. Rapidly administer the medication.
- 5. If the medication is ≥1 ml, administer half of the medication in one nare and the other half in the other nare.
- 5. Document the procedure and results on the medical incident report (MIR).



Certification Requirements:



Clinical Indications:

> Patient's condition warrants medication to improve or stabilize condition.

Precautions:

- > Observe universal precautions and ensure body substance isolation (BSI).
- Be certain that the route you choose to use is appropriate for the drug; see specific protocolsguidelines or medication formulary.
- > Be certain the drug you want to administer is the one you use.
- > Check expiration dates, dosages and routes before administration.
- > Use sterile technique for drawing up medications and filling syringes.
- Rapid administration of drugs can cause untoward effects, avoid them by administering the drugs according to protocolguideline.
- Always check for extravasation, especially when administering dextrose and dopamine.

Procedures:

IV Administration (ALS)

- 1. Use appropriate needle or needle less syringe for solution.
- 2. Cleanse injection port with alcohol.
- 3. Insert needle or needle less device into injection port.
- 4. Pinch IV tubing between port and IV bag; inject medication slow or rapid as required.
- 5. Release tubing and follow medication with a 10-20 ml fluid bolus.
- 6. Record medication given, concentration of dose, amount given and time.

IO Administration (ALS)

- 1. Establish intraosseous line per protocolguideline.
- 2. Prepare medication.
- 3. Cleanse injection port with alcohol, inject medication.
- 4. Record medication given, concentration of dose, amount given and time.

IM Administration (ALS)

- 1. Use ¾ inch to 1 inch, 21-25 gauge needle.
- 2. Select site, usually deltoid or gluteal muscles.
- 3. Cleanse site with alcohol.
- 4. Eject air from syringe.
- 5. Insert needle at 90 degree angle.
- 6. Aspirate, if no blood return, inject medication.
- 7. Apply pressure to site, cover with sterile dressing.
- 8. Record medication given, concentration of dose, amount given and time.

Nebulized Administration (ALS)

- 1. Medication is measured and introduced into nebulizer.
- 2. Attach oxygen tubing to the nebulizer and adjust flow rate to 6-10 lpm.
- 3. Patient is instructed to breathe deeply and to hold a deep inspiration every 4-5 breaths.
- 4. Patient is monitored throughout procedure per protocolguideline.
- 5. Treatment is continued until all medication is administer or is discontinued due to complication in patient condition.
- 6. Record medication given, concentration of dose, amount given and time.

Certification Requirements:

This medication formulary was developed specifically to assist the EMT or Paramedic in carrying out his / her daily function as it relates to medication therapy and the standard by which all providers are trained and tested. EMS personnel must be familiar with all medications and other agents in their routine work. The following medications have been approved by the Medical Director and the Department of Health (DOH):

Acetaminophen	ALS -	BLS
Activated Charcoal	ALS -	BLS
Adenosine (Adenocard)	ALS	
Antacid (OTC Liquid)	ALS -	BLS
Albuterol Sulfate (Proventil)	ALS -	BLS
Amiodarone	ALS	
Ammonia Inhalants	ALS	
Amyl Nitrate (WMD)	ALS	
Aspirin (Acetylsalicylic Acid)	ALS	
Atropine Sulfate	ALS	
Bacitracin Ointment	ALS -	BLS
Calcium Chloride 10%	ALS	
Celox	ALS -	BLS
Cetirizine (Zyrtec)	ALS	
Clopidogrel Bisulfate (Plavix)	ALS	
Dextrose 50%, 25%, 10%	ALS	
Diazepam	ALS	
Diltiazem HCL (Cardizem)	ALS	
Diphenhydramine HCL (Benadryl)	ALS	
Dopamine (Intropin)	ALS	
Epinephrine HCL 1:1.000 / 1:10,000 (Adrenalin)	ALS	
Epinephrine Auto-Injector	ALS -	BLS
Etomidate	ALS	
Famotidine (Pepcid)	ALS	
Fentanyl	ALS	
Furosemide (Lasix)	ALS	
Glucagon HCL	ALS -	BLS
Glucose Gel (Oral)	ALS -	BLS
Haloperdiol (Haldol)	ALS	
Hydromorphone (Dilaudid)	ALS	
Hydroxocobalamin (Cyanokit)	ALS	
Ipratropium Bromide (Atrovent)	ALS	
Ketorolac Tromethamine (Toradol)	ALS	
Labatetol(Normodyne)	ALS	
Levalbuterol Tartrate (Xopenex)	ALS	
Lidocaine HCL (Xylocaine)	ALS	
Lorazepam (Ativan)	ALS	
Magnesium Sulfate	ALS	

Methylprednisone Sodium Succinate (Solu-Medrol)	ALS	
Metoprolol Tartrate (Lopressor)	ALS	
Midazolam HCL (Versed) (Controlled Substance)	ALS	
Morphine Sulfate (Controlled Substance)	ALS	
Naloxone HCL (Narcan)	ALS	
Nitroglycerin (Nitrostat)	ALS -	BLS
Nitrous Oxide Gas	ALS	
Ondansetron (Zofran)	ALS	
Oxygen	ALS -	BLS
Oxymetazoline (Afrin)	ALS	
Oxytocin (Pitocin)	ALS	
Pralidoxime Chloride / 2-pam CL (WMD)	ALS	
Promethazine (Phenergan)	ALS	
Racemic Epinephrine (Inhaled)	ALS	
Sodium Bicarbonate	ALS	
Sodium Chloride 0.9%	ALS	
Sodium Nitrate (WMD)	ALS	
Sodium Thisosulfate (WMD)	ALS	
Succinylcholine (Anectine)	ALS	
Tenecteplase (TNKase)	ALS	
Terbutaline (Brethine)	ALS	
Tetracaine HCL	ALS -	BLS
Thiamine HCL (Vitamin B ₁)	ALS	
Vasopressin	ALS	
Vecuronium (Norcuron)	ALS	
Xylocaine Jelly 2%	ALS	
Include any other medications listed in front area of guidelines that y	/ou ha	ve
added.		

Class:

Antipyretic/analgesic

Actions:

- > Inhibits prostiglandinprostaglandins in CNS to reduce fever.
- Relieves minor to medium pain without effect on platelet production

Onset of Action:

> 10-30 minutes

Duration of action:

> 3-4 hours

Indications:

- ➤ Fever
- Minor painful conditions

Contraindications:

- > Hypersensitivity
- > Hepatic failure or impairment

Precautions:

- Anemia
- Renal disease

Adverse Reactions:

Nausea/Vomiting, Rash

Adult Dosage / Route:

➢ 650-975mg PO.

Pediatric Dosage / Route:

> 15mg/kg PO/PR

Reference in ProtocolGuideline:

Class:

> Absorbent.

Actions:

Absorbs poisons in the stomach, prevents absorption by the body and enhances their elimination from the body.

Indications:

Utilized for patients who have ingested poisons or overdosed medications by mouth.

Contraindications:

- Altered Mental Status.
- > Patients that have ingested acids of alkalis.
- Patient unable to swallow.

Precautions:

Do not give the patient milk, ice cream or sherbet, as they decrease the effectiveness of the charcoal.

Adverse Reactions:

- Blackening of the stools.
- > Vomiting.

Adult Dosage / Route:

Administer 1-2 g/kg (25-50 grams).

Pediatric Dosage / Route:

Administer 1-2 g/kg (12.5-25 grams).

Class:

> Antiarrhythmic.

Actions:

Adenosine is a naturally occurring substance present in all cells that slows conduction through the AV node of the heart. Because of its rapid onset of action and short half-life, the administration of Adenosine is sometimes referred to as "chemical cardioversion".

Indications:

Paroxysmal Supraventricular Tachycardia (PSVT) refractory to common vagal maneuvers.

Contraindications:

- \succ 2nd and 3rd degree heart blocks.
- Sick sinus syndrome.
- > Hypersensitivity.
- > History of WPW or in the presence of "Delta waves".

Precautions:

- > May cause transient dysrhythmiasdysrhythmia.
- Effects antagonized by theophylline.
- > May cause bronchospasm in asthma patients.

Adverse Reactions:

- > Dyspnea.
- Nausea.
- > Headache.
- > Dizziness.

Adult Dosage / Route:

- > 6 mg rapid IV followed by a rapid 10-20 cc flush.
- If no response after initial dose in 2 minutes; administer 12 mg rapid IV push followed by a rapid 10-20 cc flush.
- > May repeat 12 mg IV once more if no response from 2^{nd} dose.

Pediatric Dosage / Route:

- > 0.1 mg/kg rapid IV, up to a maximum single dose of 6 mg.
- Repeat if needed at 0.2 mg/kg rapid IV, up to a maximum of 12 mg.

Class:

Sympathetic beta 2 agonist.

Actions:

A synthetic sympathomimetic that causes bronchodilation with very little cardiac effects. Beta 2 adrenergic.

Indications:

- Bronchial asthma.
- Bronchospasm associated with chronic bronchitis, emphysema, allergic reaction, toxic inhalation, pulmonary edema and congestive heart failure.

Contraindications:

- > Hypersensitivity.
- Uncontrolled cardiac dysrhythmias.

Precautions:

Caution should be exercised in patients with a cardiac history.

Adverse Reactions:

- > Palpitations.
- > Anxiety.
- Dizziness.
- > Headache.
- > Nervousness.
- > Arrhythmias.
- Nausea / vomiting.

Adult Dosage / Route:

- > 2.5 mg in 3 ml saline administered by nebulizer.
- > EMT-A Providers, 5 mg without order.
- > ALS Providers, 7.5 mg without order.

Pediatric Dosage / Route:

- > 2.5 mg in 3 ml saline administered by nebulizer.
- > EMT-A Providers, 5 mg without order.
- > ALS Providers, 7.5 mg without order.

Class:

> Antiarrhythmic

Actions:

> Prolongs the refractory period and action potential duration

Indications:

- Ventricular fibrillation
- Pulseless ventricular tachycardia
- > Wide complex tachycardia with a pulse (with consultation)

Contraindications:

- Known hypersensitivity
- > If lidocaineLidocaine was previously used, **Do Not** use amiodarone
- Second / third degree AV blocks

Adverse Reactions:

- > Hypotension
- Prolonged QT interval

ADULT DOSAGE PULSELESS - Ventricular Fibrillation / Ventricular Tachycardia:

- > 300 mg mixed in 20 ml normal saline IV
- (May be repeated one time at 150 mg diluted in 20 ml normal saline IV push in 3-5 minutes)

PULSE PRODUCING - Wide Complex Tachycardia: MUST CALL MEDICAL CONTROL

MEDICAL CONTROL OPTIONS

> 150 mg diluted in 20+ ml's of saline IV SLOW over 10 minutes

PEDIATRIC DOSAGE Ventricular Fibrillation and Pulseless VT

- > 5 mg / kg IV / IO mixed in 20 ml saline over 2 3 minutes
- If the rhythm converts to a perfusing rhythm, then administer 2.5 mg / kg IV / IO mixed in 20 ml saline over 2 - 3 minutes

KEY POINTS:

- Amiodarone is the preferred anti-arrhythmic medication to treat lifethreatening ventricular arrhythmias
- > Avoid excessive movement and shaking of the medication
- Do not administer concurrently with other medications that prolong QT interval.

Class:

Respiratory / Nasal irritant

Actions:

Revives a syncopal patient

Indications:

> Syncope

Contraindications:

> Hypersensitivity.

Precautions:

- Caution should be exercised in patients with bronchospasm associated with chronic bronchitis, emphysema, allergic reaction, toxic inhalation, pulmonary edema and congestive heart failure.
- > Patients with eye conditions or injuries

Adverse Reactions:

- Palpitations.
- > Anxiety.
- Dizziness.
- > Headache.
- > Nervousness.
- > Arrhythmias.
- Nausea / vomiting.

Adult Dosage / Route:

Crush capsule for patient to inhale until revived

Pediatric Dosage / Route:

> Crush capsule for patient to inhale until revived

Class:

> Antidote for cyanide poisoning.

Actions:

Forms methemoglobin which combines with cyanide forming a nontoxic compound (cyanmethemoglobin) which is excreted when sodium thiosulfate is administered.

Indications:

> Used initially in the management of cyanide toxicity.

Contraindications:

> None when used for cyanide poisoning.

Precautions:

- > Stop administration once sodium nitrate infusion is started.
- > Do not administer to patients improving on their own.
- > Oxygenation is critical in these patients.

Adverse Reactions:

- > Headache.
- > Hypotension.
- > Tachycardia.
- > Nausea/Vomiting.

Adult Dosage / Route:

Vapor inhaled every 10-20 minutes until sodium nitrate IV solution is available. Crush capsule inside oxygen mask and patient inhales vapor.

Pediatric Dosage / Route:

Same as adult dose.

Class:

> Aluminum – Magnesium Antacid (Liquid Maalox Regular Strength)

Actions:

Buffers existing gastric acid

Indications:

> Pain related to excess gastric acid, gastroesophageal reflux or esophagitis

Contraindications:

Suspect active GI Hemorrhage

Precautions:

- This product may react with other medications preventing them from being fully absorbed. Interactions with this antacid may occur with the following:
 - benzodiazepine (Valium, Xanax)
 - captopril (Capoten)
 - o steroids (prednisone, Deltasone, Medrol)
 - flecainide (Tambocor)
 - ulcer medications (Tagamet, Zantac, Pepcid, Axid)
 - o phenytoin type drugs (Dilantin, Mesantoin, Peganone, Cerebyx)
 - o iron (Feosol, ferrous sulfate, Nu-Iron)
 - ketoconazole (Nizoral)
 - phenothiazines (Thorazine, Stelazine, Compazine)
 - o quinidine (Quinidex, Quinaglute)
 - o aspirin, salicylates
 - o diabetic medicines (Diabinese, Micronase, Glucotrol)
 - o tetracycline (Sumycin, Tetracyn)
 - ticlopidine (Ticlid)
 - valproic acid (Depakote, Depakene)
 - o ciprofloxin and other quinolone antibiotics

Adverse Reactions:

> Nausea, constipation, diarrhea, or headache.

Adult Dosage / Route: 15-30ml PO

Pediatric Dosage / Route: Contact Medical Control

Class:

> Analgesic, anti-inflammatory, antipyretic, anti-platelet aggregator.

Actions:

Blocks pain impulses in the CNS, dilates peripheral vessels, reduces platelet adhesion, and reduces coronary artery vasoconstriction.

Indications:

> Chest pain or discomfort suggestive of MI or cardiac ischemia.

Contraindications:

> Hypersensitivity.

Precautions:

Any significant bleeding.

Adverse Reactions:

Gastritis, nausea and vomiting.

Adult Dosage / Route:

384 mg / 4-81 mg baby aspirin PO if not taken during the previous 24 hours.

Pediatric Dosage / Route:

> Not indicated.

Class:

> Anticholinergic / Parasympatholytic agent.

Actions:

- > Blocks acetylcholine receptors in organophosphate poisonings.
- Reverses suspected vagal tone in bradycardia, asystole, and PEA.

Indications:

- Symptomatic bradycardia.
- > Asystole.
- > Pulseless Electrical Activity with rate less than 60.
- Organophosphate poisoning.
- > WMD Nerve Agent poisoning.

Contraindications:

Use with caution in high degree blocks (2nd degree Type II and 3rd degree).

Precautions:

- > If given too slowly, can cause transient bradycardiasbradycardia.
- Use caution when administering to patients with glaucoma.

Adverse Reactions:

- > Palpitations.
- > Tachycardia.
- Dilated pupils.
- \succ Dry mouth.
- Blurred vision.

Adult Dosage / Route:

Bradycardia

0.5 mg IV/IO. Repeat once in 5 minutes if the patient remains symptomatic.

Asystole / Agonal, Pulseless Electrical Activity

1 mg IV/IO or 2 mg ET. Repeat every 3-5 minutes, up to a maximum of 3 mg IV/IO or 6 mg ET.

Organophosphate Poisoning / WMD

> 2-5 mg IV/IO/IM as an initial dose, repeat as needed.
Pediatric Dosage / Route: Bradycardia

0.02mg IV/IO, minimum dose of 0.1 mg and a maximum of 0.5 mg in a child and 1 mg in an adolescent.

Asystole / Agonal, Pulseless Electrical Activity

Not indicated.

Organophosphate Poisoning / WMD

> 0.05 mg/kg IV/IO/IM as an initial dose, repeat as needed.

ALL PROVIDER LEVELS

Class:

> Polypeptide antibiotic in a white petrolatum base (ointment).

Actions:

- Inhibits bacterial cell wall synthesis and promotes wound healing indirectly by controlling the level of infection on a wound surface.
- > May also enhance re-epithelialization of the wound.

Indications:

- Superficial wounds
- Minor partial-thickness burns

Contraindications:

> Hypersensitivity

Precautions:

> None

Adverse Reactions:

> Hypersensitivity reactions (itching, swelling, anaphylaxis)

Dosage / Route:

> Apply a thin layer onto affected skin

Class:

> Electrolyte, calcium supplement.

Actions:

- > Increases myocardial contractile force and ventricular automaticity.
- Balances hyperkalemia.
- Aids in the re-entry of calcium into muscle when given for calcium channel blocker or magnesium sulfate toxicity.

Indications:

- > Known or suspected hyperkalemic cardiac arrest (renal patient).
- Magnesium sulfate toxicity.
- Calcium channel blocker toxicity (toxicity may be caused by overdose of calcium channel blocker medications such as Nifedipine, Verapamil, etc.

Contraindications:

Digitalis toxicity (Calcium chloride worsens arrhythmias secondary to digitalis toxicity).

Precautions:

Sodium bicarbonate precipitates with Calcium chloride. Therefore, flush the IV line with 10 ml of IV fluid between administrations of these two medications.

Adverse Reactions:

- > Tissue necrosis if the IV infiltrates.
- > Bradycardia, hypotension or asystole can occur with rapid injection.

Adult Dosage / Route:

> 10 mg/kg IV/IO. Slow administration for patients with a palpable pulse.

Pediatric Dosage / Route:

> 10 mg/kg IV/IO. Slow administration for patients with a palpable pulse.

ALL PROVIDER LEVELS

Class:

Hemostatic agent (Non-pharmceutical Medical Device)

Action:

Positively charged CELOX granules cross-link with negatively charged red blood cells, forming a sticky pseudo clot that blocks blood flow. This clot sticks well to moist tissue to plug the bleeding site. CELOX does not set off the normal clotting cascade, it only clots the blood it comes directly into contact with. CELOX also does not set off a blood clotting response which would lead to clots being formed at a distance to the product.

Indications:

- Uncontrolled arterial hemorrhage not resolved by direct pressure and elevation
- > Difficult to control hemorrhage in patients taking anticoagulants

Precautions:

Deploying granule form in windy conditions may expose responders to ocular hazard

Shelf Life:

> 3 years at manufacture

Dosage Forms:

- Celox™ 15g and 35g pack of granules
- ➤ Celox[™]-A applicator
- ≻ Celox™ Gauze



Class:

Histamine H1 receptor antagonist

Actions:

> Selective inhibition of peripheral H₁ receptors

Onset of Action:

➢ 60 minutes

Duration of action:

8 to 12 hours

Indications:

- > Acute allergic response with urticaria
- Seasonal allergic rhinitis

Contraindications:

- > Known hypersensitivity
- Allergy to hydroxyzine

Precautions:

- > Patients with renal or hepatic impairment
- > Theophylline use

Adverse Reactions:

Somnolence, fatigue, dry mouth

Adult Dose / Route:

- > 12 years to 70 years: 10 mg PO
- Greater than 70 years: 5mg PO

Pediatric Dose / Route:

- > 2 years to 11 years: 5mg PO
- ➢ 6 months to 2 years: 2.5mg PO

Class:

Platelet inhibitor

Actions:

- inhibitor of platelet activation and aggregation through the irreversible binding of its active metabolite to the P2Y12 class of ADP receptors on platelets.
- Platelets exposed to clopidogrel's active metabolite are affected for the remainder of their lifespan (about 7 to 10 days). Platelet aggregation induced by agonists other than ADP is also inhibited by blocking the amplification of platelet activation by released ADP.

Onset of action:

2 hours

Duration of Action:

➤ 5 – 7 days

Indications:

Acute ST Elevation Myocardial Infarction (STEMI)

Contraindications:

- Known hypersensitivity
- Known or suspected active bleeding
- Known need for surgery within 1 week

Precautions

- > Co-administration with NSAID's or Warfarin can result in GI hemorrhage
- Co-administration with Omeprazole (Prilosec) may result in decreased effectiveness

Adverse Reactions

- Bleeding
- Thrombotic thrombocytopenic purpura (TTP)

Adult Dose / Route:

➢ 600mg PO

Class:

> Carbohydrate.

Actions:

Increases blood glucose levels.

Indications:

> Hypoglycemia.

Contraindications:

- > Suspected intracranial hemorrhage.
- > Known or suspected CVA in the absence of hypoglycemia.

Precautions:

Blood glucose measurement is preferred prior to the administration of glucose.

Adverse Reactions:

Dextrose can cause local venous irritation and tissue necrosis if infiltration occurs.

Adult Dosage / Route:

>12 years, administer 25 gm IV slow push. ALS providers may repeat once if BGA remains <70 mg/dl.</p>

Pediatric Dosage / Route (ALS only):

- > 1 month to 12 years, dilute 1:1 and administer 2 ml/kg of D25.
- > Newborn to 1 month, dilute 1:4 and administer 5 ml/kg of D10.

Class

> Benzodiazepine

Actions

- Sedative
- Anticonvulsant

Indications

- Status epilepticus
- Sedation prior to transcutaneous pacing and synchronized cardioversion in the conscious patient
- Cocaine induced acute coronary syndromes

Contraindications

- Known hypersensitivity
- > Altered mental status of unknown origin
- Head injury
- Respiratory insufficiency

Precautions

- May cause respiratory depression, respiratory effort must be continuously monitored
- Should be used with caution for hypotensive patients and patients with altered mental status
- > Diazepam potentiates alcohol or other CNS depressants

Adverse Reactions

- Respiratory depression
- > Hypotension
- Lightheadedness
- Confusion
- Slurred speech
- Amnesia

Supplied 10 mg / 2 ml prefilled syringes (Carpuject) or 10 mg Accudial rectal syringe

ADULT DOSAGE

Status Epilepticus:

2.5 mg - 5 mg slow IV (may repeated in 5 - 10 minutes one time, if seizure persists and patient systolic BP is > 90 mmHg)

Sedation Prior to Transcutaneous Pacing and Synchronized Cardioversion: 2.5 mg - 5 mg slow IV

Cocaine Induced ACS: 5 mg slow IV

PEDIATRIC DOSAGE

Status Epilepticus IV:

0.2 mg / kg slow IV (max dose 10 mg)

Status Epilepticus Rectally:

(Use Diastat – Valium gel see table below) 2 – 5 YEARS (0.5 mg/kg) 6 – 11 YEARS (0.3 mg/kg) 12 (+) YEARS (0.2mg/kg)

DIASTAT® AcuDial™ (diazepain rectal gel) Dosing Recommendations (by age and weight)								
Recommended Dose by Age 2 to 5 years / 0.5 mg/kg		Recommended 6 to 11 years	Dose by Age / 0.3 mg/kg	Recommended Dose by Age 12+ years / 0.2 mg/kg				
Weight (kg)	Dose (mg)	Weight (kg)	Dose (mg)	Weight (kg)	Dose (ing)			
6 to 10	5	10 to 16	5	14 to 25	5			
11 to 15	7.5	17 to 25	7.5	26 to 37	7.5			
16 to 20	10	26 to 33	10	38 to 50	10			
21 to 25	12.5	34 to 41	12.5	51 to 62	12.5			
26 to 30	15	42 to 50	15	63 to 75	15			
31 to 35	17.5	51 to 58	17.5	76 to 87	17.5			
36 to 44	20	59 to 74	20	88 to 111	20			

DIASTAT® AcuDial™ (diazepam rectal gel) Administration Instructions





Put person on their side where they can't fall.



Get medicine.



Get syringe. Note: Seal Pin is attached to the cap.



Push up with thumb and pull to remove cap from syringe. Be sure Seal Pin is removed with the cap.



Lubricate rectal tip with lubricating jelly.



Turn person on side facing you.



Bend upper leg forward to expose rectum.



Separate buttocks to expose rectum.



Gently insert syringe tip into rectum. Note: Rim should be snug against rectal opening.



Class:

> Antidysrhythmic/calcium channel blocker

Actions:

- Inhibits calcium movement into the cells by blocking the slow calcium channels in the cell membrane. Diltiazem is more specific for cells of the coronary and vascular smooth-muscle as well as the coronary conduction system.
- Decreases SA node automaticity and slows AV node conduction. It has a negative inotropic effect, negative chronotropic effect and decreases oxygen demand.
- Diltiazem actually terminates re-entrant arrhythmias that require AV nodal conduction for continuation.
- > Decreases pheripheral vascular resistance

Onset of Action:

IV: 2 – 10 minutes

Duration of Action:

➤ 1 – 3 hours

Indications:

- Rapid ventricular rates (>150 bpm) associated with atrial fibrillation/flutter in the absence of AV block or hemiblock
- > Rapid narrow complex SVT, unresponsive to adenosine
- \triangleright

Contraindications:

- Known sensitivity
- > Hypotension
- > Pulmonary congestion or CHF (congestive heart failure)
- Conduction disturbances such as: SSS (Sick Sinus Syndrome), AV block, or Wolff-Parkinson-White (WPW)
- Wide complex tachycardia of unknown etiology

Precautions:

- Concurrent use with midazolam may require decreased dose
- Use with caution in patients on oral or IV beta blockers bradycardia and hypotension may result
- > May precipitate with use of furosemide
- Use cautiously in elderly patients

Adverse Reactions:

- > Dysrhythmia, bradycardia, AV block
- ≻ CHF
- > Nausea and vomiting, hypotension and dizziness.
- Patients with chronic atrial fibrillation run the risk of embolization with sudden cessation of the rhythm by cardioversion. Therefore, in the symptomatic (but not unstable) patient with chronic atrial fibrillation and now with a rapid ventricular response, slowing of the rate with diltiazem is preferred so that cardioversion can be done after the patient is anticoagulated.
- Patients with rapid atrial fib who are unstable (BP < 80 and altered mental status or signs of ischemia, such as crushing substernal chest pain) should be cardioverted. If cardioversion is unsuccessful, then use diltiazem.
- The use of calcium channel blockers in patients with rapid atrial fibrillation secondary to accessory conduction pathways (WPW) can potentially accelerate conduction through the accessory pathway causing fatal dysrhythmias. This effect is primarily found with verapamil. Stable patients with rapid atrial fibrillation and short transport times (under 10 minutes) should be transported to the ED/Clinic where calcium channel blocker therapy can be initiated in a controlled environment. If the patient is already on a beta blocker and is now experiencing an episode of rapid ventricular response, check if they have taken their medication, if so, look for a cause of their tachycardia (GI bleed, AMI, etc.). If the patient has not taken their meds, there is a high probability for the cause of this episode and have a reasonable chance for a positive effect.
- If the patient is on NSAIDs (ibuprofen, aspirin, naproxen, etc.) diltiazem may cause more of a decrease in BP than usual. Administer a 250-300 ml fluid bolus
- Drug:Drug interactions: Potentiates with Beta Blocker, Lithium, Carbamazapine (tegratol), Cyclosporins

Adult Dose / Route:

Initial dose 0.25 mg/kg slow IV push (over 2 minutes) If no response, repeat in 15 min. at 0.35 mg/kg slow IV push (over 2 minutes)

Class:

Potent antihistamine.

Actions:

- > Block histamine receptor sites in allergic reactions.
- > Reverses side effects of dystonic reactions caused by phenothiazines.

Indications:

- > Anaphylaxis.
- > Allergic reactions.
- Dystonic reactions.

Contraindication:

> Hypersensitivity.

Precautions:

Use with caution in patients that are pregnant, history of asthma, or experiencing severe intoxication.

Adverse Reactions:

- > Hypotension.
- > Headache.
- > Palpitations.
- > Tachycardia.
- Sedation.
- > Drowsiness.

Adult Dosage / Route:

> 25-50 mg, slow IV/IM.

Pediatric Dosage / Route:

> 1 mg/kg, slow IV/IM up to a maximum dose 50 mg.

Class:

> Sympathomimetic.

Actions:

- At low doses (<2 mcg/kg/min), increases perfusion to kidneys and abdominal organs.
- At moderate doses (2-6 mcg/kg/min), increases force and rate of ventricular contractions (Beta 1 effects).
- At high doses (>6 mcg/kg/min), peripheral vasoconstrictor (Alpha 1 effects).

Indications:

- > Hypovolemic shock with sufficient fluid resuscitation.
- Cardiogenic shock.
- > Septic shock.
- Anaphylactic shock.

Contraindications:

- Should not be used in the management of hypovolemia until sufficient volume replacement is achieved.
- Pre-existing tachydysrhythmias.

Precautions:

- > Do not mix with Sodium Bicarbonate.
- > Continue to monitor EKG, blood pressure and heart rate.

Adverse Reactions:

- > Nervousness.
- > Headache.
- > Dysrhythmias.
- > Hypertension.
- Nausea / vomiting.

Adult Dosage / Route:

➤ 5-20 mcg/kg/min via infusion.

Pediatric Dosage / Route:

➢ 5-20 mcg/kg/min via infusion.

Class:

> Sympathomimetic.

Actions:

A potent alpha and beta stimulant that increases heart rate, cardiac contractile force, myocardial electrical activity, systemic vascular resistance, blood pressure and automaticity. Increases myocardial oxygen demand.

Indications:

- > Cardiac arrest.
- Severe anaphylaxis.
- Bronchial asthma.

Contraindications:

- > Hypertension.
- Pre-existing tachydysrhythmias with a pulse.

Precautions:

- Use with caution in patients with a history of coronary artery disease because Epinephrine may precipitate acute MI.
- Use with caution in pregnant patients.
- > Do not mix with Sodium Bicarbonate.

Adverse Reactions:

- Palpitations, anxiety, tremors
- Headache, dizziness
- Nausea / vomiting.

Adult Dosage / Route:

Cardiac Arrest

- > 1:10,000 1 mg IV/IO every 3-5 minutes for the duration on the arrest.
- > 1:1,000 2 mg in 5 cc saline ET every 3-5 minutes.

Severe Anaphylaxis

- > 1:1,000 0.3mg IM, repeat as necessary
- > 1:10,000 0.5 mg IV/IO/ET, repeat as necessary.

Asthma

➤ 1:1,000 0.3 mg SQ.

Pediatric Dosage / Route:

Cardiac Arrest

- > 1:10,000 0.01 mg/kg IV/IO every 3-5 minutes for the duration of the arrest.
- > 1:1,000 0.1 mg/kg in 5 cc saline every 3-5 minutes.

Bradycardia

- > 1:1,000 0.01 mg/kg IV/IO.
- ➤ 1:1,000 0.1 mg//kg ET.

Severe Anaphylaxis

- 1:1,000 0.01 mg/kg IM, up to a maximum of 0.3 mg, repeat as necessary (ALS).
- > 0.15 mg IM for patient's ≤ 30kg (66lbs)
- > 1:10,000 0.01 IV/IO/ET, Repeat as necessary.

Asthma / Croup

- > 1:1,000 0.01 mg/kg SQ, up to a maximum of 0.3 mg.
- > 1:1,000 0.5 ml via nebulizer, mix with 2.5 ml saline.

ALL PROVIDER LEVELS

Class:

> Sympathomimetic.

Actions:

A potent alpha and beta stimulant that increases heart rate, cardiac contractile force, myocardial electrical activity, systemic vascular resistance, blood pressure and automaticity. Increases myocardial oxygen demand.

Indications:

- Cardiac arrest.
- Severe anaphylaxis.
- Bronchial asthma.

Contraindications:

- > Hypertension.
- Pre-existing tachydysrhythmias with a pulse.

Precautions:

- Use with caution in patients with a history of coronary artery disease because Epinephrine may precipitate acute MI.
- Use with caution in pregnant patients.
- > Do not mix with Sodium Bicarbonate.

Adverse Reactions:

- Palpitations, anxiety, tremors
- Headache, dizziness
- > Nausea / vomiting.

Adult Dosage / Route:

Severe Anaphylaxis

Epi-Pen or aqueous injection 1:1,000 concentration 0.3mg IM, repeat as necessary

Pediatric Dosage / Route:

Severe Anaphylaxis

➢ Epi-Pen Jr or aqueous injection 1:1000 concentration 0.15 mg IM for patient's ≤ 30kg (66lbs)

Class:

Non-narcotic, non-barbiturate, sedative hypnotic.

Actions:

- Depresses the activity of the brain stem reticular system. It may lower intraocular and intracranial pressure, and lower the rate of cerebral oxygen utilization, all with minimal cardiovascular and respiratory depressant effects.
- Onset of action within 10 60 seconds. Duration of action is dose dependent but can be 3 5 minutes with full recovery in 15 minutes.

Indications:

- Induction agent for RSI in adults and pediatric patients > 10 years old.
- Sedation prior to cardioversion.

Contraindications:

- Known hypersensitivity to the agent.
- > Not recommended for pregnant or nursing mothers.

Adverse Reactions:

While adrenal suppression has not been reported after a single dose, solumedrol 125 mg should be considered for administration in patients on prednisone. Myoclonus has been reported.

Adult Dosage / Route:

> Adult: 0.3 mg/kg IV or IO push over 30-60 seconds.

Pediatric Dosage / Route:

Contact Medical Control. 0.3 mg/kg IV/IO push over 30 – 60 seconds.

Doses of Etomidate at a concentration of 2.0 mg/ml given at 0.3 mg/kg for various weights															
Weight	60	70	80	90	100	110	120	130	140	150	170	190	210	230	250
lb.															
Weight	27	32	36	41	45	50	55	59	64	68	77	86	95	105	114
kg.															
Dose	8	10	11	12	14	15	16	18	19	20	23	26	29	31	34
mg															
Dose	4.1	4.8	5.5	6.1	6.8	7.5	8.2	8.9	9.5	10.2	11.6	13	14.3	15.7	17
ml															

Class:

Histamine H2 receptor antagonist

Actions:

- Competitive inhibitor of histamine H2-receptors
- Inhibition of gastric secretion. Both the acid concentration and volume of gastric secretion are suppressed by PEPCID

Indications:

- Augment histamine blocking effects in the setting of acute allergic response
- Gastroesophageal reflux

Contraindications:

Known hypersensitivity

Precautions:

> Dosage adjustment for moderate to severe renal insufficiency

Adverse Reactions:

> Headache, dizziness, constipation, diarrhea

Adult Dosage / Route:

> 20mg PO

MEDICAL CONTROL OPTIONS

Pediatric Dosage / Route: Contact Medical Control

Class:

> Synthetic Opioid Agonist / Narcotic analgesic

Actions:

- > A potent synthetic narcotic that binds to opiate receptors as an agonist.
- Fentanyl possesses a more rapid onset of action when compared to Morphine, but a shorter half-life thereby lessening the likelihood of clouding physical exams in the ED.
- Less likely to produce hypotension, histamine, allergic reactions, or emesis than Morphine.

Onset of Action:

Onset < 1 minute IV (7-15 minutes IM)</p>

Duration of Action:

> 30-60 minutes IV (1-2 hrs IM)

Indications:

- > Any patient requiring short-acting pain management
- Pain control and sedation during RSI
- Severe pain of non-traumatic origin such as back spasms or kidney stones (nephrolithiasis), abdominal pain.
- Extremity injuries when severe pain is present, with no evidence of significant head, chest or abdominal injuries.
- Painful conditions requiring spinal immobilization
- > Used in conjunction with Versed for procedural sedation.
- Acute STEMI

Contraindications:

- Known hypersensitivity
- Myasthenia gravis, MAO Inhibitors
- Severe liver or renal insufficiency

Precautions:

- > COPD, Altered mental status, hypotension
- > Duration of respiratory depression may exceed the analgesic effect
- Residual Fentanyl from one dose can potentiate further doses
- > Concurrent use with alcohol and other CNS depressants potentiate effect
- Use cautiously in patients with chronic liver disease
- All patients must have supplemental oxygen administration and oxygen saturation monitoring
- Monitor respiratory status and blood pressure. Have naloxone readily available

Adverse Reactions:

- > CNS Depression, hallucinations
- Sedation, respiratory depression, apnea, hypotension
- Nausea, vomiting, bradycardia

Adult Dose / Route:

- > 1 2 mcg/kg slow IV/IM/MAD, titrate to pain and vital signs.
- Usual dose 25 100mcg IV/IO/IM/MAD
- > Contact Medical Control for subsequent doses beyond 2 mcg/kg.

MEDICAL CONTROL OPTIONS

Pediatric Dose / Route: Contact Medical Control

- > 1-2 mcg/kg IV or IM, titrate to pain and vital signs.
- Max dose is 100mcg.
- Contact Medical Control for subsequent doses beyond 2 mcg/kg
- > Do not use in infants less than one year of age

Note:

- Use with caution in patients susceptible to respiratory depression: CHI & brain tumor.
- Allergic reactions are rare, but can happen. Question patient regarding previous medication allergies.
- If respiratory depression occurs, assist ventilations and assess effectiveness.
- > Administer Narcan as a last resort.
- An uncommon side effect is "rigid" or "frozen" chest (occurs with rapid administration). If this occurs, assist ventilations and inform the receiving hospital. Narcan is ineffective in such situations.
- Fentanyl is safe for combination with Haloperidol (Haldol) and benzodiazepines (Valium & Versed).

Class:

> Loop diuretic.

Actions:

- > A potent diuretic that inhibits sodium re-absorption by the kidneys.
- Vasodilatation of the pulmonary veins.

Indications:

- Acute pulmonary edema.
- Congestive heart failure.
- > Hypertension.

Contraindications:

- > Hypersensitivity.
- Known allergy to sulfonamides.
- Dehydrated patients.
- Pregnancy.
- > Hypotension.

Precautions:

Severe dehydration and electrolyte depletion may occur from excess doses of Furosemide.

Adverse Reactions:

- > Dehydration.
- Decreased circulatory blood volume.
- Decreased cardiac output.
- Loss of electrolytes.

Adult Dosage / Route:

> 0.5-1 mg/kg slow IV.

Pediatric Dosage / Route:

> 0.5-1 mg/kg slow IV.

Class:

- Pancreatic hormone.
- > Anti-hypoglycemic.

Actions:

- > Converts stored glycogen to glucose, increasing blood glucose levels.
- Improves cardiac contractility and increases heart rate.

Indications:

- Hypoglycemia when IV access is unobtainable (should not be a first line treatment for hypoglycemia when IV access is available).
- > Beta blocker and calcium channel blocker overdose with bradycardia.

Contraindications:

Hypersensitivity to proteins.

Precautions:

- > Administer cautiously to patients with kidney and liver dysfunctions.
- > Effective only if sufficient stores of glycogen in the liver.

Adverse Reactions:

- Nausea and vomiting.
- ➤ Tachycardia.

Adult Dosage / Route:

Hypoglycemia

▶ 1 mg IN/IM.

Calcium Channel / Beta Blocker Overdose

 \succ 1 mg IV/IO every 5 minutes, up to a maximum of 3 mg (ALS).

Pediatric Dosage / Route:

Hypoglycemia

▶ 1 mg IN/IM.

Calcium Channel / Beta Blocker Overdose

> 1 mg IV/IO every 5 minutes, up to a maximum of 3 mg (ALS).

Neonatal Dosage / Route:

Hypoglycemia

▶ 0.5 mg IN/IM.

ALL PROVIDER LEVELS

Class:

> Carbohydrate.

Actions:

Increases blood glucose level.

Indications:

> Altered mental status secondary to hypoglycemia.

Contraindications:

- > Patients unable to protect their own airway.
- Patients unable to swallow.

Precautions:

> Assure that the patient has a gag reflex.

Adverse Reactions:

- > Aspiration.
- Nausea and vomiting.

Adult Dosage / Route:

> 24 gm PO. May repeat once.

Pediatric Dosage / Route:

> 0.5 gm/kg PO if the child is <12 years of age (ALS).

Class:

- > Tranquilizer.
- > Anti-psychotic.

Actions:

Strong anti-emetic effect and impairs central thermoregulation. Produces weak central anticholinergic effects and transient orthostatic hypotension due to blockade of dopamine activity.

Indications:

Management of manifestations of psychotic disorders and for treatment of agitated states in acute and chronic psychoses.

Contraindications:

- > Patients with known hypersensitivity
- Coma
- Parkinson's Disease
- > Alcoholism
- CNS depression
- Cocaine overdose

Precautions:

- Severe cardiovascular disorders (may cause transient hypotension or precipitate angina pectoris).
- Receiving anticonvulsant medication (may lower convulsive threshold).

Adverse Reactions:

- Extra-pyramidal Syndrome (EPS)
- > Headache
- > Lethargy
- > Headache
- > Tachycardia
- > Hypotension

Adult Dosage / Route:

> 5-10 mg IM

MEDICAL CONTROL OPTIONS

Pediatric Dosage / Route:

➢ 5 mg (>12 yrs) and 2 mg (6-12 yrs). Medical Direction Required.

Class:

> Pure Opioid agonist / narcotic analgesic

Actions:

- > Potent analgesic that binds to opiate receptors as an agonist
- Less likely to produce hypotension, histamine, allergic reactions, or emesis than Morphine.
- Decreases peripheral vascular resistance vasodilatation

Onset of Action:

IV: 1-3 minutes

Duration of Action:

➢ IV: 2 hours

Indications:

- Moderate to severe pain management
- Burns
- Intractable flank pain
- Intractable back pain
- > Musculoskeletal and / or fracture pain
- Sickle cell pain crisis (USE SUPPLEMENTAL O2)
- Unremitting abdominal pain (NOT OF OB ORIGIN)

Contraindications:

- Known Hypersensitivity
- Respiratory depression, hypotension
- Head injury or head trauma
- Acute or severe asthma or COPD
- Labor pain
- Shock

Precautions:

- Hepatic or renal impairment should receive half dose, titrated to their pain tolerance
- > Age greater than 65
- If the patient responds with respiratory depression administer narcan to reverse the effects
- All patients must have supplemental oxygen administration and oxygen saturation monitoring
- Monitor respiratory status and blood pressure. Have naloxone readily available

- Dilaudid will mask pain, so conduct a complete assessment prior to administration
- > Use caution if patient is hypersensitive to sulfites
- Use caution if patient is hypersensitive to latex
- May cause CNS depression
- Use caution in patients with hypersensitivity to other narcotics

Adverse Reactions:

- Respiratory depression, apnea
- > Altered LOC
- > Bradycardia
- Nausea and vomiting
- Constricted pupils

Adult Dose / Route:

- > IV: 1mg, may repeat 0.5 to 1mg in 15 minutes up to 2 mg IV
- ➤ IM: 1 2 mg
- Over 65 years, liver failure, renal failure or debilitated patients: Titrated to pain tolerance, up to 0.5 mg IV / IM

MEDICAL CONTROL OPTIONS

Pediatric Dose / Route:

- Contact Medical Control
- [>6 mo, <50 kg] Dose: 0.015-0.02 mg/kg SC/IV (max 0.5 mg)</p>

Note:

OPIOID ANALGESIC EQUIVALENTS WITH APPROXIMATELY EQUIANALGESIC POTENCY *

Nonproprietary (Trade) Name	IM or SC Dose	ORAL Dose
Morphine sulfate	10 mg	40-60 mg
Hydromorphone HCI (DILAUDID)	1.3-2 mg	6.5-7.5 mg

Class:

- > Antidote.
- Precursor of vitamin B12.

Actions:

Binds with cyanide ions to form cyanocobalamin, which is excreted in the urine.

Indications:

Treatment of cyanide poisoning with significant signs and symptoms of circulatory compromise.

Contraindications:

Patients with known anaphylactic reactions to hydroxocobalamin or cyanocobalamin.

Precautions:

- > Administer slowly over 15 minutes.
- Transient hypertension.

Adverse Reactions:

- > Hypertension.
- > Headache.
- Red-colored urine.
- > Headache.
- > Nausea.

Adult Dosage / Route:

Initial dose is 5 g administered over 15 minutes slow IV. (Each 2.5 g vial of hydroxocobalamin for injection is to be reconstituted with 100 ml of Normal Saline and administered at 10-15 ml/minute.) An additional 5 g dose may be administered with medical consultation.

Pediatric Dosage / Route:

70 mg/kg (reconstitute concentration is 25 mg/ml). Each 2.5 g vial of hydroxocobalamin for injection is to be reconstituted with 100 ml of Normal Saline and administered at 10-15 ml/minute. Maximum single dose 5 grams.

Class:

- > Anticholinergic.
- Bronchodilator.

Actions:

- > Bronchodilitation.
- Dries respiratory tract secretions.
- > Most effective in combination with a beta-adrenergic bronchodilator.

Indications:

> Bronchospasm related to asthma, chronic bronchitis, and emphysema.

Contraindications:

- Sensitivity to soybeans or peanuts.
- Sensitivity to Atropine.
- Tachydysrhythmias.

Precautions:

Administer cautiously to patients with narrow-angle glaucoma.

Adverse Reactions:

- > Tachycardia.
- > Palpitations.
- Dizziness.
- > Headache.
- > Dry mouth.

Adult Dosage / Route:

> 0.5 mg (500 mcg) mixed with 2.5 mg Albuterol via nebulizer.

Pediatric Dosage / Route:

- <1 year 0.25 mg (250 mcg) mixed with 2.5 mg Albuterol via nebulizer.</p>
- > >1 year 0.5 mg (500 mcg) mixed with 2.5 mg Albuterol via nebulizer.

Class:

> Non-steroidal anti-inflammatory (NSAID) analgesic.

Actions:

Exhibits peripherally acting non-narcotic analgesic activity by inhibiting prostaglandin synthesis.

Indications:

Short term management of moderate to severe pain. Especially effective for kidney stones, back pain, gall bladder or sickle cell disease.

Contraindications:

- > Allergy to Aspirin or other NSAID.
- Patients with a history of asthma.
- > Bleeding disorders, especially GI related (peptic ulcer disease).
- Renal failure.

Precautions:

- Use with caution in elderly patients.
- > May increase bleeding time in patients taking anticoagulants.
- Not effective for acute trauma (broken bones) or burns.

Adverse Reactions:

- Anaphylaxis due to hypersensitivity.
- ➢ GI bleeding.

Adult Dosage / Route:

- > 30 mg IV
- ➢ 60 mg IM

Pediatric Dosage / Route:

Not recommended.

Class:

Anti-Hypertensive Agent

Actions:

> Reduces blood pressure by decreasing peripheral vascular resistance

Indications:

Correction of hypertension associated with stroke to make the patient a candidate for TPA

Contraindications:

- Known hypersensitivity to Labetolol or beta blockers
- > Bradycardia
- Heart blocks
- > Shock
- Sick sinus syndrome
- Heart failure

Precautions:

- > Asthma / bronchospastic diseases
- Impaired liver functions
- Elderly and thyroid disorders
- Hypotension may occur
- > Conduction disturbances in cardiac conduction may occur

Adverse Effects:

- Hypotension, bradycardia
- Dizziness, fatigue
- > Arrhythmias

Adult Dosage / Route

Stroke S&S and Hypertension greater than 220 systolic or 120 diastolic: 10 mg IV SLOW over 2 minutes first bolus 20 mg IV SLOW over 2 minutes 10-15 after first bolus and BP is still greater than 220 systolic or 120 diastolic

KEY POINTS

- Reduce BP 185 systolic or 110 diastolic but not greater than 20% overall from baseline.
- Check blood pressures in both arms, with at least one BP being a manual measurement.
- > Monitor cardiac and pulmonary status during administration.

Class:

Sympathetic beta 2 agonist.

Actions:

A synthetic sympathomimetic that causes bronchodilitation with very little cardiac effects. Beta 2 adrenergic.

Indications:

- Bronchial asthma.
- Bronchospasm associated with chronic bronchitis, emphysema, allergic reaction, toxic inhalation, pulmonary edema and congestive heart failure.

Contraindications:

- > Hypersensitivity.
- Uncontrolled cardiac dysrhythmias.

Precautions:

Caution should be exercised in patients with a cardiac history.

Adverse Reactions:

- > Palpitations.
- > Anxiety.
- Dizziness.
- > Headache.
- > Nervousness.
- > Arrhythmias.
- Nausea / vomiting.

Adult Dosage / Route:

- > 2.5 mg in 3 ml saline administered by nebulizer.
- > EMT-A Providers, 5 mg without order.
- > ALS Providers, 7.5 mg without order.

Pediatric Dosage / Route:

- > 2.5 mg in 3 ml saline administered by nebulizer.
- > EMT-A Providers, 5 mg without order.
- > ALS Providers, 7.5 mg without order.

Class:

- > Antiarrhythmic.
- Local anesthetic.

Actions:

- Suppresses ventricular ectopy.
- Blocks conduction of pain impulses.

Indications:

- > Ventricular fibrillation in pregnant patient
- > Ventricular tachycardia in pregnant patient
- RSI pre-treatment in severe head injury

Contraindications:

- > Ventricular escape rhythms with bradycardia.
- > 2° type II and 3° heart blocks.
- Bradycardia.

Precautions:

- > Use caution in patients over the age 65.
- History of liver disease or dysfunction.

Adverse Reactions:

- > Muscle twitching.
- Slurred speech, altered mental status, coma
- > Hypotension.

Adult Dosage / Route:

Ventricular Fibrillation / Pulseless Ventricular Tachycardia, Ventricular Tachycardia with a pulse, Multifocal or frequent PVC's.

1 mg/kg IV/IO may be repeated every 5 minutes up to a maximum of 3 mg/kg. If the rhythm converts due to lidocaine, initiate a lidocaine drip at 2-4mg/min

Premedication Prior to Intubation of CVA or Head Injured Patient:

> 1 - 1.5 mg / kg IV 2 minutes prior to intubation

Pediatric Dosage / Route:

Ventricular Fibrillation / Pulseless Ventricular Tachycardia, Ventricular Tachycardia with a pulse, Multifocal or frequent PVC's.

1 mg/kg IV/IO may be repeated every 5 minutes up to a maximum of 3 mg/kg

Class:

Benzodiazepine / Hypnotic

Actions:

CNS depressant via facilitation of inhibitory neurotransmitter gammaaminobutyric acid (GABA) at benzodiazepine receptor sites in the ascending reticular activating system. Effects include muscle relaxation, anticonvulsant and emotional behavior anxiolytic effects.

Onset of Action: 1 – 5 minutes IV, 15 – 30 minutes IM

Duration of Action: 12 – 24 hours

Indications:

- Seizures
- > Anxiety
- > Sedation
- Alcohol Withdrawl
- Maintenance sedation after intubation

Contraindications:

- Narrow angle glaucoma, pregnancy (relative)
- Known hypersensitivity

Precautions:

Caution in use with renal or hepatic impairment. Increased CNS depression in patients who are intoxicated or on other depressant type drugs.

Adverse Reactions:

- > Orthostatic hypotension, tachycardia
- > Confusion, drowsiness, respiratory depression

Adult Dosage / Route: 1 – 2 mg IV/IM

Pediatric Dosage / Route: Status Epilepticus 0.05 to 0.1mg/kg per dose IV/IO, may repeat 0.05mg/kg once. Max dose 2 mg.

Other:

- Requires refrigeration, rotate stock every 60 days
- Very viscous solution, dilute when giving IV

Class:

- Electrolyte.
- Anticonvulsant.

Actions:

- Reverses magnesium deficiency.
- Calcium channel blocker.
- Increases intracellular potassium.
- Relaxes smooth muscle.

Indications:

- Torsades de pointes.
- Seizures due to eclampsia.
- Bronchospasm in asthma or COPD that does not respond to other therapy.

Contraindications:

- > Hypotension.
- Heart block.
- > Chronic kidney disease/dialysis.

Precautions:

Continuously monitor blood pressure, respiratory effort, level of consciousness, and muscle strength before and after medication administration.

Adverse Reactions:

- > Hypotension.
- Respiratory depression.
- Circulatory collapse.
- Muscle weakness/paralysis.
- > Bradycardia.
- > CNS depression.

Adult Dosage / Route:

Torsades de pointes (Pulseless)

2 gm slow IV/IO. Mix 2 gm in 10 ml of Normal Saline and administer over 2 minutes.

Torsades de pointes (With a pulse)

2 gm slow infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min.
Eclampsia

4 gm slow infusion. Mix 4 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min.

Pre-Term Labor

Asthma

2 gm slow infusion. Mix 2 gm in 100 ml of Normal Saline. Utilize a 10 gtts set and run at 50 gtts/min.

Pediatric Dosage / Route:

Torsades de pointes (Pulseless)

25-50 mg/kg slow IV/IO. Mix required dosage in 10 ml Normal Saline and administer over 2 minutes. Maximum dose of 2 gm.

Torsades de pointes (With a pulse)

> 25-50 mg/kg IV/IO over 20 minutes, up to a maximum single dose of 2 gm.

Asthma

> 25-50 mg/kg IV/IO over 20 minutes, up to a maximum single dose of 2 gm.

Class:

- > Anti-inflammatory.
- > Steroid.

Actions:

A synthetic steroid that is effective as an anti-inflammatory. Also controls severe or incapacitating allergic reactions.

Indications:

- > Asthma.
- Severe anaphylaxis.
- Exacerbation of COPD.

Contraindications:

Known hypersensitivity.

Precautions:

Cardiac arrhythmias or circulatory collapse can occur with large rapidly administer dosages.

Adverse Reactions:

- Cardiac arrhythmias.
- > Hypertension.
- > Vertigo.
- > Headache.

Adult Dosage / Route:

➤ 125 mg IV/IM.

Pediatric Dosage / Route:

> 2 mg/kg IV/IM, up to a maximum single dose of 80 mg.

Class:

Beta Blocker

Actions:

Selective beta – 1 adrenergic receptor blocker that decreases the automaticity of contractions thus reducing heart rate. Negative inotropic and chronotropic effects are manifested by slowing AV conduction, antidysrhythmic effects and decreased myocardial oxygen demand.

Indications:

- Acute Coronary Syndrome
- Dysrhythmia

Contraindications:

- Documented hypersensitivity
- Decompensated CHF
- AV conduction abnormalities
- Cardiogenic shock
- > Bradycardia
- > Asthma (relative)

Precautions:

During IV administration, carefully monitor BP, HR and ECG. Goal of treatment is to reduce heart rate to 50-70 beats/min. Use of Calcium Channel Blockers (CCB) may potentiate side effects/adverse effects; toxicity of metoprolol may increase with coadministration of phenothiazines and CCB's; This drug may increase toxicity of digoxin, flecainide, clonidine, epinephrine, nifedipine, prazosin, verapamil, and lidocaine.

Adverse Reactions:

- > Hypotension
- > CHF
- Bronchospasm
- Bradycardia
- Dizziness
- Chest pain
- > Headache

Adult Dosage / Route: 5mg IV over 2 minutes, repeat every 5 minutes to desired heart rate or a maximum dose of 15mg.

Class:

Benzodiazepine

Actions:

A short acting central nervous system depressant that causes amnesia, sedation and muscle relaxation.

Indications:

- > Active seizures / status epilepticus.
- Sedation prior to cardioversion or transcutaneous pacing in conscious patients.
- Chest pain or tachycardia due to overdose on ingestion of cocaine, amphetamine, ecstasy, LSD, PCP or ketamine.
- Chemical sedation for combative patients with mental disturbances or overdose.

Contraindications:

- Known hypersensitivity.
- > Hypotension.

Precautions:

- Monitor respirations.
- > Avoid mixing with other medications, flush IV/IO line after administration.
- > Titrate in small doses.

Adverse Reactions:

- Respiratory depression.
- > Apnea.
- > Hypotension.
- > Amnesia.
- Nausea.

Adult Dosage / Route:

2-5 mg IV/IO/IN, up to a maximum dose of 5 mg. For combative patients the dosage is 5 mg IM.

Pediatric Dosage / Route:

> 0.1 mg/kg IV/IO/IN, up to a maximum single dose of 5 mg.

Class:

- > Narcotic.
- > Analgesic.

Actions:

- > Potent analgesic.
- > Decreases peripheral vascular resistance vasodilatation.
- > Decreases cardiac workload and oxygen demand on the heart.

Indications:

> Chest pain not relived by nitroglycerin, pain management.

Contraindications:

- > Known hypersensitivity, head injury, hypotension.
- Respiratory depression.

Precautions:

- Monitor respiratory status and blood pressure. Have naloxone readily available
- All patients must have supplemental oxygen administration and oxygen saturation monitoring

Adverse Reactions:

- > Hypotension, syncope
- Respiratory depression, bronchospasm

Adult Dosage / Route:

Pain Management

> 2 mg IV until pain is relieved or a maximum of 10 mg is reached.

<u>CHF</u>

> 2 mg IV, up to a maximum of 10 mg as long as the patients systolic BP is ≥140 mmHg.

Cardiac Chest Pain

 \succ 2 mg IV, up to a maximum of 6 mg.

MEDICAL CONTROL OPTIONS

Pediatric Dosage / Route: Contact Medical Control Pain Management \succ 0.1 mg/kg IV until pain is relieved or a maximum of 5 mg is reached.

CHF → 0.1 mg/kg IV, up to a maximum of 5 mg.

Class:

Narcotic Antagonist.

Actions:

Reverses narcotic effects.

Indications:

- Suspected narcotic / opiate overdose.
- Coma of unknown origin.

Contraindications:

Known hypersensitivity.

Precautions:

- Half-life is shorter than most narcotics and may allow the patient to redevelop a decreased level of consciousness and/or respiratory depression.
- May induce opiate withdrawal in patients that have a physical dependency to narcotics / opiates.

Adverse Reactions:

- Nausea / vomiting.
- ➢ Headache.
- > Tachycardia.
- Acute withdrawal syndrome (violent behavior).

Adult Dosage / Route:

> 2 mg IV/IM/IN. May repeat once if no response.

Pediatric Dosage / Route:

> 0.1 mg/kg IV/IM/IN, up to a maximum single dose of 2 mg.

Class:

- Analgesic gas
- Nitrous Oxide is a self-administered inhaled analgesic containing a mixture of 50% oxygen and 50% nitrous oxide that provides quick, safe sedation and pain relief. Negative pressure is required to open the valve, so the patient must have an airtight seal at the facemask or mouthpiece. The inhaled analgesic provides a quick onset of action, lasts for only a short period of time, and has virtually no adverse effects. It's efficacy in the prehospital environment has been proven in numerous journals and studies worldwide.

Actions:

Potent analgesic that produces rapid, reversible pain relief. A 50:50 nitrous oxide and oxygen mixture is equivalent to 15-20mg of morphine sulfate. (NitroNox website)

Onset of Action:

> Analgesia begins within 20 seconds of inhalation

Duration of Action:

- > Peak analgesia occurs within 40-120 seconds
- Duration of action is 2-5 minutes
- When it is discontinued, complete exhalation of the nitrous oxide occurs in approximately 3 minutes

Indications:

- > Pain from musculoskeletal trauma or burns
- > Severe pain in morphine-allergic patients
- Pre-medication for TCP, cardioversion, wound care, IV and EZ-IO insertion
- > Any other patient in pain not presenting with a contraindication

Contraindications:

- Any patient who cannot self administer the gas; however, in patients with bilateral arm injuries, the provider can help with administration of the gas.
- Head injuries and/or altered level of consciousness (GCS < 14)</p>
- > COPD, respiratory distress, pneumothorax
- Known bowel obstruction
- > Chest trauma including suspected pneumothorax
- > Any patient with abdominal pain
- Drug or alcohol intoxication
- Severe Maxillofacial injuries
- Pregnancy: actual or suspected (associated with fetal defects and SAB)

Precautions:

- Nitrous oxide is not flammable but will support combustion in the same manner as oxygen
- Carefully monitor vital signs and oxygen saturation, which must be >90% prior to, and during, the administration of nitrous
- Nitrous can cause hypotension in some patients
- Nitrous Oxide tends to diffuse into enclosed spaces easier than oxygen causing swelling and increased pressure in these spaces. Because of this effect Nitrous can increase the size of pneumothorax, worsen bowel obstruction/ruptured bowel, otitis media, air embolus and decompression sickness
- Nitrous Oxide can potentiate the effects of other CNS depressants such as alcohol, narcotics, sedative and hypnotic agents

Adverse Reactions:

> Nausea, Vomiting, and bizarre behavior

Adult Dosage / Route:

Nitrous should be used with caution in the closed environment of the ambulance. For the health benefit of the EMT/Paramedic and driver, the ambulance must be well-ventilated with windows down and exhaust vent open. The reason for administration must be well documented.

When opening the package, it is essential that you keep the old seal for accountability purposes. This policy will be strictly enforced.

Instruct patients to administer nitrous to themselves by placing the mask tightly against their face or mouthpiece in mouth and breathe deeply and slowly.

Allow mask/mouthpiece to fall away from face spontaneously when effects are felt.

EMS personnel must not place or replace the mask on the patient's face unless in the case of bilateral arm injuries.

Nitrous Oxide is in a liquid state in the bottle. Ensure the bottle remains in the upright position when the bottle is open and during patient administration.

Administration of Nitrous Oxide is discontinued when the acute need for pain and/or anxiety relief has been met.

Consult with Medical Control for additional medications when contraindications exist or pain relief has not been achieved.

Document vital signs, length of gas inhalation and response to medication.

Peds:

NitroNox® should not be administered to patients under 12 years of age without authorization from Medical Control.

Accountability:

Each cylinder contains 30 minutes of gas and is single-use per patient. The cylinder will be fully wasted into the atmosphere with a supervisor witness after each use. The Nitronox machine will be checked after each use and documented on the Nitrous Oxide check sheet. You must keep track of the old seal. If the tank is found to be empty before patient use, notify the supervisor immediately

Class:

➢ Nitrate, Vasodilator

Actions:

- Coronary and systemic vasodilator that decrease peripheral vascular resistance and preload.
- > Decreases cardiac workload and oxygen demand on the heart.

Indications:

- Chest pain of cardiac origin.
- > Pulmonary edema associated with congestive heart failure.
- > Hypertension.

Contraindications:

- > Hypotension.
- Suspected intracranial pressure.
- Taken Viagra or similar medications (Sildenafil, Cialis, Tadalafil, Levitra, Vardenafil) in the previous 24 hours.

Precautions:

- Use extreme caution when right ventricular involvement (RVI) is suspected. Consult Medical Control prior to administration.
- Ensure that an IV is established prior to nitroglycerin in patients with a suspected inferior wall MI.

Adverse Reactions:

> Hypotension, Headache, Reflex tachycardia, Nausea / vomiting.

Adult Dosage / Route:

Cardiac chest pain

- 0.4 mg SL every 5 minutes, up to a maximum of 3 doses. Nitro paste 1 inch of 2% ointment topically for transdermal absorption
- > BLS providers may assist with the patient's own prescribed Nitroglycerin.

Congestive heart failure

- 0.4 mg SL every 5 minutes, up to a maximum of 4 doses. Nitro paste 1 inch of 2% ointment topically for transdermal absorption
- > EMT-A providers may administer 0.4 mg SL, one time only.

Pediatric Dosage / Route:

➢ Not indicated.

Class:

> Anti-emetic.

Actions:

A selective serotonin receptor antagonist used for prevention and management of nausea and vomiting. Serotonin receptors are located centrally in the chemoreceptor trigger zone and peripherally on the vagal nerve terminals. Serotonin is released from the wall of the small intestine and stimulates the vagal efferents through the serotonin receptors and initiates the vomiting reflex.

Indications:

Persistent vomiting due to gastrointestinal problems.

MEDICAL CONTROL OPTIONS

Contraindications:

- ➢ History of allergic reaction.
- Pregnancy Medical Control option only

Precautions:

> Avoid intra-arterial or subcutaneous administration.

Adverse Reactions:

> Allergic reaction.

Adult Dosage / Route:

4 mg IV, 4mg Oral Dissolving Tablet PO

MEDICAL CONTROL OPTIONS

Pediatric Dosage / Route:

Rarely used. 2-4 mg IV– Medical Control option only

ALL PROVIDER LEVELS

Class:

Gas.

Actions:

> Odorless, colorless, tasteless gas that is essential for life.

Indications:

- Cardiopulmonary arrest.
- Trauma.
- > Dyspnea.
- Suspected hypoxemia.
- Cardiac related chest pain.

Contraindications:

> None.

Precautions:

Utilize the prescribed dose of a COPD patient unless the patient is in severe respiratory distress then 100% is required.

Adverse Reactions:

> May induce respiratory drive in some COPD patients.

Adult Dosage / Route:

> ≥15 lpm for BVM, 12-15 lpm via NRB mask or 2-6 lpm via nasal cannula.

Pediatric Dosage / Route:

≥15 lpm for BVM, 12-15 lpm via NRB mask or blow-by, 2-6 lpm via nasal cannula.

ALL PROVIDER LEVELS

Class:

Adrenergic sympathomimetic nasal spray

Actions:

Causes vasoconstriction of the smaller arterioles in the nasal passages which lasts up to 12 hours.

Indications:

Control of epistaxis.

Contraindications:

> Known hypersensitivity to medication.

Precautions:

> Not recommended for children under 6 years old.

Adult Dosage / Route:

> 2 sprays intranasal in affected nostril.

Pediatric Dosage / Route:

> 6 years and older: 2 sprays intranasal in affected nostril.

Adverse Reactions:

- Headache, Drowsiness, Insomnia, Palpitations, Hypertension, Rebound nasal congestion or irritation.
- Burning, Stinging or Sneezing may occur if recommended dosage is exceeded.
- > Use of the dispenser by more than one patient may spread infection.

Class:

> Hormone

Action:

Produces phasic uterine contractions characteristic of normal labor and delivery, used to treat uterine atony, uterine vasoconstrictor

Onset of action:

 \succ IV: 1 minute, IM: 3 – 7 minutes

Duration of Action:

IV: 30 minutes with half-life of 12-17 minutes, IM: 60 minutes with half-life of 12 – 17 minutes

Indications:

> Control of postpartum hemorrhage when other methods fail

Contraindications:

- Hypersensitivity
- Undelivered baby
- Undelivered placenta
- Pre-eclampsia / Eclampsia

Precautions:

- Status post cervical or uterine surgery
- Uterine sepsis
- Primipara after age 35
- Additive effects with other vasopressors and amphetamine like drugs resulting in severe hypertension

Adverse Reactions:

- > Hypertension, Subarachnoid hemorrhage
- Anxiety, tetany
- > Dysrhythmias, hyponatremia
- Uterine rupture

Adult Dose / Route:

10units IM then mix 20 units in 1000ml 0.9% NS administered IV at 50 – 1000ml/hr to control postpartum hemorrhage

Note: Injectable oxytocin (Pitocin) contains 10 USP units (20mg) per ml

Class:

Cholinesterase reactivator.

Actions:

- Reactivates cholinesterase which has been deactivated by chemical nerve agents and organophosphate poisons.
- Relieves paralysis of the respiratory muscles following chemical nerve agent or organophosphate exposure.

Indications:

- Second drug given for the treatment of poisoning due to organophosphate pesticides and chemical nerve agents (First drug of choice is Atropine).
- Primary indication for Pralidoxime administration is muscle weakness or respiratory depression in these patients.

Contraindications:

Known hypersensitivity.

Precautions:

- > Not indicated for poisonings with carbonate pesticides.
- > Effects during pregnancy are unknown.
- > Safety and efficacy in children is unknown.
- Do not administer more than 3 auto-injectors due to its hypertensive effects.

Adverse Reactions:

- > Tachycardia, laryngospasm, muscle rigidity if IV and infused too quickly.
- Mild to moderate pain at injection site.
- Blurred or double vision, dizziness, loss of coordination, headache drowsiness, hypertension, tachycardia.

Adult Dosage / Route:

> 600 mg IM, up to 1800 mg or 3 auto-injectors.

Pediatric Dosage / Route:

Not indicated.

Class:

> Antiemetic, antihistamine

Actions:

Competes for muscarinic and histamine receptors sites in medullary chemoreceptor zone, in the inner ear and H1 blocking activity peripherally

Onset of Action:

> Onset rapid and peaks within 30-80 minutes

Duration of Action:

➤ 4 to 6 hours

Indications:

- > 2nd line agent for nausea, vomiting
- > Nausea/vomiting due to morphine stimulated histamine release
- Motion sickness, nausea and vertigo
- Migraine headache related nausea
- > Allergic reactions where the GI tract is the target organ

Contraindications:

- > Any allergy to promethazine or the phenothiazines
- Sulfite allergy, Use of MAO Inhibitors
- Altered mental status

Precautions:

- > Hypotension, History of seizures
- CNS depression (incidence increased in patient > 75 y/o, consider 12.5 mg as initial dose)
- Presence of ETOH or sedatives

Adverse Reactions:

- Drowsiness, dizziness, dry mouth and blurred or double vision are common.
- Changes in heart rate and blood pressure may also occur. If hypotension occurs, administer fluid bolus.
- Dystonia and/or tardive dyskinesia are uncommon but may be reversed by 50 mg diphenhydramine IV.
- Elderly may become agitated or disoriented, consider reducing the dose in elderly patients.
- Tissue necrosis if IV infiltration occurs

Adult Dose / Route

> 12.5 to 25 mg IV/IM

Class:

> Sympathomimetic

Actions:

Acts as a bronchodilator that stimulates Beta 2 receptors in the lungs, resulting in relaxation of bronchial smooth muscle. This alleviates bronchospasm, increases vital capacity and reduces airway resistance. Racemic epinephrine inhibits the release of histamine and is also useful in treating laryngeal edema.

Indications:

- Croup (laryngotracheobronchitis)
- Laryngeal edema

Contraindications:

- > Hypertension
- Underlying cardiovascular disease

Precautions:

- Use should be limited to critical patients
- Beta-blockers may blunt the bronchodilating response
- Rebound worsening may occur in 1-4 hours; all patients given R.E. must be considered for transport to a receiving hospital and medical control contacted.
- > MAO inhibitors may potentiate the effect of epinephrine
- Inform family that patient may need to be observed over several hours.
- > Drug is light and heat sensitive, store in a dark, cool place. Discoloration is an indication to discard the product.

Adverse Reactions:

➤ Tachycardia, dysrhythmias, anxiety, restlessness – all also signs if increasing hypoxia. May cause blanching of skin in the mask area due to local epinephrine absorption.

Adult Dosage / Route: Adult and Pediatric:

Racemic epinephrine is a preparation in a 1:1,000 dilution for use by oral inhalation only. 0.5 ml racemic epinephrine (acceptable dose for all ages) + 3 cc NS nebulized.

Class:

> Nondepolarizing neuromuscular blocker

Actions:

Competes for cholinergic receptors at motor endplate to antagonize action of acetylcholine, which blocks neuromuscular transmission resulting in paralysis.

Onset of Action:

➤ 1 – 3 minutes IV

Duration of Action:

20 – 40 minutes (varies with dose and underlying patient pathophysiology).

Indications:

- Rapid sequence intubation to facilitate endotracheal intubation
- > Maintenance of skeletal muscle relaxation during mechanical ventilation

Contraindications:

Documented hypersensitivity

Precautions:

- > Renal/hepatic impairment will result in variations in the duration of action
- Coadministration with antibiotics, verapamil, succinylcholine, magnesium sulfate, quinidine and ketamine may enhance action
- Coadministration with azathioprine, carbamazepine (Tegratol), phenytoin (Dilantin) and theophyllines may decrease duration of action
- Use caution in patients with primary pulmonary hypertension

Adverse Effects:

- > Dysrhythmias, hypertension, hiccups, rash, ninjection site edema
- Nausea / vomiting, bronchospasm

Adult Dose / Route:

- Induction: 0.6 1mg/kg IV
- Maintenance: 0.6 1.2mg/kg IV
- Decrease dose in cachectic/debilitated patients and patients with neuromuscular disease

Class:

- > Electrolyte.
- Alkalizing agent.

Actions:

- > Drives serum potassium back into the cell.
- > Enhances urinary excretion of tricyclic antidepressants.
- Neutralizes acidosis.

Indications:

- Prolonged cardiac arrest (>10 minutes).
- > Hyperkalemia.
- Metabolic acidosis.
- > Tricyclic antidepressant (TCA) overdose or ingestion.

Contraindications:

Pre-existing alkalosis.

Precautions:

- Inactivates simultaneously administered catecholamine's (epinephrine or dopamine).
- > Flush IV line between medication administrations.

Adverse Reactions:

- Alkalosis.
- > Hypokalemia.
- Seizures.
- > Tissue sloughing at injection site.

Adult Dosage / Route:

> 1 mEq/kg IV/IO.

Pediatric Dosage / Route:

> 1 mEq/kg IV/IO.

Class:

Isotonic Crystalloid Solution.

Actions:

Fluid and sodium replacement.

Indications:

> Anytime IV access and/or medication administration is obtained.

Contraindications:

High doses in the presence of congestive heart failure can cause circulatory overload.

Precautions:

> Electrolyte depletion can occur following large amounts of normal saline.

Adverse Reactions:

➤ Thirst.

Adult Dosage / Route:

> IV/IO or saline lock.

Pediatric Dosage / Route:

> IV/IO or saline lock.

Class:

> Antidote for cyanide poisoning.

Actions:

Production of methemoglobinemia that combines with cyanide ion which is excreted in the urine.

Indications:

- Cyanide toxicity.
- > Hydrogen sulfide toxicity.

Contraindications:

- Hypotension consider skipping this step and proceeding to Sodium Thiosulfate.
- > Pregnancy.

Precautions:

USE EXTREME CAUTION – methemoglobin can be fatal in children.

Adverse Reactions:

- > Syncope.
- \succ Hypotension.
- Excessive methemoglobinemia is likely to occur with decreased arterial oxygen saturation.

Adult Dosage / Route:

- > 300 mg IV over 4-5 minutes.
- > May repeat 150 mg IV after 30 minutes.

Pediatric Dosage / Route:

- > 0.2 ml/kg IV over 4-5 minutes.
- > May repeat with half dose after 30 minutes.

Class:

> Antidote for cyanide poisoning.

Actions:

> Converts cyanide to less toxic thiocyanate which is excreted in the urine.

Indications:

Acute cyanide toxicity.

Contraindications:

> None in acute cyanide toxicity.

Precautions:

- > Not useful in Hydrogen Sulfide toxicity.
- Should be used after administration of nitrates.

Adverse Reactions:

No significant side effects in the setting of acute cyanide toxicity following the administration of nitrates.

Adult Dosage / Route:

> 12.5 grams (50 ml of 25% solution) slow IV push over 10 minutes.

Pediatric Dosage / Route:

Contact Medical Control.

THIS IS NOT TNKASE......Class:

Ultra short acting skeletal muscle relaxant, depolarizing neuromuscular blocker.

Actions:

- > Prolongs depolarization of the muscle end plate.
- Induces skeletal muscle relaxation causing onset of flaccid paralysis in less than 1 minute.
- > Has no effect on consciousness, pain threshold or cerebration.

Onset of Action: 30 – 60 seconds

Duration of Action: 4 – 10 minutes

Indications:

> To facilitate endotracheal intubation in patients with an intact gag reflex.

Contraindications:

- Known hypersensitivity.
- > Acute glaucoma, penetrating eye injuries.
- Suspected hyperkalemia.
- 24 hours or more post burn.
- Post Crush Injury Syndrome.

Precautions:

- Should be used ONLY by persons skilled in airway management.
- > Changes in cardiac rhythm may result from vagal stimulation.
- > In patients with possible increased ICP.

Adverse Reactions:

- Prolonged muscle relaxation, Prolonged respiratory depression or apnea, Bradycardia, Tachycardia, Hypertension, Hypotension, Arrhythmias, Excessive salivation.
- > Potential increase in ICP with second and third doses.

Adult Dosage / Route:

➤ 1.5 mg/kg IV.

Pediatric Dosage / Route:

➤ 1.0 mg/kg IV.

Note: Must be replaced quarterly whether used or not! monthly if not refridgerated.

Class:

> Thrombolytic

Actions:

Tenecteplase is a modified form of human tissue plasminogen activator (tPA) that binds to fibrin and converts plasminogen to plasmin.

Indications:

Acute Coronary Syndrome with ST Elevation myocardial infarction (STEMI). Treatment should be initiated as soon as possible after the onset of STEMI symptoms.

Contraindications:

- Active internal bleeding
- History of cerebrovascular accident, intracranial or intraspinal surgery or trauma within 2 months.
- > Intracranial neoplasm, arteriovenous malformation, or aneurysm
- Known bleeding diathesis
- > Severe uncontrolled hypertension.
- COMPLETE THROMBOLYTIC CHECKLIST PRIOR TO ADMINISTRATION

Precautions:

> Arterial and venous punctures should be minimized.

Adverse Reactions:

- Re-perfusion dysrhythmia
- Bleeding complications
- Nausea, vomiting
- > Hypotension

Adult Dosage / Route:

> The recommended total dose should not exceed 50 mg

Simple, weight-tiered dosing in 5 easy increments

Patient Weight* (kg)	Patient Weight* (lb)	TNKase (mg)	Reconstituted TNKase (mL)
<60	<132	30	6
60 to <70	132 to <154	35	7
70 to <80	154 to <176	40	8
80 to <90	176 to <198	45	9
≥90	<u>≥</u> 198	50	10

*Dosing in the ASSENT-2 trial was based on actual or estimated patient weight.

TNKase Reconstitution Instructions



See TNKase Package Insert for instructions on the use of the dual cannula device.

Step 1 Remove the shield assembly from the supplied B-D 10 mL syringe with TwinPak[™] Dual Cannula Device.



Step 2 Aseptically WITHDRAW 10 mL of Sterile Water for Injection, USP, using the B-D 10 mL syringe with TwinPak[™] Dual Cannula Device included in the kit. Do not use Bacteriostatic Water for Injection, USP.



Step 3 INJECT entire contents (10 mL) into the TNKase vial, directing the diluent into the powder. Slight foaming upon reconstitution is not unusual;

any large bubbles will dissipate if the product is allowed to stand undisturbed for several minutes.



Step 4 GENTLY SWIRL until contents are completely dissolved. DO NOT SHAKE. Solution should be colorless or pale yellow and transparent. Once the appropriate dose of TNKase is drawn into the syringe, stand the shield vertically and recap the red tab cannula.



Step 5 USE UPON RECONSTITUTION. If not used immediately, refrigerate solution at 2–8°C (36–46°F) and use within 8 hours. DO NOT FREEZE. Final concentration of TNKase is 5 mg/mL.

Class:

Beta 2 Agonist

Actions:

- > Relaxes bronchial smooth muscle by stimulating beta receptors
- Uterine smooth muscle relaxant

Indications:

- Asthma / Bronchospasm
- Control of pre-term labor

Contraindications

- Known hypersensitivity
- Cardiac arrhythmias

PRECAUTIONS

- Cardiovascular disease
- Seizure disorders

Adverse Reactions

- > Nervousness, tremor, headache, weakness
- Tachycardia, dysrhythmias
- Drowsiness, dizziness, diaphoresis
- Nausea and vomiting
- > Hypertension

ADULT DOSAGE

➢ 0.25 mg. SQ

ALL PROVIDER LEVELS

Class:

Local anesthetic for the eye.

Actions:

> Blocks the initiation and conduction of nerve impulses.

Indications:

> Topically applied local anesthetic for eye examination.

Contraindications:

- > Hypersensitivity to ester anesthetics.
- > Not to be applied in large amounts or to infants less than 1 year of age.
- > Do not use in the presence of penetrating trauma.

Precautions:

> Advise patient that the drops may burn for a few seconds.

Adverse Reactions:

Stinging in affected eye.

Adult Dosage / Route:

1-2 drops per eye.

Pediatric Dosage / Route:

> 1-2 drops per eye.

Class:

Vitamin.

Actions:

- > Required for carbohydrate metabolism.
- Deficiency leads to anemia, polyneuritis, Wernicke's encephalopathy, and cardiomyopathy.
- Administration may reverse symptoms of deficiency, but effects are dependent upon duration of illness and severity of disease.

Indications:

- Coma of unknown origin.
- > Thiamine deficiency syndromes.
- > Alcoholism and severe delirium tremors.
- > Malnourishment.

Contraindications:

> Hypersensitivity.

Precautions:

➢ None.

Adverse Reactions:

Hypotension (rare).

Adult Dosage / Route:

➤ 100 mg IV/IM.

Pediatric Dosage / Route:

➢ Not indicated.

Class:

Hormone, (Antidiuretic).

Actions:

- > Potent peripheral vasoconstrictor.
- Immediate onset, duration of action 10-20 minutes.

Indications:

- Alternative pressor to epinephrine in the treatment of adult shockrefractory VF (Class IIb) unresponsive to initial 3 defibrillations.
- May be useful for hemodynamic support in vasodilatory shock (e.g. septic shock).

Contraindications:

- > Responsive patients with coronary artery disease.
- Chronic renal failure
- > Known hypersensitivity to beef or pork proteins

Precautions:

> Increased vascular resistance may provoke cardiac ischemia.

Adverse Reactions:

Cardiac ischemia

Adult Dosage / Route:

➢ 40 U IV, IO push x 1.

Class:

- Skeletal muscle relaxant.
- > Non-depolarizing neuromuscular blocker.

Actions:

- > Provides skeletal muscle relaxation to facilitate endotracheal intubation.
- > Onset in 1 minute, duration of action is 25-30 minutes.

Indications:

- Maintenance of paralysis AFTER intubation to assist ventilation during prolonged transport.
- Initial means of paralysis with Crush Injury Syndrome.

Contraindications:

- > Hypersensitivity.
- Inability to intubate.

Precautions:

- ➢ Elderly.
- Patients with cardiovascular disease, hepatic disease, obesity, neuromuscular disease.
- > Do not mix with alkaline solutions.
- Prior administration of succinylcholine may enhance the neuromuscular blocking effect.
- Monitor heart rate, ETCO2 and SPO2 continuously.
- Should be used ONLY by persons skilled at intubation.
- Paralysis will mask seizure activity, use with caution in susceptible patients.
- Remember to use sedation (midazolam preferred) in conjunction with the paralytic.

Adverse Reactions:

Prolonged dose related to respiratory insufficiency or apnea, Wheezing, Aspiration, Bradycardia, Sinus arrest, Hyper or Hypotension, Increased intraocular pressure.

Class:

> Topical anesthetic.

Actions:

- > Aqueous producing local anesthetic effect when applied topically.
- > Onset 3 5 minutes after contact with topical region or mucosa.
- Duration of action 1.5 2.0 hrs; can vary with dosage and site of application.

Indications:

- > Oral endotracheal intubation.
- Nasogastric tube placement.

Contraindications:

> Known hypersensitivity to local anesthetics.

Precautions:

- Reduce dose with elderly/young.
- > Wear protective gloves when handling to prevent numbing sensation.
- > Do not apply to stylet or inner lumens of endotracheal tubes.

Adverse Reactions:

- Impaired swallowing may lead to aspiration.
- Numbness of tongue or buccal mucosa may enhance possibility of unintentional biting trauma.
- Allergic reaction, Bradycardia, Hypotension, Drowsiness, Blurred/double vision, Lightheadedness.

Adult Dosage / Route

Apply moderate amount to external surfaces of endotracheal tubes prior to placement.

There are many causes of abdominal pain of which some can be life threatening. When evaluating a patient experiencing abdominal pain attempt to determine the cause of the complaint utilizing the following differential.

Upper GI Bleed	Lower GI Bleed	Gynecological	
Hx of peptic ulcer disease; Can cause massive hemorrhage.	May be occult or bright red; A common cause of orthostatic	Think ectopic!! Pain plus vaginal bleeding and sometimes syncope.	
Esophageal varices (Hx	Hypotension and	Ectopic Pregnancy	
Peptic Ulcer Disease	Diverticulitis	Pelvic Inflammatory Disease/STD's. Ovarian Cyst (No Bleeding)	
' Aspirin, NSAID's	Hemorrhoids		
Alcohol	Cancer	Kidney / Urinary Tract Infection (Blood in Urine). Endometriosis (Severe pain before and during menstrual cycles).	
Ingestion of caustic	Inflammatory Bowel		
substances.	Disease Chronic Diarrhea, overuse of laxatives.		
Colicky Pain	Peritoneal Pain	Vomiting	
Spasmotic – usually results from smooth muscle contracting against obstruction of	Rigid board-like abdomen, resulting from infection or long standing rupture.	Non-specific symptom, caused by a wide variety of underlying problems some of which are serious.	
hollow organ.	Ruptured Appendix	Infection of GI Tract	
Bowel Obstruction	Ruptured Ovarian Cyst	Ulcers	
Renal Obstruction "Kidney Stones".	Pelvic Inflammatory Disease (PID)	Toxic Ingestions	
Gallbladder Obstruction	Perforated Llicer	Bowel Obstruction	
Ulcerative Colitis	Peritonitis Advanced	Stones of the Gallbladder or Kidney	
Crohn's Disease			

Every pain presenting with new onset back pain (>60 yrs.) should have an abdominal exam R/O AAA.

Abdominal Aortic Aneurysm

Cholelithasis

Pancreatitis

Perforated Ulcer

There are many presentations that represent an acute coronary syndrome, especially in females, the elderly, in patients with diabetes, and those with underlying histories of heart disease. Consider acute coronary syndromes in patients with pain or discomfort from the jaw to the lower abdomen.

	Myocardial Infarction	Angina Pectoris	Dissecting Aneurysm	Pericarditis	Peptic Ulcer
Location	Substernal may vary	Substernal	Substernal	Substernal more left sided	Epigastric Substernal
Onset	Usually sudden	Exertional	Acute	Subacute	Acute or Subacute
Provocation	Usually none. See comments.	Exercise excitement stress, cold, meals	None	Worsened: lying down breathing, swallowing, coughing, twisting	Alcohol, lack of foods, acid foods
Quality	Crushing Heaviness, dull Pressure Band- like Constricting Squeezing	Discomfort Choking Pressure Squeezing, Strangling, Constricting	Deep tearing Shearing "Knife-like"	Sharp	Burning
Radiation	Across, mid- thorax anterior, arms shoulder, neck jaw, teeth, fingers	Same as MI	Back lumbar region	Usually none occasionally shoulder, neck, flank	Occasionally back
Alleviation	None	Rest, NTG	None	Tripod position shallow respirations	Antacids, food
Duration	Usually under 30 minutes. Can be longer.	5-15 min.	Hours	Hours	Hours
Comments	SOB, N&V, pallor, diaphoresis impending doom	May be nocturnal	Sudden onset may subside spontaneously or be associated with paralysis	May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE	ASA, NSAID's eg. Motrin Advil, may trigger.
-------------	--	---	--	---	---
	Pancreatitis	Esophageal Rupture	Pulmonary Embolism	Esophageal Spasm	Costo- Chondritis
Location	Epigastric	Retrosternal	Multiple	Substernal, Epigastric	Anterior / Lateral
Onset	Acute / Sub- acute	Acute	Sudden or Gradual	Sub-acute	Sudden or Gradual
Provocation	Alcohol, trauma, gall bladder disease	Swallowing	Respirations, cough	Spontaneous, cold liquids, recumbency	Movement, palpation, cough, respiration
Quality	Severe or dull	Severe	Sharp or dull	Dull, pressure, colicky	Sharp superficial
Radiation	Back	Lateral	None	Jaw, either arm	None
Alleviation	Time	None	None	Antacids, occasionally NTG	Time, heat, analgesia
Duration	Hours	Hours	Variable	5-60 minutes	Variable
Comments	May be viral Eg. Mumps	Alcoholics with forceful vomiting; associated with pleural effusion, shock and hydro- pneumothorax	Sudden onset may subside spontaneously or be associated with paralysis	May be associated with URI, flu pronestyl hydralazine lupus; MAY BE FEBRILE	ASA, NSAID's eg. Motrin Advil, may trigger.

Adult (>4 years)

Eye Opening	Sco re	Best Verbal Response	Score	Best Motor Response	Scor e
Spontaneously	4	Oriented	5	Obeys commands	6
To verbal	3	Confused	4	Localizes pain	5
To pain	2	Inappropriate words	3	Withdraws to pain	4
No response	1	Incomprehensible	2	Abnormal flexion	3
		No response	1	Abnormal extension	2
				No response	1
Eye Score		Verbal Score		Motor Score	
			• ·-		

Total Glasgow Coma Score (Eye + Verbal + Motor)

Pediatric (<4 years)

Eye Opening	Scor e	Best Verbal Response	Score	Best Motor Response	Scor e
Spontaneousl y	4	Smiles, fixes, follows	5	Obeys commands	6
To verbal	3	Cries, but consolable	4	Localizes pain	5
To pain	2	Persistently irritable	3	Withdraws to pain	4
No response	1	Restless, agitated	2	Abnormal flexion	3
		No response	1	Abnormal extension	2
				No response	1
Eye Score		Verbal Score		Motor Score	

Total Glasgow Coma Score (Eye + Verbal + Motor)

This reference applies to 400 mg of Dopamine dopamine in 250 ml solution (concentration of 1600 mcg/ml), run via 60 drop tubing at the following rates.

Weight (kg)	5 mcg gtts/min	10 mcg gtts/min	15 mcg gtts/min	20 mcg gtts/min
40	8	16	24	30
50	10	20	30	40
60	12	24	34	45
70	14	26	40	54
80	15	30	45	60
90	18	34	52	68
100	20	40	56	75
110	22	42	62	84
120	24	45	68	90
130	24	50	74	98
140	26	53	80	105
150	28	56	85	112
160	30	60	90	120
170	32	64	96	128
180	34	68	102	135
190	36	72	106	142
200	38	75	112	150

For patients <40 kg, refer to the Broselow tape for drip/min calculation.

This reference applies to mixing 1 gram of Lidocaine lidocaine in a 250 ml solution (concentration of 4 mg/ml), run via 60 drop tubing at the following rates.

For patients <40 kg, refer to the Broselow tape for drip/min calculation.

1 mg/min	2 mg/min	3 mg/min	4 mg/min
15 gtts/min	30 gtts/min	45 gtts/min	60 gtts/min

This reference applies to mixing 1 milligram of Epinephrine 1:1,000 in a 250 ml solution (concentration of 1 mcg/ml), run via 60 drop tubing at the following rates.

1 mcg/min	2 mcg/min	3 mcg/min	4 mcg/min	5 mcg/min
15 gtts/min	30 gtts/min	45 gtts/min	60 gtts/min	75 gtts/min
6 mcg/min	7 mcg/min	8 mcg/min	9 mcg/min	10 mcg/min

For patients <40 kg, refer to the Broselow tape for drip/min calculation.

	Respirations	Pulse	Systolic BP*
Adult	12 - 20	60 -100	90 - 140
Adolescent	12 - 24	60 -100	>90
Children (1 to 10 years)	22 - 34	80 -140	>75
Infants (1 to 12 months)	24 - 40	90 -150	>70
Neonate (0 to 28 days)	30 - 60	100 -160	>60

* For children 1 to 10 years of age, you can determine the lower limit of an acceptable blood pressure using the following formula:

Minimal systolic blood pressure = $70 + (2 \times age in years)$

Determine the **APGAR** score at the first minute postpartum. Repeat at the 5 minute interval.

Test	0 Points	1 Point	2 Points
Activity (Muscle Tone)	Absent	Arms & legs extended	Active movement with flexed arms & legs
Pulse (Heart Rate)	Absent	Below 100 bpm	Above 100 bpm
G rimace (Response Stimulation or Reflex Irritability)	No Response	Facial grimace	Sneeze, cough, pulls away
Appearance (Skin Color)	Blue-gray, pale all over	Pink body and blue extremities	Normal over entire body – Completely pink
Respiration (Breathing)	Absent	Slow, irregular	Good, crying

Score of 7-10 is usually associated with coughing and crying within seconds of delivery. Newborns with this score typically do not require and further resuscitation.

Score of 4-6 the newborn is moderately depressed. Will typically appear pale or cyanotic and have respiratory complications and flaccid muscle tone. These newborns will require some type of resuscitative efforts.

PEDIATRIC PHARMACOLOGY REVIEW

MEDICATION DOSE ROUTE REMARKS

- Activated charcoal 1 gm/kg PO Do not give to child with altered level of consciousness
- Adenosine 0.1 mg/kg IV, IO Indicated for SVT. First dose 6mg, second dose 6mg. Max dose 12mg
- > Albuterol 2.5 mg Aerosol Indicated for wheezing as per protocolguideline
- Amiodarone 5 mg/kg IV, IO Over 20-60 minan Juan utesminute, maximum 15 mg/kg per day. For shock-refractory pulseless VT/VF: 5 mg/kg rapid IV/IO
- Atropine 0.02 mg/kg IV, IO, ET Minimum dose 0.1 mg; max dose for child 0.5 mg; max dose for adolescent 1.0 mg; may repeat x1; Also useful before intubating children < 5 years old, blocks bradycardia due to vagal nerve stimulation
- Dextrose 25% 2 mL/kg IV, IO Try to obtain bedside glucose level before administering ----administer if blood glucose < 60; dilute 50% 1:1 with sterile water; consult Medical Control if infant < 1 month as solution may need to be further diluted.
- Valium 0.2-0.3 IV, IO Indicated for uncontrolled seizure activity; anticipate respiratory depression. Max. dose 10 mg.
- Valium 0.5 mg/kg Rectal Indicated for uncontrolled seizure activity; anticipate respiratory depression. Max. dose 10 mg.
- Benadryl 1 mg/kg IV Useful in allergic reactions and anaphylaxis. Max dose 50 mg
- Epinephrine 0.1 mL/kg IV, IO Commonly used in cardiac arrest rhythms as first dose.
 - **(1:10,000)** (0.01 mg/kg) 0.1 mL/kg ET,IV, IO Commonly used in cardiac arrest rhythms.
 - (1:1,000) (0.1 mg/kg) Use for all ET doses *The ET route has limited absorption, use IV/IO route whenever possible
 - (1:1,000) 0.01ml/kg SubQ Used for anaphylaxis. Max dose is 0.3ml
- Lidocaine 1 mg/kg IV, IO, ET Also useful before intubating for cerebral protection and decreases airway reactivity.
- Morphine 0.1 mg/kg IV/IM May cause respiratory depression. Hypotension and reflex bradycardia may develop from histamine release
- Versed 0.1 mg/kg IV/IO/IM Indicated for uncontrolled seizure activity; anticipate respiratory depression
- Narcan 0.1 mg/kg IV, IO, ET Useful for unknown unconscious, known narcotic overdoses
- > Solu-Medrol 2 mg/ kg IV
- **Racemic Epi** 0.5 mg Aerosol
- > Zofran 0.15 mg/kg IV, IM
- > Magnesium Sulfate 25–50mg/kg IV, IO
- Sodium Bicarbonate 1 mEq / kg IV, IO

The following chart shows the average ET, suction and orogastric tube size that is compatible to the age of the patient.

Age	ET Size	Suction Catheter	Orogastric Tube
Pre-term	2.5 - 3.0 uncuffed	5	8
Term	3.0 - 3.5 uncuffed	6 - 8	8
6 Months	3.5 uncuffed	8	10
12 - 18 Months	4.0 uncuffed	8	10
3 Years	4.5 uncuffed	8	12
5 Years	5.0 uncuffed	10	12
6 Years	5.5 uncuffed	10	14
8 Years	6.0 uncuffed	10	14
12 Years	6.5 cuffed	10	16
16 Years	7.0 - 8.0 cuffed	12	16
Adult Female	7.5 - 8.0 cuffed	12	18
Adult Male	8.0 - 8.5 cuffed	14	18

- 1. This chart is meant as a guide only.
- 2. The size and weight of the child must be taken into consideration for sizing.
- 3. A quick formula to use when determining endotracheal tube size in pediatric patients is Size = (Age in Years) / 4 + 4.
- 4. The use of a BraselowBroslow tape or similar device is encouraged for pediatric patients.

Rule of Nines



Detailed calculation reference for pediatrics > 1 year of age: For every year over one, add 0.5% to each leg and subtract 1% for the head

Age	Head	Each leg	Age	Head	Each leg
2	17%	14.5%	6	13%	16.5%
3	16%	15%	7	12%	17%
4	15%	15.5%	8	11%	17.5%
5	14%	16%	9	10%	18%

SAN JUAN COUNTY EMS BRAIN ATTACK ALERT FORM

Pt. Name:	Incident #:		
Date: BAT Alert Tin	me: Age: Gender: 🗖 M 🗖 F		
Responding ALS Unit(s):			
Hospital Destination:	Arrival Time:		
FAST-G EXAM Facial droop Yes No Arm drift Yes No Speech NL ABNL/None Time last seen or known normal*: Date: *If interval > 4 hours, see note	FIBRINOLYTIC SCREENING (Check if present) Head trauma at onset On Coumadin (Warfarin) Seizure at onset Bleeding/clotting disorder Sx of cerebral bleed Previous hemorrhagic (severe HA, stiff neck, stroke focal sx with altered LOC, nausea/vomiting) Surgery or significant hemorrhage w/in 3 mos.		
Glucose: (Treat if less than 50 mg/dl PAST HISTORY (Check if present) Dysrhythmia Diabetes Nontraumatic Current pregnancy cerebral bleed Sickle cell disease *Valid Prehospital DNR, see note) HPI (Check if present) Extremity weakness Syncope/Near-syncope General weakness Dizziness/Vertigo Vision change Altered sensation Slurred speech/Aphasia Severe headache Nausea/Vomiting Stiff/painful neck *Symptoms resolved prior to transport, see note		
WI	TNESS/FAMILY INFO		
Witness Name:	Phone #1: Phone #2:		
Closest Relative/Caregiver Name:	Phone:		
	VITAL SIGNS		
Time: BP: /HR: Time: BP: /HR:			
MEND EXAM (Repeats some FAST elements) Mental Status Level of consciousness A □ V □ P □ U □ • Level of consciousness A □ V □ P □ U □ Arm drift RT □ LT □ None □ • Speech Not clear/no speech □ Clear □ · Arm drift RT □ LT □ None □ · ("You can't teach an old dog new tricks") · Abnl sensation arms RT □ LT □ None □ • Questions (age and month) NL □ ABNL □ · Abnl sensation legs RT □ LT □ None □ • Cranial Nerves · Facial droop RT □ LT □ None □ RT □ LT □ None □ • Visual field abnl RT □ LT □ None □ · Heel to shin abnl RT □ LT □ None □ • Horizontal gaze abnl RT □ LT □ None □ · Heel to shin abnl RT □ LT □ None □			
SUSPECTED STROKE SYNDROME Right hemisphere Left hemisphere Cerebellar Brainstem Hemorrhagic, see note Image: Comparison of the second secon	 If interval since last normal is > 4.5 hours, symptoms have resolved prior to transport, or patient has a DNR, transport to closest or choice facility If suspected hemorrhagic stroke, contact OLMC for destination Otherwise, transport stroke patients to closest Stroke Center unless otherwise authorized by OLMC 		

SAN JUAN COUNTY EMS BRAIN ATTACK ALERT FORM

Pt. Name:	Incident #:			
Date:BAT Alert Time:	Age: Gender: 🗖 M 🗖 F			
Responding ALS Unit(s):				
Hospital Destination:	Arrival Time:			
FAST-G EXAM Facial droop Yes No Arm drift Yes No Speech NL ABNL/None Time last seen or known normal*: Date: *If interval > 4 hours, see note	FIBRINOLYTIC SCREENING (Check if present) Head trauma at onset On Coumadin (Warfarin) Seizure at onset Bleeding/clotting disorder Sx of cerebral bleed Previous hemorrhagic (severe HA, stiff neck, focal sx with altered LOC, nausea/vomiting) Current pregnancy Surgery or significant hemorrhage w/in 3 mos.			
Glucose: (Treat if less than 50 mg/dl) PAST HISTORY (Check if present) Dysrhythmia Diabetes Dysrhythmia Current pregnancy Nontraumatic Current pregnancy cerebral bleed Sickle cell disease *Valid Prehospital DNR, see note	HPI (Check if present) Extremity weakness Syncope/Near-syncope General weakness Dizziness/Vertigo Vision change Altered sensation Slurred speech/Aphasia Severe headache Nausea/Vomiting Stiff/painful neck *Symptoms resolved prior to transport, see note			
WITNESS/FAMILY INFO				
Witness Name:	Phone #1: Phone #2:			
Closest Relative/Caregiver Name:	Phone:			
V	ITAL SIGNS			
Time: BP:/ HR:	Rhythm: RR: SpO2: (Rm. air)			
Time: BP:/ HR:	Rhythm: RR: SpO2:			
MEND EXAM (R	Lepeats some FAST elements)			
Mental Status Image: Second Status Image:				
SUSPECTED STROKE SYNDROME Right hemisphere Left hemisphere Brainstem Hemorrhagic, see note If interval since last normal is > 4.5 hours, symptoms have resolved prior to transport, or patient has a DNR, transport to closest or choice facility If suspected hemorrhagic stroke, contact OLMC for destination Otherwise, transport stroke patients to closest Stroke Center unless otherwise authorized by OLMC				

For patients presenting with signs and symptoms of an Acute Coronary Syndrome (ACS), utilize the following checklist to determine candidacy for thrombolytic therapy.

Thrombolytic Pre-s	screening Form fo	r Chest Pair	Patients
Case Number	Unit	_Shift	Date
Patient's Name		Age	Gender
Time chest pain beg	jan	Pre-scre	ening time
Pain level at pre-scr	eening (1-10 scale)	Est	imated weight (kgs)
B/P-(L) arm	_ B/P-(R) arm	Time A	SA administered
Interpretation of 12 l	lead EKG		

Check yes or no for each of the following questions: SECTION I

□ Yes □ No Patient is oriented and cooperative.

- □ Yes □ No Patient has chest pain unrelieved by NTG.
- □ Yes □ No Patient's pain lasts >15 minutes and <12 hours.

SECTION II

□ Yes □ No Hx of TIA or Stroke within the past 6 months.

- □ Yes □ No Hx of active bleeding, head injury, intracranial bleeding.
- □ Yes □ No Hx of taking Warfarin, Coumadin or Hx of bleeding disorder.
- □ Yes □ No Hx of surgery, penetrating or perforating injury <2 weeks.
- □ Yes □ No Hx of severe liver dysfunction (currently), or jaundice.
- □ Yes □ No Hx of prolonged CPR.
- □ Yes □ No Hx of recent delivery or patient is pregnant.
- \Box Yes \Box No Does patient have a B/P >220/120 not responsive to meds.

If the patient has all Yes's checked in Section I, and all No's checked in Section II, then report your findings to Medical Control and advise them that you may have a candidate for Thrombolytics.

All patients complaining of chest pain of suspected cardiac origin should receive aspirin as outlined in the Chest Pain ProtocolGuideline; unless the patient has an allergy to aspirin, an active bleed at the time of the pre-screening or the patient has ingested more than 81 mg of aspirin within the previous four hours.

THROMBOLYSIS CONSENT FORM

DATE: _____

TIME: _____

PURPOSE AND BENEFITS:

Heart attacks are usually due to blood clots in one or more arteries in the heart, which stop the supply of oxygen rich blood to the heart muscle. The blockage causes pain and will probably result in permanent damage to the heart.

The purpose of this treatment is to obtain the benefit of a clot-dissolving drug, TNKase. It is anticipated that this therapy will reduce the extent of heart muscle damage if it is initiated soon enough after the beginning of symptoms.

RISKS AND DISCOMFORTS:

TNKase, the clot dissolving drug, causes abnormal bleeding in a small percentage of patients. This may require transfusions or stopping treatment. Irregular heart rhythms may occur as a result of treatment. As with any drug, there may be allergic side effects, or other side effects including death.

I authorize the San Juan County Paramedic under the direction of Dr. Michael Sullivan to administer this drug for my treatment.

I certify that this consent has been fully explained to me, that I have read it or have had it read to me, and that I understand its contents.

Patient signature:_____

Patient unable to sign because:

Authorized representative signature:

Relationship to patient:_____

Witness:_____

1. Select Patient

INDUCED HYPOTHERMIA SCREENING CRITERIA	
1. Return of Pulse	
2. Age > 16	
3. Not obviously pregnant	
4. Temperature > 34° C	
5. No purposeful pain response	
6. Intubated with ETCO2 >20	
Preparation for Induction	
1. Conduct NEURO assessment:	
a. Pupils (size, reactivity, equality)	
b. Motor Response to Pain	
2. Remove clothing, protect modesty	
3. Apply cold packs	
4. Goal ETCO2 = 40. No hyperventilation	
5. Attempt second IV, if not in place	

2. Induction of Paralysis

Administer Vecuronium

For Vecuronium (1mg/mL only) 0.1 mg/kg to max 10 ml

Weight (kg)	Dose (mg)	Volume* (cc)	
30	3	3	
35	3.5	3.5	
40	4	4	
45	4.5	4.5	
50	5	5	
55	5.5	5.5	
60	6	6	
65	6.5	6.5	
70	7	7	
75	7.5	7.5	
80	8	8	
85	8.5	8.5	
90	9	9	
95	9.5	9.5	
100	10	10	

3. Initiate Cooling

COLD SALINE FLUID BOLUS

0.9% NS at 4° Celsius

Weigl	nt (kg)	Volume Max (mL)	
	30	900	
	35	1050	
	40	1200	
	45	1350	
	50	1500	
	55	1650	
	60	1800	
	> or = 65	2000	

4. Maintain MAP

Target Mean Arterial Pressure (MAP): 90-100

Cold saline is a strong vasoconstrictor. Watch MAP closely! If chilled saline does not maintain MAP start Dopamine

Monitor MAP on LP 12

Systolic	Diastolic	MAP
110	80	90
120	75-90	90-100
130	70-85	90-100
140	65-80	90-100

Dopamine infusion guide for 400 mg in 250 mL D5W only

The values in this chart are drips per minute on a 60 drop per minute drip set

Weight (kg)	5 mcg/kg/min	10mcg/kg/min	
30	6	12	
35	7	13	
40	8	15	
45	8	17	
50	9	19	
55	10	21	
60	11	23	
65	12	24	
70	13	26	
75	14	28	
80	15	30	
85	16	32	
90	17	34	
95	18	36	
100	19	38	
105	20	39	
110	21	41	

Airborne	Transmission	Prevention	Post-Exposure	Follow-up
Tuberculosis (TB)	Droplets; Coughing, sneezing, intubation, suctioning	Initial 2-step test, annual PPD. Wear HEPA masks.	Source = PPD Employee = PPD, unless PPD tested within prior 12 weeks or previously PPD reactive	PPD at week 12 post-exposure. If new positive; chest x-ray and Rx with isoniazid for 6 months.
Meningitis (Bacterial / Viral)	Droplets; Coughing, sneezing, intubation, suctioning	HEPA Mask	Antibiotic; Cipro, Rocephin, Rifampin	Seek medical care is symptoms of meningitis develop; fever, stiff neck, severe headache.
Influenza (FLU)	Close contact droplets; coughing, sneezing, intubation, suctioning. Also direct contact with vesicle fluid.	Flu shot (Vaccination)	Treatments; analgesics, Rimantadine, Tamiflu, Relenza.	As determined by medical professional.
Varicella Zoster (Chicken Pox)	Close contact droplets; coughing, sneezing, intubation, suctioning. Also direct contact with vesicle fluid.	Vaccine = 1 shot (Varivax). HEPA mask.	Treatment; Varicella Zoster Immune Globulin (VZIG) within 96 hrs of exposure.	As determined by medical professional.
Blood-Borne	Transmission	Prevention	Post-Exposure	Follow-up
HIV	Blood to blood, to non intact skin and mucous membranes.	No Vaccine	See post-exposure control protocolguideline.	Periodic screening; 6, 12, 26 weeks after exposure.
Syphilis	Blood and/or open sores / lesions	No Vaccine	Source = RPR Employee = RPR Penicillin.	Repeat test at 3 and 6 months. If positive refer to medical professional.

San Juan County EMS Guidelines Appendix

Hepatitis-B (HBV)	Blood to blood, to non intact skin and mucous membranes.	Vaccine = 3 shot series. Titer and re- immunize if necessary.	Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, employee not immune; administer immune globulin and consider HAV vaccine series.	Periodic screening; 6, 12, 26 weeks after exposure.
Hepatitis-C (HCV)	Blood to blood, to non intact skin and mucous membranes.	No Vaccine	Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, consider employee qualitative HCV RNA & ALT testing 6 weeks after exposure.	Periodic screening; 6, 12, 26 weeks after exposure. If employee becomes HCV RNA positive, treat with Interferon / Ribavirin for 6 months.
Other	Transmission	Prevention	Post-Exposure	Follow-up
Hepatitis-A (HAV)	Fecal / oral	Vaccine = 2 shot series	Source = Acute Hep. Panel Employee = Acute Hep. Panel. If source positive, employee not immune; administer immune globulin and consider HAV vaccine series.	Periodic screening; 12 weeks after exposure or if symptoms occur.
Tetanus	Soiled object causing open wound.	Vaccine good for 10 years.	If no vaccine, administer at this time. If over 7 years from last vaccination and sustained open wound, booster dose.	Seek medical care if symptoms of tetanus develop; lockjaw, rigid muscles.

San Juan County EMS Guidelines Appendix

Lyme Disease	Tick-borne; tick attached 24 hours.	Avoid tick infested areas. Vaccine = 3 shot series for prone areas.	Antibiotics; Amoxicillin, Doxycycline.	As determine by medical professional.
Scabies	Direct contact; mite infested areas, bedding / clothing, nursing homes.	Avoid infested areas.	Lindane and Kwell applied to the entire body for 24 hours.	Close supervision of treatment including bathing.
Rabies	Virus-laden salvia of infected animal; animal bites.	Avoid animal bites.	Wash infected areas. Administer rabies anti-serum injection and first dose of rabies vaccine. Contact animal control, monitor for presence of infection.	If animal is positive, continue to treat employee with vaccine.

BIOTERRORISM SYNDROMES

If you suspect disease from a potential bioterrorism event, call your local health department IMMEDIATELY:

your local health department will arrange for specialized lab testing; guidelines for treatment, prophylaxis, and infection control; and activate local, state, and federal emergency response systems.

Syndrome	Bioterrorism threat disease description	Differential diagnosis	Picture	diagnostic test results	control actions
ry ver	Inhalational Anthrax Abrupt onset of fever, chest pain, respiratory distress usually without radiographic findings of pneuronia, no history of trauma, progression to shock and death within 24-26 hours.	Disseding aortic aneurysm, pulmonary embolism, influenza, tularemia.		Crest x-ray with widened mediastinum, possible pleural effusion: gram positive bacili in sputum or blood; definitive testing available at the local public health laboratory.	Call your local health department. Alert your laboratory to possibility of anthrax. No person-to-person transmission. Intection control: standard precautions.
tespirato with Fe	Pneumonic Plague Apparent severe community-acquired pneumonia but with hemoptysis, cyanosis, gastrointestinal symptoms, shock.	Community-acquired pneu- morary syndrome, meningococcemia, rickettsicsis, influenza		Gram-negative bacilii or coccobacilii in sputum, blood or lymph node; salety- pin appearance with Wright or Giensa stair; definitive testing available at the your local public health laboratory.	Call hospital infection control and your local health department. Ask family mem- bers/ close contrads of patient to stay at the hospital (if atready present) for public health interview/chemoprophysias; get detailed address and phone number information. Alert laboratory of possibility of plague. Infection control: droplet precautions in addition to standard precautions.
vcute	Ricin (aerosolized) Acute onset of fever, chest pain and cough, progressing to respiratory distress and hypoxemia; not improved with antibiotics; death in 36-72 hours.	Plague, Q fever, staphylococcal enterotoxin B, phosgene, tularemia, influenza		Chest x-ray with pulmonary edema. Consult with your local health department regarding specimen collection and diagnostic testing procedures.	Call your local health department.
40	Staphylococcal Enteroloxin B Acute onset of fever, chills, headache, nonproductive cough and myalgia (influenza-like lilness) with a NORMAL chest x- ray.	Influenza, adenovirus, mycopiasma		Primarily dinical diagnosis. Consult with your local health department regarding specimen collection and diagnostic test- ing procedures.	Call your local health department. Infection control: standard precautions.
ash with ver	Smallpox Papular rash with fever that begins on the face and extremities and uniformly progresses to vesides and pustules; headache, vomiting, back pain, and delirfum common.	Varicella, disseminated herpes zoster, vaccinia, monkeypox, cowpox		Clinical with laboratory confirmation; vaccinated, gowned and gloved person obtains specimens (scabs or swabs of vesicular or publich fluid). Call your local heath department immediately before obtaining specimer; definitive testing available through CDC.	Call hospital infection control and your local health department immediately. Ask family members/dose contacts of patient to stay at the hospital (ii already present) for public health interview and vaccination; get detailed address and phone number information. Infection control: airborne and contact precautions in addition to standard pre- cautions.
Acute Ra Fev	Viral Hemorrhagie Fever (e. g., Ebola) Forer with mucus membrane bleed- ing, patechiae, thrombosytopenia and hypotension in a patient without underlying malignancy.	Meningococcemia, mataria, typhus, leptospirosis, borreliosis, thrombosic thrombocy- topenic purpura (TIP), hemdytic uremic syndrome (HUS)		Definitive testing available through your local public health laboratory network-call your local health department immediately.	Call hospital infection control and your local health department immediately. Ask fami- ly members/close contacts of patient to stay at the hospital (if already present) for public health interview and follow-up; get detailed address and phone number information. Infection control: contact precautions in addition to standard precautions.
rologic Iromes	Botulism Acute bilateral descending flaccid paralysis beginning with cranial nerve pables.	Guillain-Barre syndrome, myasthenia gravis, mid- brain stroke, tick paralysts, Mg ⁺⁺ intoxication, organophosphate, carbon monoxide, paralytic shell- tish, or beladonna-like alkaloid poisoning, polio, Eaton-Lambert myasthenic syndrome		CSF protein normal; EMG with repatitive nerve stimulation shows augmentation of muscle action potential; toxin assays of serum, foces, or gasitic assigning available at your local public health laboratory; call your local public health department to request testing.	Request botulinum antitoxin from your local health department. Infection control: standard precautions.
Neu	Encephalitis (Venezuelan, Eastern, Western) Encephalopathy with fever and seizures and/or focal neurologic deficits.	Herpes simplex, post-infectious, other viral encephalitides		Serologic testing available at your local public health laboratory.	Call your local health department. Infection control: standard precautions.
nza-Like tess	Bruceliosis Iregular fever, chilis, malaise, headache, weight toss, profound weaknass and fatigue. Arthrakjias, sarchilits, paravertebral abscesses. Anoroxia, nausea, vorniting, diar- rhea, hepatoplenomegay. May have cough and pleuritic chest pain.	Numerous diseases	needle the	Tity, slow-growing, faintly-staining, gram-negative coccobacilli in blood or bone marrow culture, leukopiek court normal or low. Anemia, thromboych court possible. CXR nonspecific normal. broachopneumonia, abscesses, single or military nodales, enfarged hilar nodes, effusions. Serologic testing and culture available at your local public health Laboratory.	Notify your laboratory if brucellosis sus- pected-microbiological testing should be done in a biological setting should be prevent lab acquired infection. Call your local health department. Infection control: standard precautions.
Influer	Tularemia (Typhoidal, Pneumonic) Fewar, chilis, rigors, headache, myal- gias, coryza, sore throast initially; fol- lowed by weakness, anorexia, weight loss. Substemal discomfort, dry cough if pneumonic disease.	including Q Fever, brucellosis	23	Small, faintly-staining, slow-growing, gram-negative coccobacilli in smears or cultures of sputum, blood. CXR may show infiltrate, hilar adenopatry, eflusion. Definitive testing available at your local public health laboratory.	Notify your laboratory if tularemia sus- pected-microbiological testing should be done in a biological safety cabinet to pre- vert tab-acquired inflection. Call your local health department. Intection control: standard precautions.
L	III	Pinterrorier Scenerilleners	nd Enidomiology Workin	ag Group 2001	11/19/0

Adapted from California State and Local Health Department Bioterrorism Surveillance and Epidemiology Working Group, 2001.

1st degree, primary 2nd degree, secondary 3rd degree about, approximately after before	1° 2° 3° ≈ <u>p</u> a	calcium chloride carcinoma, cancer cardiopulmonary resuscitation centigrade cerebrospinal fluid cerebrovascular accident	CaCl Ca CPR C° CSF CVA
abdomen	abd	change	Δ .
abortion	Δb	chest nain	CP
acetaminophen/Tylenol	ΔΡΔΡ	chief complaint	
acute coronary syndrome		chronic obstructive pulmonary	COPD
addie ooronary synaronie	100	disease	0010
acute myocardial infarction	AMI	circulation, motor, sensation	CMS
advanced cardiac life support	ACLS	clear to auscultation	CTA
against medical advice	AMA	complains of	c/o
airway, breathing, circulation	ABC	congestive heart failure	CHF
alcohol (ethanol)	ETOH	coronary artery bypass graft	CABG
alert and oriented	A&O	coronary artery disease	CAD
ambulate, ambulatory	Amb	cubic centimeter	CC
antecubital	AC	dead on arrival at hospital	DOA
anterior	ant.	dead on scene	DOS
arrived on scene to find	AOSTF	decreased, depressed	\downarrow
aspirin	ASA	delirium tremens	DT's
atherosclerotic heart disease	ASHD	dextrose 25%	D25
atrial fibrillation	AFib	dextrose 5% in water	D5W
atrial flutter	Aflutter	dextrose 50%	D50
automatic internal cardiac defibrillator	AICD	diagnosis	Dx
automated external defibrillator	AED	diastolic blood pressure	DBP
awake, alert, oriented	AAO	discontinue	D/C
bag-valve-mask	BVM	drop	gtt.
beats per minute	BPM	drops	gtts.
bilateral breath sounds	BBS	ear, nose, and throat	ENT
blood glucose analysis	BGA	electrocardiogram	ECG, EKG
blood pressure	BP	emergency department	ED
blood sugar, breath sounds	BS	Epinephrine	Epi
bowel movement	BM	equals	=
erectile dysfunction medications	EDF	last menstrual period	LMP
estimated date of confinement	EDC	left, liter	L.
endotracheal tube	ETT	left	()
every	q or Q	left lower quadrant of abdomen	LQ
external jugular	EJ	left upper quadrant of abdomen	LUQ
Fahrenheit	F°	less than	<
female	f. or ${\mathbb Q}$	less than or equal to	≤
format for capnography	EtCO2=XX	level of consciousness	LOC
measurements			

gastrointestinal	GI	loss of consciousness	LOC
gauge	ga.	liters per minute	LPM
Glasgow Coma Scale	ĞCS	male	m. or ♂
gram or grams	a or am	medical intensive care unit	MICU
grann er granne	9 01 9.11	(hospital)	
Gravida	G	millioquivalent	mEa
Glaviua greater then	9	minequivalent	meq.
	>		mcg
greater than or equal to	2	milligram	mg
ground level fall	GLF	milligrams per deciliter	mg/dL
gunshot wound	GSW	milliliter	mL or ml
headache	HA	millimeters of Mercury	mm Hg
head, eyes, ears, nose, throat	HEENT	minute	Min
heart rate	HR	mobile intensive care unit	MICU
history	Hx	motor vehicle collision	MVC
increased, elevated	↑	moves all extremities	MAF
inferior	inf	moves all extremities well	
insulin dependent diabetes	אחחו.	multiple sclerosis	MS
mollitus			NIC
intencivo coro unit		mycoordial information	N // I
Intramuscular	IIVI	nasai cannula	NC
intranasal	IN	nasogastric tube	NG tube
intraosseous	10	nausea/vomiting/diarrhea	N/V/D
intravenous	IV	nebulized	Neb
jugular venous distention	JVD	negative	\bigcirc
keep vein open	KVO	Nitroglycerin	NTG
kilogram	kg	no complaint	N/C
laceration	LĂC	none	Ø
lactated Ringer's	IR	non-insulin dependent diabetes	NIDDM
		mellitus	
no known drug allergies		sublingual	91
Non-robroathor		supravontricular tachycardia	SV/T
		systolic blood pressure	3DP
normal sinus mythm	NSK	umes 2, or umes 3, or umes	XZ
overdose	OD	to keep open	TKO
oxygen	O2 or O2	transcutaneous pacing	
para	Р	treatment	Rx or Tx
patient	pt.	ventricular fibrillation	VF
medical incident report	MIR	ventricular tachycardia	VT
per	/	vital signs	V.S.
person, place, time, event	PPTE	wheelchair	w/c
physical exam	P.E.	weight	wt.
positive	\bigcirc	with	⊂ or w/
posterior	Dost	without	
privately owned vehicle	PO\/	vear(s) old	
pulsoloss oloctrical activity		year(s) old	y.0.
pulse, motor, sensation	PINI2		

San Juan County EMS Guidelines Appendix

pulse oximetry	SpO2	
pupils equal and reactive to light	PERL	
range of motion	ROM	
Revised Trauma Score	RTS	
right		
right bundle branch block	KBBB	
right lower quadrant	RLQ	
right upper quadrant	RUQ	
Ringer's lactate	RL	
shortness of breath	S.O.B.	
signs/symptoms	S/S	
sodium bicarbonate	NaHCO3	
sodium chloride	NaCl	
ST elevation myocardial	STEMI	
infarction		
signs/symptoms, allergies, medications, past history, last oral, events leading to	SAMPLE	