City of Kansas City, Missouri
- EMS MEDICAL PROTOCOLS -



EMS MEDICAL DIRECTOR

- EMS MEDICAL DIRECTORS OFFICE -

Dr. Erica Carney, MD FAEMS
EMS Medical Director

Dr. Travis Helberg, MD
Associate EMS Medical Director

Ryan Koehler, FF/EMT-P
Oversight Paramedic

Mendy Hull
Senior Administrative Assistant

Effective 08/01/2025

Vision Statement

The Office of the EMS Medical Director for Kansas City, Missouri envisions a future where emergency medical care reaches unprecedented levels of excellence. Through collaboration with the Emergency Physicians Advisory Board (EPAB), the Kansas City Missouri Fire Department and the Medical Protocols and Equipment Committee (MPEC), we aim to revolutionize the way we respond to medical emergencies.

We are committed to ensuring that our protocols reflect the latest medical advancements, tailored specifically to meet the unique needs of our community. By working closely with the department and the MPEC, we enhance the efficiency and effectiveness of our emergency response, setting new standards in prehospital medicine.

Our focus extends beyond the quality of patient care to the well-being of our EMS providers. We recognize the importance of supporting their professional growth and ensuring a healthy work environment. By advocating for their well-being and providing necessary resources, we empower our providers to deliver exceptional care to our community.

INTRODUCTION

The following protocols have been developed and approved by The Office of the EMS Medical Director

These protocols, define the standard of care for EMS providers in Kansas City, Missouri. This document is considered a living document and is frequently updated.

It is not possible to write a protocol for every scenario EMS providers may encounter and providers are expected to operate in the patient's best interest. Providers are also expected to document their clinical reasoning and judgment for all actions taken.

These protocols are written in an algorithm and are intended to highlight decision points in patient care and interventions to perform. While they are written in the sequence interventions should be performed in, it is understood that clinical needs may require the provider to operate out of sequence.

ORGANIZATION

Protocols are organized into **Medical** and **Trauma** categories. Medical protocols are subdivided into **Combined**, **Adult**, **Pediatric**, or **Obstetrical**. Combined Medical protocols are protocols that encompass adult and pediatric treatments, as those treatments are similar. Medication doses in the Combined protocols are identified as ADULT or PEDS. Special Situation protocols have been developed for situations EMS providers may encounter. A medication formulary is included along with an appendix.

COLOR KEY

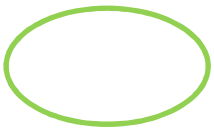
A Color Key has been developed to help improve patient care by clearly defining and separating these treatments. Any assessment or intervention in black type (normal, CAPITALIZED, or **BOLD**) can be accomplished by EMT or Paramedic

ANY INTERVENTION IN CAPITALIZED BOLD GREEN TYPE MUST BE ACCOMPLISHED BY A PARAMEDIC

ANY INTERVENTION IN CAPITALIZED BOLD RED TYPE THAT IS UNDERLINED REQUIRES MEDICAL CONTROL CONTACT



Any red box within a protocol will contain important information or interventions for special situations pertaining to that protocol.



Any green oval within a protocol refers the provider to another protocol by introducing a hyperlink into the specific protocol contained in the online version.

Any word or group of words with a light blue underline contains a hyperlink as well.

POLICIES

		PAGE
GENERAL		
	Ambulance Diversion Guidelines	8
	Central Online Medical Control	11
	Determination of Hospital Destination	13
	DOA	17
	Equipment Brought In	19
	Helicopter Utilization	20
	Infectious Disease	21
	Medical Intervention	25
	Medical Research in KCMO EMS	27
	Medical Standards During Patient Transfer	28
	Medical Transfer of Care and Report Format	30
	Medical Values Statement	31
	On Scene AED Coordination	32
	Patient Contact	33
	Person Exceeding the EMS System's Capability	34
	Refusal of Service	35
	Safe Place for Newborns Act of 2002	39
	Scope of Practice	40
	Suspected Abuse/Neglect	42
	Valid Exclusion of Resuscitation	43
	Vascular Access	44
DISPATCH		
	911 Dispatch to Hospitals with Emergency Departments	45
	Ambulance Transport Requests from Health Care Facilities	46
	Emergency Medical Dispatch	47
	EMS CAD Data	48
	Notification of the Office of the EMS Medical Director	49
	Physician Certification Statement (PCS)	50

MEDICAL PROTOCOLS

COMBINED		
	General Medical Protocol	51
	Allergic Reaction (Anaphylaxis)	53
	Altered Mental Status	54
	Behavioral/Psychiatric Disorder	55
	Cyanide Poisoning	56
	Hyperthermia	57
	Hypothermia	58
	Hypoglycemia	59
	Hypotension/Shock	60
	Non-Traumatic Abdominal Pain	61
	Overdose/Poisoning	62
	Pain Control	63
	Post Resuscitation	64
	Sedation	65
	Seizure	66
	Syncope	67

ADULT

General Airway 68
Obstructed Airway 69
Asthma/COPD 70
CHF/Pulmonary Edema 71
Chest Pain/STEMI 72
Bradycardia 73
Tachycardia 74
Cardiac Arrest 75
Termination of Resuscitation 76
Stroke 77

OBSTETRICAL

Childbirth 78
Complicated Childbirth 79
Neonatal Resuscitation 80

PEDIATRIC

General Airway 81
Obstructed Airway 82
Wheezing 83
Bradycardia 84
Tachycardia 85
Cardiac Arrest 86
BRUE 87

TRAUMA PROTOCOLS

General Trauma 88
Abdominal Trauma 90
Burn 91
Carbon Monoxide Exposure 92
Chest Trauma 93
Drowning/Near Drowning 94
Entrapment/Crush Injury 95
Extremity Trauma 96
Face and Neck Trauma 97
Head Trauma 98
Management of Patients Exposed to STUN or EMD Weapons 99
Opthalmologic Emergencies 100
Spinal Trauma 101
Trauma in Pregnancy 102
Traumatic Cardiac Arrest 103
Treatment of Nerve Agent and Organophosphate Casualties Liquid Exposure 104
Treatment of Nerve Agent and Organophosphate Casualties Vapor Exposure 105

SPECIAL SITUATION PROTOCOLS

BLS Attendant on Emergency Calls 106
BLS Attendant on Interfacility Transfer 107
KCATC 108
Specialty Equipment 109

PROCEDURES

12-Lead ECG Monitoring	111
CO2 Detector (EZ Cap II)Procedure	115
Combat Application Tourniquet	117
Combat Gauze	118
Confirmation of Advanced Airway Placement	119
CPAP	121
DuoDote	123
End Tidal CO2 Monitoring	124
Epinephrine 1:100000 (push dose)	139
iGel	126
Intranasal Drug Administration	127
Intraosseous	128
Nasogastric/Orogastric Tube Insertion	130
Needle Thoracostomy	132
Non-Invasive Blood Pressure Monitoring	133
Oral Endotracheal Intubation	135
Patient Restraint	136
Pulse Oximetry	138
Rapid Glucose Determination	140
Spinal Motion Restriction	141
Transcutaneous Cardiac Pacing	143
Zoll AutoPulse CPR Device	145
Zoll Z VENT / BiPAP	146

MEDICATION FORMULARY

Medication List	148
Adenosine	149
Albuterol (Proventil)	150
Amiodarone	151
Aspirin	152
Atropine Sulfate	153
Atrovent	154
Calcium Chloride	155
Dextrose	156
Diphenhydramine	157
Epinephrine	158
Fentanyl Citrate	159
Glucagon	160
Hydroxocobalamin	161
Magnesium Sulfate	162
Methylprednisolone	163
Midazolam Hydrochloride	164
Naloxone Hydrochloride	165
Nitroglycerin	166
Ondansetron	167
Oxygen	168
Sodium Bicarbonate	169

APPENDIX

12-Lead ECG Interpretation Map	170
APGAR Score	171
Cincinnati Prehospital Stroke Scale	172
Glasgow Coma Scale	173
Pediatric Vital Sign Ranges by Age	174
Epinephrine 1:100000 (push dose)	175
Rights of Medication Administration	176
TCD Destinations	177
Total Body Surface Area	178
Pain Scale	179
tPA Exclusion Criteria	180
Zoll AutoPulse CPR Device	181
Zoll Z VENT / BiPAP	182

KANSAS CITY, MISSOURI EMS PROTOCOLS

AMBULANCE DIVERSION GUIDELINES POLICY

BACKGROUND:

The Diversion Work Group of the Health Alliance of Mid America and MARCER have revised, and the EMS Medical Director has endorsed, updated regional diversion guidelines entitled "Organization and Management for Hospitals and EMS Agencies: A Community Plan for Diversion". The "Policy", "Definitions", "Procedures", and "Regional Catchment Areas" portions are reproduced here. The policy of the Kansas City, Missouri EMS System is as follows, in so far as the guidelines do not conflict with any other City regulation or policy.

POLICY:

I. Patient care and safety should be the central consideration in all status change decisions. EMS should consider alternative destinations for patient routing when hospitals experience high volume.

II. The decision to communicate a change in status should be based on the immediate capabilities and capacities of the emergency department and institution to care for patients. (An exception is trauma diversion, in which availability of an operating room or appropriate surgeon may limit the ability to function as a trauma center.)

III. Patients who are in cardiac arrest will be taken to the closest appropriate hospital, unless the hospital is "out of service." Patients who are "unstable" may still be taken to the closest appropriate hospital, unless it is "out of service" or on "trauma diversion" (for "unstable" trauma patients only).

IV. Patients should be taken to the nearest, open and appropriate hospital. If a patient requests transport to a facility that is experiencing high volume and is informed of this status, then the medic may take the patient to the hospital of their choice.

V. Designated trauma centers may close to ambulances carrying patients who meet EMS trauma routing criteria.

VI. Designated trauma centers may remain open for EMS trauma routing, while the ED is experiencing high volume.

VII. Designated STEMI and/or stroke centers may close to ambulances that have patients that meet TCD routing criteria for STEMI and/or stroke.

VIII. Designated STEMI and/or stroke centers may remain open for patients meeting TCD routing criteria, while the ED is experiencing high volume.

IX. No facility can close to patients on the basis of ability to pay.

X. Hospitals changing their status must do so prior to being notified of an ambulance's impending arrival (i.e. there should be no "*diversions* in route"). During multicasualty incidents (MCI) the EMS agency may distribute patients to multiple facilities in order to optimize utilization of resources.

XI. Status notifications should be made to all EMS providers, hospitals and EMCCs (Emergency Coordination Centers) through EMResource®. (If there is a local problem with EMResource®, the appropriate EMCC can be contacted by phone or FAX and enter the notification into EMResource®.)

XII. If all hospitals within a predefined catchment area are experiencing high volume, then all hospitals in the catchment area will have their status changed to "catchment area high volume" and the patient will be taken to the closest appropriate hospital within the catchment area (with the exception of hospitals that are out of service).

   A. If all hospitals in a catchment area are "experiencing high volume" and therefore all hospitals in the catchment area have their status changed to "catchment area high volume" then ambulances transporting patients to these hospitals will be distributed in a fashion so to equalize as much as possible the number of patients going to these hospitals.

   B. If a trauma, STEMI or stroke center is in a catchment area in which all hospitals are now experiencing high volume, and as such all hospitals in the catchment area have their status changed to "catchment area high volume," it does not automatically mean that the trauma, STEMI or stroke center is open for trauma, STEMI or stroke patients. (There are specific criteria that must be met in order to be designated a trauma, STEMI or stroke center.) That decision is made by the involved trauma, STEMI or stroke center.

XIII. In the event hospital EDs across the region become saturated as defined by any time one half of the metropolitan area catchment hospitals are "experiencing high volume" or during a large scale mass casualty incident occurrence, the EMResource® Administrator or Healthcare Coalition leadership has the authority to temporarily suspend the "high volume" option of the community plan. The suspension of "high volume" would be for an eight (8) hour period and then re-evaluated. The temporary suspension of the community plan does not affect other EMResource® categories related to TCD or out of service conditions.

XIV. The Kansas City community plan for ambulance diversion makes a clear distinction between emergency transport of patients who require emergency care and individual hospital policies regarding the transportation and receiving of patients for direct admission to the hospital. Specific examples include patients who require hospital admission from a primary care physician's office, recently discharged surgical patients, or patient transport from a nursing home to a hospital for non-life threatening conditions. Hospitals whose emergency departments become overwhelmed and are experiencing "high volume" may continue to accept such patients by ambulance for direct admission to the hospital. Since direct admission policy and procedures may vary from one hospital to another, EMS agencies and hospitals are encouraged to work closely together to coordinate direct admissions to avoid additional congestion in the ED.

XV. MARCER and the Health Alliance of MidAmerica have jointly developed a process to track hospital statuses, to monitor trends, to monitor compliance with protocols and to produce appropriate reports for routine review.

XVI. DEFINITIONS

A. Diversion – The rerouting of an ambulance(s) from the intended receiving facility to an alternate receiving facility due to a temporary lack of critical resources in the intended receiving facility.

B. ED Diversion Status Categories:

1. Open – The hospital ED is open to all ambulance traffic.
2. High Volume **–** The hospital ED is experiencing high volumes. When appropriate, alternate destinations should be evaluated for patient routing. The decision for this status change has been reviewed and approved by appropriate organizational leadership with the understanding that it is a solution of last resort to mitigate high volumes.
3. Catchment Area High Volume –All hospitals within their catchment area are experiencing high volume.
4. Closed to TCD **–** The emergency department is functioning but cannot accept ambulance patients for TCD due to a temporary resource limitation.
5. Out of Service – The emergency department has suffered structural damage, loss of power, an exposure threat, or other conditions that precludes the admission and care of any new patients.

C. Time Critical Diagnosis Status Categories:

1. Open to Trauma – Designated trauma center is open for EMS trauma routing criteria.
2. Closed to Trauma – Designated trauma centers may close to ambulances carrying patients who meet EMS trauma routing criteria.
3. Open to STEMI – Designated STEMI center is open to ambulances that have patients that meet STEMI routing criteria.
4. Closed to STEMI – Designated STEMI centers may close to ambulances that have patients that meet STEMI ROUTING CRITERIA.
5. Open to Stroke – Designated stroke center is open to ambulances that have patients that meet stroke routing criteria.
6. Closed to Stroke – Designated stroke centers may close to ambulances that have patients that meet stroke routing criteria.

D. Catchment Area – Three or more hospitals that are related by multiple factors such as ground travel time, capabilities and traffic flow may considered to be a working group for diversion purposes. A hospital may be part of more than one group. These catchment hospitals are to be defined and reviewed yearly by MARCER.

E. Unstable

1. Unable to establish or maintain an airway
2. Unable to ventilate
3. Unremitting shock

4. As otherwise defined in appropriate EMS agency protocols, (including as determined with medical control contact)

XVII. PROCEDURES

A. The decision to initiate or terminate a diversion status rests with the individual hospital according to their written policies.

B. Criteria to determine the necessity of implementing an emergency department status change include: ED bed saturation; number of patients in the ED waiting area, as well as patient waiting times; number of ambulance patients waiting or en route; acuity of patients waiting to be admitted; and ED staffing capabilities. Forms for tracking this information are available on EMResource® or at the MARCER web site.

C. The status change is initiated or terminated using EMResource® according to the EMResource® Protocols and Policies.

D. For participating Missouri hospitals in the Kansas City region, the EMResource® will automatically notify the Missouri Department of Health and Senior Services (DHSS) of a change in hospital status via their EMResource® view. In the event that EMResource® is not operational at the time of the status change, participating Missouri hospitals will send DHSS a fax notification or, by other electronic means, report the commencement of status change.

E. The appropriate EMCC and/or EMS dispatch center assures that ambulance crews in the field are informed of hospital status on a "real-time" basis through their own written policies, protocols or standard operating procedures.

F. The ambulance crews in the field use all appropriate information to make the destination determination. In some systems this may also include on-line contact with a medical control physician.

G. Within eight (8) hours of termination of the diversion, participating Missouri hospitals in the Kansas City region will report the following information to the Missouri DHSS via the EMSystem or by other electronic means:

1. Diversion start time.
2. Name of individual who made the decision to implement the diversion status.
3. Reason for the diversion status.
4. Time the diversion was terminated.
5. Name of the individual who made the decision to terminate the diversion status.

XVIII. REGIONAL CATCHMENT AREAS FOR HOSPITAL DIVERSION – See MARCER for details.

NOTES:

I. Children's Mercy Hospital – As the only pediatric hospital, it is not included in any catchment area.

II. Veteran's Administration Hospital – Not included in any catchment area.

III. Bates County Memorial Hospital (Butler, Missouri), Cass County Medical Center (Harrisonville, Missouri), Cushing Memorial Hospital (Leavenworth, Kansas), Excelsior Springs Medical Center (Excelsior Springs, Missouri), Lafayette Regional Health Center (Lexington, Missouri), and Saint John Hospital (Leavenworth, Kansas) – Not included in any catchment area due to geographic distance to the metropolitan region.

Source: Organization and Management for Hospitals and EMS Agencies for the Greater Kansas City Metropolitan Area, A Community Plan for Diversion. Revised and Approved October 30 2018. MARCER

KANSAS CITY, MISSOURI EMS PROTOCOLS

CENTRAL ON-LINE MEDICAL CONTROL POLICY

BACKGROUND:

I. The Kansas City, Missouri Emergency Medical Service System centralized on-line medical control. On-line medical control provides "real time" consultation to field medics in cases mandated by protocol and in any case which, in the paramedic's judgment, requires Base Station Physician input. University Health - Truman ER serves as medical control with ER Attending physicians and 2nd and 3rd year Emergency Medicine resident physicians serving as Base Station Physicians and providing online medical control for adult patient issues. Children's Mercy Hospital – Adele Hall Campus (downtown) serves as medical control with ER Attending Physicians and Pediatric Emergency Medicine Fellows serving as Base Station Physicians and providing online medical control for pediatric patient issues. Advantages of centralized medical control include:
   A. Enhanced consistency of orders;
   B. Eliminates the burden of radio medical control from busy practitioners;
   C. Allows continued oversight by the Office of the EMS Medical Director;
   D. Potentially allows for better data collection concerning medical control contacts;
   E. Should allow easy transition to a less traditional medical control model, utilizing paramedics for some orders.

POLICY:

I. All radio medical control contacts fall into one of three types (as per Report Format Policy):
   A. "For Orders"
      1. Calls in which protocol mandates an order from Medical Control.
      2. Calls in which the paramedic believes physician input is necessary.
      3. These calls require contact with Medical Control.
   B. "For information with a critical/trauma patient"
      1. Calls notifying the receiving hospital of a critical or potentially critical patient arrival, including: calls meeting trauma routing criteria; patients in cardiac arrest; patient with significant airway compromise; other patients with serious physiological derangement.
      2. These calls are simply notification to the receiving hospital that patients with these criteria are arriving. Medical Control contact is not necessary.
   C. "For information"
      1. All other calls fall into this category.
      2. These calls are simply notification to the receiving hospital that a patient is arriving. Medical Control contact is not necessary.

II. KCFD units will contact Medical Control at one of the centralized on-line medical control hospitals for all "For Orders" calls.
   A. The following are central on-line medical control hospitals:
      1. University Health (UH) – all adult patients.
      2. Children's Mercy Hospital (CMH) – all pediatric patients.
   B. Paramedic responsibilities:
      1. Call the appropriate central on-line medical control hospital for all "For Orders" calls.
      2. Give a concise radio report as per Report Format Policy.
      3. Receive and carry out orders.
      4. Call the receiving hospital and give a concise report.
   C. Central on-line medical control hospital responsibilities:
      1. Answer "For Orders" radio calls within 30 seconds.
      2. Have at least one BSP on duty at all times.
      3. Obtain and maintain BSP certification on all full-time emergency physician staff

III. KCFD units will contact the receiving hospital directly for all “for information on a critical/trauma patient” and all “for information” calls.

IV. If the KCFD unit cannot contact the central medical control hospital by radio, for any reason, it will contact the KCFD Dispatch Center for help and/or further instructions. The Dispatch Center will facilitate contact with the central medical control hospital, whenever possible, via an appropriate recorded line.

V. Each Medical Control Physician is assigned a number. The physician will identify themselves as MD and the number they have been assigned when answering the radio and when giving orders. If the Paramedic does not hear or understand the MD# that the physician has stated, the Paramedic will ask the Physician to repeat their MD#

DOCUMENTATION REQUIREMENTS:

I. The paramedic will obtain and document the Medical Control# of the ordering physician they spoke to in the epcr.

II. The BSP should fill out any “log-book” type instrument that may be developed in the future to track on-line medical control contacts.

KANSAS CITY, MISSOURI EMS PROTOCOLS

DETERMINATION OF HOSPITAL DESTINATION POLICY

POLICY:

I. General Routing
   A. For all life threatening emergencies, transport the patient to the nearest appropriate hospital defined as the hospital that requires the least amount of transport time.
   B. For all non-life threatening emergencies, transport the patient to the hospital of the patient's choice.
      1. If a patient requests transport to a facility whose status is "High Volume", the patient is informed of this status, and continues to request transport to the facility, then the medic may transport the patient to their hospital of choice. The paramedic will need to document this in the narrative.
   C. Ambulances should not transport more than one patient in the same ambulance unless the patients have established a previous relationship, such as family or friends and are being transport to the same destination hospital.

II. Time Critical Diagnosis (TCD) Routing
   A. Trauma Routing
      1. Any trauma patient with any of the following criteria should be routed to a Trauma Center even if it is not the nearest hospital.
      2. Physiologic Criteria
         a) Shock, as defined as BP less than 90mmHg (adults)
         b) Respiratory distress
            1) RR > 29 or < 10 (adults) or < 20 (infant less than 1 year)
         c) Altered mental status with Glasgow Coma Scale of less than 14
      3. Mechanism of Injury
         a) Occupant ejection
         b) Fall from height > 20 feet (adults), > 10 feet (children)
         c) Pedestrian/bicycle/motorcycle hit at speed > 20mph
         d) Death of same car occupant
         e) Prolonged extrication > 20 minutes
         f) Vehicle telemetry data consistent with high risk injury
      4. Anatomic
         a) Penetrating injury to head, neck, torso, or extremities proximal to elbow or knee
         b) Airway burns
         c) 20% second degree burns and/or 5% third degree burns
         d) Flail chest
         e) Two or more proximal long bone fractures
         f) Pelvic fracture
         g) Paralysis
         h) Amputation proximal to wrist or ankle
         i) Open and/or depressed skull fracture
         j) Crushed, degloved, or mangled extremity
         k) Tonsillectomy and Adenoidectomy bleeding post surgery
      5. For any trauma patients with the following criteria, contact medical control and consider transport to a Trauma Center even if it is not the nearest hospital.
         a) Age < 16 or > 55
         b) Pregnancy greater than 20 weeks
         c) Patient with bleeding disorder or patient on anticoagulants
         d) Patient with any known serious medical disorder i.e. dialysis

6. Patients who are less than 16 years old and who meet the physiologic (pediatric), mechanism of injury, or anatomic criteria should be routed to a Missouri state designated pediatric trauma center.
7. Traumatic cardiopulmonary arrest patients should be taken to the nearest Trauma Center, unless it is "out of service".
8. When there is more than one adult trauma patient, attempt to evenly distribute patients. If this is not feasible, contact central medical control at Truman Medical Center – Hospital Hill for routing assistance.
9. When more than one patient less than 16 years old meets physiologic or anatomic criteria per the trauma routing protocol, contact central medical control at Children's Mercy Hospital for routing assistance.
10. For the following burn patients, CONSIDER routing directly to the closest Burn Center
    a) > 20% partial thickness (second degree) burns
    b) > 5% full thickness (third degree) burns
    c) Facial burns/inhalation injury
    d) Circumferential burns
    e) High voltage electrical burns
    f) Genital perineum burns
    g) Burns over joints or exposed bone
    h) Burns to hands or feet

B. STEMI Routing
1. Patients with identified ST elevation of 1mm or greater in two or more contiguous leads or left bundle branch block should be transported to the closest appropriate STEMI center.

C. Stroke Routing
1. Patients identified with acute stroke symptoms should be transported to the closest appropriate stroke center per the following guidelines:
    a) Patients with onset of symptoms/last known well less than 3.5hrs AND do not meet any tPA Exclusion Criteria, transport to closest Primary or Comprehensive Stroke Center
    b) Patients with onset of symptoms/last known well between 3.5hrs and 12hrs OR less than 3.5hrs AND meet tPA Exclusion Criteria, OR woke up with symptoms, transport to closest Comprehensive Stroke Center
    c) Patients with onset of symptoms/last known well greater than 12hrs may be transported to closest appropriate hospital.

III. Hospital Diversion Routing

A. Definitions
1. Diversion – The rerouting of an ambulance(s) from the intended receiving facility to an alternate receiving facility due to a temporary lack of critical resources in the intended receiving facility.
2. ED Diversion Status Categories:
    a) Open – The hospital ED is open to all ambulance traffic.
    b) High Volume **–** The hospital ED is experiencing high volumes. When appropriate, alternate destinations should be evaluated for patient routing. The decision for this status change has been reviewed and approved by appropriate organizational leadership with the understanding that it is a solution of last resort to mitigate high volumes.
    c) Catchment Area High Volume –All hospitals within their catchment area are experiencing high volume.
    d) Closed to TCD **–** The emergency department is functioning but cannot accept ambulance patients for TCD due to a temporary resource limitation.
    e) Out of Service – The emergency department has suffered structural damage, loss of power, an exposure threat, or other conditions that precludes the admission and care of any new patients.

3. Time Critical Diagnosis Status Categories:
    a) Open to Trauma – Designated trauma center is open for EMS trauma routing criteria.
    b) Closed to Trauma – Designated trauma centers may close to ambulances carrying patients who meet EMS trauma routing criteria.
    c) Open to STEMI – Designated STEMI center is open to ambulances that have patients that meet STEMI routing criteria.
    d) Closed to STEMI – Designated STEMI centers may close to ambulances that have patients that meet STEMI ROUTING CRITERIA.
    e) Open to Stroke – Designated stroke center is open to ambulances that have patients that meet stroke routing criteria.
    f) Closed to Stroke – Designated stroke centers may close to ambulances that have patients that meet stroke routing criteria.

B. Hospital Diversion Procedure
1. The Kansas City, Missouri EMS System uses a web-based, real-time, computerized diversions system called the "EMSystem". Each hospital follows the procedures in the "EMSystem Protocols and Policies" Manual when going on and off diversion status.
2. If the EMSystem is down for any reason, the hospital shall fax the Dispatch center to go on and off diversion status.
3. "Call by Call" diversion status is not recognized by the system.
4. Enroute diversions should be a rare event:
    a) Diversions enroute may only occur by an order given by medical control
    b) Contact medical control at University Health (UH) for orders.
5. A Trauma Center on "trauma diversion" will continue to receive injured patients that do not meet trauma routing criteria.

NOTES:

I. Hospital Transfers:
A. When the receiving hospital is closed, inter-facility transfers that have been arranged between two hospitals for the direct admission of patients to inpatient beds will be followed.
B. If the inpatient bed is not available at the receiving hospital upon ambulance arrival to that receiving hospital, then the patient will be delivered to the hospital emergency department and the ambulance will be released for further calls.

II. Patients Under Arrest:
A. Hospital destination for patients who are under arrest by law enforcement:
1. Patients under arrest with a life-threatening emergency will be transported to the closest appropriate hospital as directed by this policy.
2. Patients under arrest and considered to have a non-life threatening emergency have no freedom of movement, or right to designate medical treatment. The patient will be transported to the hospital designated by the arresting officer.

III. Patients refusing transport to any other facility:
A. Patient care and safety should be the central consideration in all diversion decisions. If a patient requests transport to a hospital that is on diversion, and the patient is made aware of a potential delay in care, then transport to the patient's hospital of choice:
1. Contact the receiving hospital "for information" and inform them that you are bringing the patient per this protocol.
2. Do not ask permission of the hospital.
3. This should be an informed decision on the patient's part. The medic should explain that since the hospital is "closed to ambulances" it means that this may delay and/or otherwise impede the patient's care.

IV. General parent-child considerations:
A. In general, if the parent is supportive, most children should be transported with a parent, unless accompaniment interferes with the care of the child.

B. Children usually respond best to open and honest dialogue.
C. In situations of major trauma or cardiopulmonary arrest, it is usually better to have the parent not ride in the ambulance.

KANSAS CITY, MISSOURI EMS PROTOCOLS

DOA POLICY

POLICY:

For patients with a **MEDICAL** etiology:

I. CPR and ALS treatment are to be withheld only if the patient is obviously dead per the following criteria:
II. If ANY of the following clinical signs of irreversible death:
    A. Rigor mortis
    B. Dependent lividity
    C. Tissue decomposition
    D. Fetal death < 20 weeks
III. AND if ALL of the following are present:
    A. Pulseless
    B. No heart tone on auscultation
    C. Apnea
    D. No pupillary response
IV. The patient may be pronounced DOA

IF PRESENTED WITH DO NOT RESUSCITATE ORDERS, REFER TO THE VALID EXCLUSION OF RESUSCITATION POLICY

For patients with a **TRAUMATIC** etiology:

I. If ANY of the following clinical signs of irreversible death:
    A. Rigor mortis
    B. Dependent lividity
    C. Tissue decomposition
    D. Fetal death < 20 weeks
    E. Injury incompatible with life, for example:
        1. Decapitation
        2. Incineration
II. AND if ALL of the following are present:
    A. Pulseless
    B. No heart tone on auscultation
    C. Apnea
    D. No pupillary response
    E. Severe mechanism of injury
III. The patient may be pronounced DOA

CONTRAINDICATIONS to pronouncing a patient DOA:

A. Hypothermia
B. Drowning with hypothermia and submersion < 60 minutes
C. Pregnant patient with estimated gestational age > 20 weeks
D. Lightning strike

NOTES:

I. It is intended for this policy to be utilized by an EMT or a Paramedic.
II. An ePCR detailing the situation and the specific DOA criteria met is to be completed by the pronouncing provider.
III. If resuscitation efforts are in progress and the patient meets the above criteria, CONSIDER discontinuing the resuscitation efforts.
IV. Police are in charge at a crime scene. They have the right to deny EMS providers access to the patient.
V. It is not the policy of KCFD to move or transport deceased patients. These patients should not be moved to an ambulance unless expressly directed to do so by KCFD Incident Command or KCPD as the result of the potential threat of a riot.
VI. The pronouncing crew must remain on scene with the body until released by law enforcement or coroner.

KANSAS CITY, MISSOURI EMS PROTOCOLS

EQUIPMENT BROUGHT IN POLICY

BACKGROUND:

The purpose of the policy is to assist EMS personnel for what equipment needs to be brought in for the patient by the EMS crew.

POLICY:

I. Any call of an emergency nature should be considered to have potential for serious medical conditions until proven otherwise.
II. The optimal amount and type of equipment brought into the scene is dependent on multiple factors including but not limited to the type of call, the location of the call, ingress and egress capabilities, and the operating environment.
III. It is incumbent upon the EMS crew to be aware of all problems that could reasonably be foreseen at the scene.
IV. Ultimately the EMS crew must decide which equipment to take to the patient on each call and must take responsibility for the consequences if the crew fails to recognize problems that could have reasonably been foreseen. EMS crews will be held accountable for bad outcomes that arise due to a poor decision process.
V. EMS crews should not be complacent with bringing in less equipment on lower priority calls; even the lowest priority call can have potential for emergency medical attention.
VI. At a minimum, an EMS crew should bring in the appropriate amount of equipment to provide medical treatment for any condition which could reasonably be foreseen.

KANSAS CITY MISSOURI EMS PROTOCOLS

HELICOPTER UTILIZATION

BACKGROUND: Dispatching of air ambulances within the City of Kansas City, Missouri, will be done through the KCFD Communications Center.

POLICY:

I. Indications
   A. Use of air ambulance transport is the judgment of the on-scene paramedic.
   B. Factors to consider include:
      1. Optimum speed of response and transport
         a) Be aware of helicopter spin up time, response time, load time, and transport time.
      2. Impaired ground accessibility
         a) Location
         b) Traffic volume
         c) Condition of roads or streets
      3. Shortage of conventional ground transport units and need for rapid transport.
      4. Rapid transport of medical personnel and supplies.
      5. Distribution among area hospitals to avoid overloading the nearest emergency facility
         a) In a multiple casualty incident, the air unit should transport to the furthest appropriate facility from the scene.
      6. Need for multiple response of ground vehicles, usually in outlying areas.

II. Procedures
   A. It is within the authority of the KCFD Communication Specialist to dispatch air ambulances as additional units.
   B. When KCFD Communications receives a request for air ambulance service from other entities prior to the arrival of a KCFD unit, air ambulances may be ordered depending on location of KCFD units and number of patients.
   C. KCFD Communications will advise responding KCFD unit(s) and other ground units that an air ambulance has been ordered.
   D. It is the responsibility of the on-scene paramedic to:
      1. Triage patients and consider the mode of transportation and destination of all patients.
      2. Immediately notify the ranking fire and law enforcement on-scene personnel that an air ambulance is enroute.
      3. Confirm a suitable landing zone (LZ) for air ambulance.
         a) This is primarily a fire and police responsibility depending on jurisdiction.
         b) In Kansas City, Missouri, the Kansas City Fire Department will coordinate the LZ.
   E. The air ambulance pilot has final authority if an LZ is acceptable.
      1. If another LZ is requested/suggested by the pilot, it must be provided.

KANSAS CITY, MISSOURI EMS PROTOCOLS

INFECTIOUS DISEASE POLICY

The following information is taken from: ***Assistant Secretary for Preparedness and Response: EMS INFECTIOUS DISEASE PLAYBOOK***

POLICY:

I. **Standard Precautions:**
   A. EXAMPLE DISEASES:
      1. AIDS/HIV, anthrax (cutaneous or pulmonary)
      2. Botulism
      3. Cellulitis/abscess
      4. Dengue fever
      5. Nonspecific upper respiratory infections
   B. PPE:
      1. Gloves during patient contact
      2. Goggles/face shield and surgical mask for any airway procedures (intubation, suctioning) or patient with active cough from apparent infectious source
      3. Impermeable gown for any situation likely to generate splash/liquid exposures
      4. PPE should be removed in an appropriate doffing area
      5. Avoid self-contamination
      6. PPE waste should be placed in a labeled leak-proof container
      7. Potential exposures should be reported according to existing service protocols
   C. PATIENT CARE CONSIDERATIONS:
      1. Provide a surgical mask for all patients with acute infectious respiratory symptoms who can tolerate it
      2. Provide tissues to patients for secretion control
      3. Encourage patient to use hand hygiene and cough etiquette practices
   D. TRANSPORT CONSIDERATIONS:
      1. Standard transportation to appropriate hospital facility
      2. Turn on patient compartment exhaust fan
   E. Complete appropriate AMBULANCE DECONTAMINATION

II. **Contact Precautions**:
   A. EXAMPLE DISEASES:
      1. Excessive wound drainage
      2. MRSA
      3. Vancomycin-resistant enterococci (VRE)
      4. C. difficile
      5. Norovirus
      6. Infectious diarrhea
      7. Head lice/body lice/scabies
   B. PPE:
      1. Ensure strict adherence to standard precautions based on situation (e.g., mask, goggles/face shield for splatter risk or airway interventions)
      2. Disposable fluid-resistant gown that protects the provider's legs as needed
      3. Disposable gloves
   C. PATIENT CARE CONSIDERATIONS:
      1. Provide a surgical mask for all patients with acute infectious respiratory symptoms who can tolerate it
      2. Provide tissues to patients for secretion control

3. Encourage patient to use hand hygiene and cough etiquette practices

D. TRANSPORT CONSIDERATIONS:
   1. Standard transportation to appropriate hospital facility
   2. Turn on patient compartment exhaust fan

E. Ambulance should be taken out of service for appropriate AMBULANCE DECONTAMINATION

III. **Droplet Precautions:**

A. EXAMPLE DISEASES:
   1. Neisseria meningitides
   2. Mumps
   3. Mycoplasma
   4. Streptococcal and many other causes of pneumonia
   5. Parvovirus
   6. Pertussis
   7. Pneumonic plague
   8. Rhinovirus
   9. Rubella
   10. **Seasonal influenza**
   11. Streptococcal pharyngitis

B. PPE:
   1. Ensure strict adherence to standard precautions based on situation (e.g., mask, goggles/face shield for splatter risk or airway interventions)
   2. Disposable surgical mask (N95 respirator not required)
   3. Disposable gloves
   4. Eye protection – cleanable goggles or disposable face shield

C. PATIENT CARE CONSIDERATIONS:
   1. Provide a surgical mask for all patients with acute infectious respiratory symptoms who can tolerate it
   2. Provide tissues to patients for secretion control
   3. Encourage patient to use hand hygiene and cough etiquette practices
   4. Personnel not in appropriate PPE: maintain a distance of 6 feet from the patient. Wear gloves
   5. Minimize use of nebulizers (consider metered dose inhalers)
   6. Minimize airway interventions that may cause coughing (e.g., suctioning)

D. TRANSPORT CONSIDERATIONS:
   1. Standard transportation
   2. Consider putting patient compartment exhaust vent on high and isolating the driver compartment if performing aerosol producing procedures (airway suctioning, intubation, aerosolized medication administration)
   3. Increase ventilation - have air or heat on non-recirculating cycle and/or open windows
   4. Advise receiving hospital of respiratory symptoms

E. Ambulance should be taken out of service for appropriate AMBULANCE DECONTAMINATION

IV. **Airborne Precautions:**

A. EXAMPLE DISEASES:
   1. **Measles**, **TB** (suspected or confirmed),
   2. Varicella (chickenpox)

B. PPE:
   1. Ensure strict adherence to standard precautions based on situation (e.g., mask, goggles/face shield for splatter risk or airway interventions)
   2. Disposable NIOSH-approved, fit-tested N95 respirator or powered air purifying respirators (PAPRs) with full hood and high efficiency particulate air (HEPA) filter
   3. Disposable exam gloves

C. PATIENT CARE CONSIDERATIONS:
   1. Ensure strict adherence with standard precautions (e.g., add gown or coverall for significant bodily fluid exposures and follow doffing for contact precautions)

2. Ask the patient to wear a surgical mask (N95 respirator not required) if they are able to tolerate it
3. Provide tissues to patients for secretion control
4. Encourage patient to use hand hygiene and cough etiquette practices
5. Procedures that can generate small particle aerosols (endotracheal intubation and suctioning)
    a) Protection of the eyes, nose, and mouth – in addition to gown and gloves – is recommended
    b) Use of an N95 respirator is recommended

D. TRANSPORT CONSIDERATIONS :
1. Notify the receiving hospital of the need for an airborne infection isolation room
2. Consider having the patient compartment exhaust vent on high and isolating the driver compartment
3. Consider having the driver compartment ventilation fan set to high without recirculation
4. If driver/pilot compartment cannot be isolated from the patient compartment, vehicle operator to wear NIOSH-approved, fit-tested N95 respirator
5. Intubated patients should be ventilated with a bag-valve device or ventilator equipped with a HEPA filter on exhalation port

E. Ambulance should be taken out of service for appropriate AMBULANCE DECONTAMINATION

V. **Special Respiratory Precautions:**

A. EXAMPLE DISEASES:
1. Severe acute respiratory syndrome (SARS)
2. Novel influenza strains (e.g., H7N9)
3. Smallpox

B. PPE:
1. Ensure strict adherence to standard precautions based on situation (e.g., mask, goggles/face shield for splatter risk or airway interventions)
2. Disposable NIOSH-approved, fit-tested N95 or equivalent/higher level respirator or PAPR with full hood and HEPA filter
3. Disposable face shield or disposable or cleanable goggles (if not using hooded PAPR)
4. Disposable fluid-resistant gown that extends to at least mid-calf or disposable fluid-resistant coveralls
5. Disposable gloves with extended cuffs (strongly consider double-gloving)
6. Disposable boot/shoe covers

C. PATIENT CARE CONSIDERATIONS:
1. Ask the patient to wear a surgical mask or N95 if they are able to tolerate it
2. Provide tissues to patients for secretion control
3. Encourage patient to use hand hygiene and cough etiquette practices
4. Exercise caution when performing aerosol-producing procedures (endotracheal intubation, suctioning, administration of nebulized medication, CPAP/BiPAP, CPR)
    a) Only perform these procedures if medically necessary and cannot be postponed
    b) Patients who are intubated should be ventilated with a bag-valve device or ventilator with a HEPA filter on the exhalation port

D. TRANSPORT CONSIDERATIONS:
1. Notify the receiving hospital of the need for an isolation room
2. The patient compartment exhaust vent should be on high and the driver compartment should be isolated from the patient compartment if possible
3. The driver compartment ventilation fan should be set to high without recirculation
4. The vehicle operator should wear a NIOSH-approved, fit-tested N95 respirator if cab cannot be isolated
5. Consider transport by portable isolation unit or ambulance preparation
6. Have a plan for family members wishing to accompany the patient
7. Contact the appropriate public health authority for further information or actions

E. Ambulance should be taken out of service for appropriate AMBULANCE DECONTAMINATION

VI. **EVD/VHF Precautions:**

A. EXAMPLE DISEASES:
1. Ebola
2. Marburg virus
3. Crimean-Congo fever

B. PPE:
1. Ensure strict adherence to standard precautions based on situation (e.g., mask, goggles/face shield for splatter risk or airway interventions)
2. Use NIOSH-approved, fit-tested N95 respirator in combination with impermeable hood that covers head and shoulders and a full face shield or PAPR with impermeable drape-style hood
3. Can add a heavier impermeable apron for high-risk situations
4. Disposable gloves with extended cuffs (strongly consider double-gloving)
5. Disposable boot/shoe covers

C. PATIENT CARE CONSIDERATIONS:
1. Ask the patient to wear a surgical mask or N95 respirator if they are able to tolerate it
2. Advise the designated receiving hospital as early as possible about a suspect case
3. Anticipate additional stool/vomitus to reduce contamination of the HCW and the ambulance (emesis bags, towels, and/or impermeable sheet placed on stretcher, adult undergarments)
4. Minimize the number of HCWs who make patient contact
5. Dedicated medical equipment (ideally disposable) should be used
6. If patient is ambulatory, strongly consider a barrier garment, surgical mask, and gloves if tolerated
7. If patient is non-ambulatory, comfortably shroud patient in a barrier sheet, and apply surgical
8. Exercise caution when performing aerosol-producing procedures (endotracheal intubation, suctioning, administration of nebulized medication, CPAP/BiPAP, CPR)
    a) Only perform if medically necessary and cannot be postponed
9. Do not perform invasive procedures (IV) unless urgently required for patient care or stabilization
10. Handle needles/sharps with caution. Dispose of in a **single patient**, puncture-proof, sealed container
11. Consider giving oral or nasal medicine per protocols rather than injectable
12. Use hands-free communications devices (e.g., tactical headsets) inside the PPE ensemble to facilitate communication and avoid contamination of radios
13. Charting is either verbal to a partner in a clean area or completed after transport

D. TRANSPORT CONSIDERATIONS:
1. If the patient is a highly suspect case and stable, consider specialized ambulance preparation
2. Confirmed case or interfacility transport should be performed by EMS personnel with properly prepared ambulances
3. For emergency transport, consider applying an impermeable barrier sheet or cocoon to the patient to protect the HCW and environmental surfaces
4. The driver's compartment should remain clean! No family members or belongings
5. Suspected EVD/VHF cases should be transported to a designated regional receiving center

E. Ambulance should be taken out of service for appropriate AMBULANCE DECONTAMINATION

KANSAS CITY, MISSOURI EMS PROTOCOLS

MEDICAL INTERVENTION POLICY

BACKGROUND:

Kansas City, MO EMS Ordinance, Section 34-364 states: "The medical director shall serve as the primary source of day-to-day medical direction and clinical oversight of all elements of the pre-hospital emergency medical services system." EMS providers are operating under the authority of the EMS Medical Director or their designee.

If a licensed physician appears on a scene and desires to assume direction and control of patient care, the physician shall execute a form which declares the physician has assumed responsibility for patient care.

Two scenarios are common:

I. Personal Physician
   A. Individual is the personal physician of the patient and has previously established a doctor-patient relationship with the patient.
   B. Most commonly occurs when the patient is still in the doctor's office.
   C. May also include a "team physician".

II. Intervener Physician
   A. Physician does not have a prior formal doctor-patient relationship with the patient.
   B. Most commonly occurs when the doctor happens on scene prior to, concurrent with, or after EMS arrival.

The highest priority is the provision of effective and efficient care and transport of the patient. This policy describes the relationship between the patient, the EMS system, and the physician in these scenarios.

POLICY:

I. Personal Physician:
   A. If the patient's personal physician is present and desires to continue care, the prehospital provider should defer to the orders of the personal physician as within the paramedics scope of practice.
   B. Regardless of a physician executing a physician intervention form; EMS personnel retain the authority to establish medical direction with on-line medical control and assume medical authority of the patient if they believe the care rendered by the personal physician is not the standard of care. EMS personnel will not comply with orders that exceed their scope of practice or are inconsistent with the standard of care.
   C. The medical direction of EMS personnel shall revert to protocols and/or on-line medical control any time the personal physician is no longer in attendance.

II. Intervener Physician On Scene:
   A. If an individual identifies themselves as a physician on scene and expresses intent to assume medical care for a patient, EMS personnel will briefly discuss the situation with the physician.
   B. EMS personnel will ask for proof of licensure to practice medicine in the State of Missouri. The only acceptable evidence of licensure are:
      1. State of Missouri medical license card
      2. KCMO Base Station Physician certification card
   C. If the physician cannot provide this proof of licensure, the paramedic will not transfer medical authority.
   D. If after establishing proof of licensure listed in II.B.2, EMS personnel will provide the physician with a "medical intervention form" for review.
   E. If after reading the document and any further discussion, the physician wishes to take over medical care of the patient the paramedic will perform the following:
      1. Contact with on-line medical control is mandatory to determine whether to relinquish responsibility to the intervener physician.
      2. If on-line medical control relinquishes responsibility to the intervener physician, then:

a) The intervener physician must sign the “medical intervention form”.
b) The intervener physician must accompany the patient to the hospital, sign the KCFD Patient Care Report, and give a report to the receiving hospital physician.

3. If a patient explicitly requests that the intervener physician not provide care then the paramedic maintains medical authority of the patient.
4. If patient care has progressed to time or transport, the paramedic will decline the offer of assistance and transport.
5. Contact with the on-line medical control is not necessary if the intervener physician is a BSP and can demonstrate proof of certification as a BSP in the KCMO EMS System.

F. At no time shall patient care be compromised for on-line medical control contact to relinquish responsibility to the intervener physician.

G. The on-scene paramedic will continue to have ultimate authority for the patient. If the paramedic feels at any time that the intervening physician is either not providing the standard of care or is interfering with the furtherance of patient care, the paramedic will terminate the medical intervention relationship and assume care of the patient per KCMO EMS protocols.

MEDICAL RESEARCH IN KCMO EMS POLICY

BACKGROUND:

I. Emergency Medical Services is a unique form of medicine.
II. There are numerous clinical and quality of care issues that can only be studied using a research format.
III. The EMS system should hold itself to the same patient safeguards and ethical conduct set forth under various governing bodies.

POLICY:

I. Any research that is proposed to be conducted in the Kansas City Missouri Emergency Medical Services System, including, but not limited to the Kansas City Missouri Fire Department shall meet the following guidelines.
II. Approval of the concept, plan, and protocol by the Office of the EMS Medical Director and the EMSCC.
III. Research plan and protocol must be approved by an Institutional Review Board (IRB) of a certified research institution as determined by the EMS Medical Director.
IV. Any research approved for the Kansas City Missouri Emergency Medical Services System will include oversight and participation from the Office of the EMS Medical Director.
V. Any costs for conducting research will be borne by the investigator.
VI. Investigators proposing research for the Kansas City Missouri Emergency Medical Services System will disclose to the Office of the EMS Medical Director any financial or other relationships with companies or organizations that may influence their proposed research.

KANSAS CITY, MISSOURI EMS PROTOCOLS

MEDICAL STANDARDS DURING PATIENT TRANSFER POLICY

POLICY:

I. Medication Administration
   A. During the transfer of patients between health care facilities, paramedics may be required to monitor the intravenous infusion of medications and/or blood products, or administer medications and/or blood products not approved by the EMS Medical Director for use in the prehospital setting (non-standard medications)
   B. Policy:
      1. The paramedic may monitor and administer non-standard medications prescribed by the patient's transferring physician with on-line medial control guidance during the patient transfer as needed. Medications requiring continuous infusion will be administered via a mechanical infusion pump:
         a) Understanding of a mechanical infusion pump is the paramedic's responsibility (i.e. if the paramedic does not understand, then the paramedic should not leave the facility until it has been explained.)
         b) If the paramedic is asked to manipulate more drugs or devices than the paramedic thinks is appropriate, then the paramedic should notify the appropriate personnel at the transferring hospital. If the problem cannot be solved, then the paramedic should contact a supervisor
      2. The administration of any non-standard medications shall be recorded on the patient care report (PCR) noting the transferring physician's name, medical control contacted, and dosage and route of administration of medication.

II. Ventilator Support
   A. Paramedics may be asked to transfer patients who are receiving positive pressure ventilator support. Overall responsibility for the patient rests with the paramedic. A second medically trained person is preferred to help to attend to the airway and provide ventilatory support.
   B. Policy
      1. Paramedic should not transport the positive pressure ventilated patient without a second medically trained person to assist if in the paramedic's judgment additional help is needed to help attend to the airway and provide ventilatory support.
      2. If the paramedic is asked to do so, the paramedic should inform the appropriate personnel at the transferring hospital of the policy. If the problem cannot be solved, then the paramedic should contact a supervisor.
      3. If a patient is on oxygen of any source or has any respiratory symptoms, then an appropriately sized bag-valve-mask must always accompany the patient.
      4. If a patient is found to be on Positive End Expiratory Pressure (PEEP) at the transferring facility, then a bag-valve-mask with an attached PEEP valve and a person knowledgeable in it use will accompany the patient in transfer.
      5. The level of transfer (emergency or non-emergency) from the sending hospital to the receiving hospital can be specified by the transferring physician. If no level is specified, then paramedic judgement will determine the level of ambulance transfer.
      6. If a patient is determined to be critical by the paramedic, at least an information call should be made to the receiving hospital to request a standby elevator. If a critical patient is not going to a critical area, the paramedic may request an evaluation by the ED prior to proceeding to the non-critical area.
      7. The use of ventilator support shall be recorded on the patient care report (PCR) noting the transferring physician's name, and any instructions or orders pertaining to the ventilator support provided by the transferring physician.

III. Mechanical or other Nonstandard EMS Devices

A. Paramedics may be asked to transfer patients who are receiving mechanical circulatory support and/or other non-standard EMS equipment not approved by the EMS medical director. Overall responsibility for the patient rests with the paramedic. A second medically trained person from the transferring hospital is preferred to help attend to any non-standard mechanical devices. Examples of non-standard mechanical devices include, but is not limited to: intra-aortic balloon pumps, external chest compression devices, internal or external cooling/warming devices and left ventricular assist devices

1. If the paramedic is asked to supervise or manipulate more devices than the paramedic thinks is appropriate, then the paramedic should notify the appropriate personnel at the transferring hospital. If the problem cannot be solved, then the paramedic should contact a supervisor.
2. The level of transfer (emergency or non-emergency) from the sending hospital to the receiving hospital can be specified by the transferring physician. If no level is specified, then paramedic judgement will determine the level of ambulance transfer.
3. If a patient is determined to be critical by the paramedic, at least an information call should be made to the receiving hospital to request a standby elevator. If a critical patient is not going to a critical area, the paramedic may request an evaluation by the ED prior to proceeding to the non-critical area.

B. The use of any non-standard mechanical devices shall be recorded on the patient care report (PCR) noting the transferring physician's name, and any instructions or orders pertaining to the device provided by the transferring physician.

IV. Transports of Patients from Hospitals to Psychiatric Facilities

A. The patient cannot legally refuse treatment and transport once a physician has determined that the patient is, or may be, suicidal. This MUST be documented on the PCR.

B. The patient must be transported to the psychiatric facility regardless of the patient's demands to refuse transport.

C. Verbal, physical, or chemical restraint may be appropriate. Contact law enforcement personnel for assistance as needed.

KANSAS CITY, MISSOURI EMS PROTOCOLS

MEDICAL TRANSFER OF CARE AND RADIO REPORT FORMAT POLICY

BACKGROUND: The reason for contact should be stated clearly at the beginning of the transmission.

POLICY:

I. The three accepted reasons for contact are:
   - A. "FOR ORDERS"
     1. Requests for orders
     2. Refusals
     3. Consultations with the base station physician in unusual circumstances
   - B. "FOR INFORMATION WITH CRITICAL/TRAUMA PATIENT"
     1. Patients meeting trauma routing criteria
     2. Patients in cardiac arrest
     3. Patient with airway compromise
     4. Patients with other serious physiologic derangements per paramedic discretion
   - C. "FOR INFORMATION"
     1. This is a courtesy to the hospital and does not include patients in the above groups

II. Ambulance identification
   - A. Vehicle identification
   - B. Paramedic name
   - C. Estimated time of arrival (ETA)

III. Patient report
   - A. Patient's age and sex
   - B. Basic problem or chief complaint
   - C. Brief relevant history; include past medical history, medications, and allergies only if relevant
   - D. Vital signs (pulse, blood pressure, respirations, cardiac monitor pattern if appropriate)
   - E. General appearance include level of consciousness
   - F. Pertinent physical findings
   - G. Care in progress (i.e. airway, splints, backboard, collar, oxygen, etc)
   - H. Request specific orders following the appropriate protocols

IV. Special notes
   - A. Be as concise and accurate as possible. Radio reports should not take more than one minute per patient.
   - B. Significant objective findings (i.e. critical vital signs) may take precedence over history and need to be reported first.
   - C. Patient's name may be broadcast if it will further patient care; patient name may be broadcast at hospital request.
   - D. Radio report is a paramedic function except under extreme conditions. Unstable patients may necessitate an EMT giving a radio report.
   - E. Any request for drug orders will include dose and route.

KANSAS CITY, MISSOURI EMS PROTOCOLS

MEDICAL VALUES STATEMENT POLICY

POLICY:

I. The following is a list of the recognized values for the use in meeting the customer's medical needs within the KCMO EMS System. This list of values will be used to evaluate clinical care that falls outside of the established protocols.

A. ***Safety:*** In order to protect the crew, the patient, or the public from a danger on the scene, established treatment modalities may need to be modified.

B. ***Follow the ABC's:*** Generally, the care of the patient should be in accordance with the following priorities:

1. ***Airway Maintenance:*** Beginning with the simple, non-invasive techniques, and working to the more invasive.
2. ***Assurance of adequate ventilations and oxygenation:*** Any patient in significant distress should receive as high a concentration of oxygen as is practical to deliver. If any doubt exists as to the adequacy of ventilation, then the patient should receive positive pressure ventilation with the maximum available concentration of oxygen.
3. ***Assurance of adequate circulation:*** Through CCC-CCR and /or the appropriate treatment of bleeding and shock.

C. ***Use Medical Control:*** When in doubt, call medical control.

D. ***Primum Non Nocere (First Do No Harm):***

1. A medication or invasive treatment should only be used if both the treatment is indicated, and there exists no contraindication to the treatment. On-line medical control should be used prior to an invasive treatment unless that treatment is authorized as a standing order.
2. Potentially unstable patients may be stressed by exertion, as a general rule, exertion should be minimized. (Potentially unstable includes, but is not limited to: patients with chest pain, dyspnea, or altered mental status.)

E. ***Default to Transport:*** The preference is to transport the patient to an emergency department or a hospital with inpatient capabilities. If any doubt exists as to the legal or medical competence of the patient to refuse care, on-line medical control should be contacted.

F. ***Customer Service:*** The human needs of the customer must be met including physical (medical and non-medical), and psychological (including needs of reassurance and comfort). In all cases, be PROFESSIONAL, POLITE, and ATTENTIVE to those needs.

G. ***Clear Documentation:*** All patient encounters must be documented clearly and accurately.

H. ***Render Timely Care:*** The clinical needs of the patient must be met in a timely fashion. This generally includes initiating treatment prior to moving the patient to the ambulance. Exceptions include major trauma, crew/patient safety, and other circumstances as determined by the senior paramedic.

KANSAS CITY, MISSOURI EMS PROTOCOLS

ON-SCENE AED COORDINATION POLICY

POLICY:

I. EMT-First Responder (EMT-FR) has medical authority over public access defibrillator (PAD) personnel at scene until arrival of the transporting EMT-Paramedic (EMT-P).

II. Transporting EMT-Paramedic has medical authority at scenes.

III. On arrival, the EMT-P or EMT-FR should receive a verbal report from the EMT-FR or PAD site personnel to include:
   A. Age
   B. Witnessed or unwitnessed arrest
   C. Approximate time from collapse
   D. Initiation of CPR prior to EMT-FR arrival
   E. Initial rhythm (shockable vs non-shockable)
   F. Number of shocks delivered
   G. Response to treatment

IV. If the EMT-FR arrives first on scene with a PAD program AED being used, the EMT-FR has the following options:
   A. If the PAD personnel are proceeding with a shock, the EMT-FR should wait until the shock is complete.
   B. Have the PAD personnel remove the AED and the EMT-FR apply the EMT-FR AED and follows the appropriate protocol.

V. When the EMT-P arrives on the scene and has assumed care of the patient, he will proceed as directed by current system advanced life support protocols.

VI. The EMT-P will follow these procedures:
   A. If the EMT-FR or PAD AED is proceeding with a shock, the EMT-P will wait until this is complete.
   B. After completion of the shock from the AED, the EMT-P or his designee will immediately switch to the Zoll monitor, keeping interruptions to CPR at a minimum.

VII. The EMT-P should consider the shocks delivered by any AED as part of the dysrhythmia algorithm. For example, if the patient remains in V-fib after shock by the AED, the EMT-P should enter the treatment sequence at the point where the shock has been delivered and establish vascular access, give epinephrine and manage the airway.

KANSAS CITY, MISSOURI EMS PROTOCOLS

PATIENT CONTACT POLICY

BACKGROUND:

I. To measure a complete sequence of events while delivering prehospital care, times to patient contact are essential.
II. Times to patient contact allows the system to analyze delays from time to first responder/ALS on scene to patient's side and possibly provide solutions to improving access to patients once on scene.

POLICY:

I. KCFD emergency responders and ALS providers will verbally confirm "patient contact" with their respective dispatch centers when they arrive at the patient's side to begin patient care.
II. KCFD Communication Center will accurately record in the Computer Aided Dispatch program the "patient contact" time.
III. Quality Assurance Director will compile compliance with this policy in aggregate and by medic/EMT or Fire Company and report as request to the EMS Medical Director.

POLICY:

When it is perceived by the responding Kansas City, Missouri EMS agencies that a person has exceeded the extrication limits of the agencies (even acting in concert) as a result of but not limited to the patient's size and weight, then the individual case will be referred to an interagency task force for review and recommendations to the Office of the EMS Medical Director. The EMS Medical Director will make a decision as to whether the patient has exceeded the system's capabilities and can no longer be transported. This decision will be presented to the EMSCC for review and approval. This policy applies only to the transport of the person. When a request for service is made to the KCFD Communications Center, an ambulance will be dispatched to the person.

KANSAS CITY MISSOURI EMS PROTOCOLS

REFUSAL OF SERVICE POLICY

Purpose: The purpose of this policy is to assist EMS personnel with clear rules for managing situations in which the patient or the patient's representative refuses care or transportation by EMS.

Right to Refuse: An adult patient who is conscious, mentally competent, and understands the consequences of his or her decision has the right to refuse are or transportation by EMS. A patient that refuses treatment or transport must be offered treatment or transport and advised of the benefits of treatment or transport and the specific risks of refusing treatment or transport. The offer of treatment or transport and description of the risks of refusal should be documented in the epcr and on the Refusal Form.

No Right to Refuse: Conversely, where a patient is a minor or otherwise not competent, or unable to understand the consequences of his or her decision, the patient may not refuse treatment or transport for himself, and EMS may have implied consent to treat or transport. In this situation, EMS must contact Medical Control for directions regarding treatment and transport (Mandatory Medical Control Contact).

Mandatory Medical Control Contact: Medical Control contact is mandatory if the crew believes that the patient may be at significant harm to him or herself by refusing treatment or transport. The crew may contact Medical Control at any time there is a question in regards to the patient condition. Utilization of the EMS radio is mandatory if communication allows. The purpose of mandatory Medical Control Contact is to:

a. Assist the paramedic in persuading a reluctant patient to be transported. Occasionally, a recommendation from a physician may be all that is needed to facilitate transport.
b. Serve to support the paramedic's judgment that the patient is acting against medical advice.

POLICY:

I. **Patient:** Any person who is ill or injured or in need of treatment by medical personnel. This includes any person that has activated the EMS system or for whom the EMS system has been activated, including emergency and non-emergency calls for service, or any person that presents himself to EMS personnel with a medically related complaint such that it could be reasonable inferred that the person is seeking or in need of medical attention.

II. **Not a Patient:** A person who is not ill or injured or in need of treatment by medical personnel. This includes individuals who may have been involved in a situation that either did result or could have resulted in the creation of a patient requiring medical treatment as defined above.

III. **Capacity:** A person 18 years of age or older of sound mind who is able to receive and evaluate information and to communicate a decision. If a patient is able to answer the following questions, the patient may refuse medical treatment:
    A. Recite three objects to the patient (apple, table, and penny). Ask patient to wait until you say all three words then have them repeat the three words. Tell the patient you will ask them to repeat the words later.
    B. What year is this?
    C. What month is this?
    D. What is the day of the week?
    E. What were the three objects I asked you to remember?
        1. Apple
        2. Table
        3. Penny

IV. **Minor:** A person who is less than 18 years of age.

V. **Emancipated Minor:** a minor who is:
   A. Married;
   B. A parent or legal custodian of a child;
   C. Enlisted or commissioned in the U.S. Armed Forces;
   D. Self-supporting and the custodial parent has relinquished the child from parental control by express or implied consent; or
   E. Declared an adult by a court of competent jurisdiction

   EMS shall use reasonable care and judgment in ascertaining the age of the patient and determining if a minor is emancipated. EMS may treat or transport a minor patient who claims to be emancipated and is refusing treatment or transport if emancipation status cannot be reasonable determined and an emergency exists.

VI. **Suicidal Patient:** There is reason to believe that the patient is at risk of self-inflicted physical harm as evidenced by, but not limited to, threats or attempts to commit suicide or to inflict physical harm on himself or herself.

VII. **Durable Power of Attorney for Health Care:** a legal instrument that, if properly drafted and executed, has the effect of delegating legal authority to another in the case of incapacity. If a person at the scene presents a Durable Power of Attorney for Health Care, Medical Control shall be contacted for further advice and direction regarding the validity and effect of the instrument.

VIII. **Implied Consent:** consent to medical treatment is implied where an emergency exists if there has been no protest or refusal of consent by a person authorized and empowered to consent or, if so, there has been a substantial change in the condition of the person affected that is material and morbid and there is no one immediately available wo is authorized, empowered, willing, and capacitated to consent.

IX. **Emergency:** For purposes of implied consent, "emergency" is defined as a situation where, in competent medical judgment, the proposed medical treatment is immediately or imminently necessary and any delay occasioned by an attempt to obtain consent would reasonably jeopardize the life, health, or limb of the person affected or would reasonable result in disfigurement or impairment of faculties. For purpose of the emergency services statutes, "emergency" is the sudden and, at the time, unexpected onset of a health condition that manifests itself by symptoms of sufficient severity that would lead a prudent layperson, possessing an average knowledge of health and medicine, to believe the absence of immediate medical care could result in: (a) placing a person's health, or with respect to a pregnant woman, the health of the woman or her unborn child, in significant jeopardy; (b) serious impairment to a bodily function; (c) serious dysfunction of any bodily organ or part; or (d) inadequately controlled pain.

No Right to Refuse

I. **Suicidal Patient:**
   A. If the patient meets the definition for "suicidal patient", then the patient cannot refuse medical treatment and transport.
   B. Assistance form the appropriate law enforcement agency should be sought for those patients exceeding the capabilities of the transporting unit.
   C. Patients do not have to verbalize suicidal intent to be at risk of harm to themselves. If a patient's actions, behavior, or verbal comments are consistent with and could reasonable be construed to be an act of suicidal intention, or risk of self-harm, the patient cannot refuse medical treatment and transport.
   D. If the patient attempts to refuse medical treatment and transport:
      1. Law enforcement should be contacted for assistance (protective custody).
      2. If the patient is not placed in protective custody, Medical Control should be contacted to determine the patient's disposition.
      3. If Medical Control contact is required, the Medical Control physician will be apprised of the patient's condition, including the history, vital signs, level of consciousness, and mental status, and including all reasons that the patient is determined to be at risk of physical harm to themselves. From this information, the Medical Control physician will determine transport and treatment.

4. If the Medical Control physician determines that the patient is at risk of physical harm and should be transported, but the patient continues to refuse, reasonable restraint (to assure patient and allied health personnel safety) may be utilized to transport the patient to the hospital.
5. The appropriate law enforcement agency should be advised that a KCMO-licensed Medical Control physician has determined that the patient is at *risk of physical harm* to themselves and has ordered the patient to be transported for evaluation.
6. All actions taken to restrain the patient as well as the Medical Control physician's orders to restrain must be documented on the patient care report.

II. **Incompetent Adults (Intellectually Disabled, Mentally Ill, Dementia, Etc.):**
   A. If the patient's guardian is on the scene with evidence of guardianship, the patient may not refuse treatment or transport for himself.
   B. If the guardian is not competent, as defined above, Medical Control must be contacted.
   C. If the patient's guardian cannot prove guardianship, Medical Control must be contacted.
   D. If the patient's guardian is not present, Medical Control should be contacted to approve transport. If the patient's condition is urgent, the patient will be transported by standing order prior to guardian contact or Medical Control approval.
   E. If a person at the scene presents a Durable Power of Attorney for Health Care, contact Medical Control for advice and direction regarding the validity and effect of the instrument.

III. **Unemancipated Minor (Guardian Not Present):**
   A. An unemancipated minor must be treated and transported. Or, a competent adult, as defined above, must be on scene and take responsibility *en loco parentis* for the patient and sign the Refusal Information Form.
   B. Law enforcement may take these patients into protective custody pending parental notification and response to the scene. In the instances, the law enforcement officer should sign the Refusal Information Form.

IV. **Intoxicated Patient:**
   A. Intoxicated patients may have serious underlying medical conditions. These patients should be properly assessed to include a blood glucose reading.
   B. If the patient has capacity as defined above, and is turned over to law enforcement, the patient must sign a Refusal of Care form along with the highest ranking police officer as a witness.
   C. If the patient has capacity as defined above, but is in such condition that a reasonable person would consider them not capable of being able to adequately care for themselves, the patient should be transported. If the patient continues to refuse, then contact Medical Control for guidance on medical treatment and transport.

V. **Special Situations:**
   A. **Medication Administration:** If, upon administration of a medication, the patient decides to refuse transport, an assessment of the patient's condition and capacity should be made.
   B. **Law Enforcement-Mandated Transport:**
      1. If law enforcement does transport the patient, the patient refusal must be signed by the highest ranking law enforcement agent on the scene.
      2. If the transporting paramedic believes the patient is at risk of physical harm if transport is initiated by law enforcement then he/she should notify the highest ranking law enforcement officer at the scene that a danger exists.

DOCUMENTATION REQUIREMENTS:

I. Refusal Information Form
   A. Complete the Refusal Information Form
   B. If the patient refuses to sign, document that verbal review of the information has occurred and, if possible, have a witness (preferably someone related to the patient) sign the Refusal Information Form.
   C. Leave a copy of the Refusal Information Form with the patient and document the patient's acceptance or rejection of the form.

II. Document in the epcr all findings during assessment, including two (2) complete sets of vital signs.

III. Document all recommendations given to the patient on the Refusal Information Form.
IV. Document any Medical Control recommendations on the Refusal Information Form.

KANSAS CITY, MISSOURI EMS PROTOCOLS

SAFE PLACE FOR NEWBORNS ACT OF 2002 POLICY

BACKGROUND:

This act allows a parent or a person acting on the parent's behalf to relinquish the custody of a child less than 30 days old to hospital, EMS, Fire, or Police personnel. If the delivery of the child is to any place other than a hospital, the person taking custody must arrange for the immediate transportation of the child to the hospital.

PURPOSE:

To protect newborn babies from injury and/or death caused by abandonment by a parent, to provide a safe and secure alternative to such abandonment. To outline the responsibilities and procedures to follow in the event an infant is left at an organization destination, listed under the Safe Place for Newborns Act of 2002. ***STATUTE – Chapter 210: Child protection and reformation Section 210.950*** *(www.moga.mo.gov/mostatutes/stathtml/21000009501.html)*

POLICY:

Recognize that a "Safe Haven" event is occurring and make every effort to maintain anonymity of the surrender process:

The person purporting to be the parent voluntarily delivers the infant to the physical custody of any on duty KCFD Personnel**. The law does not require that personal information be obtained.**

The on duty KCFD Personnel shall remain immune from civil, criminal and administrative liability for accepting physical custody of an infant if such persons accept custody in good faith.

I. If the physical custody of the child is relinquished to KCFD personnel:
   A. Treat the child according to appropriate protocols.
   B. Contact the KCFD Communications Center and request an ambulance for transport of the child to the closes appropriate hospital.
   C. Document the details of the call on the KCFD EMS Report.

II. If the physical custody of the child is relinquished to KCFD ambulance personnel:
   A. Treat the child according to the appropriate protocols.
   B. Notify the KCFD Communication Center and deliver the child to the closest appropriate hospital. (Generally, Children's Mercy Hospital would be considered to be the most appropriate hospital.)
   C. Document the details of the call on the KCFD EMS Report.

KANSAS CITY, MISSOURI EMS PROTOCOLS

SCOPE OF PRACTICE POLICY

POLICY:

I. "Paramedic" means city clinically privileged Paramedic, on duty with KCFD, a licensed paramedic operating in a mutual aid capacity, or employed by the Office of the EMS Medical Director. "EMT" means city clinically privileged EMT, on-duty with KCFD. "Emergency Responder" means city clinically privileged KCMO Emergency Responder, on duty with KCFD.

II. Paramedics are authorized to perform the following skills within the KCMO EMS System:
   - A. All patient care activities authorized by the EMS Medical Director protocols.
     1. If a specific patient care activity is not located within the "Kansas City Missouri EMS Protocols" document, it is not an authorized activity and therefore should not be performed.
   - B. The senior paramedic on the responding ambulance is in charge of all patient care activities relating to that call unless specifically relieved of those duties by another provider on scene due to incident command or physician intervention per the physician intervention policy.

III. EMTs are authorized to perform the following skills within the KCMO EMS System:
   - A. All patient care activities authorized by the EMS Medical Director protocols, EXCEPT the following:
     1. Endotracheal intubation.
     2. Invasive circulatory procedures such as intravenous cannulation, intraosseous cannulation, and regulating intravenous infusions.
     3. Administration of medications EXCEPT the list as follows:
        a) Oxygen
        b) Oral glucose
        c) Aspirin
        d) Patient's own medications where EMS may assist patient
        e) DuoDote are permitted to be administered for "self-aid"
     4. Needle decompression to the chest.
     5. Defibrillation or cardioversion using a manual defibrillator.
     6. Interpretation of electrocardiographs.
     7. External cardiac pacing.
   - B. If a specific patient care activity is not located within the "Kansas City Missouri EMS Protocols" document, it is not an authorized activity and therefore should not be performed.
   - C. When performing patient care activities, EMTs are expected to follow the EMS Medical Director protocols until the arrival of the paramedic (paramedic then assumes responsibilities for patient care activities) or designation of the medical operations officer incident command, except in cases where:
     1. Following the direction of the paramedic would present a danger to the patient or public OR
     2. There are multiple patients on the scene such that the paramedic and EMT are taking care of separate patients, in which case the EMT on the responding ambulance should take responsibility for individual patient care.

IV. Emergency Responders are authorized to perform the following skills within the KCMO EMS System:
   - A. All patient care activities authorized by the EMS Medical Director protocols, EXCEPT for the following:
     1. Endotracheal intubation.
     2. Invasive circulatory procedures such as intravenous cannulation, intraosseous cannulation, and regulating intravenous infusions.
     3. Administration of medications except as noted below:
        a) Oxygen
        b) Oral glucose
        c) Aspirin
        d) Patient's own medications where EMS may assist patient

e) DuoDote are permitted to be administered for “self-aid”

4. Needle decompression to the chest.
5. Defibrillation or cardioversion using a manual defibrillator.
6. Interpretation of electrocardiographs.
7. External cardiac pacing.

B. If a specific patient care activity is not located within the “Kansas City Missouri EMS Protocols” document, it is not an authorized activity and therefore should not be performed.

C. When performing patient care activities, Emergency Responders are expected to follow the EMS Medical Director protocols until the arrival of the paramedic (paramedic the assumes responsibilities over patient care activities) or designation of a medical operations officer under incident command, except in cases where:

1. Following the direction of the paramedic would present danger to the patient or public OR
2. There are multiple patients on the scene such that the paramedic and First Responder are taking care of separate patients, in which case the First Responder should take responsibility for individual patient care.

NOTES:

I. Some manual monitor/defibrillators have an “automatic external defibrillator” (AED) mode. EMTs may operate the AED function of a manual monitor/defibrillator.

II. EMTs may obtain a blood sample for, and perform a rapid bedside glucose test as allowed by the State of Missouri and as delineated in the KCMO EMS System Protocols. If the blood sample is obtained by the EMT, the blood sample will be obtained with a lancet or similar device.

KANSAS CITY MISSOURI EMS PROTOCOLS

SUSPECTED ABUSE/NEGLECT POLICY

POLICY:

I. Definition – Includes physical, emotional, or sexual abuse as well as physical or emotional neglect.

II. Duty to Report

A. State law requires that suspected child abuse or neglect be reported to the Missouri Department of Health and Senior Services. Any Paramedic, EMT, or First Responder having reasonable cause to suspect that a child (any person less than 18 years of age) has been or may be abused or neglected must report or cause a report to be made to the Division of Family Services. Notification should be done by telephoning 1-800-392-3738 or 1-573-751-3448.

1. Notification may also be made at the State of Missouri website at https://health.mo.gov/abuse

B. State law requires that suspected elder abuse of neglect be reported to the Missouri Department of Health and Senior Services. Any Paramedic, EMT, or First Responder having reasonable cause to suspect that a person sixty years of age or older (or handicapped person between the ages of 18 and 59) has been or may be abuse or neglected must report or cause a report to be made to the Department of Health and Senior Services. Notification should be done by telephoning 1-800-392-0210 or 1-800-392-0272.

1. Notification may also be made at the State of Missouri website at https://health.mo.gov/abuse

III. Assessment/Treatment/Notification

A. Provide necessary medical care as related by the appropriate medical or trauma protocol.

B. Although a preliminary assessment of abuse of neglect is made in the field, the final determination is made upon review of the incident by appropriate personnel. Accusation of abuse or neglect should not be made in the field.

C. If the provider's preliminary assessment is that abuse or neglect may have occurred, the provider should relay this assessment to appropriate personnel as patient care is transferred. (i.e. KCFD personnel should notify the KCFD paramedic and the KCFD paramedic should notify the receiving physician.)

D. Report or cause a report to be made as noted under "Duty to Report".

DOCUMENTATION REQUIREMENTS:

I. Documentation

A. The KCFD EMS Report (Narrative Section) or the PCR shall include:

1. Facts upon which the abuse or neglect is suspected. (Emotional or accusatory accusations are improper.)
2. Identity of persons who were notified.
3. That the applicable agency was notified and by whom.

KANSAS CITY, MISSOURI EMS PROTOCOLS

VALID EXCLUSION OF RESUSCITATION POLICY

POLICY:

I. Do Not Resuscitate (DNR) requests are orders by a patient's physician to refrain from initiating cardiopulmonary resuscitative measures in the event of a cardiac or respiratory arrest. DNR Requests are compatible with maximal therapeutic care and the patient may receive vigorous support (e.g. intravenous lines, drugs) up until the point of respiratory or cardiac arrest.

II. The Emergency Medical Services (EMS) provider will honor the DNR Request Form when properly executed and presented. Guidelines for acceptance of DNR orders include:
   A. If any doubt exists about the validity of the DNR Request Form, or if alternately worded directives to limit medical care are presented, or if the intent of the patient or the appropriate surrogate is unclear, resuscitation must be initiated and medical control should be contacted.
   B. The DNR Request Form must be signed and dated by the patient or the appropriate surrogate and the witness and the patient's physician.
   C. The revocation provision must remain unsigned in order for this DNR Request Form to remain in effect.
   D. No cardiac monitoring is necessary. No medical control contact is necessary.
   E. If this DNR Request Form is presented after BLS or ALS resuscitative procedures (including the AED) have begun, all resuscitative efforts shall cease.
   F. The EMS provider shall assist appropriate agencies in documenting the existence of the DNR Request Form.
   G. The DNR Form shall remain at the facility/home. Under circumstances in which the patient is being transported, a copy of the form will accompany the patient to the hospital.
   H. If the patient expires during transport, the paramedic must contact medical control for routing instructions.

III. Physician Orders for Life Sustaining Treatment (POLST) or Medical Orders for Life Sustaining Treatment (MOLST) – explicitly describe acceptable interventions for the patient in the form of medical orders, must be signed by a physician or other empowered medical provider to be valid.
   A. These are not currently issued within the State of Missouri, but are being issued in the State of Kansas.
   B. If presented with a POLST or MOLST form, **CONTACT MEDICAL CONTROL** for guidance.

IV. A DNR request may be overridden by the request of the patient, the patient's guardian, or the patient's on-scene physician

V. If family members are present and ask that resuscitative efforts be withheld, determine their relationship to the patient and the patient's history. Based on the following hierarchy, decision making for end-of life issues may be executed:
   A. Healthcare Power of Attorney
   B. Spouse
   C. Parents or Adult Children
   D. Adult Siblings
   E. Adult Grandchildren
   F. Grandparents

VI. If the patient has an obvious life-limiting illness (terminal cancer, advanced neurological disease, etc.) resuscitative efforts may be withheld. If there is no obvious life-limiting illness, begin resuscitation based on appropriate protocol(s) and **CONTACT MEDICAL CONTROL** for further guidance.

VII. When confronted with a seriously ill patient who is not in cardiac arrest, all resuscitative efforts should be initiated.

KANSAS CITY, MISSOURI EMS PROTOCOLS

VASCULAR ACCESS POLICY

POLICY:

I. Intent
   A. Standardize vascular access
   B. Insure patient safety by decreasing the likelihood of inappropriate administration of fluid or drug

II. Policy
   A. Vascular access can be achieved using either:
      1. Saline lock (used only on patients who have stable vital signs and do not require volume replacement).
      2. IV for administration of fluids or medications, including external jugular IV if patient 8 years old or older.
      3. IO (only in critically ill patients)
   B. Type/amount of fluid determined by appropriate protocol
   C. NS/LR – used if fluid administration is/may be necessary
   D. IO – Failed IV attempts x 2 or very low likelihood of IV success given clinical situation
      1. Clinical Situation Examples:
         a) Cardiac Arrest/Traumatic Cardiac Arrest
         b) Life-Threatening Conditions
   E. Continuing drug infusion therapy (i.e. drug added to IV fluid to give at constant controlled infusion rate).
   F. Pre-existing dialysis shunt (AV Fistula) or external central venous catheters:
      1. May be used if patient is in cardiac arrest.
      2. If patient is hemodynamically unstable, CONTACT MEDICAL CONTROL prior to accessing.
         a) 10mL of blood must be withdrawn on initial access and before pushing any medication or fluids due to being packed with heparin.
      3. Any working venous catheter that has been accessed prior to EMS arrival may be used for EMS IV fluids and medication administration.

911 DISPTACH TO HOSPITALS WITH EMERGENCY DEPARTMENTS POLICY

BACKGROUND:

The system has experienced incidences in which 911 calls are made from ambulance response to hospital emergency department waiting rooms, hospital lobbies, and other areas of the hospital. These calls are made by persons who are either awaiting medical care by these facilities or have been evaluated and dismissed, yet want transportation to another hospital. This has the potential to create negative situations for the persons calling, the hospitals, and the EMS service. As a result, the following policy has been developed for this situation:

POLICY:

I. If a call is made from an area within a hospital with an emergency department by a person who is not an employee or staff member of that hospital, then the KCFD Communications Center will call the emergency department physician of that facility to report this request.

II. The emergency department physician or his/her designee will confirm the request and an ambulance will be immediately dispatched to the hospital, **OR**

   A. The emergency department physician or his/her designee will deny the request and an ambulance will not be dispatched to the hospital, **OR**

   B. The emergency department physician or his/her designee will neither confirm nor deny the report, but will recontact the KCFD Communications Center within 10 minutes to confirm or deny the request. An ambulance will not be immediately dispatched to the hospital.

III. If the emergency department physician or his/her designee has neither confirmed nor denies the request for an ambulance by recontacting the KCFD Communications Center, an ambulance will be dispatched to the hospital after 10 minutes from the call to the emergency department by the KCFD Communications Center.

IV. If any question exists as to whether the facility is a hospital with an emergency department or whether the request is made by an employee of staff member, then an ambulance will be immediately dispatched in the usual fashion.

POLICY:

I. Ambulance Transport Request Received from Hospital Emergency Department
   A. If received via an emergency line (911 or regional number) then the Communication Specialist will use the EMD Protocol and prioritize the call per the Protocol.
   B. If received via a non-emergency line then the Communication Specialist will prioritized the call as follows:
      1. ED to home or nursing home – Routine transfer.
      2. ED to ED
         a) Routine transfer
         b) Non-emergency without delay if:
            1) Cardiac patient being transferred for emergency catheterization.
            2) Any patient being transferred for emergency surgery.
            3) Stroke patient being transferred for emergency intervention (cath lab)
            4) Physiologically unstable patient being transferred to a higher standard of care.
         c) Non-Life Threatening Emergency (Red lights and sirens response) if requested by ED

II. Ambulance Transport Request Received from Nursing Home (or other Non-Hospital Health Care Facility)
   A. If received via an emergency line (911 or regional number) then the Communication Specialist will use the EMD Protocol and prioritize the call per the Protocol.
   B. If received via a non-emergency line then the Communication Specialist will prioritized the call as follows:
      1. If the patient has a priority complaint then the Communication Specialist will use the EMD Protocol and prioritize the call per the Protocol.
      2. If the patient has a non-priority complaint then the Communication Specialist will use “Card 33/Transfer/Interfacility/Palliative Care” Protocol. After following the Protocol, if the patient still has no priority complaint, the Communication Specialist may prioritize the call as a Code 4.
      3. Requests for ambulance transport that do not involve priority or non-priority complaints do not mandate the use of the EMD Protocol. These types of calls include (but are not limited to):
         a) Transport to or from scheduled appointments (i.e. doctors appointment, dialysis, etc.).
         b) Transport to or from scheduled diagnostic testing (i.e. CT or MRI scans).
         c) Transport to or from procedures (i.e. radiation therapy, feeding tube replacement, splint replacement, wound care, etc.)
         d) If a new priority complaint is discovered during questioning, then the Communication Specialist will default to the EMD Protocol.

KANSAS CITY MISSOURI EMS PROTOCOLS

EMERGENCY MEDICAL DISPATCH POLICY

BACKGROUND:

I. The Emergency Medical Dispatch Protocol developed by Medical Priority Consultants has historically been the protocol that KCFD Communication Specialist have followed when receiving calls and prioritizing EMS System responses.

II. The Protocol includes a standardized call interrogation process that determines a "nature code" and/or a "response determinant". Each individual EMS System uses this information to make a System specific decision on what resources to send and how fast (response configuration).

POLICY:

I. KCFD Communication Center Communication Specialist will follow the Emergency Medical Dispatch Protocols when prioritizing all emergency and selected non-emergency calls.

II. The initial step in call prioritization is the determination of a "nature code" or a specific "response determinant". Each nature code and each response determinant must have an EMS System response configuration assigned to it. Response configurations include:

   A. Life Threatening Emergency – red lights and sirens (RLS) response by KCFD ALS with a response time compliance criteria of 9 minutes or less on not less than 90% of responses. KCFD Emergency Responders are also sent with a RLS response.

   B. Non-Life Threatening Emergency – RLS response by ALS with response time compliance criteria of 11 minutes or less on not less than 90% of responses. KCFD Emergency Responders are also sent with a RLS response in select Non-Life Threatening Emergency calls.

   C. Non-Emergency without Delay – non-RLS response by ALS response time compliance criteria of 20 minutes or less on not less than 90% of responses.

   D. Routine Transfer – non-RLS response by ambulance with a response time compliance criteria of 60 minutes or less on not less than 90% of responses.

III. Contact the Office of the EMS Medical Director for a complete listing that references the possible nature codes, response determinants, and their respective response configurations. Call prioritized by Communication Specialists will be dispatched with these response configurations as per protocol.

KANSAS CITY, MISSOURI EMS PROTOCOLS

EMS CAD DATA POLICY

BACKGROUND:

The oversight and daily supervision of the system is the responsibility of the EMS Medical Director. One of the priority component measures of the clinical and operational efficiency of the EMS system is response times. Since response times are critical to the measurement of the performance of the EMS system itself, it is vital that the data integrity of the CAD system be preserved.

POLICY:

I. All CAD data will be secured, and at no times will edits, revisions, alterations, corrections, or adjustments to the initially recorded CAD data times be allowed. All exception reports, changes and corrections will be noted using an agreed upon auditing system, and justifications for any discrepancies in the recorded CAD times will be noted and reviewed by the EMS Medical Director and/or his designee. The actual CAD times will not be altered or amended in any way.

II. Unaltered copied of the CAD database will be transmitted periodically to the Office of the EMS Medical Director and interval periodic reviews of the CAD times will be audited for inaccuracies or edits.

III. The EMS Medical Director and/or his designee will review the monthly response time reports.

NOTIFICATION OF OFFICE OF THE EMS MEDICAL DIRECTOR POLICY

BACKGROUND:

The Office of the EMS Medical Director serves as the day to day oversight body for all EMS activities in Kansas City, Missouri. Timely notification of the Office of the EMS Medical Director allows for the EMS Medical Director or their designee (Associate EMS Medical Director, Oversight Paramedic) to determine when and if there should be a scene response or other action in response to an incident.

POLICY:

I. The KCFD Communication Center will immediately notify the Office of the EMS Medical Director for the following types of incidents:
   - A. Field Amputation
   - B. Four or more units responding emergency to the same call.
   - C. Mass casualty incidents involving , but not limited to:
     1. Nuclear, biological, or chemical exposures.
     2. Collapsed buildings.
     3. Aircraft accidents.
     4. Train derailments.
   - D. Significant job related injuries to KCFD, KCPD personnel, or City officials.
   - E. Requests by KCFD supervisor/management personnel.
   - F. EMS region is forced open per diversion policy.
   - G. Trauma Centers forced open due to multiple closures per diversion policy.

II. Procedure
   - A. KCFD Communication Center will act by using the automatic paging system. At SSC discretion, the EMS Medical Director and or Oversight Paramedic will be contacted by phone directly.

EMS MEDICAL DIRECTOR- (816) 226-7893

This number will serve as the direct contact for the Office of the EMS Medical Director

EMS Medical Director:
Dr. Erica Carney, MD FAEMS
Email: Erica.Carney@kcmo.org

Associate EMS Medical Director
Dr. Travis Helberg, MD
Email: Travis.Helberg@kcmo.org

Oversight Paramedic
Ryan Koehler, FF/EMTP
Email: Ryan.Koehler@kcmo.org

KANSAS CITY, MISSOURI EMS PROTOCOLS

PHYSICIAN CERTIFICATION STATEMENT (PCS) POLICY

BACKGROUND:

This policy is designed to address the proper execution of Physician Certification Statements (PCS) in the non-emergency setting and to allow KCFD to receive a completed PCS before dispatching a non-emergency transport ambulance. In addition, this policy is designed to encourage healthcare facilities to utilize the most appropriate transportation method for their customers. This policy addresses non-emergency transportation requests from hospitals, nursing facilities, outpatient clinics, and physician offices. A PCS is required, pursuant to 42.C.F.R 410.40(d)(2) and (3), by the Health Care Financing Administration (HCFA) on all non-emergency ambulance transports.

POLICY:

I. This policy pertains to non-emergency transportation requests.
II. All requests for non-emergency transportation will be handled in the KCFD system by a KCFD ambulance.
III. Upon receipt of a non-emergency transport request from a hospital, nursing facility, outpatient clinic, or physician office, the calling party will be asked to supply to KCFD Communications Center, by fax, a properly executed PCS prior to scheduling an ambulance transport. (THE AMBULANCE WILL NOT BE SCHEDULED PRIOR TO RECEIPT OF THE PCS.) The Communication Specialist shall fax a blank PCS to the calling facility if one is not readily available at the calling facility.
IV. If the facility does not have fax capabilities, and the calling party states a completed PCS is available verifying medical necessity (indicating “no” on question 4), the Communication Specialist will schedule ambulance transportation and advise the transporting crew to pickup the PCS on their arrival.
V. If the sending facility is unwilling to complete and/or fax a PCS, or the faxed PCS indicates “yes” on question 4 (indicating the patient can be safely transported by wheelchair van”, the Communication Specialist shall inform the caller that an ambulance will not be sent and the Communication Specialist will direct the calling party to the appropriate agency for transportation.
VI. Contraindications:
    A. Any residential request for non-emergency transportation.
    B. Any emergency request for transportation.

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED GENERAL MEDICAL PROTOCOL

The purpose of this protocol is to outline the general approach to a patient with a medical emergency.

SCENE SIZE UP:
*Assure the scene is safe for you, other rescuers, and the patient. It may be appropriate to withdraw from the scene in some situations until a safe environment can be established. It may be appropriate to rapidly extricate the patient from a dangerous situation.
*Identify the number of patients and other resources that may be needed
    *Initiate Incident Management System if appropriate
        *Declare an MCI
        *Establish "Medical Command"
    *Call for law enforcement and/or first responder assistance if needed
    *Call for more EMS units if needed
    *Begin triage if appropriate
*Consider mechanism of injury

BODY SUBSTANCE ISOLATION:
*Apply universal precautions/body substance isolation as appropriate

PRIMARY SURVEY:

Search for immediate life threats by assessing the patient using A-B-C process and treating the problems as they are found.

ASSESSMENT:
*Assess AIRWAY:

DO NOT INITIATE MOVEMENT OF PATIENT IF IMMEDIATE LIFE THREATS ARE FOUND DURING PRIMARY SURVEY!!!

    *Note patient's ability to speak, and any evidence of actual or potential airway obstruction including vomitus, bleeding, dentures, loose teeth, or foreign bodies
*Assess BREATHING:
    *Note patient's ability to speak, rate, depth, and quality of ventilations, abnormal noises/stridor, retractions, accessory muscle use, nasal flaring, or cyanosis
*Assess CIRCULATION:
    *Note pulses, level of consciousness, skin abnormalities (color, temperature, capillary refill, moisture)
*Assess neurologic function (disability)
    *Note level of consciousness, Glasgow Coma Scale or AVPU Scale, movement of each extremity

*Secure Airway and while applying manual in-line spinal restrictions
    *BLS Maneuvers:
        *Jaw thrust
        *Oral or nasal airway
        *Suction as needed
        *Assist ventilations with 100% O2 and BVM as needed
        *iGel placement (do not delay transport unless unable to adequately ventilate with BVM)
    ***ALS Maneuvers:**
        ***iGEL PLACEMENT OR IF AGE > 12 YEARS, ORAL ENDOTRACHEAL INTUBATION**
            ***APPLY CAPNOGRAPHY AND MONITOR ETCO2**
*Administer oxygen and assist ventilation as required

*Assist circulation as required
***ESTABLISH IV/IO ACCESS**
*Maintain body temperature with blankets

*Abnormalities found in primary survey are addressed with appropriate interventions at time of discovery
*It may be appropriate to move directly from the primary survey to another protocol
*BVM ventilation is indicated prior to attempts at iGel placement or endotracheal intubation

IF NO PULSE REFER TO ADULT OR PEDIATRIC CARDIAC ARREST PROTOCOL AS APPROPRIATE

SECONDARY SURVEY

A systematic history and physical exam, focused on the patient's complaint's, searching for problems that may not be immediately life or limb threatening, but that may become so if not addressed appropriately.

ASSESSMENT:
*Obtain chief complaint
*Obtain "SAMPLE" history
*Obtain vital signs (MANUAL Blood Pressure)
*Perform focused physical exam (this evaluation is dependent on the history as well as findings from the primary survey and may be more or less detailed depending on the situation)
*Consider application of cardiac monitor
*Consider application of pulse oximeter
*Consider obtaining rapid blood glucose determination
*Assessment summation: Consider information gathered in primary and secondary survey, determine an impression of the patient's primary problem and proceed to the appropriate treatment protocol
*Obtain repeat set of vital signs prior to transfer of care to receiving facility or whenever there is an observed change in the patient's status

↓

Secure airway, administer oxygen and assist ventilation as required

↓

CONSIDER ESTABLISHING IV ACCESS

↓

Transport while monitoring vital sings and patient condition
*Medical Control contact as determined by appropriate protocol

REFER TO PAIN CONTROL PROTOCOL IF INDICATED

REFER TO APPROPRIATE PROTOCOL FOR SPECIFIC MEDICAL EMERGENCY

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED ALLERGIC REACTION PROTOCOL

Allergic reactions can be mild to life threatening. Potential for exposure to antigens can be through inhalation, physical contact, ingestion, or infection.

ASSESSMENT:
*Vital signs
*Obtain a brief history at scene
*Asses cardiac, respiratory, and neurologic systems
*Apply cardiac monitor
*Apply pulse oximeter

If anaphylactic shock is suspected and the patient has an anaphylactic kit available, the EMT may proceed to assist with the administration of the auto-injected epinephrine.

INTERVENTIONS:
* Secure Airway
* Administer oxygen and assist ventilation as required
* **ESTABLISH IV/IO ACCESS**
* Transport immediately while monitoring vital signs

MILD ANAPHYLAXIS

Alert and appropriate, normotensive, may have wheezing with good air exchange and no cyanosis; may have hives

If wheezing:
ADULT/PEDS: **ALBUTEROL 2.5mg VIA NEBULIZER**
MAY REPEAT IF CONTINUED WHEEZING

CONSIDER
ADULT/PEDS: **EPINEPHRINE 1:1000**
0.01mg/kg (up to 0.3mg) IM
THIS MAY BE REPEATED X2 WITH MEDICAL CONTROL APPROVAL

CONSIDER
ADULT/PEDS: **DIPHENHYDRAMINE**
1mg/kg IV/IO/IM
(MAX 50mg)

ANAPHYLAXIS WITH RESPIRATORY DISTRESS

Respiratory distress including wheezing with poor air exchange, without signs of shock

ADULT/PEDS: **EPINEPHRINE 1:1000**
0.01mg/kg (up to 0.3mg) IM
MAY BE REPEATED WITH MEDICAL CONTROL APPROVAL

ADULT/PEDS: **ALBUTEROL 2.5mg VIA NEBULIZER**
MAY REPEAT IF CONTINUED WHEEZING

ADULT/PEDS: **DIPHENHYDRAMINE**
1mg/kg IV/IO/IM
(MAX 50mg)

ANAPHYLACTIC SHOCK

Hypotension, delayed capillary refill, altered mental status, with or without respiratory distress

ADULT/PEDS: **EPINEPHRINE 1:1000**
0.01mg/kg (up to 0.3mg) IM
MAY REPEAT X 1
CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSES IF NEEDED

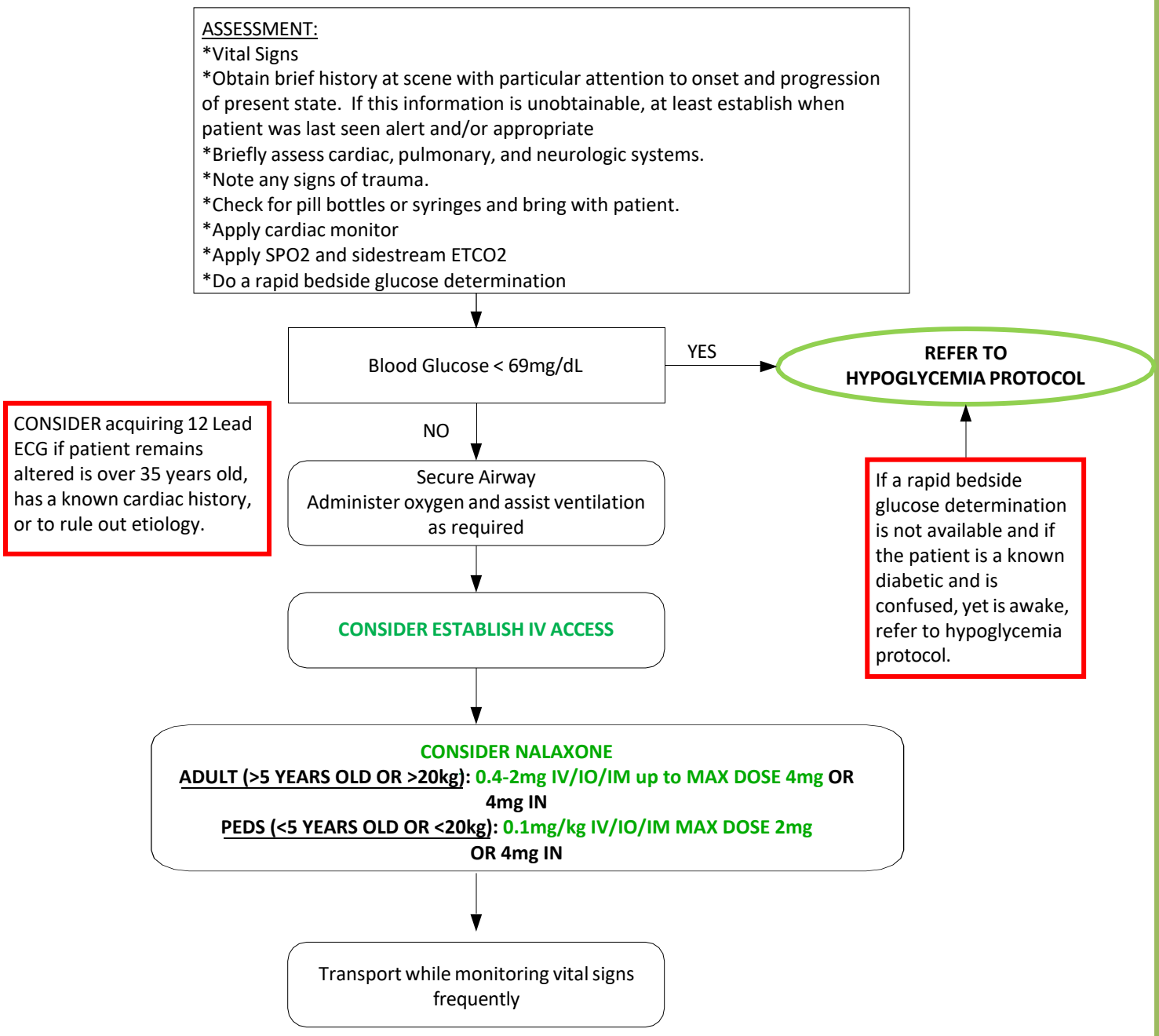
ADULT/PEDS: **DIPHENHYDRAMINE**
1mg/kg IV/IO/IM
(MAX 50mg)

ADULT/PEDS: **NS/LR 20ml/kg BOLUS**
(MAXIMUM OF 1000 Ml)
CONSIDER REPEAT IF NEEDED TO MAINTAIN BLOOD PRESSURE

ADULT/PEDS: **ALBUTEROL 2.5mg VIA NEBULIZER**
MAY REPEAT IF CONTINUED WHEEZING

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED ALTERED MENTAL STATUS PROTOCOL



COMBINED BEHAVIORAL/PSYCHIATRIC DISORDER PROTOCOL

ASSESSMENT:
* Vital signs
* Obtain brief history noting any bizarre or abrupt changes in behavior, suicidal ideation, possible alcohol or drug ingestion, and significant past medical history (diabetes, previous psychiatric disturbances)
* Briefly evaluate cardiac, respiratory, and neurologic system

PROBABLY PSYCHIATRIC PROBLEM ONLY

* Attempt to establish rapport
* If patient is dangerous to himself or others, have police assist in transport.
*Restrain if absolutely necessary
* If suicidal, do not leave patient alone and, if possible, remove any dangerous objects (guns, knives, pills, etc)
* If emergency treatment is unnecessary, do as little as possible except to reassure while transporting. Consider your own safety and limitations.

IF PHYSICAL RESTRAINT IS REQUIRED, STRONGLY CONSIDER CHEMICAL RESTRAINT:
MIDAZOLAM 0.1mg/kg IM or IN
ADULTS: MAX 10mg
PEDS: MAX 5mg
CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSE

AGITATED PATIENTS

*Cardiac monitor, when possible
*Pulse oximeter, when possible
*Rapid bedside glucose, when possible

*Consider your own safety and limitations
*If patient is dangerous to himself or others, have police assist in transport. Restrain if absolutely necessary

MIDAZOLAM 0.1 mg/kg IV/IO/IM/ IN
ADULT: MAX 10mg
PEDS: MAX 5mg
CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSE

POSSIBLE DYSTONIC REACTION

Obtain a brief history noting any new medications, particularly psychiatric or antiemetic agents, time of last dose and any known allergic or previous dystonic reactions

Administer oxygen and assist ventilation as needed

ESTABLISH IV ACCESS

CONSIDER DIPHENHYRDRAMINE
ADULTS/PEDS: 1mg/kg IV or IM
MAX 50mg
CONTACT MEDICAL CONTROL FOR ADDITIONL DOSE

Transport in position of comfort

*Consider the possibility of aspiration when deciding on physical restraint positioning
*As soon as possible, administer oxygen / sidestream ETCO2
*Transport while monitoring vital signs frequently

*Dystonic reactions are generally characterized by any or all of the following: Deviation of eyes in all directions; Forced spasm of the face, jaw, tongue, and pharynx muscles; Protrusion of tongue; Forced jaw opening; Difficulty speaking; Facial grimacing; Torticollis; Lordosis or Scoliosis; Tortipelvic crisis
*Mental status is unaffected
*Vital signs are usually normal
*Remaining physical examination findings are normal

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED CYANIDE POISONING PROTOCOL

GENERAL INFORMATION:

I. Hydrogen cyanide is a colorless gas with a faint odor of bitter almond. Sodium cyanide and potassium cyanide are both white powders with a bitter almond-like odor in damp air, due to the presence of hydrogen cyanide.

II. Symptoms include: headache, confusion, dyspnea, chest tightness, and nausea.

III. Signs of toxicity include: change in level of consciousness, seizure, dilated pupils, tachypnea and hypertension (early), bradypnea and hypotension (late), vomiting, and shock.

iv. Decontamination concurrent with initial resuscitation

a. If patient exposed to gas only and does not have skin or ocular irritation, they do not need decontamination

b. If patient exposed to liquids or powders, decontamination is required

c. Avoid self-contamination when handling patient

Hydroxocobalamin is the prefered treatment. If clinical suspicion of cyanide poisoning is high, hydroxocobalamin should be administered without delay

ASSESSMENT:
*Special attention to signs and symptoms described above
*High index of suspicion with industrial exposures and fires

↓

Decontamination as determined by the Incident Commander

↓

Apply cardiac monitor
*Pulse oximetry may be inaccurate and should be interpreted with caution. Supplemental oxygen should be administered to ALL patients.

↓

ESTABLISH IV ACCESS

↓

ADULTS: CYANOKIT 5gm IV OVER 15 MINUTES MAY REPEAT BASED ON SEVERITY OF EXPOSURE AND CLINICAL RESPONSE 5gm (FOR A TOTAL DOSE OF 10gm) IV OVER 15 MINUTES TO 120 MINUTES AS CLINICALLY INDICATED

PEDS: CYANOKIT 70mg/kg IV OVER 15 MINUTES MAY REPEAT BASED ON SEVERITY OF EXPOSURE AND CLINICAL RESPONSE 70mg/kg (FOR A TOTAL DOSE OF 140mg/kg) IV OVER 15 MINUTES TO 120 MINUTES AS CLINICALLY INDICATED

Cyanokit: each kit contains 2 250mL glass vials, each containing 2.5gm lyphilized hydroxocobalamin for injection, 2 sterile transfer spikes, 1 sterile IV infusion set, and one quick reference guide. (Diluent is not included)

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED HYPERTHERMIA PROTOCOL

Hyperthermia may be the result of environment heat loads, infections, drug ingestions, or chronic diseases. Elevations in body temperature may induce seizures in children. Hyperthermia with an altered mental status is a true emergency regardless of the etiology.

ASSESSMENT:
*Obtain vital signs, including temperature (if available)
*Obtain brief history noting length of illness and treatment given.
*If suspected environmental etiology note the type and length of exposure
*Briefly assess cardiac, respiratory, and neurologic systems.
*Apply cardiac monitor
*Apply pulse oximeter

HYPERTHERMIA WITHOUT ALTERED MENTAL STATUS

- Secure airway and administer oxygen as needed
- Loosen clothing, remove any heavy clothing, and do not cover with blankets
- **CONSIDER ESTABLISHING IV ACCESS**
- CONSIDER cooling the patient by sponging with room temperature water. Avoid inducing shivering.

IF SHOCK PRESENT REFER TO HYPOTENSION/SHOCK PROTOCOL

HYPERTHERMIA WITH ALTERED MENTAL STATUS

- Do a rapid bedside glucose determination
- Secure airway, administer oxygen, and assist ventilation as required
- **ESTABLISH IV ACCESS**
- Remove patient's clothing and consider cooling by sponging the patient with room temperature water and if possible, fan the patient to achieve evaporation. Avoid inducing shivering in the patient
- Transport while monitoring vital signs. **Cool while enroute**. Do not let cooling in the field delay transport

KANSAS CITY, MISSOURI EMS PROTOCOLS

COMBINED HYPOTHERMIA PROTOCOL

Severe hypothermia may mimic death

ASSESSMENT:
*Obtain vital signs, including temperature (if available)
*Obtain brief history noting length of exposure and pertinent medical history (drug ingestion, diabetes)
*Briefly assess cardiac, respiratory, and neurologic systems. Note condition of skin for evidence of local injury (frostbite)
*Apply cardiac monitor
*Apply pulse oximeter

Good outcomes after even prolonged hypothermic arrest are possible, therefore patients should generally be transported.

Pulse and respirations may be very slow and difficult to detect if the patient severely hypothermic. If no definite pulse, and no signs of life, begin CPR.

LOCALIZED COLD INJURY (FROSTBITE)

*Handle injured part very gently. Protect from pressure, trauma, or friction but leave uncovered
*Do not allow limb to thaw if there is a chance that refreezing will occur before evacuation and transport is complete
*Remove wet garment, dry and insulate patient to maintain core temperature
*Transport while monitoring vital signs
*In general, active rewarming should be done at the hospital, not in the field

SYSTEMIC HYPOTHERMIA

COMATOSE OR UNRESPONSIVE

Pulse Present?

NO

REFER TO ADULT OR PEDIATRIC CARDIAC ARREST PROTOCOL *WITH THE FOLLOWING CHANGES*

PEA

*Handle very gently
*** USE WARM IV FLUIDS**
*Insulate patient

ASYSTOLE OR V-FIB/ PULSELESS VT

*Handle very gently
***EPINEPHRINE 1 TIME ONLY**
***1 DEFIBRILLATION ATTEMPT FOR VF/PULSELESS VT**
***USE WARM IV FLUIDS**
*Insulate patient

YES

*Remove wet garment, dry and insulate patient to maintain core temperature
*Handle the patient as gently as possible. Avoid any unnecessary manipulation
*Secure airway with as little manipulation as possible since stimulation of the airway may precipitate ventricular fibrillation in the hypothermic patient
*Administer oxygen and assist ventilation as required
*Do a rapid bedside glucose determination
***ESTABLISH IV ACCESS**
Transport while monitoring vital signs

AWAKE BUT ALTERED LOC

*Remove wet garment, dry and insulate patient to maintain core temperature
***ESTABLISH IV ACCESS**
*Do a rapid blood glucose determination
*Administer oxygen and assist ventilation as required
*Transport while monitoring vital signs

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED HYPOGLYCEMIA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain rapid beside glucose reading
*Obtain brief history to include:
*Onset
*Progression of present state
*Observe for presence of an automated external insulin delivery device (Insulin Pump)
*Assess cardiac, respiratory, and neurologic systems including GCS
*Apply cardiac monitor
*Apply pulse oximeter

If patient remains altered after correction of blood glucose, CONSIDER obtaining a 12 Lead ECG.

Secure airway, administer oxygen and assist ventilation as required

Blood glucose < 69mg/dL?

NO → **REFER TO APPROPRIATE PROTOCOL**

YES

*Patient awake/alert
*Symptomatic
*Gag reflex present

NO

YES

***Transport is MANDATORY with IO placement.**
***The placement and subsequent removal of an IO in the pre-hospital environment is not currently supported by literature.**

ESTABLISH IV/IO ACCESS

D10%
ADULTS: 125mL IV BOLUS
PEDS: 5mL/kg IV MAX 125mL
REPEAT X1 IF PT REMAINS SYMPTOMATIC AND BLOOD GLUCOSE REMAINS < 69mg/dL
ADULT/PEDS: IF PATIENT REMAINS SYMPTOMATIC AND BLOOD GLUCOSE REMAINS < 69mg/dL, CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSE

Transport while monitoring vital signs

CONSIDER ORAL GLUCOSE

If patient remains symptomatic and blood glucose remains < 69mg/dL

*If unable to obtain IV access:
GLUCAGON
ADULTS: 1mg IM
PEDS: < 25kg 0.1mg/kg IM MAX 0.5mg
> 25kg 1mg IM
MAY REPEAT X1 IN 15 MINUTES IF NO CHANGE IN PATIENT STATUS

Transport is indicated for any of the following patients:
*Patients requiring intraosseous (IO) placement
*Patients under age 18 years
*Patients with unexplained hypoglycemia
*Patients taking oral hypoglycemic meds
*These patients are at risk of recurrence of symptoms that can be delayed for several hours and require close monitoring
*Patients not taking food by mouth
*Patients who do not have a competent adult to monitor

Any patient that refuses transport should be instructed to contact their physician and consume a meal with complex carbohydrates and protein in addition to general instructions given on all refusals.

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED HYPOTENSION/SHOCK PROTOCOL

ASSESSMENT:
*Obtain vital signs, consult PEDIATRIC VITAL SIGN RANGES for pediatric blood pressure parameters
*Obtain brief history to include:
- *Onset
- *Duration
- *Possible etiologies
- *Past history of similar occurrences
- *Fever
- *Blood loss
- *Fluid loss
- *Allergic exposure
- *Trauma

*Apply cardiac monitor
*Apply pulse oximeter
*Obtain rapid bedside glucose reading
*Reassess after each IV fluid bolus

Secure airway, administer oxygen and assist ventilation as required

IF ANAPHYLACTIC SHOCK REFER TO ALLERGIC REACTION PROTOCOL

Acquire 12 Lead ECG

IF STEMI SUSPECTED REFER TO CHEST PAIN/STEMI PROTOCOL

ESTABLISH IV/IO ACCESS

ADULTS: NS/LR IV 1L
MAY REPEAT X1 (MAX 2L)
TO MAINTAIN SBP > 90mmHg
PEDS: 20mL/kg MAY REPEAT UP TO 3 DOSES
TO MAINTAIN AGE APPROPRIATE SBP
CARDIOGENIC SHOCK:
NS/LR 10mL/kg MAX 500mL

If patient has a **KNOWN** history of
ADRENAL INSUFFICIENCY:
METHYLPREDNISOLONE:
ADULTS: 125mg IV
PEDS: 2mg/kg IV/IO OVER 2 MIN
MAX 125mg
OR GIVE PATIENT THEIR PRESCRIBED STEROID AFTER CONTACTING MEDICAL CONTROL

ADULTS ONLY
CONSIDER EPI 1:100000 (PUSH DOSE)
10-20mcg EVERY 2-3 MINUTES
IF SBP < 90mmHg AFTER APPROPRIATE FLUID RESUSCITATION

Transport while monitoring vital signs

COMBINED NON-TRAUMATIC ABDOMINAL PAIN/VOMITING PROTOCOL

ASSESSMENT:
*Obtain vital signs with PAIN SCALE
*Obtain brief history
*Onset
*Location
*Duration
*Radiation of pain
*Associated signs and symptoms:
*Vomiting
*Bilious emesis
*GU symptoms
*Hematemesis
*Coffee ground emesis
*Melena
*Rectal bleeding
*Vaginal bleeding
*Known or suspected pregnancy
*Recent trauma

LIFE THREATENING CAUSES:
*Cardiac etiology: MI, ischemia
*Vascular Etiology: AAA, dissection
*GI bleed
*Gynecologic etiology: Ectopic pregnancy

Secure airway, administer oxygen and assist ventilation as required

IF SIGNS OF POOR PERFUSION AND/OR HYPOTENSIVE FOR AGE REFER TO HYPOTENSION/ SHOCK PROTOCOL

CONSIDER ESTABLISHING IV ACCESS

CONSIDER
ADULTS: ONDANSETRON 4mg PO or IV ONE TIME ONLY
PEDS: OVER AGE 4 YEARS ONDANSETRON 4mg PO ONE TIME ONLY

FOR SEVERE PAIN CONSIDER REFERING TO PAIN CONTROL PROTOCOL

Transport while monitoring vital signs

ELDERLY PATIENTS:
*Much more likely to have life-threatening cause of symptoms
*Shock may be occult, with absent tachycardia in setting of severe hypovolemia

PEDIATRIC PATIENTS:
*Life-threatening causes vary by age.
*Consider:
*Occult or non-accidental trauma
*Toxic ingestion
*Button battery ingestion
*GI bleed
*Peritonitis
*Most pediatric patients without signs of shock, no IV is required and pharmacologic pain management should be limited

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED OVERDOSE/POISONING PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history.
*Bring any containers, package inserts, etc, of suspected ingestion.
*Assess cardiac, respiratory, and neurologic systems
*Apply cardiac monitor
*Apply sidestream ETCO2
*Apply pulse oximeter
*Do a rapid bedside glucose determination

↓

Secure airway, administer oxygen and ventilation as required

↓

ESTABLISH IV ACCESS

↓

FOR KNOWN OPIOID/OPIATE/NARCOTIC OVERDOSE WITH RESPIRATORY DEPRESSION:
NALOXONE
ADULT (>5 YEARS OLD OR >20kg): 0.4-2mg IV/IO/IM up to MAX DOSE 4mg OR 4mg IN
PEDS (<5 YEARS OLD OR <20kg): 0.1mg/kg IV/IO/IM MAX DOSE 2mg OR 4mg IN

↓

Newborn Consideration:
If mother has chronic or acute opioid use, monitor baby closely for seizure and other withdrawal symptoms

FOR KNOWN TRICYCLIC ANTIDEPRESSANT (TCA OVERDOSES WITH WIDE COMPLEX TACHYCARDIAS:
ADULTS/PEDS: SODIUM BICARBONATE 1mEq/kg IV

↓

FOR KNOWN CALCIUM CHANNEL BLOCKER OVERDOSES WITH HYPOTENSION:
ADULTS/PEDS: CALCIUM CHLORIDE 10% solution 0.2mL/kg IV (MAX 10mL

↓

FOR KNOWN BETA-BLOCKER OVERDOSES WITH HYPOTENSION
ADULTS/PEDS: GLUCAGON 1mg IV

↓

Transport while monitoring vital signs

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED PAIN CONTROL PROTOCOL

ASSESSMENT:
*Obtain vital signs including PAIN SCALE
*Obtain brief history
*Mechanism of injury
*Location of injury
*Apply cardiac monitor
*Apply sidestream ETCO2
*Apply pulse oximeter

↓

Secure airway, administer oxygen and assist ventilation as required

↓

ESTABLISH IV ACCESS

↓

ADULTS: FENTANYL 50mcg IV/IM/IN MAY REPEAT EVERY 5 MINUTES AS NEEDED MAX TOTAL GIVEN 200mcg
PEDS: FENTANYL 1mcg/kg IV/IM/IN MAX 50mcg MAY REPEAT X1 MAX 50mcg
CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSE

↓

Transport while frequently monitoring vital signs

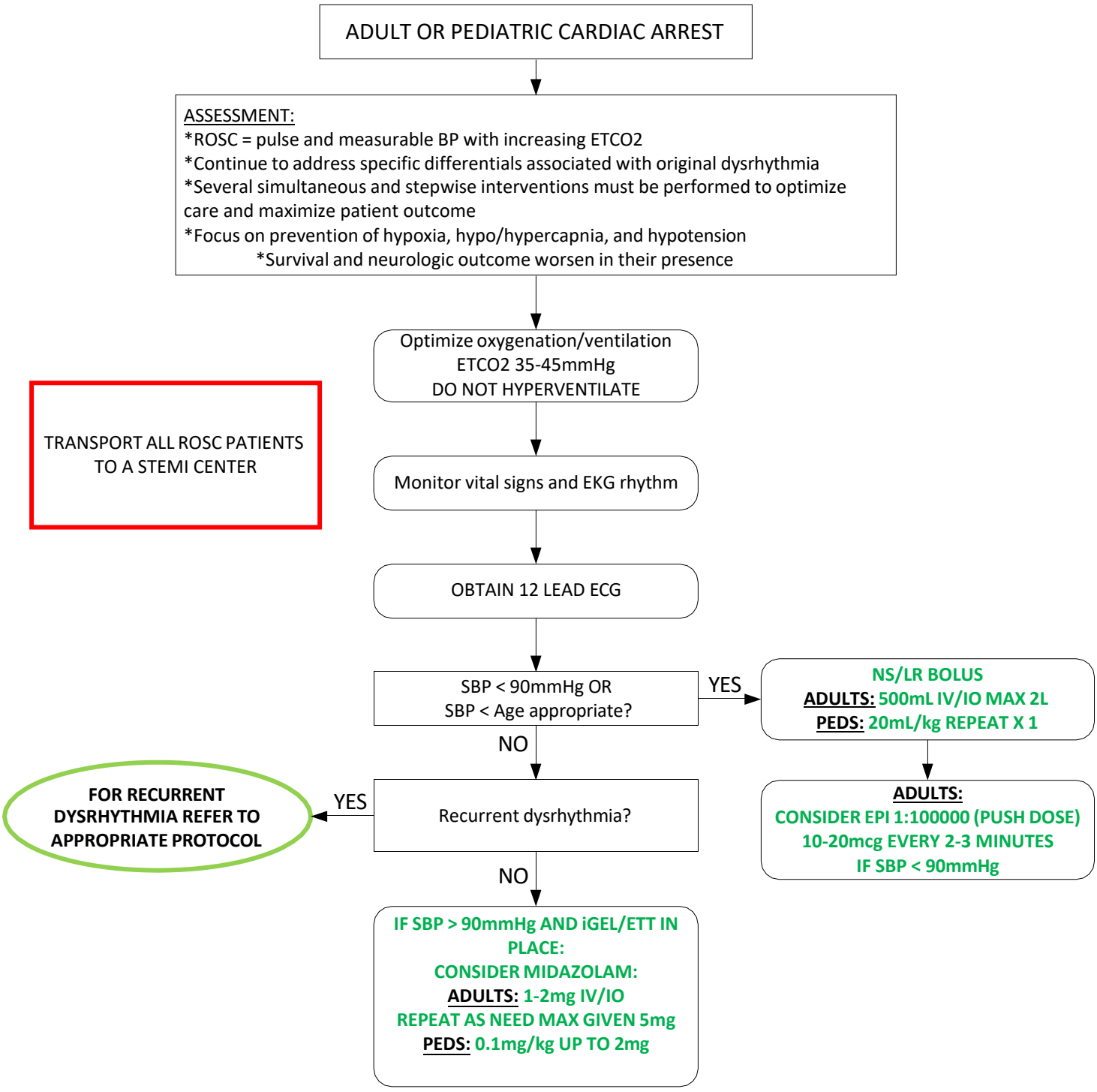
Consider Intranasal (IN) administration prior to establishing IV access if the patient condition warrants and IV access will be delayed

CONTACT MEDICAL CONTROL
IF PATIENT ATTEMPTS TO REFUSE TRANSPORT AFTER RECEIVING PAIN MEDICATION

CONTRAINDICATIONS:
*Trauma
*Head injury
*Paralysis or new neurological findings
*Burns involving the airway or causing respiratory compromise
*Facial trauma involving the airway or causing respiratory compromise
*Medical
*Respiratory distress or compromise (Asthma, COPD, or CHF)
*New cardiac dysrhythmia is present
*Altered mental status
*Third trimester pregnancy
*Drug or alcohol use
*Sensitivity or allergy to opiates
*Hypotension (SBP < 100mmHg)
*Pulse rate < 60 bpm

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED POST RESUSCITATION PROTOCOL



KANSAS CITY MISSOURI FIRE DEPARTMENT EMS PROTOCOLS

COMBINED SEDATION PROTOCOL

****ONLY TO BE USED AFTER PLACEMENT OF ADVANCED AIRWAY****

ASSESSMENT:
*Continue to address specific differentials associated with original respiratory compromise
*Several simultaneous and stepwise interventions must be performed to optimize care and maximize patient outcome
*Focus on prevention of hypoxia, hypo/hypercapnia, and hypotension
*Survival and neurologic outcome worsen in their presence
*Apply cardiac monitor
*Apply pulse oximeter
*Obtain rapid bedside glucose reading
*Reassess after administration of each medication

CONSIDERATIONS:
*Can result in partial or complete loss of protective airway reflexes
*Versed and Fentanyl together will have a synergistic effect on sedation and respiratory depression
*PREPARE EQUIPMENT PRIOR TO SEDATION

PRECAUTIONS:
*These medications combined cause decreased respiratory drive, and as such should only be given while monitoring pulse oximetry and closely monitoring respiratory status.
*These drugs may cause hypotension and direct myocardial depression.
*Cardiac monitoring accompanied by frequent blood pressure checks are mandatory.
*Other precautions as listed in other applicable protocols

Secure airway, administer oxygen and assist ventilation as required

Acquire 12 Lead ECG → **IF STEMI SUSPECTED REFER TO CHEST PAIN/STEMI PROTOCOL**

ESTABLISH IV/IO ACCESS

ADULTS: *FENTANYL 25-100mcg IV/IO
***MIDAZOLAM 2-6mg IV/IO**
PEDS: - *FENTANYL 1.0-2.0mcg/kg IV/IO
***MIDAZOLAM 0.2-0.3mg/kg IV/IO**

Transport while monitoring vital signs

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED SEIZURE PROTOCOL

Seizures may be a sign of hypoxia or cardiac arrest

ASSESSMENT:
*Obtain vital signs
*Obtain brief history including:
*Description of the incident from observers
*History of medication use
*Presence/absence of alcohol or substance abuse
*Recent illness or trauma
*Assess cardiac, respiratory, and neurologic systems, note any seizure activity
*Apply cardiac monitor
*Apply pulse oximeter
*Perform rapid bedside glucose determination

IF BLOOD GLUCOSE < 69mg/dL REFER TO HYPOGLYCEMIA PROTOCOL

SINGLE SEIZURE WITH TYPICAL POSTICAL PHASE

Secure airway, administer oxygen and assist ventilation as required; suction as needed

CONSIDER ESTABLISHING IV ACCESS

Transport in lateral decubitus position while monitoring

REPETITIVE SEIZURES

Secure airway, administer oxygen and assist ventilation as required; suction as needed

ESTABLISH IV ACCESS

IF NO KNOWN SEIZURE DISORDER AND 3RD TRIMESTER PREGNANCY OR < 1 MONTH POST-PARTUM AND ACTIVELY SEIZING: MAGNESIUM SULFATE 4gm IV/IO OVER 5 MINUTES

MIDAZOLAM 0.1 mg/kg IV/IO/IM/IN
ADULT: MAX 5mg
MAY REPEAT DOSE X1 TO A MAX DOSE OF 10MG
PEDS: MAX 5mg
CONTACT MEDICAL CONTROL FOR ADDITIONAL DOSE

EVALUATE FOR RESPIRATORY DEPRESSION WHEN ADMINISTERING MIDAZOLAM
MONITOR SIDESTREAM END-TIDAL CO2 IF AVAILABLE

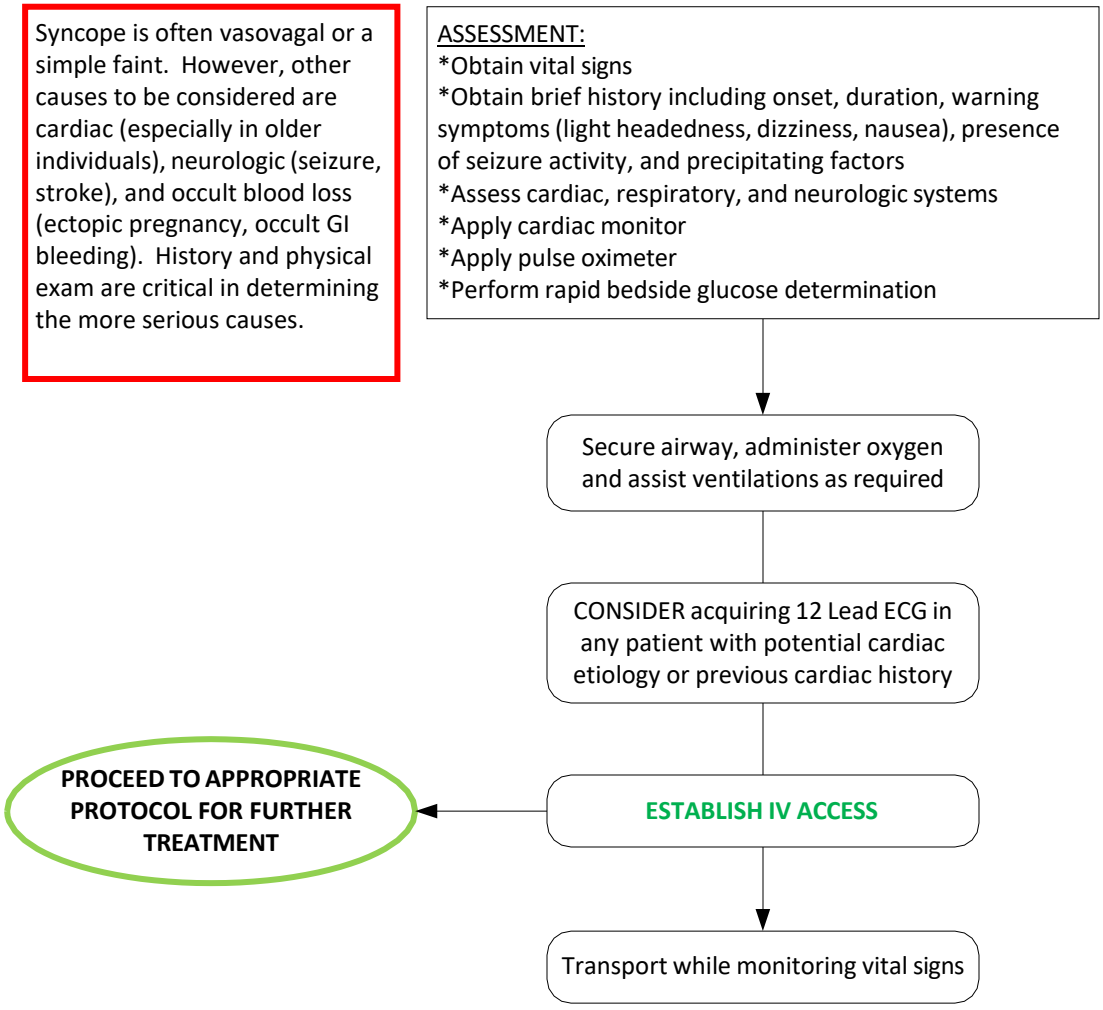
Transport while monitoring vital signs

If hyperthermic, loosen clothing and do not cover with blankets

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBINED SYNCOPE PROTOCOL

Syncope is often vasovagal or a simple faint. However, other causes to be considered are cardiac (especially in older individuals), neurologic (seizure, stroke), and occult blood loss (ectopic pregnancy, occult GI bleeding). History and physical exam are critical in determining the more serious causes.



KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT GENERAL AIRWAY PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history to include:
- *Onset
- *Potential aspiration of small objects or food
- *Fever or cough
- *Chest pain
- *Past history of prior respiratory or cardiac problems
  - *Asthma
  - *COPD
  - *Heart failure

*Assess adequacy of airway and ventilation to include:
- *Vocalization
- *Rate and depth of respirations
- *Breath sounds
- *Evidence of distress:
  - *Accessory muscle use
  - *Stridor
  - *Cyanosis
  - *Nasal Flaring

*Apply cardiac monitor
*Apply pulse oximeter

Is oxygenation/ventilation adequate with appropriate respiratory rate and SpO2 > 94%?

YES → **REFER TO APPROPRIATE PROTOCOL**

NO

Basic maneuvers:
*Chin Lift/Jaw Thrust
*Nasal/Oral Airway

Airway Patent?

NO → **REFER TO OBSTRUCTED AIRWAY PROTOCOL**

YES

Supplemental oxygen
BVM 6-8/min to maintain SpO2 > 94%
CONSIDER CPAP/BiPAP

CONSIDER iGEL PLACEMENT AND MONITOR ETCO2 OR ORAL ENDOTRACHEAL INTUBATION AND MONITOR ETCO2

Transport to closest appropriate hospital while monitoring vital signs

*Proper positioning and preparation is necessary before an attempt at an advanced airway is made
*The following is considered an attempt at advanced airway placement
- *iGel passing beyond the teeth is considered a placement attempt
- *Laryngoscope blade passing beyond the teeth is considered an intubation attempt

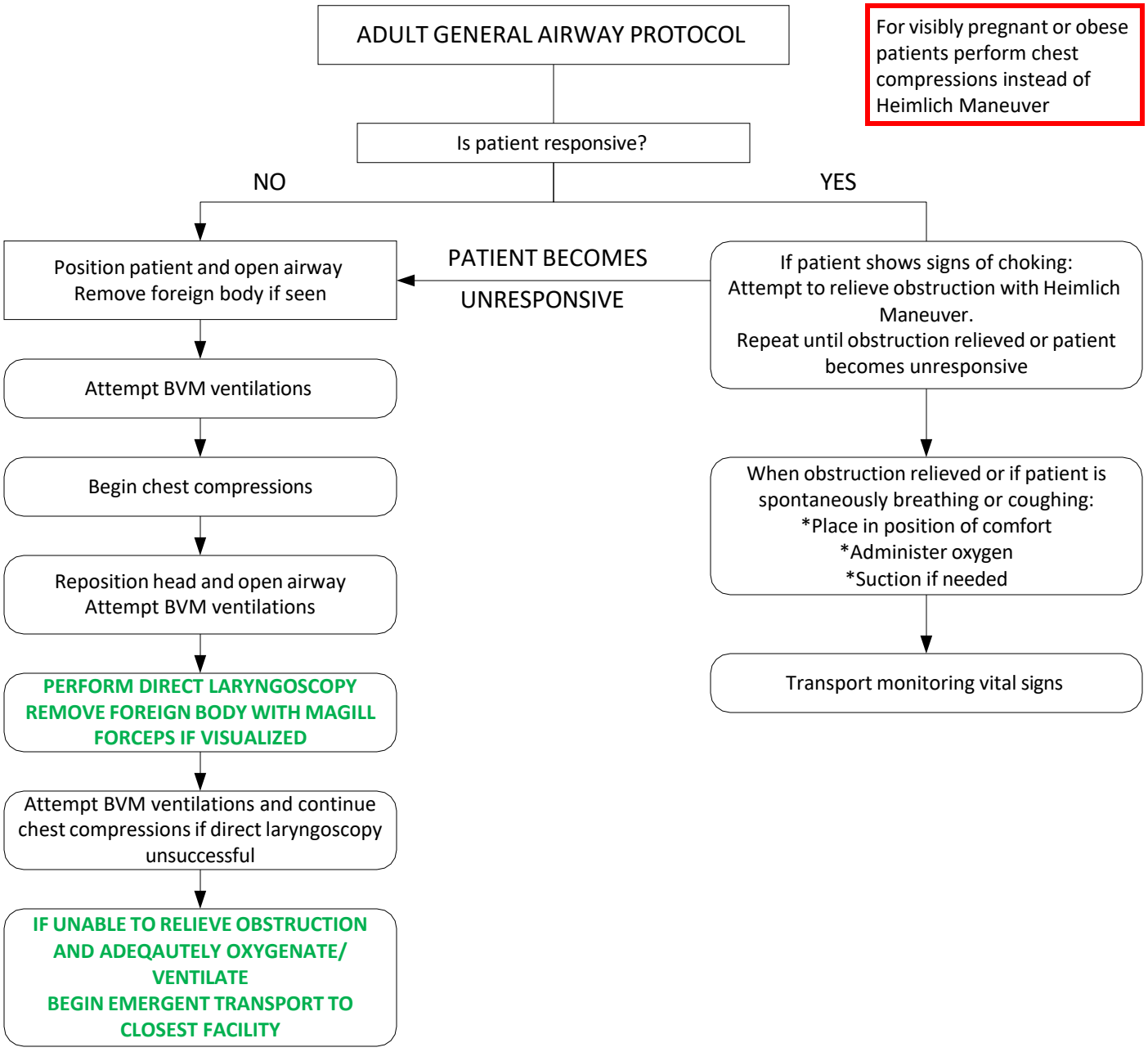
DISCONTINUE USE OF MECHANICAL VENTILATOR AND RESUME BVM USE IF PATIENT BECOMES PULSELESS AND CHEST COMPRESSIONS ARE INITIATED

*Continuous waveform capnography (ETCO2) use is MANDATORY for:
- *Confirmation of ALL iGel or Endotracheal Tube placements
- *Continuous monitoring of ALL placed iGels or Endotracheal tubes
  - *Includes ANY Endotracheal Tube or other advanced airway device in place during Interfacility Transfers
- *Patient with Tracheostomy Tube in which ventilations are being assisted via BVM

*Goal is to maintain ETCO2 @ 35-45mmHg

KANSAS CITY, MISSOURI EMS PROTOCOLS

ADULT OBSTRUCTED AIRWAY



Anytime obstruction is relieved:
*Place patient in position of comfort or left lateral recumbent if remains unconscious
*Administer oxygen, monitor SpO2 and vital signs
*Be prepared for vomiting as is common after an obstruction is relieved
*Suction as needed

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT ASTHMA/COPD PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history to include baseline sidestream ETCO2 readings:
- *Onset of symptoms
- *Concurrent symptoms
  - *Fever
  - *Cough
  - *Rhinorrhea
  - *Tongue/lip swelling
  - *Rash
  - *Labored breathing
  - *Foreign body aspiration
- *Usual triggers of symptoms
  - *Cigarette smoke
  - *Change in weather
  - *Upper respiratory infections
- *Sick Contacts
- *Treatment used
- *Previously intubated
- *Number of emergency department visits in the past year
- *Number of admissions in the past year
- *Number of ICU admissions
- *Family history of asthma, eczema, or allergies
- *Apply cardiac monitor
- *Apply pulse oximetry

Asthmatic/COPD patients overall do not do well if they require intubation

Secure airway, administer oxygen and assist ventilation as required
Maintain SpO2 > 94%

Acquire 12 Lead ECG
If age > 35 years or patient has cardiac history

IF STEMI SUSPECTED REFER TO CHEST PAIN/STEMI PROTOCOL

ESTABLISH IV ACCESS

ALBUTEROL 2.5mg NEBULIZED
IPRATROPIUM 0.5mg NEBULIZED
REPEAT ALBUTEROL X2 AS NEEDED

COPD exacerbations are particularly responsive to CPAP / Z VENT and should be considered early. This may avoid the need for intubation

Epinephrine 1:1000 Contraindications:
*Age 50 or older
*Cardiac etiology
*Known CAD

If severe distress:
RR > 30
HR > 110
Patient speaks less than 3 word sentences
***MONITOR SIDESTREAM ETCO2**
***CONSIDER CPAP/BiPAP**
***METHYLPREDNISOLONE 125mg**
***CONSIDER EPINEPHRINE 1:1000 0.3mg IM**

CPAP / BiPAP Contraindications:
*Decreased or altered mental status
*Facial trauma/burns
*Vomiting or excessive secretions
*Cannot maintain own airway
*SBP < 90mmHg

Z VENT Precautions:
*PIP SHOULD NEVER EXCEED 40
*PRESSURE SUPPORT SHOULD NEVER EXCEED 20

Transport monitoring vital signs and respiratory status
Be prepared to assist ventilations as needed

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT CHF/PULMONARY EDEMA

ASSESSMENT:
*Obtain vital signs to include sidestream ETCO2 readings
*Obtain brief history to include:
*Prior respiratory or cardiac problems
*Prior history of heart failure
*Obtain medications:
*Erectile dysfunction medications in the last 36hrs
*Viagra, Levitra, or Cialis
*Assess cardiac, respiratory, and neurologic systems
*Apply cardiac monitor
*Apply pulse oximeter
*Consider MI in these patients

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

Acquire 12 Lead ECG → **IF STEMI SUSPECTED REFER TO CHEST PAIN/STEMI PROTOCOL**

ESTABLISH IV ACCESS

NITROGLYCERIN 0.4mg SL EVERY 5 MINUTES IF SBP > 100mmHg
***CONSIDER NITRO PASTE 1 INCH TD IF PATIENT CANNOT TOLERATE SL**

Avoid nitroglycerin if Viagra (sildenafil), Levitra (vardenafil), or Cialis (tadalafil) have been taken in the past 36 hours

CONSIDER CPAP/BiPAP

CPAP / BiPAP Contraindications:
*Decreased or altered mental status
*Facial trauma/burns
*Vomiting or excessive secretions
*Cannot maintain own airway
*SBP < 90mmHg

Transport while monitoring vital signs and respiratory status
Be prepared to assist ventilations as needed

Z VENT Precautions:
*PIP SHOULD NEVER EXCEED 40
*PRESSURE SUPPORT SHOULD NEVER EXCEED 20

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT CHEST PAIN /STEMI PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history
*OPQRST
*SAMPLE
*Obtain medications and allergies
*Erecitle dysfunction medications in the last 36hrs
*NTG or ASA for current episode of chest pain
*Assess cardiac, respiratory, and neurologic systems
*Apply cardiac monitor
*Apply pulse oximeter
*Females and the elderly often have atypical symptoms

HISTORY FACTORS:
*Prior MI or family history
*HTN
*Diabetes
*Age

FACTORS FAVORING ACS:
*Central chest pain or pressure
*Radiation to arm, shoulder, neck, or jaw
*Shortness of breath
*Nausea/vomiting
*Diaphoresis
*Prior angina or MI

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

Acquire 12 Lead ECG

*Look for ST DEPRESSION in reciprocal leads
*Isolated ST elevation in aVR with ST depression everywhere else is concerning for possible proximal LAD or Left Main lesion

ASPIRIN 81mg X4 PO (CHEWED)

Nitroglycerin:
*DO NOT give if Erectile Dysfunction medications have been taken in the last 36hrs due to potential for severe hypotension
*May be given x1 without IV access ONLY if patient is currently prescribed nitroglycerin
*CONTRAINDICATED in patients with INFERIOR STEMI
*Unless Hypertensive Emergency DBP > 130mmHg associated with chest pain or CHF

Acute STEMI/MI?
(> 1mm ST segment elevation in 2 or more anatomically continuous leads or NEW LBBB)

YES

*Keep scene time to 15-20 minutes
*Transport to a STEMI Center
*Notify receiving hospital as early as possible
*Transmit 12 Lead ECG to receiving hospital (if possible)

NO

Inferior STEMI?
(Leads II, III, aVF)

NO

SBP > 100mmHg?

NO

ESTABLISH IV ACCESS

IF LUNGS CLEAR:
NS/LR BOLUS 500mL MAY REPEAT AS NEEDED MAX 2L

YES

ESTABLISH IV ACCESS

YES

ESTABLISH IV ACCESS

NITROGLYCERIN 0.4mg SL EVERY 5 MINUTES MAINTAIN SBP > 100mmHg

IF SBP > 100mmHg:
CONSIDER FENTANYL 50mcg IV MAY REPEAT EVERY 5 MINUTES AS NEEDED MAX 200mcg
****MONITOR SIDESTREAM ETCO2****

Transmission of 12-lead ECG Required-
*After acquisition, press envelope button on the left side of the display
*Select desired destinations from list
*Transmit ECG data

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT BRADYCARDIA (HR < 60) PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history of current symptoms, especially current chest pain or shortness of breath
*Obtain past medical history
- *Congenital disease
- *Previous dysrhythmias
- *Coronary artery disease
- *Heart failure
- *Heart murmur

*Current medications looking specifically for
- *Beta-blockers
- *Calcium channel blockers
- *Clonidine
- *Digoxin

*Apply cardiac monitor
*Apply Pulse Oximeter

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

Acquire 12 Lead ECG

ESTABLISH IV/IO ACCESS

IF SUSPECTED BETA-BLOCKER OR CALCIUM CHANNEL BLOCKER OVERDOSE REFER TO OVERDOSE/POISONING PROTOCOL

SIGNS OF POOR PERFUSION:
*Altered Mental Status
*Chest Pain
*CHF
*Shortness of Air
*Syncope
*Hypotension/Shock

YES

NO

Transport monitoring vital signs

ATROPINE 0.5mg IV/IO EVERY 3-5 MINUTES MAX 3mg

TRANSCUTANEOUS PACING IF NOT RESPONSIVE TO ATROPINE (CONSIDER EARLY IN 2ND OR 3RD DEGREE AV BLOCK)

CONSIDER MIDAZOLAM 1-2 mg IV/IN REPEAT AS NEEDED TO MAX 5mg GIVE WHILE MONITORING SIDESTREAM ETCO2

IF POOR PERFUSION PERSISTS: CONSIDER NS/LR 10ml/kg MAX 500mL OR EPI 1:100000 (PUSH DOSE) 10-20mcg IV/ IO EVERY 2-3 MINUTES

*Atropine in the presence of MI may worsen heart damage
*Atropine is ineffective in cardiac transplant patients
*DO NOT DELAY pacing patients with poor perfusion and presence of MI or 2nd or 3rd degree AV Block

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT TACHYCARDIA HR > 150 PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history of current symptoms, especially current chest pain or shortness of breath
*Obtain past medical history
- *Congenital disease
- *Previous dysrhythmias
- *Coronary artery disease
- *Heart failure
- *Heart murmur

*Current medications looking specifically for
- *Beta-blockers
- *Calcium channel blockers
- *Clonidine
- *Digoxin

*Apply cardiac monitor
*Apply Pulse Oximeter

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

ESTABLISH IV/IO ACCESS

ASYMPTOMATIC PATIENTS:
Consider close observation and/or fluid bolus rather than immediate treatment with medication

TORSADE DE POINTES
May not synchronize for cardioversion. If SIGNS OF POOR PERFUSION are present, proceed with Unsynchronized Defibrillation

SIGNS OF POOR PERFUSION:
*Altered Mental Status
*Chest Pain
*CHF
*Shortness of Air
*Syncope
*Hypotension/Shock

NO

YES

Acquire 12 Lead ECG and Identify rhythm

SYNCHRONIZED CARDIOVERSION 120J
REPEAT IF NEEDED 150J
REPEAT IF NEEDED 200J

CONSIDER MIDAZOLAM 1-2 mg IV/IN
REPEAT AS NEEDED TO MAX 5mg GIVEN
****MONITOR SIDESTREAM ETCO2****

Acquire 12 Lead ECG after conversion

Narrow Complex
QRS < 0.12 sec

Regular: SVT
***VALSALVA MANEUVER**
***ADENOSINE 12MG IV/IO**
RAPID PUSH THEN FLUSH
REPEAT X1

Irregular: Afib/Aflutter
VALSALVA MANEUVER

Wide Complex
QRS > 0.12 sec

Regular VT with Pulse or SVT with aberrancy
AMIODARONE 150 IV/IO
OVER 10 MIN

Irregular: Torsade de Pointes
MAGNESIUM SULFATE 2GM IV/IO
OVER 2 MINUTES

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT CARDIAC ARREST

ASSESSMENT:
*Events leading to arrest
*Estimated downtime
*Past medical history
*Existence of terminal illness
*Left Ventricular Assist Device
*Medications
*Maternal Arrest – manually displace uterus to patient's left side, defibrillations is safe at all energy levels
*Persistent VF/VT should be transported to a STEMI Receiving Center
***Patients should receive a MINIMUM 30 MINUTES ON SCENE ALS CARE prior to transport decision**

EXCLUSION CRITERIA:
*Arrest secondary to severe hypothermia
****REFER TO HYPOTHERMIA PROTOCOL**
*Patients with identifiable DO NOT RESUSCITATE orders
****REFER TO VALID EXCLUSION OF RESUSCITATION POLICY**
*Arrest secondary to trauma
****REFER TO DOA POLICY**

VENTILATIONS:
*iGel should be left in place if ventilations are adequate
*If oxygenation/ventilation inadequate, CONSIDER Endotracheal Intubation
*If intubation is considered, DO NOT INTERUPT CHEST COMPRESSIONS for Endotracheal Intubation
*ETCO2 MONITORING IS MANDATORY FOR ALL iGEL OR ENDOTRACHEAL TUBE PLACEMENTS!!
*ETCO2 < 20mmHg could be an indication of inadequate chest compressions
*DO NOT HYPERVENTILATE
*Squeeze BVM just enough for chest rise
*10 breaths/min

*Initiate Manual Continuous Chest Compression
*Push hard (2 inches), Push Fast (100-110/min)
*Change compressors every 2 minutes
*Deploy Mechanical CPR Device after 3 cycles (6 minutes) of manual chest compressions
***RETURN IMMEDIATELY TO MANUAL CHEST COMPRESSIONS IF ISSUE WITH MECHANICAL CPR DEVICE DEVELOPS**
*Initiate BVM Ventilations at 10/min until iGel ready
*Establish iGel, or ET Tube and continue ventilations at 10/min
*BLS on scene awaiting ALS arrival:
*Attach AED and follow prompts
*ALS on scene
*Attach cardiac monitor/defibrillator
*Attach capnography, assure ETCO2 > 20mmHg
*Pulse check should take no more than 5-10 seconds

SHOCKABLE RHYTHM PRESENT?
Check rhythm, check pulse after each 2 min CCC cycle and treat accordingly

IF CONSIDERING TERMINATION REFER TO TERMINATION OF RESUSCITATION PROTOCOL

TORSADE DE POINTES
MAGNESIUM SULFATE 2GM IV/IO OVER 2 MIN

ALWAYS RESUME CCC AFTER DEFIBRILLATION

IF AT ANYTIME ROSC IS ACHIEVED REFER TO POST RESUSCITATION CARE PROTOCOL

VF/PULSELESS VT	ASYSTOLE/PEA
DEFIBRILLATE 200J **RESUME CCC X 2 MIN**	CCC x 2 min
ESTABLISH IV/IO ACCESS	**ESTABLISH IV/IO ACCESS**
EPINEPHRINE 1:10000 **1mg IV/IO** **EVERY 3-5 MIN**	**EPINEPHRINE 1:10000** **1mg IV/IO** **EVERY 3-5 MIN**
DEFIBRILLATE 200J **RESUME CCC X 2 MIN**	
AMIODARONE 300mg IV/IO **REPEAT 150mg IV/IO X1** **AFTER 5 MIN**	

Reversible Causes:
*Hypovolemia
*Hypoxia
*Hydrogen Ion
*Hypo/Hyperkalemia
*Hypothermia
*Tension Pneumothorax
*Cardiac Tamponade
*Toxins
*Naloxone is ineffective in cardiac arrest and should not be given
*Thrombosis

FOR RENAL FAILURE/DIALYSIS PATIENTS:
CALCIUM CHLORIDE 1gm IV/IO
SODIUM BICARBONATE 1mEq/kg IV/IO
FLUSH IV LINE BETWEEN MEDS

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT TERMINATION OF RESUSCITATION PROTOCOL

ADULT CARDIAC ARREST PROTOCOL

If at anytime there is a question about the ability to terminated, **CONTINUE RESUSCITATION**

IF AT ANYTIME DURING RESUSCITATION A DNR IS PRESENTED REFER TO THE VALID EXCLUSION OF RESUSCITATION POLICY

Scene is safe for discontinuing resuscitation

Patient 18 years of age or older

Primary cardiac etiology of arrest

ASYSTOLE or SLOW WIDE COMPLEX PEA < 40 BPM has been present for AT LEAST 30 MINUTES OR LONGER

DO NOT CONTACT MEDICAL CONTROL FOR ORDERS TO TERMINATE UNTIL THE PATIENT MEETS THE TIME IN RHYTHM REQUIREMENT.

All appropriate treatments have been accomplished per protocol
*Adequate CPR
*Airway successfully managed
*ETCO2 < 20mmHg
*IV/IO access established
*Appropriate medications

Contact medical control for any questions or if special circumstances are present

Lack of neurologic activity
(Blinking, Extra Ocular Motions, Grimace, Purposeful Movements, Vocalizations)

Lack of visible pregnancy or
not known to be > 20 weeks pregnant

Family members present are comfortable with discontinuing resuscitation

Refer to EMS Division Chief for TOR Form
OR
CONTACT MEDICAL CONTROL FOR TERMINATION ORDERS

KANSAS CITY MISSOURI EMS PROTOCOLS

ADULT STROKE PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history at scene
*Determine Time of Onset/Last Known Well
*Determine progression of symptoms
*Medical history elements of importance include:
*Medications (especially anticoagulants or antihypertensives);
*History of hypertension, MI, prior CVA, known bleeding problems, or cardiac dysrhythmias
*History of DVT or PE
*Briefly assess cardiac, respiratory, and neurologic systems
***ADMINISTER THE CINCINNATI PREHOSPITAL STROKE SCALE (CPSS)**
*Apply cardiac monitor
*Apply pulse oximeter
*Obtain rapid bedside glucose level
*CONSIDER obtaining 12 Lead ECG

↓

Secure airway, administer oxygen and assist ventilation as required

↓

ESTABLISH IV ACCESS

↓

Transport to appropriate Stroke facility per Stroke Destination Guidelines while frequently monitoring vital signs

IF SEIZURE OCCURS, REFER TO SEIZURE PROTOCOL

IF BLOOD GLUCOSE < 69mg/dL, REFER TO HYPOGLYCEMIA PROTOCOL

KANSAS CITY MISSOURI EMS PROTOCOLS

CHILDBIRTH PROTOCOL

ASSESSMENT:

*Obtain vital signs

*Obtain brief history:
- *Due date
- *History of multiple births
- *Onset of labor
- *Timing of contractions
- *History of ruptured membranes including fluid color
- *Previous perinatal complications

*Assess cardiac, respiratory, and neurologic systems as well as the abdomen
- *Crowning
- *Abnormal presentation
- *Significant vaginal bleeding

DELIVERY NOT IMMINENT

Monitor contractions including strength and frequency

Secure airway, administer oxygen and assist ventilation as required

CONSIDER IV ACCESS

*Transport in position of comfort as soon as possible while monitoring vital signs.
*If the patient is hypotensive, place in left lateral decubitus position

Notify the receiving hospital of impending arrival

Be prepared to stop transport to deliver infant if indicated

IF MOTHER DEVELOPS PROFUSE HEMORRHAGE OR SHOCK, REFER TO HYPOTENSION/ SHOCK PROTOCOL

DELIVERY IMMINENT

Otherwise normal appearing delivery

FOR BREECH PRESENTATION, PROLAPSED CORD, OR NUCHAL CORD, REFER TO COMPLICATED CHILDBIRTH PROTOCOL

Secure airway, administer oxygen and assist ventilation as required

ESTABLISH IV ACCESS (IF TIME ALLOWS)

*Do not attempt to impair or delay delivery
*Support and control delivery of head as it emerges
*Protect Perineum with gentle hand pressure
*Suction mouth then nose as soon as head is delivered
*Guide head and neck downward to deliver anterior shoulder
*Rest should deliver passively – Be sure to have a good grip on baby!!

*Suction mouth and nose
*Dry baby and place in warm blanket
*Double clamp cord 6" from baby after cord stops pulsating and cut cord between clamps
*Document APGAR at 1 and 5 minutes

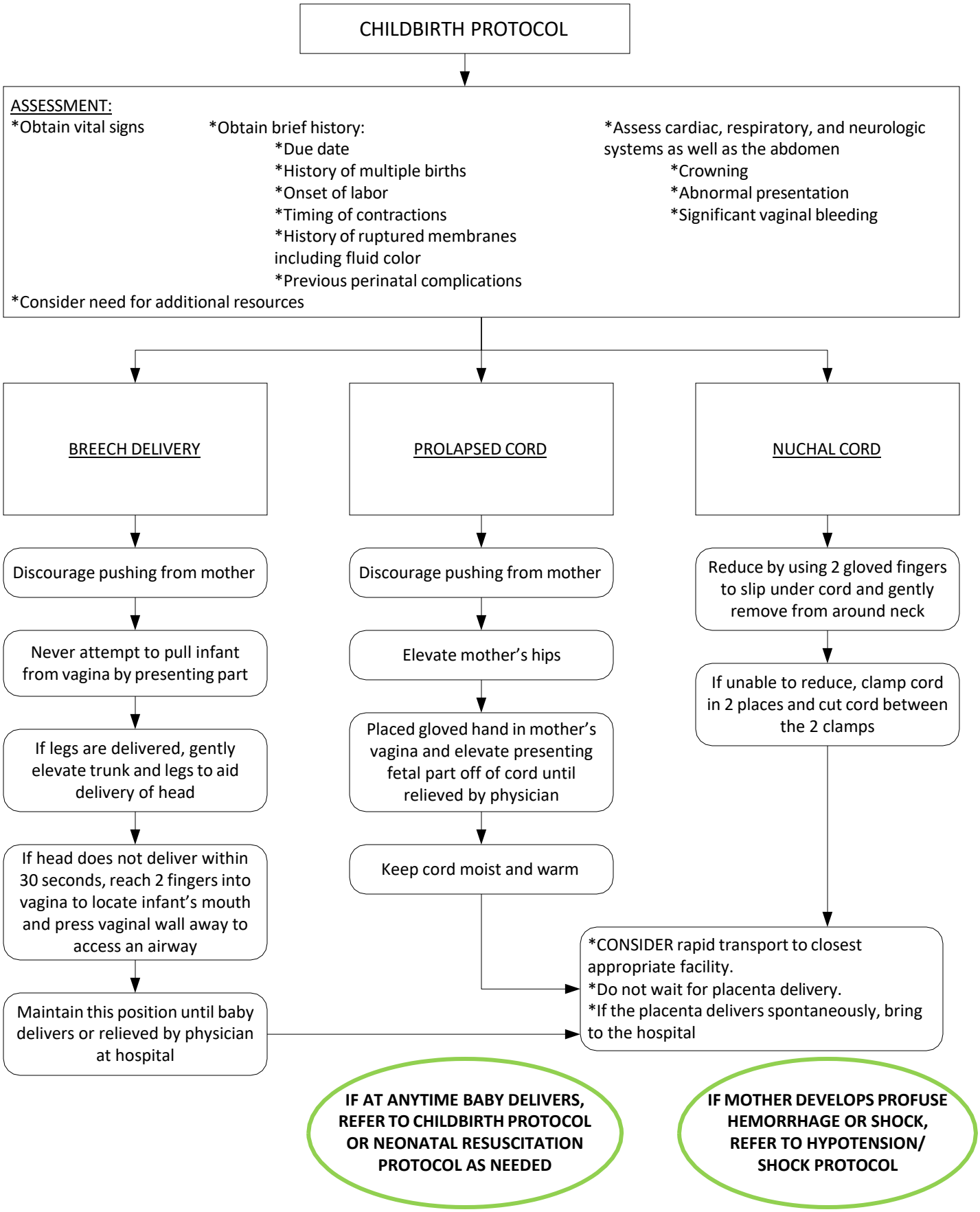
IF APNEIC, CYANOTIC, OR HR < 100, REFER TO NEONATAL RESUSCITATION PROTOCOL

Gentle uterine massage can decrease bleeding after delivery

Transport while monitoring vital signs. Do not wait for placental delivery. If the placenta delivers spontaneously, bring to the hospital

KANSAS CITY MISSOURI EMS PROTOCOLS

COMPLICATED CHILDBIRTH



KANSAS CITY MISSOURI EMS PROTOCOLS

NEONATAL RESUSCITATION PROTOCOL

Resuscitation of the neonate rarely requires advanced life support. It should proceed in a stepwise fashion with continuing reassessment to avoid overly aggressive interventions

ASSESSMENT:
*Assess airway, breathing, and circulation
*The need for resuscitation can be guided by heart rate, respiratory rate and effort, tone, and color.
*Do not be overly concerned about exact APGAR calculation.

Keep the neonate warm and dry. IT IS VERY IMPORTANT TO DRY THE NEONATE. HYPOTHERMIA FROM BEING WET CAN STRESS THE NEONATE SEVERELY

Suction the mouth and then the nose with the bulb syringe or low suction. Do not suction for more than 10 seconds at a time

According to 2015 AHA Guidelines, each decision branch should occur in < 60 seconds

Warm, dry, and stimulate the neonate

*Initial resuscitation steps should be completed with 60 seconds
*The decision to progress beyond initial steps is based on an assessment of respirations (apnea, gasping, labored, or unlabored) and heart rate (>/< 100BPM)

HR < 100 OR gasping/apnea

YES

*Assist ventilations @ rate of 40-60 BPM
*If possible use 2 person BVM
*Take care not to overinflate lungs

HR < 60 after 60 seconds of ventilations

YES

*Chest compression:
*2-thumb encircling hands technique
3:1 ratio of compressions to ventilations

HR < 60 after 60 seconds of compressions

YES

ESTABLISH IV/IO ACCESS

EPINEPHRINE 1:10000 0.01mg/kg IV/IO EVERY 3-5 MINUTES

NO

NO

NO

Routine care
*Provide warmth
*Clear airway if necessary
*Ongoing assessment

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC GENERAL AIRWAY PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history to include:
- *Onset
- *Potential aspiration of small objects or food
- *Fever or cough
- *Chest pain
- *Past history of prior respiratory, cardiac problems, or prematurity
  - *Asthma
  - *Respiratory issues secondary to prematurity
  - *Congenital heart issues

*Assess adequacy of airway and ventilation to include:
- *Vigor of cough/cry
- *Rate and depth of respirations
- *Breath sounds
- *Evidence of distress:
  - *Accessory muscle use
  - *Stridor
  - *Cyanosis
  - *Nasal flaring

*Apply cardiac monitor
*Apply pulse oximeter

Is oxygenation/ventilation adequate with appropriate respiratory rate and SpO2 > 94%?

YES → **REFER TO APPROPRIATE PROTOCOL**

NO

Basic maneuvers:
*Chin Lift/Jaw Thrust
*Nasal/Oral Airway

Airway Patent?

NO → **REFER TO OBSTRUCTED AIRWAY PROTOCOL**

YES

VENTILATE VIA BVM USING 2 RESCUER TECHNIQUE
RATE 8-10/MIN
MAINTAIN SpO2 > 94%

Transport to closest appropriate hospital while monitoring vital signs

*Proper positioning and preparation is necessary before an attempt at advanced airway placement is made
*The following is considered an attempt at advanced airway placement-
iGel passing beyond the teeth is considered a placement attempt

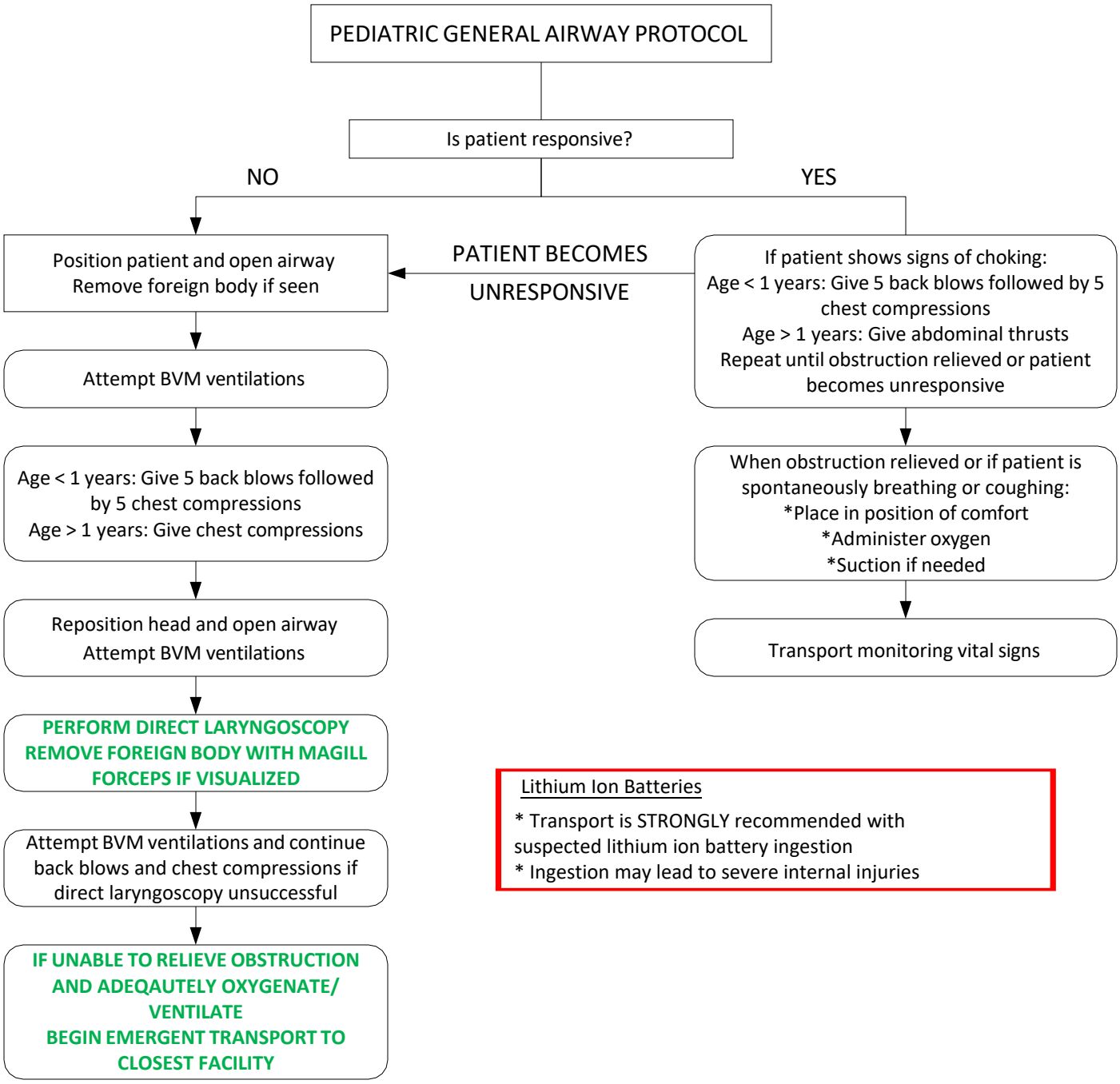
Bag-Valve-Mask ventilation with 2 rescuer technique is the PREFERRED ventilation method in children < age 8. Advanced airway (iGel) placement is strongly discouraged. Endotracheal Tube placement is no longer performed in patients under age 12 years.

*Continuous waveform capnography (ETCO2) use is MANDATORY for:
- *Confirmation of ALL iGel
- *Continuous monitoring of ALL placed iGels or Endotracheal tubes
  - *Includes ANY Endotracheal Tube or other advanced airway device in place during Interfacility Transfers
- *Patient with Tracheostomy Tube in which ventilations are being assisted via BVM

*Goal is to maintain ETCO2 @ 35-45mmHg

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC OBSTRUCTED AIRWAY



Lithium Ion Batteries

* Transport is STRONGLY recommended with suspected lithium ion battery ingestion
* Ingestion may lead to severe internal injuries

Anytime obstruction is relieved:

*Place patient in position of comfort or left lateral recumbent if remains unconscious
*Administer oxygen, monitor SpO2 and vital signs
*Be prepared for vomiting as is common after an obstruction is relieved
*Suction as needed

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC WHEEZING PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history to include:
- *Onset of symptoms
- *Concurrent symptoms
  - *Fever
  - *Cough
  - *Rhinorrhea
  - *Tongue/lip swelling
  - *Rash
  - *Labored breathing
  - *Foreign body aspiration
- *Usual triggers of symptoms
  - *Cigarette smoke in the home
  - *Change in weather
  - *Upper respiratory infections
- *Sick Contacts
- *Treatment used
- *Previously intubated
- *Number of emergency department visits in the past year
- *Number of admissions in the past year
- *Number of ICU admissions
- *Family history of asthma, eczema, or allergies
- *Apply cardiac monitor
- *Apply pulse oximetry

*Consider the cause of wheezing before initiating treatment.
*Initial best indicator is age.
*If patient is 2 years old or younger, bronchiolitis is most likely
*If patient age > 2 years, reactive airway disease is more likely

Bronchiolitis:
*Viral illness characterized by fever, copious secretions, and respiratory distress typically seen November through April
*Most important interventions are to provide supplemental oxygen and suction secretions adequately
*BRONCHODILATORS AND STEROIDS DO NOT WORK

Characteristics of croup:
*Most common cause of stridor in children
*Child will have stridor, barky cough, and URI symptoms of sudden, often nocturnal onset
*Most often seen in children < 9 years old
*Agitation worsens stridor and respiratory distress

Secure airway, administer oxygen and assist ventilation as required
Maintain SpO2 > 94%

ALBUTEROL 2.5mg NEBULIZED
IF AGE > 8 YEARS ADD: IPRATROPIUM 0.5mg NEBULIZED
REPEAT ALBUTEROL X2 AS NEEDED

ESTABLISH IV ACCESS

If severe distress:
Patient speaks less than 3 word sentences
Severe retractions
Silent chest
***MONITOR ETCO2 (IF AVAILABLE)**
***METHYLPREDNISOLONE 2mg/kg IV OVER 2 MIN**
***CONSIDER EPINEPHRINE 1:1000 0.01mg/kg IM MAX 0.3mg IM**
NS/LR BOLUS 20mg/kg IV

Transport monitoring vital signs and respiratory status
Be prepared to assist ventilations as needed

*Although bronchiolitis and asthma are the most common cause of wheezing in infants and children, consider pulmonary and non-pulmonary causes of respiratory distress, especially if patient not responding to treatment:
*Pneumonia
*Pulmonary edema
*Congenital heart disease
*Anaphylaxis
*Pneumothorax
*Sepsis
*Metabolic acidosis

Considerations with stridor:
*Stridor is a harsh, usually inspiratory sound caused by narrowing or obstruction of the upper airway
*Causes include croup, foreign body aspiration, allergic reaction, trauma, infection, mass
*Epiglottitis is exceedingly rare. May consider in the unimmunized child. Treatment is minimization of agitation. Airway manipulation is best done in the hospital

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC BRADYCARDIA PROTOCOL

ASSESSMENT:
*Obtain vital signs, consult PEDIATRIC VITAL SIGN RANGES in appendix for appropriate vitals
*Obtain brief history of current symptoms, especially current chest pain or shortness of breath
*Obtain past medical history
*Congenital heart disease
*Previous dysrhythmias
*Heart failure
*Heart murmur
*Current medications looking specifically for
*Beta-blockers
*Calcium channel blockers
*Clonidine
*Digoxin
*Apply cardiac monitor
*Apply Pulse Oximeter

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

IF SUSPECTED BETA-BLOCKER OR CALCIUM CHANNEL BLOCKER OVERDOSE REFER TO OVERDOSE/POISONING PROTOCOL

ESTABLISH IV/IO ACCESS

SIGNS OF POOR PERFUSION:
*Altered Mental Status
*Chest Pain
*CHF
*Shortness of Air
*Syncope
*Hypotension/Shock

NO → Transport monitoring vital signs

YES

8 YEARS AND OLDER

ATROPINE 0.02mg/kg IV/IO MIN DOSE 0.1mg EVERY 3-5 MINUTES MAX 1mg

TRANSCUTANEOUS PACING IF NOT RESPONSIVE TO ATROPINE (CONSIDER EARLY IN 2ND OR 3RD DEGREE AV BLOCK)

IF POOR PERFUSION PERSISTS: CONSIDER NS/LR BOLUS 10mL/kg (MAX 500mL) TO MAINTAIN AGE APPROPRIATE SBP

AGE < 8 YEARS

Do chest compressions if, despite adequate oxygenation and ventilation:
A. HR < 80 beats/min in infants
B. HR < 60 beats/min in child

EPINEPHRINE 1:10000 0.01mg/kg IV/IO MAY REPEAT EVERY 3-5 MIN TO DESIRED RATE EFFECT

CONSIDER ATROPINE 0.02mg/kg IV/IO MIN DOSE 0.1mg MAY REPEAT X 1 AFTER 3-5 MINUTES MAX 0.5mg

Apply external pacer

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC TACHYCARDIA PROTOCOL

ASSESSMENT:
*Obtain vital signs, consult PEDIATRIC VITAL SIGN RANGES in appendix for age appropriate vitals
*Obtain brief history of current symptoms, especially current chest pain or shortness of breath
*Obtain past medical history
- *Congenital heart disease
- *Previous dysrhythmias
- *Heart failure
- *Heart murmur

*Current medications looking specifically for
- *Beta-blockers
- *Calcium channel blockers
- *Clonidine
- *Digoxin

*Apply cardiac monitor
*Apply Pulse Oximeter

Heart rate > 220 bpm in Pediatrics. If the cardiac rate is less than the designated criteria rate, consider other etiologies and contact medical control to discuss etiology and treatment. **IF NO PULSE AND WIDE COMPLEX TACHYCARDIA TREAT AS VFIB.**

ASYMPTOMATIC PATIENTS:
Consider close observation and/or fluid bolus rather than immediate treatment with medication

Secure airway, administer oxygen to maintain SpO2 > 94%, assist ventilation as required

ESTABLISH IV/IO ACCESS

IF CARDIAC ARREST OCCURS REFER TO PEDIATRIC CARDIAC ARREST PROTOCOL

SIGNS OF POOR PERFUSION:
*Altered Mental Status
*Chest Pain
*CHF
*Shortness of Air
*Syncope
*Hypotension/Shock

YES

PERFORM SYNCHRONIZED CARDIOVERSION:
1ST ATTMEPT: 0.5J/kg (120J MAX)
2ND ATTEMPT: 1J/kg (150J MAX)
3RD ATTEMPT: 2J/kg (200J MAX)
4TH ATTEMPT: 3-4J/kg (200J MAX)

NO

Narrow Complex
QRS < 0.12 sec

ADENOSINE 0.1mg/kg (MAX 6mg) IV FOR FIRST DOSE

ADENOSINE 0.2mg/kg (MAX 12mg) IV FOR SECOND DOSE

Wide Complex
QRS > 0.12 sec

AMIODARONE 5MG/KG IV/IO OVER 20 MIN

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC CARDIAC ARREST

ASSESSMENT:
*Events leading to arrest
*Estimated downtime
*Past medical history
*Prematurity
*Congenital Heart Disease
*Medications

EXCLUSION CRITERIA:
*Arrest secondary to severe hypothermia
**REFER TO HYPOTHERMIA PROTOCOL
*Patients with identifiable DO NOT RESUSCITATE orders
**REFER TO VALID OF RESUSCITATION POLICY
*Arrest secondary to trauma
**REFER TO DOA POLICY

***Patients should receive a MINIMUM 30 MINUTES ON SCENE ALS CARE prior to transporting**

*Initiate Continuous Chest Compression
*Push hard (1.5 - 2 inches), Push Fast (100-120/min)
*Change compressors every 2 minutes
*Initiate BVM Ventilations with 2 rescuer technique at 8-10/min until iGel ready
*Establish iGel, continue ventilations at 8-10/min (> 8 years old)
*BLS on scene awaiting ALS arrival:
*Attach AED (age > 1 year) and follow prompts
*ALS on scene
*Attach cardiac monitor/defibrillator
*Attach capnography, assure ETCO2 > 20mmHg
*Pulse check should take no more than 5-10 seconds

VENTILATIONS:
*Bag-Valve-Mask ventilation with 2 rescuer technique is the PREFERRED ventilation method in children < age 8.
*If oxygenation/ventilation inadequate, CONSIDER iGel placement
*If iGel placement is considered, DO NOT INTERUPT CHEST COMPRESSIONS for iGel placement
*ETCO2 MONITORING IS MANDATORY FOR ALL IGEL PLACEMENTS!!
*ETCO2 < 20mmHg could be an indication of inadequate chest compressions
*DO NOT HYPERVENTILATE
*Squeeze BVM just enough for chest rise
*8-10 breaths/min

SHOCKABLE RHYTHM PRESENT?
Check rhythm, check pulse after each 2 min CCC cycle and treat accordingly

VF/PULSELESS VT	ASYSTOLE/PEA
DEFIBRILLATE 4J/kg MAX 200J RESUME CCC X 2 MIN	CCC x 2 min
ESTABLISH IV/IO ACCESS	**ESTABLISH IV/IO ACCESS**
EPINEPHRINE 1:10000 0.01mg/kg IV/IO EVERY 3-5 MIN	**EPINEPHRINE 1:10000 0.01mg/kg IV/IO EVERY 3-5 MIN**
DEFIBRILLATE 4J/kg MAX 200J RESUME CCC X 2 MIN	
AMIODARONE 5mg/kg IV/IO MAX 300mg REPEAT 2.5mg/kg IV/IO MAX 150mg AFTER 5 MIN	

Reversible Causes:
*Hypovolemia
*Hypoxia
*Hydrogen Ion
*Hypo/Hyperkalemia
*Hypothermia
*Tension Pneumothorax
*Cardiac Tamponade
*Toxins
*Naloxone is ineffective in cardiac arrest and should not be given
*Thrombosis

ALWAYS RESUME CCC AFTER DEFIBRILLATION

IF AT ANYTIME ROSC IS ACHIEVED REFER TO COMBINED POST RESUSCITATION PROTOCOL

KANSAS CITY MISSOURI EMS PROTOCOLS

PEDIATRIC BRUE/ALTE PROTOCOL

(BRIEF RESOLVED UNEXPLAINED EVENT/APPARENT LIFE-TREATENING EVENT)

BRUE (BRIEF RESOLVED UNEXPLAINED EVENT:

*An event in an infant less than year old reported by a bystander as sudden, brief (less than 1 min), completely resolved upon EMS arrival that includes one or more of the following:

- *Absent, decreased, of irregular breathing
- *Color change (central cyanosis or pallor)
- *Marked change in muscle tone (hyper or hypotonia)
- *Altered level of responsiveness

ASSESSMENT:

*Obtain vital signs to include:

- *Temperature
- *SaO2
- *Blood glucose

*Obtain history to include:

- *Observer's impression of the infant's color, respirations, and muscle tone
  - *Was the child apneic, or cyanotic and limp during event
- *Was there seizure-like activity noted
- *Was any resuscitation attempted or required, or did event resolve spontaneously
- *How long did the event last

*Detailed past medical history:

- *Recent trauma, infection (e.g. fever, cough)
- *History of GERD
- *History of Congenital Heart Disease
- *History of Seizures
- *Medication history

*Complete head-to-toe assessment

Secure airway, administer oxygen and assist ventilation as required

Any pediatric patient with a BRUE should be transported while monitoring vital signs

CONTACT MEDICAL CONTROL IF PARENTS REQUEST TO REFUSE TRANSPORT OF THESE PATIENTS

The following is not BRUE and could indicate serious illness:

*Any of the following present upon EMS assessment:

- *Abnormal vital signs for age (including fever)
- *Vomiting
- *Signs of trauma (Non-accidental trauma)
- *Noisy breathing

*There is an identifiable cause of the event

*History or exam concerning for child abuse or neglect

KANSAS CITY MISSOURI EMS PROTOCOLS

GENERAL TRAUMA PROTOCOL

The purpose of this protocol is to outline the general approach to the patient with a traumatic injury.

SCENE SIZE UP:

*Assure the scene is safe for you, other rescuers, and the patient. It may be appropriate to withdraw from the scene in some situations until a safe environment can be obtained. It may be appropriate to rapidly extricate the patient from a dangerous situation.

*Identify the number of patients and other resources that may be needed

- *Initiate Incident Management System if appropriate
  - *Declare an MCI
  - *Establish "Medical Command"
- *Call for law enforcement and/or first responder assistance if needed
- *Call for more EMS units if needed
- *Begin triage if appropriate

*Consider mechanism of injury

BODY SUBSTANCE ISOLATION:

*Apply universal precautions/body substance isolation as appropriate

PRIMARY SURVEY:

Search for immediate life threats by assessing the patient using C-A-B process (circulation survey and controlling external hemorrhage, airway, and breathing) and treating the problems as they are found.

ASSESSMENT:

*Survey for any active external hemorrhage

*Assess CIRCULATION:

- *Note pulses, level of consciousness, skin abnormalities (color, temperature, capillary refill, moisture)

*Assess AIRWAY WITH SIMULTANEOUS CERVICAL SPINE MOTION RESTRICTION:

- *Note patient's ability to speak, and any evidence of actual or potential airway obstruction including vomitus, bleeding, dentures, loose teeth, or foreign bodies

*Assess BREATHING:

- *Note patient's ability to speak, rate, depth, and quality of ventilations, abnormal noises/stridor, retractions, accessory muscle use, nasal flaring, or cyanosis

*Assess neurologic function (disability)

- *Note level of consciousness, Glasgow Coma Scale or AVPU Scale, movement of each extremity

FOR ALL TRAUMATICALLY INJURED PATIENTS THAT ARE CRITICAL OR MEET TRAUMA ROUTING CRITERIA KEEP SCENE TIMES LESS THAN 10 MINUTES!!

↓

*If major bleeding present, control with sterile dressing and direct pressure. If direct pressure fails:

- *Consider approved tourniquet to control extremity hemorrhage per Combat Application Tourniquet Procedure
- *Consider approved hemostatic dressings for wounds not appropriate for tourniquet application

*DO NOT remove impaled objects unless airway management is compromised

↓

*Secure Airway while applying manual in-line spinal restriction

- *BLS Maneuvers:
  - *Jaw thrust
  - *Oral or nasal airway
  - *Suction as needed
  - *Assist ventilations with 100% O2 and BVM as needed
  - *iGel placement (do not delay transport unless unable to adequately ventilate with BVM)
- ***ALS Maneuvers:**
  - ***IGEL PLACEMENT OR IF AGE > 12 YEARS, ORAL ENDOTRACHEAL INTUBATION (DO NOT DELAY TRANSPORT UNLESS UNABLE TO ADEQUATELY VENTILATE WITH BVM)**
  - ***AVOID ENTODTRACHEAL INTUBATION IN HANGINGS/STRANGULATIONS WITH SUSPECTED LARYNGEAL TRAUMA**

*Administer oxygen and assist ventilation as required

↓

*Assist circulation as required

***ESTABLISH IV/IO ACCESS (DO NOT DELAY TRANSPORT FOR IV/IO ATTEMPTS)**

*Spinal restriction as indicated

*Maintain body temperature with blankets

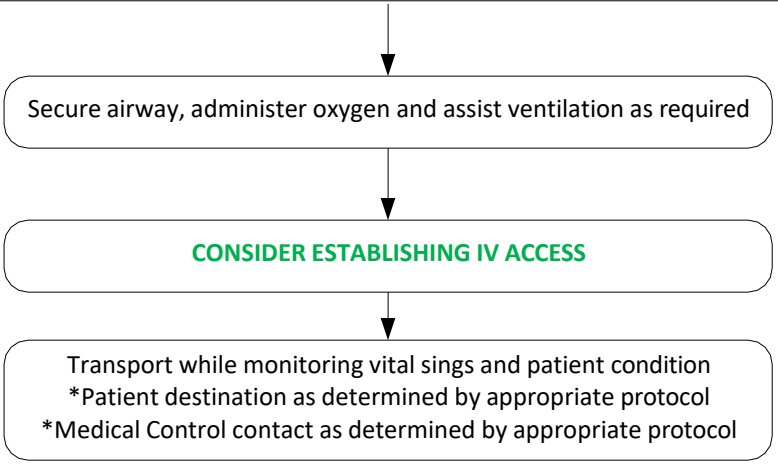
IF NO PULSE REFER TO TRAUMATIC CARDIAC ARREST PROTOCOL

*Abnormalities found in primary survey are addressed with appropriate interventions at time of discovery
*It may be appropriate to move directly from the primary survey to another protocol
*BVM ventilation is indicated prior to attempts at iGel placement or endotracheal intubation

SECONDARY SURVEY

A systematic history and physical exam, focused on the patient's complaint's, searching for problems that may not be immediately life or limb threatening, but that may become so if not addressed appropriately.

ASSESSMENT:
*Obtain chief complaint
*Obtain "SAMPLE" history
*Obtain vital signs (MANUAL Blood Pressure)
*Perform focused physical exam (this evaluation is dependent on the history as well as findings from the primary survey and may be more or less detailed depending on the situation)
*Consider application of cardiac monitor
*Consider application of pulse oximeter
*Consider obtaining rapid blood glucose determination
*Assessment summation: Consider information gathered in primary and secondary survey, determine an impression of the patient's primary problem and proceed to the appropriate treatment protocol
*Obtain repeat set of vital signs prior to transfer of care to receiving facility or whenever there is an observed change in the patient's status



REFER TO PAIN CONTROL PROTOCOL IF INDICATED

REFER TO APPROPRIATE PROTOCOL FOR SPECIFIC BODY AREA INJURIES

KANSAS CITY MISSOURI EMS PROTOCOLS

ABDOMINAL TRAUMA PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Abdominal exam should include specifically assessing for:
*Bruising
*Bleeding
*Distension
*Open wounds
*evisceration
*With penetrating abdominal injury, consider the potential for occult injury

Consider rapid transport to trauma center

*If evisceration is present, cover the exposed viscera with sterile saline soaked pads.
*Do not attempt to replace the exposed viscera in to the abdominal cavity

FOR PENETRATING ABDOMINAL TRAUMA:
IV NS/LR
ADULTS: 1000mL REPEAT X1 MAX 2L TO MAINTAIN SBP > 90mmHg
PEDS: 20mL/kg MAX 1L TO MAINTAIN AGE APPROPRIATE SBP

KANSAS CITY MISSOURI EMS PROTOCOLS

BURN PROTOCOL

ASSESSMENT:

*Obtain brief history including the following:

Thermal Injury	Electrical Injury	Chemical Injury	Scald Injury
-How did the injury occur	-What type (AC, DC, RF)	-What was the agent	-Liquid type
-Type of burn contact	-Duration of contact	-Duration of contact	-Liquid temperature
-Did the burn occur in a closed space	-Estimated voltage	-What decon measure used	-Clothes removed
-Was gasoline or other fuel involved	-Associated trauma		

*Assess cardiac, respiratory, and neurologic systems

*Assess the Percentage Total Body Surface Area(%TBSA), noting depth and extent

- *Patient's palm represents about 1% of their TBSA
- *Use "Rule of 9's" to estimate TBSA for large burns
- *Use "Superficial", "Partial Thickness", and "Full Thickness" to describe burn thickness

*Be alert for associated injuries

*Obtain vital signs

*Apply cardiac monitor

*Apply pulse oximeter

*Prevent hypothermia regardless of the burn size

*Never apply ice directly
*%TBSA estimations are unreliable in high voltage electrical burns.
* IV fluids may make the patient hypothermic.
*Transport as soon as possible

STOP THE BURN
*Remove clothing, if not stuck
*Remove jewelry or any constricting items
*Chemicals: Dry Power – Brush off; Wet substance – Copiously irrigate; Bring chemical containers with you
*Leave blisters intact

Presence of: Respiratory Distress, Hoarseness, Stridor, Singed Nasal Hair, Oral Burns, or Carbonaceous Sputum?

YES → Secure airway, administer oxygen and assist ventilations as required; Consider Carbon Monoxide or Cyanide exposue

NO

NON CRITICAL BURNS

< 20% Partial Thickness or does not meet critical burn criteria

Gently wrap in dry kerlex
CONSIDER saline moistened gauze if < 10% TBSA burn
Avoid hypothermia

CRITICAL BURNS

> 20% Partial Thickness
> 5% Full Thickness/3rd degree
Facial Burns/Inhalation Injury
Circumferential Burns
High Voltage Electrical Burns
Genital/Perineum Burns
Burns over joints or exposed bone
Burns to hands or feet

ESTABLISH IV ACCESS
INFUSE NS/LR AT FOLLOWING RATE:
ADULTS: 500mL/hr
PEDS: 20mL/kg (MAX 500mL)

IF NO AIRWAY/RESPIRATORY INVOLVEMENT, REFER TO PAIN CONTROL PROTOCOL

KANSAS CITY MISSOURI EMS PROTOCOLS

CARBON MONOXIDE EXPOSURE

*CO exposure:
- *Enclosed space fire
- *Any closed space or fire ground with measured elevated CO level

*If measured, a normal or negative COHb measurement CANNOT rule out exposure and CANNOT provide clearance

GENERAL TRAUMA PROTOCOL

SUSPECTED CO EXPOSURE

NORMAL VITALS AND COMPLETELY SYMPTOM FREE	ANY SYMPTOM(S) Including but not limited to: headache, dizziness, nausea, vomiting, weakness, numbness, blurry or double vision, difficulty breathing, shortness of breath, chest pain, chest tightness	COHb MEASUREMENT OF EQUAL TO /GREATER THAN 5
No treatment.	O2 15lpm, cardiac monitor, pulse oximetry, and transport to hospital	O2 15lpm, cardiac monitor, pulse oximetry, and transport to hospital

IN UNCONSCIOUS/ALTERED PATIENT WITH SMOKE INHALATION, CONSIDER CYANIDE TREATMENT PER COMBINED CYANIDE POISONING PROTOCOL

Pregnant Women:
- *May be asymptomatic but fetus can be in distress
- *Should be transported

Cigarette smokers:
- *COHb can be higher

KANSAS CITY MISSOURI EMS PROTOCOLS

CHEST TRAUMA PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Chest exam should include:
*Assessing for open wounds
*Flail segments
*Tracheal deviation
*Unequal breath sounds
*Subcutaneous emphysema
*Adequacy of ventilations
*With penetrating chest injury, consider the potential for remote injury

Flail chest with respiratory distress
CONSIDER positive pressure ventilation

Cover an open chest wound with non-porous material secured on three sides to act as a "flap"

FOR PENETRATING CHEST TRAUMA:
IV NS/LR
ADULTS: 1000mL REPEAT X1 MAX 2L
TO MAINTAIN SBP > 90mmHg
PEDS: 20mL/kg MAX 1L
TO MAINTAIN AGE APPROPRIATE SBP

Transport to closest trauma center, if patient meets routing criteria while frequently monitoring vital signs

MONITOR CARDIAC RHYTHM AND TREAT DYSRHYTHMIAS PER THE APPROPRIATE PROTOCOL

REFER TO NEEDLE THORACOSTOMY PROCEDURE IF TENSION PNEUMOTHORAX PRESENT

KANSAS CITY MISSOURI EMS PROTOCOLS

DROWNING/NEAR DROWNING PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain history including circumstances surrounding incident:
*Diving accident/suspected trauma
*Total time of submersion
*Water temp (if known)
*Water contamination
*Diving accident and/or suspected trauma
*If the patient is still in the water, ensure proper personnel/equipment is available to remove from the water

*Drowning/ submersion commonly associated with hypothermia
*Good outcome after even prolonged hypothermic arrest are possible

Near drowning patients may or may not be conscious. Regardless of the consciousness status, these patients should be transported due to increased risk of delayed death.

Is patient awake and alert?

YES

*Remove wet clothes
*Dry, warm and insulate patient
*Secure airway, administer oxygen and assist ventilations as required
*BLS airway management preferred in pediatrics

CONSIDER IV ACCESS

Transport monitoring vital signs

NO

Is pulse present?

NO

REFER TO APPROPRIATE CARDIAC ARREST PROTOCOL

YES

REFER TO SPINAL MOTION RESTRICTION PROCEDURE IF DIVING ACCIDENT OR TRAUMA SUSPECTED

KANSAS CITY MISSOURI EMS PROTOCOLS

ENTRAPMENT/CRUSH INJURY PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history
*Length of entrapment
*GOAL:
*Rapid extrication and evacuation to Trauma Center
*Patients may initially have few signs and symptoms but can rapidly become sick
*Transport all patients involved in entrapment or sustain a crush injury

FIELD AMPUTATION
IF ANTICIPATED PROLONGED ENTRAPMENT AND POTENTIAL FOR WORSENING OF PATIENT CONDITION IF NOT EXTRICATED FROM ENTRAPMENT, CONTACT KCFD DISPATCH AND HAVE THE OFFICE OF THE EMS MEDICAL DIRECTOR RESPOND

Airway Patent?
NO → **PLACE IGEL AND ASSIST VENTILATIONS WITH BVM**
YES → *Administer oxygen to maintain SpO2 > 94%
*Assist ventilations as required

Bleeding controlled?
NO → *Direct pressure
*CONSIDER tourniquet
*Remove clothing/jewelry
YES →

ESTABLISH IV/IO ACCESS

APPLY CARDIAC MONITOR AND OBTAIN 12 LEAD ECG

Signs of Hyperkalemia?
(peaked T waves, wide QRS)
NO → **IV NS/LR**
ADULTS: 1000mL REPEAT X1 MAX 2L TO MAINTAIN SBP > 90mmHg
PEDS: 20mL/kg MAX 1L TO MAINTAIN AGE APPROPRIATE SBP
YES → **CONTACT MEDICAL CONTROL**
CONSIDER:
CALCIUM CHLORIDE 1gm IV/IO
SODIUM BICARB 1mEq/kg IV/IO

REFER TO PAIN CONTROL PROTOCOL IF APPROPRIATE

KANSAS CITY MISSOURI EMS PROTOCOLS

EXTREMITY TRAUMA PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Assess the injured extremity noting neurovascular adequacy (color, temperature), deformity, open wounds, and distal sensation and movement

FRACTURES DISLOCATIONS SPRAINS

- Apply sterile saline moistened dressing to all open wounds
- Apply the appropriate splint
- Chemical cold packs may be applied after splinting

AMPUTATIONS

- Apply pressure with sterile gauze pads and elevate to control external bleeding
- If direct pressure fails to control bleeding, consider approved hemostatic dressing, or tourniquet if able to apply in appropriate location
- Amputated part should be rinsed with sterile saline, wrapped in a dry dressing, placed in a water tight container (plastic bag or cup), and placed on a chemical cold pack during transport
- Amputated parts should never be: soaked or placed in water or saline; placed directly on ice or ice packs; cooled with dry ice
- Partial amputations should be dressed and splinted in alignment with the extremity. Avoid torsion
- To assure viability of the amputated part, transport should proceed as promptly as possible – CONSIDER transport to a Trauma Center

PENETRATING EXTREMITY WOUNDS

- Apply pressure with sterile gauze pads and elevate to control external bleeding
- If direct pressure fails to control bleeding, consider approved hemostatic dressing, or tourniquet if able to apply in appropriate location
- Apply the appropriate splint

REFER TO PAIN CONTROL PROTOCOL IF APPLICABLE

KANSAS CITY MISSOURI EMS PROTOCOLS

FACE/NECK TRAUMA

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history noting mechanism of injury, use of safety devices, and level of consciousness
*Neurologic exam should include
*Level of consciousness (Glasgow Coma Scale/AVPU Scale)
*Pupil size and reactivity
*Presence of posturing or paralysis
*Be alert for associated injuries. Assume that cervical spine injury is present in all patients with significant head trauma

LARYNGEAL TRAUMA SUSPECTED?

Signs and symptoms of laryngeal trauma include:
*Tenderness
*Swelling
*Bruising
*Crepitus on palpation
*Voice change
*Stridor
*Respiratory Distress

NO

YES

Bleeding in airway?

YES

Consider direct pressure

AVOID INTUBATION IF PATIENT CAN BE VENTILATION BY BVM AND/OR IGEL *BLS AIRWAY PREFERRED IN PEDIATRICS*

NO

CONSIDER ESTABLISHING IV ACCESS DURING TRANSPORT

Transport while monitoring vital signs

CONSIDER REFERING TO PAIN CONTROL PROTOCOL IF NEEDED

*Spinal Precautions:
*NOT indicated for penetrating neck injury
*NOT indicated for hangings/strangulations unless associated with other severe mechanisms and does not prevent airway management

KANSAS CITY MISSOURI EMS PROTOCOLS

HEAD TRAUMA PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs
*Obtain brief history noting mechanism of injury, use of safety devices, and level of consciousness
*Neurologic exam should include
*Level of consciousness (Glasgow Coma Scale/AVPU Scale)
*Pupil size and reactivity
*Presence of posturing or paralysis
*Be alert for associated injuries. Assume that cervical spine injury is present in all patients with significant head trauma

IF GSW TO HEAD ARRESTS REFER TO TRAUMATIC CARDIAC ARREST PROTOCOL

Prehospital intubation is not a priority if airway can be adequately maintained with basic maneuvers

GCS < 8

NO

YES

Correct hypoxia to maintain SpO2 > 94%

Consider IV/IO to maintain SBP > 90mmHg

Elevate head to 30 degrees If possible

Secure airway, administer oxygen and assist ventilations as required

CONSIDER ADVANCED AIRWAY IF BASIC AIRWAY MANEUVERS INADEQUATE
BLS AIRWAY PREFERRED IN PEDIATRICS

CONSIDER IV/IO WITH IV NS/LR
ADULTS: 1000mL REPEAT X1 MAX 2L TO MAINTAIN SBP > 120mmHg
PEDS: 20mL/kg MAX 1L TO MAINTAIN AGE APPROPRIATE SPB

MANAGEMENT OF PATIENTS EXPOSED TO STUN OR EMD WEAPONS PROTOCOL

This protocol is intended to provide guidelines for care of patients following the use of STUN or EMD (Electro-Muscular Disruption) weapons (i.e. TASER) by law enforcement. For situations involving level of consciousness, significant trauma, and/or other medical problems, follow the applicable protocol(s).

There have been reports of deaths involving the use of a TASER weapon on combative patients. These deaths may be associated with agitated delirium, hyperdynamic (adrenergic) drugs particularly cocaine, methamphetamine and phencyclidine, and hyperthermia as major co-morbid factors. Therefore, it is imperative that these patients receive a thorough assessment for these risk factors, and are not restrained in an improper position. If a patient remains combative, then follow the Patient Restraint Procedure.

ASSESSMENT:
*Assure the scene is secure. Use of this type of weapon to subdue a violent person implies he/she was a risk to him/herself or others. Do not enter scene until advised to do so by law enforcement personnel
*Obtain vital signs and apply pulse oximeter
*Apply cardiac monitor and assess rhythm
*Perform 12 Lead EKG if the patient has any cardiac or respiratory symptoms

↓

Secure airway, administer oxygen and assist ventilations if required

↓

ESTABLISH IV ACCESS AS INDICATED BY OTHER SYMPTOMS OR APPROPRIATE PROTOCOLS

↓

Stabilize dart(s) in place and transport patient to ED if the dart(s) is/are embedded in the eyelid/globe of eye, face/neck, or genitalia

↓

Darts in other locations may be carefully removed

↓

*Control minor bleeding
*Irrigate area
*Apply appropriate dressing

To remove a dart:
*Place one hand on the patient in the area where the dart is embedded and stabilize the skin surrounding the puncture site. Firmly grasp the dart with the other hand.
*In one fluid motion, pull the dart straight out from the puncture site
*Assure the dart is intact and no portion of the dart remains inside the patient's skin
*Removed darts should be handled like contaminated sharps and should be provided to law enforcement in an appropriate container

KANSAS CITY MISSOURI EMS PROTOCOLS

OPHTHALMOLOGIC EMERGENCIES PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital signs.
*Obtain brief history
- *Possible chemical exposure or trauma
- *Loss or change in vision
- *Eye pain
- *Eye redness

*Assess and treat the ABCs and other life threatening emergencies. Do not allow an ophthalmologic problem to distract you from a life threatening emergency
*Do a brief examination without actually touching the eyes.
*Document the presence of gross abnormalities including:
- *Foreign bodies
- *Pupil irregularity
- *Pupil reactivity
- *Hyphema (blood behind the cornea)
- *Subconjunctival hemorrhage

*If possible, determine gross visual acuity. Ability to read print, count fingers, or determine light from dark are important findings. Determine this for each eye independently

CHEMICAL EXPOSURES

CONSIDER need for HAZMAT/Decon

The first priority, in all cases, is IMMEDIATE, thorough, and continuous irrigation with water, NS, or LR until emergency department personnel assume care. Tap water, bottled water, IV fluids, etc. can provide this

Attempt to identify the offending substance causing the injury and bring in any containers

Transport while continuously irrigating the effected eye(s)

EYE TRAUMA WITH THE POSSIBILITY OF A RUPTURED GLOBE OR ABNORMAL PUPIL

The first priority is to prevent further injury. Use a cup to protect the eye. Tape the cup onto bony prominences about the orbit and do not apply any pressure to the eyeball (globe). Gauze is not needed under the cup

If an object remains impaled in the eye, do not remove it. Use gauze and/or a cup to stabilize the object. Do not put pressure on the globe

Minimize intraocular pressure by elevating the head of the bed, if possible. Try to have the patient avoid coughing, sneezing, straining, or blowing nose

Transport while monitoring vital signs

KANSAS CITY MISSOURI EMS PROTOCOLS

SPINAL TRAUMA PROTOCOL

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vitals
*Obtain brief history
*Indications for C-Collar placement:
- *GCS < 15
- *Evidence of Intoxication
- *Painful or Distracting Injury
- *Pain during unassisted range of motion
- *Signs of Spinal Cord Injury:
  - *Sensory loss
  - *Weakness
  - *Paralysis
  - *Numbness, tingling, burning
  - *Severe Pain

SPINAL SHOCK:
*Can have low blood pressure AND bradycardia masking hemorrhagic shock/ hypovolemia

HELMET REMOVAL:
Football Helmet:
*Preferred left in place
*If concerns for airway obstruction:
- *Remove facemask
- *Remove helmet and shoulder pads at same time
- *Remove while maintaining manual stabilization

Motorcycle/Other Helmet:
- *Remove while maintaining manual stabilization

EXERCISE CAUTION FOR INJURY AND CONSIDER C-COLLAR:

*Over 65 years old

*Less than 5 years old

*Or History of:
- *Osteoporosis
- *Bone Disease
- *Vertebral Disease

CONSIDER transport to Trauma Center

Indications for c-collar placement present?

NO

YES

Apply a C-Collar

REFER TO SPINAL MOTION RESTRICTION PROCEDURE

Secure airway, administer oxygen and assist ventilations as required

CONSIDER ESTABLISHING IV ACCESS

Transport while monitoring vital signs

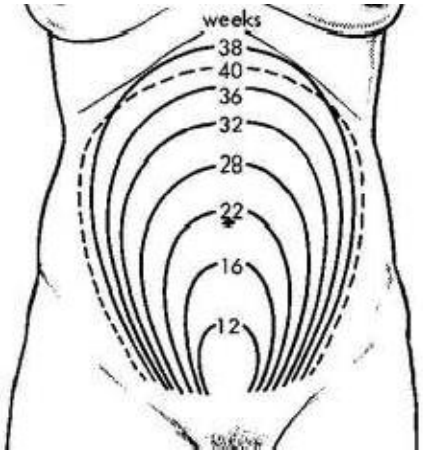
REFER TO HYPOTENSION/SHOCK PROTOCOL IF HYPOTENSION PRESENT

KANSAS CITY MISSOURI EMS PROTOCOLS

TRAUMA IN PREGNANCY

GENERAL TRAUMA PROTOCOL

ASSESSMENT:
*Obtain vital sign
*Obtain brief history to include:
*Gravida
*Para
*Estimated Date of Confinement (EDC)
*Estimated Gestational Age (EGA)
*May be based on fundal height by palpating for top of uterus
*If EGA greater than 20 weeks, consider two patients: mother and fetus



Priority is Mother

IF TRAUMATIC ARREST, MINIMIZE SCENE TIME AND REFER TO TRAUMATIC CARDIAC ARREST PROTOCOL

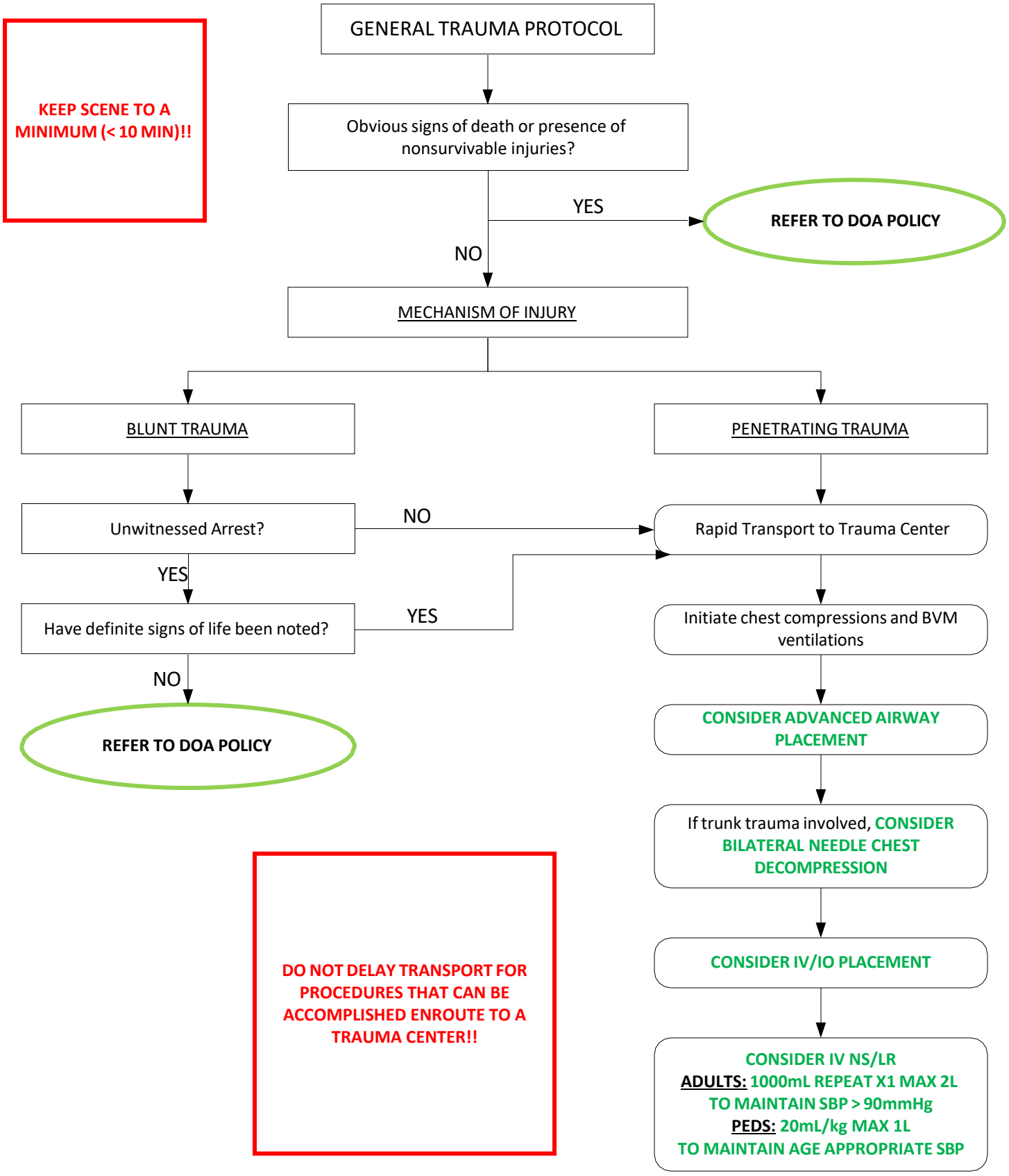
If > 20 weeks gestation, transport in left lateral recumbent tilted 30 degrees to left side

REFER TO SPECIFIC TRAUMA PROTOCOL AS NEEDED

Transport while monitoring vital signs

KANSAS CITY MISSOURI EMS PROTOCOLS

TRAUMATIC CARDIAC ARREST



TREATMENT OF NERVE AGENT AND ORGANOPHOSPHATE CASUALTIES:LIQUID EXPOSURE PROTOCOL

Nerve agents are the most toxic of the known chemical agents. In the liquid or vapor form they can cause death within minutes after exposure. Under temperate conditions nerve agents are liquids. When dispersed some become a vapor hazard. Nerve agents inhibit cholinesterase, and enzyme that breaks down acetylcholine. In the presence of a nerve agent, acetylcholine accumulates and stimulates affected organs as described:

A. Eye-miosis (pinpoint pupils), eye pain, dim and/or blurred vision, conjunctival injection
B. Nose-rhinorrhea (runny nose)
C. Airways-bronchoconstriction, bronchorrhea (increased secretions), tightness in the chest, severe respiratory distress, apnea
D. GI tract-nausea, vomiting, and diarrhea
E. Glands-sweating, tearing
F. Muscles-fasciculation, twitching fatigue, weakness, flaccid paralysis
G. CNS-loss of consciousness, seizure activity, apnea
H. Heart-slow, normal or fast rate, high or normal BP

Death is generally due to respiratory arrest

*If DuoDote is not available, may substitute Mark I kit. If neither is available, administer 1mg Atropine IM/IV as per DuoDote dosing.
*Document antidote doses on triage tag. If not available, tape used auto injectors to patient.
*Early notification of the receiving hospital is imperative. DECON assembly can take 20 minutes or more.

The use of Duodote for treatment of suspected nerve agent poisoning is indicated only if: Appropriate signs and symptoms of nerve agent poisoning are present. Do not delay transfer to an appropriate casualty collection point if DuoDote is not readily available

ASSESSMENT:
*Special attention to signs and symptoms described above

Decontamination – As determined by Incident Command
Apply cardiac monitor
ESTABLISH IV ACCESS
Administer antidote as outlined below

*The use of DuoDote is not well described in the pediatric population. Do not use in pediatric patients unless directed by medical control.
*When a responder self-administers DuoDote, they are now a patient and Incident Command must be notified.

LIQUID EXPOSURE
MILD
(TRIAGE YELLOW)

SYMPTOMS – Muscle twitching at site of exposure; Sweating at site of exposure; Nausea or vomiting

TIME OF ONSET – 10 minutes to 18hrs after exposure

SELF – 1 DuoDote every 5-10 min to a MAX of 3 or until signs and symptoms start to decrease

PATIENT – 1 DuoDote every 5-10 min to a MAX of 3 or until symptoms start to decrease. Observe and reevaluate as scenario allows

LIQUID EXPOSURE
SEVERE
(TRIAGE RED)

SYMPTOMS – Severs breathing difficulty or breathing stopped; Generalized muscle twitching, weakness or paralysis; convulsions; Loss of consciousness; Loss of bowel/ bladder control

TIME OF ONSET – minutes to an hour after exposure

PATIENT -3 DuoDotes immediately. **Continue Atropine 1mg IV every 5-10 min until signs and symptoms decrease (may take more than 20mg of Atropine to get desired effect)**

TREATMENT OF NERVE AGENT AND ORGANOPHOSPHATE CASUALTIES: VAPOR EXPOSURE PROTOCOL

Nerve agents are the most toxic of the known chemical agents. In the liquid or vapor form they can cause death within minutes after exposure. Under temperate conditions nerve agents are liquids. When dispersed some become a vapor hazard. Nerve agents inhibit cholinesterase, and enzyme that breaks down acetylcholine. In the presence of a nerve agent, acetylcholine accumulates and stimulates affected organs as described:

A. Eye-miosis (pinpoint pupils), eye pain, dim and/or blurred vision, conjunctival injection
B. Nose-rhinorrhea (runny nose)
C. Airways-bronchoconstriction, bronchorrhea (increased secretions), tightness in the chest, severe respiratory distress, apnea
D. GI tract-nausea, vomiting, and diarrhea
E. Glands-sweating, tearing
F. Muscles-fasciculation, twitching fatigue, weakness, flaccid paralysis
G. CNS-loss of consciousness, seizure activity, apnea
H. Heart-slow, normal or fast rate, high or normal BP

Death is generally due to respiratory arrest

*If DuoDote is not available, may substitute Mark I kit. If neither is available, administer 1mg Atropine IM/IV as per DuoDote dosing.
*Document antidote doses on triage tag. If not available, tape used auto injectors to patient.
*Early notification of the receiving hospital is imperative. DECON assembly can take 20 minutes or more.

The use of Duodote for treatment of suspected nerve agent poisoning is indicated only if: Appropriate signs and symptoms of nerve agent poisoning are present. Do not delay transfer to an appropriate casualty collection point if DuoDote is not readily available

ASSESSMENT:
*Special attention to signs and symptoms described above

Decontamination – As determined by Incident Command
Apply cardiac monitor
ESTABLISH IV ACCESS
Administer antidote as outlined below

*The use of DuoDote is not well described in the pediatric population. Do not use in pediatric patients unless directed by medical control.
*When a responder self-administers DuoDote, they are now a patient and Incident Command must be notified.

VAPOR EXPOSURE MILD (TRIAGE GREEN)	VAPOR EXPOSURE MODERATE (TRIAGE YELLOW)	VAPOR EXPOSURE SEVERE (TRIAGE RED)
SYMPTOMS – Miosis, Dim vision, Headache, Severe rhinorrhea TIME OF ONSET – seconds to minutes after exposure	SYMPTOMS – Shortness of air, vomiting, diarrhea TIME OF ONSET – seconds to minutes after exposure	SYMPTOMS – Severs breathing difficulty or breathing stopped; Generalized muscle twitching, weaknes or paralysis; convulsions; Loss of consciousness; Loss of bowel/ bladder control TIME OF ONSET – seconds to minutes after exposure
SELF – 1 DuoDote PATIENT – 1 DuoDote Observe and reevaluate as scenario allows	SELF – 1 DuoDote every 5-10 min to a MAX of 3 or until signs and symptoms start to decrease PATIENT – 1 DuoDote every 5-10 min to a MAX of 3 or until symptoms start to decrease. Observe and reevaluate as scenario allows	PATIENT -3 DuoDotes immediately. **Continue Atropine 1mg IV every 5-10 min until signs and symptoms decrease (may take more than 20mg of Atropine to get desired effect)**

BLS ATTENDANT ON EMERGENCY CALLS PROTOCOL

The purpose of this protocol is to identify those patients from an emergency call that may be attended by an EMT during transport to the hospital.

Has the patient required airway management (OPA, NPA, iGel, ETT) at any time during the current encounter?

↓

Has the patient required ventilatory support (CPAP / Z VENT or BVM use) at any time during the current encounter?

↓

Has the patient required chest compressions at anytime during the current encounter?

↓

Has the patient required vascular access (either IV or IO) at anytime during the current encounter?

↓

Has the patient had acute mental status changes and GCS < 14 at anytime during the current encounter?

↓

Has the patient required EKG monitoring, a 12 Lead ECG obtained, or ETCO2 monitoring at anytime during the current encounter?

↓

Has the patient required any medication found within the KCFD EMS Protocols Medication Formulary (except O2 or Oral Glucose) at anytime during the current encounter?

↓

Does the patient require TCD Routing (Stroke, STEMI, or Trauma) per the Determination of Hospital Destination Policy found in the KCFD EMS Protocols?

↓

Has the patient's vital signs been outside acceptable parameters at anytime during the current encounter?

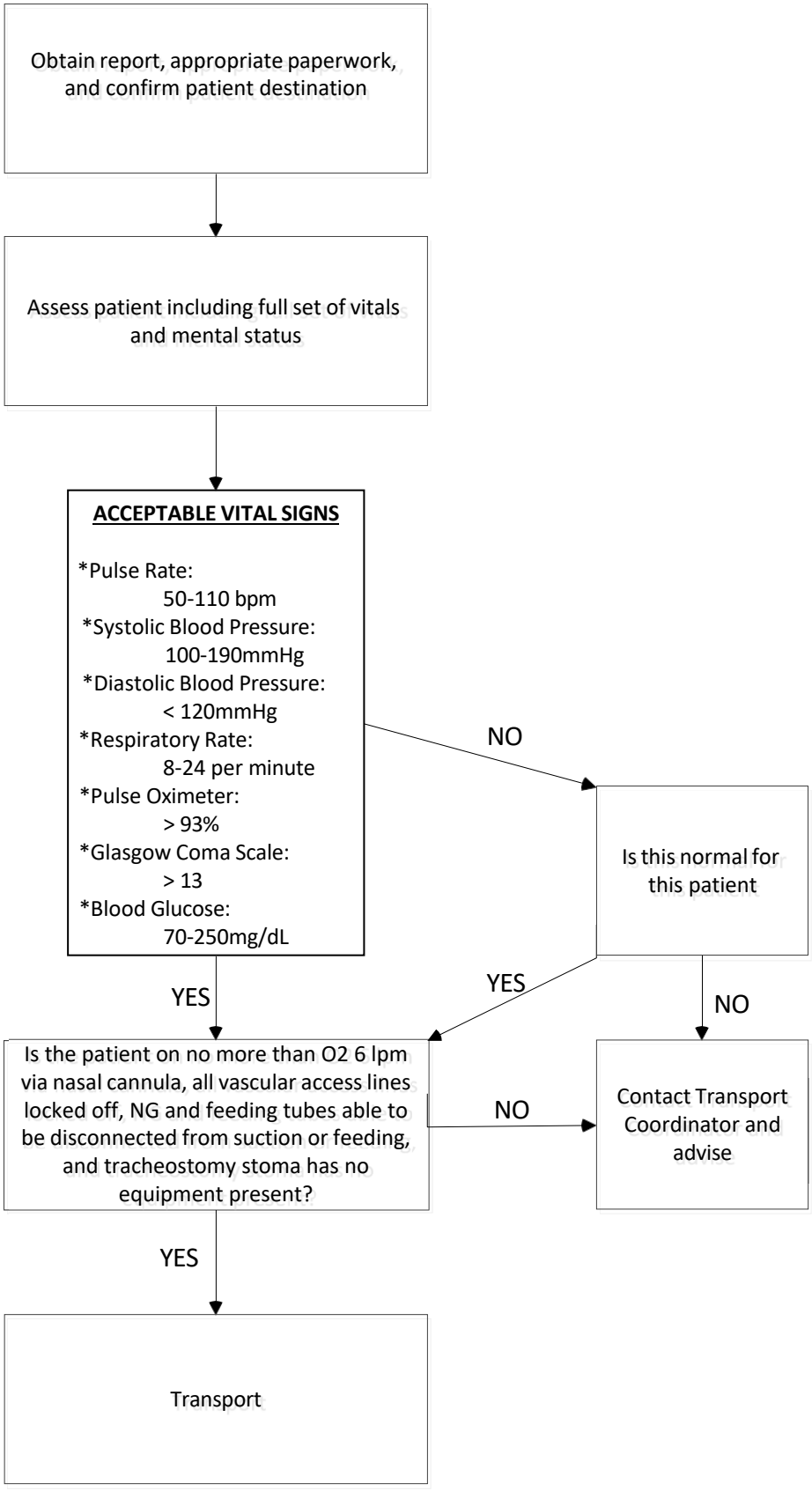
ACCEPTABLE VITAL SIGNS

*Pulse Rate:
50-110 bpm
*Systolic Blood Pressure:
100-190mmHg
*Diastolic Blood Pressure:
< 120mmHg
*Respiratory Rate:
8-24 per minute
*Pulse Oximeter:
> 93%
*Glasgow Coma Scale:
> 13
*Blood Glucose:
70-250mg/dL

↓

If the answer is "NO" to ALL OF THE ABOVE, the patient may be attended by an EMT during transport to the hospital

BLS ATTENDANT ON INTERFACILITY TRANSFER PROTOCOL



KANSAS CITY MISSOURI EMS PROTOCOLS

KC ASSESSMENT AND TRIAGE CENTER PROTOCOL

The purpose of this protocol is to identify those patients that meet criteria for transport to the Kansas City Assessment and Triage Center by KCPD or KCFD, and are requesting transport to the Center

If there is any question as to whether the patient meets ALL criteria, default is to transport to the Emergency Department

If patient preference is to be transported to the hospital, the patient is to be transported to their hospital of choice.

Age 18 years or older

↓

Patient has:
*No acute medical conditions
*No wounds that require sutures
*No evidence of trauma to head/face/scalp

↓

Patient is not combative, does not require restraints, and does not need sedation

↓

Vital signs are within acceptable limits

↓

Patient is ambulatory and is able to self-transfer without assistance

↓

Patient does not require treatments such as;
*Oxygen
*IV fluids or medications
*CPAP / Z VENT
*Cardiac monitoring
Or other interventions from KCFD EMS Crews

↓

If the patient meets ALL criteria listed above, they may be transported by KCPD or KCFD to the KC Assessment and Triage Center

ACCEPTABLE VITAL SIGNS

*Pulse Rate:
50-110 bpm
*Systolic Blood Pressure:
100-190mmHg
*Diastolic Blood Pressure:
< 120mmHg
*Respiratory Rate:
8-24 per minute
*Pulse Oximeter:
> 93%
*Glasgow Coma Scale:
> 13
*Blood Glucose:
60-250mg/dL

Patients that are released to KCPD for transport to KCATC do not sign a refusal.

KANSAS CITY MISSOURI EMS PROTOCOLS

SPECIALTY EQUIPMENT PROTOCOL

The purpose of this protocol is to address specialty equipment that the patient may using and the mitigation of an emergency that may be occurring with that equipment

VENTRICULAR ASSIST DEVICE:

*A ventricular assist device (VAD) is a mechanical device used to support circulation in a patient with significant cardiac ventricular dysfunction

*A patient with a ventricular assist device can be identified by an electric driveline cable that come directly out of their abdomen and connects to an external control pack powered by two external batteries they will be wearing with a bag, harness, or vest

*Typically, VAD patients have no discernible palpable pulse. Blood pressure measurement requires manual BP cuff and Doppler (which the patient may have). Utilize other parameters for patient assessment:

- *Level of consciousness
- *Respiratory rate and work of breathing
- *Signs of perfusion:
  - *Skin color/temperature
  - *Capillary refill (HR > 100 is hemodynamically unstable)
  - *Cardiac monitor
  - *SaO2
  - *Blood glucose level

*If patient stable: Contact VAD Coordinator (patient should have this information) and transport to VAD Hospital

*If patient unstable:

VAD RUNNING	VAD NOT RUNNING
*250mL NS/LR BOLUS IV	*CONSIDER CCC IF NO CLINICAL SIGNS OF PERFUSION
*CONSIDER CCC IF NO CLINICAL SIGNS OF PERFUSION	*Address VAD alarms
*ACLS	*CONSIDER DEFIBRILLATION
	*ACLS

*Contact VAD Coordinator/Physician ASAP:

- *St Lukes Plaza: 816-932-3264 (after hours/holidays: 816-931-1883)
  - *If patient stable, ask for VAD Coordinator
  - *If patient unstable, as for Emergency LVAD Physician On Call
- *University of Kansas Hospital: 913-588-5000
  - *Ask for the VAD Coordinator On Call

AV FISTULA: If patient is hemorrhaging from AV Fistula:

*Apply firm finger pressure just proximal to the bleeding site until decreased arterial bleeding is visualized. Continue to hold this position until relieved by hospital provider

*Apply dressing but avoid bulky dressing

*Dressing must not compress fistula/shunt as this will cause clotting of the shunt

*If direct pressure and dressing not effective and life-threatening hemorrhage, apply tourniquet to affected extremity several inches above fistula/shunt

TRACHEOSTOMY:

- *If trach tube has come out, ventilate with BVM over stoma if possible. May ventilate over mouth, however be sure to cover stoma with gloved hand to prevent air leak
- *Keep area protected
- *Bring patient's replacement equipment (if available) to hospital

FEEDING TUBE:

- *May be referred to as G-tube, J-tube, Peg tube, or Mickey button depending on location
- *If feeding tube has been pulled out:
  - *Keep area protected
  - *Bring replacement equipment (if available) to hospital

SERVICE ANIMALS:

*As defined by the American Disabilities Act, “any guide dog, signal dog, or other animal individually trained to do work or perform tasks for the benefit of an individual with a disability, including, but not limited to guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.”

- *Service animals are not classified as a pet and should by law, always be permitted to accompany the patient with the following exceptions:
  - *A public entity may as an individual with a disability to remove a service animal from the premises if:
    - *The animal is out of control and the animal’s handler does not take effective action to control it. OR:
    - *The animal is not housebroken
- *Service animals are not required to wear a vest or a leash. It is illegal to make a request for special identification or documentation from the service animal’s partner. EMS providers may only ask the patient if the service animal is required because of a disability and the form of assistance the animal has been trained to perform.
- *EMS providers are not responsible for the care for the service animal. If the patient is incapacitated and cannot personally care for the service animal, a decision can be made whether or not to transport the animal in this situation.
- *Animals that solely provide emotional support, comfort, or companionship do not qualify as service animals.

KANSAS CITY MISSOURI EMS PROTOCOLS

12-LEAD ECG MONITORING PROCEDURE

INTRODUCTION: The principal purpose of obtaining a 12-lead ECG in the prehospital setting is to identify patients having an acute ST-elevation myocardial infarction (STEMI) and to relay this information to the receiving hospitals allowing them to appropriately prepare for patient arrival. This has been shown to decrease "door to drug" and "door to invasive intervention" time, both of which improve patient survival.

INDICATIONS:

I. A prehospital 12-lead ECG should specifically be considered during the assessment of patients being treated as per the following protocols:
   - A. Suspected myocardial infarction:
     1. Chest pain
   - B. Respiratory Distress (possible congestive heart failure/pulmonary edema)
     1. Asthma
     2. COPD
     3. CHF
     4. Pulmonary Edema
   - C. Dysrhythmia diagnosis:
     1. Cardiac Dysrhythmia (may be particularly helpful in pediatric patients)
   - D. Stroke
   - E. Return of Spontaneous Circulation (ROSC)
   - F. Altered Mental Status
   - G. Hypotension/Shock
   - H. Syncope

CONTRAINDICATIONS: Do not delay the treatment and/or transport of unstable patients to obtain a 12-lead EKG.

PRECAUTIONS:

I. Do not prolong scene time to obtain 12-lead ECG (should take less than 5 minutes)
II. A normal (or nonspecific) 12-lead ECG does not rule out myocardial infarction or ischemia, therefore do not base prehospital treatment on the results of the ECG
III. If a patient on whom you have obtained a 12-lead ECG is refusing transport you should strongly consider contacting medical control for advice

TECHNIQUE:

I. The patient should be in the supine position. If the patient cannot tolerate that position, place them in the semi-reclining or sitting position.
II. Prep the skin and shave hair as needed.
III. Apply electrodes as described:

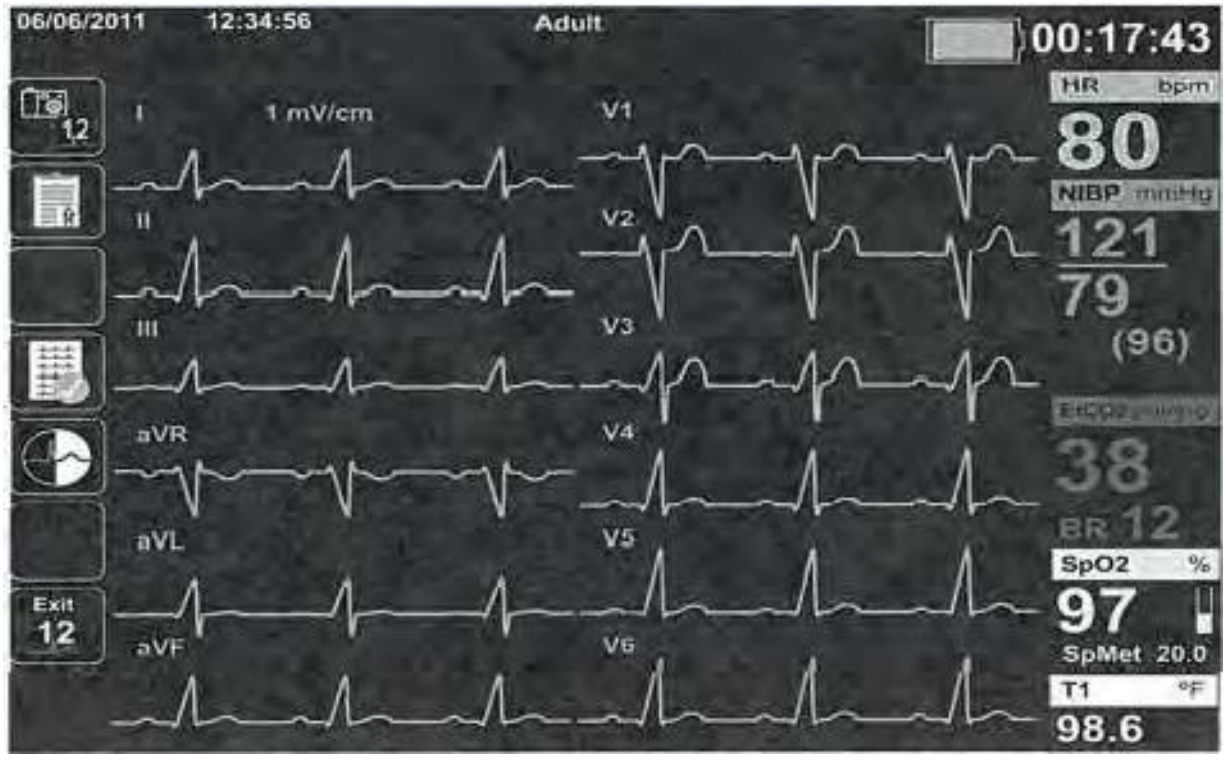
Limb Leads:	Precordial (Chest) Leads:
Right arm (RA) – Right wrist	V1 – 4th intercostal space to the right of the sternum
Right leg (RL) – Right ankle	V2 – 4th intercostal space to the left of the sternum
Left arm (LA) – Left wrist	V3 – Directly between leads V 2 and V 4
Left leg (LL) – Left ankle	V4 – 5th intercostal space at midclavicular line V5 – Level with V4 at left anterior axillary line V6 – Level with V5 at left midaxillary line

1. Do not use nipples as reference points as locations vary widely.
2. If the patient has pendulous breasts, place electrodes under breasts.

B. Attach 12-lead cable to electrodes and machine – avoid patient, cable or vehicle movement and 60 cycle interference.

C. Enter appropriate patient information.
   1. Age and Sex (both necessary for accurate 12SLTM interpretation).
   2. First 3 letters of patients last name (for identification purposes).

D. Obtain 12-lead EKG.
   1. 12-Lead Acquisition – the X-Series unit begins pre-acquisition of 12- lead data when you attach the electrodes to the patient, as follows:
      a) Attach electrodes to the patient lead wires.
      b) Attach lead wires and electrodes to the patient.
      c) Attach the V-lead cable to the 12-lead ECG cable. (when v- leads are not in use, ensure the v-leads protective cap is plugged into the v-lead connector)
      d) Attach the 12-lead cable to the ECG connector on the left side of the X-Series product. Arrange the 12-lead cable such that it is neat and not dangling or looped, and assure that it is not pulling on individual electrodes.
      e) To observe the 12-Lead waveform traces, press 12. The screen displays all twelve waveform traces, with the size displayed above the waveform traces.

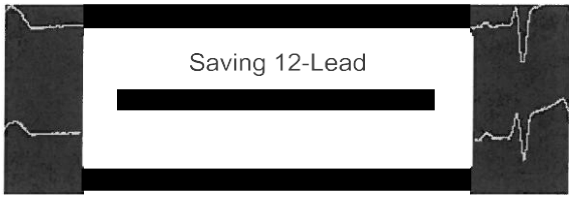


f) After observing the patient's ECG and determining that all 12-lead traces display correctly, you can initiate 12- Lead Interpretive Analysis.
*Note: 12-Lead Interpretive Analysis works for only Adult patients.

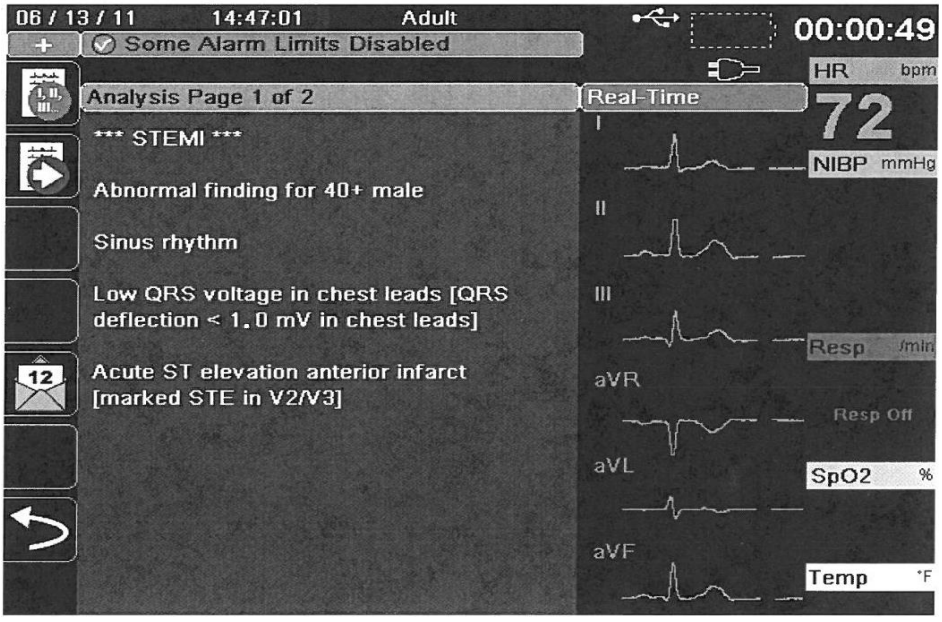
g) To begin 12-Lead Interpretive Analysis, press the Acquire quick access key  . The X Series unit displays the Acquiring 12-Lead Status bar as it collects IO seconds of 12-Lead ECG data:



h) After acquiring the ECG data, the unit saves the data and displays the Saving 12-Lead Status Bar in the following manner:

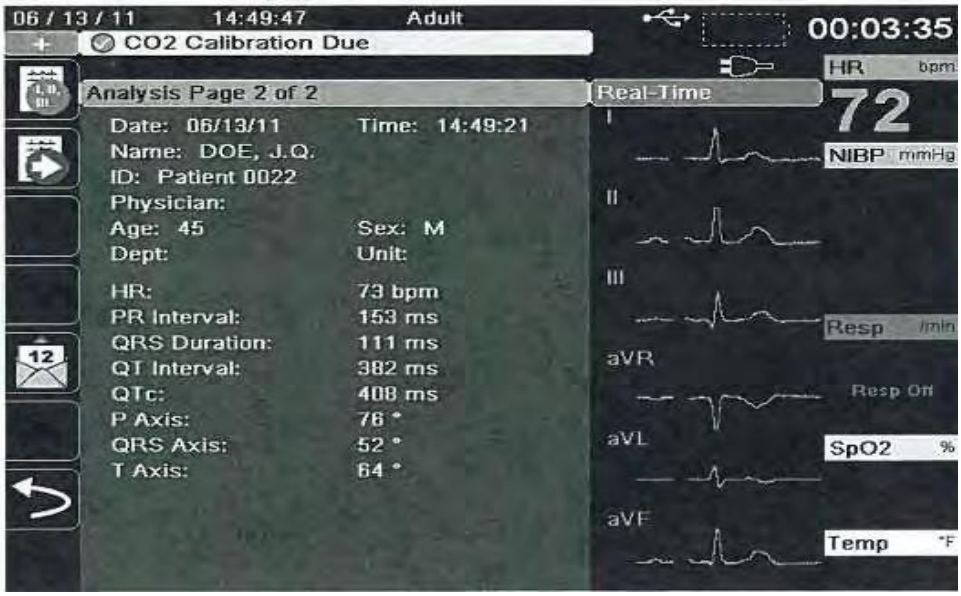


i) After saving the data, the unit performs the post-acquisition Interpretive Analysis and dis plays the first page of 12-Lead Interpretive Analysis information. In the example below, the interpretive statement, ****STEMI /****, indicates the occurrence of ST-Elevation Myocardial Infarction. The interpretive statement s that the X Series unit displays are produced by the Audicor software of Inovise Medical.



*To display *Analysis Page 2,* press the 12-Lead Review Next quick access key .

**Analysis Page 2* displays the identifying information that has been entered for the patient and additional analysis statements:



E. If the 12-lead ECG shows evidence of an acute myocardial infarction, then contact the destination emergency department as early in the call as possible to allow them the time to prepare appropriately for the patient. Review 12SL analysis for confirmation.
   1. "Evidence of myocardial infarction" is defined as:
      a) ST segment elevation of ≥ 1mm in two contiguous leads
      b) The 12SLTM interpretation reports "acute" or "possible acute" myocardial infarction.

F. Transmission of 12-lead ECG
   1. After acquisition, press envelope button on the left side of the display
   2. Select desired destinations from list
   3. Transmit ECG data

COMPLICATIONS: Delay in treatment or transport to obtain a 12-lead ECG may result in patient deterioration

DOCUMENTATION REQUIREMENTS:

I. Print 1 copy of the 12-lead ECG for the receiving facility.
II. Attach copy of ECG to ePCR. If unsuccessful, print a copy for submission with the run ticket.
III. Run ticket documentation should include the 12SLTM interpretation as well as the paramedic interpretation. Paramedic interpretation should include the heart rate and rhythm as well as the presence or absence of evidence of myocardial infarction

NOTES:

Reference: Zoll X-Series 12-Lead Monitoring insert, February 2012

KANSAS CITY MISSOURI EMS PROTOCOLS

CO2 DETECTOR (EZ CAP II) PROCEDURE

INTRODUCTION:

1. CO2 is a product of cellular metabolism.
2. Exhaled air has a high pCO2, inspired air has essentially no CO2.
3. Colorimetric end-tidal CO2 monitors measure pCO2 of inspired and expired air by color indicator.
4. Color varies between expiration and inspiration as CO2 levels rise and fall.
5. In cardiac arrest patients, CO2 may not be carried to the lungs because of poor perfusion. Therefore, the expired pCO2 may be very low.

INDICATIONS:

1. Waveform capnography on Zoll X-Series is not functioning properly or is unavailable.
2. Colorimetric end-tidal CO2 detection is an adjunct used to help confirm correct iGel or endotracheal tube placement and to help monitor placement. It does not replace clinical evaluation.

CONTRAINDICATIONS:

1. Mouth to iGel or endotracheal tube ventilation.
2. Patients less than 15kg (30lbs) in weight.

TECHNIQUE:

Initial Verification of iGel or Endotracheal Tube Placement:

1. Remove from package immediately prior to using device.
2. If initial color indicator is not the same or darker than the “area” then do not use.
3. Insert iGel or endotracheal tube, inflate cuff (if applicable), attach device.
4. Ventilate patient with six breaths of moderate tidal volume.
5. Compare color indicator to color chart on the colorimetric device on full end expiration.
    a. If color in “A”range (purple)
        i. iGel or endotracheal tube placement incorrect.
        ii. Remove airway and attempt to reinsert
    b. If color in “B” range (tan)
        i. Indicates retained CO2 in esophagus or low pulmonary blood flow, hypocarbia
        ii. Deliver six more breaths
            1. If color shifts to “A” range, airway placement incorrect, remove airway and ensure adequate ventilations
            2. If color remains in “B” range (tan), airway placement correct with low pulmonary blood flow, check clinical signs and secure airway
            3. If color shifts to “C” range (yellow), airway placement correct, secure tube
    c. If color in “C” range (yellow)
        i. Indicates iGel or endotracheal tube placement is correct
        ii. Secure airway in place and monitor placement

Continuing Verification of iGel or Endotracheal Tube Placement:

1. If color changes to an A or B range after an initial C range the either:
    a. The iGel or endotracheal tube has become dislodged from the trachea **OR**
    b. The patient has deteriorated and now has poor pulmonary perfusion

    If color changes to an A range after an initial B range then either:

a. The iGel or endotracheal tube has become dislodged from trachea **OR**
b. The patient has deteriorated and now has poor pulmonary perfusion

3. If either of the two above scenarios occurs, use clinical means to confirm proper placement and or change in perfusion status.

NOTES:

- Interpreting results before 6 full breaths can lead to false positive results
  - Gastric distension with air prior to iGel or endotracheal tube placement may introduce CO2 levels high enough into the stomach to give a false positive reading when placement is actually incorrect.
- The colorimetric CO2 detector should not be used to detect right main stem bronchus intubations. Use your clinical assessment to confirm correct placement
- Reflux of gastric contents, mucus, edema fluid, or tracheal epinephrine into the CO2 detector can yield persistent yellow or white discoloration that does not vary with respiratory cycle. Discard if this happens.

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBAT APPLICATION TOURNIQUET PROCEDURE

INDICATIONS: Extremity wounds where direct pressure with a sterile dressing alone does not control active bleeding

CONTRAINDICATIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. Expose the wound and place the wounded extremity through the loop of the Omni-Tape band. The CAT will normally be 2-4 inches above the injury.
II. Pull the free end of the Omni-Tape band tight and secure it back onto itself using the Velcro.
III. Do not secure the band past the windlass clip.
IV. Twist the windlass rob until bright red bleeding stops
V. Secure the rod by inserting it into the windlass clip.
VI. Small extremities will allow you to extend the Omni-Tape band over the top of the windlass rod and clip.
VII. Pull the Velcro windlass strap tight over the windlass clip and Omni-Tape band.
VIII. Mark the patient's head with the letter "T" and annotate the date/time/location of the CAT on the field medical Card. Patient is now ready for transport unless further medical assessment is required.
IX. Never remove or cover a tourniquet and only use on a leg or arm.

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Time of tourniquet placement

KANSAS CITY MISSOURI EMS PROTOCOLS

COMBAT GAUZE PROCEDURE

INDICATIONS: Trunk or extremity wounds where direct pressure with a sterile dressing alone does not control active exsanguinating bleeding, and placement of a tourniquet is not possible

CONTRAINDICATIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. Open package and remove combat gauze. Keep the empty package.
II. Pack combat gauze into wound and use it to apply pressure directly over bleeding source. (More than one combat gauze may be required).
III. Continue to apply pressure for 3 minutes or until bleeding stops.
IV. Wrap and tie bandage to maintain pressure. Seek medical care immediately.
V. Save package to give to receiving facility for removal instructions.

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Time of dressing placement

KANSAS CITY MISSOURI EMS PROTOCOLS

CONFIRMATION OF ADVANCED AIRWAYPLACEMENT PROCEDURE

INDICATIONS: All endotracheal intubations and iGel Supraglotic Airway placements must have objective confirmation of correct placement.

CONTRAINDICATIONS: N/A

PRECAUTIONS: No one clinical sign is an absolute indicator of proper endotracheal tube or iGel placement.

TECHNIQUE:

I. Clinical Signs of Placement:
   A. Direct visualization
   B. Equal breath sounds (high in mid-axillary line); if breath sounds are decreased on left, consider right mainstem intubation, pull endotracheal tube back and recheck breath sounds
   C. No gastric sounds with ventilation
   D. Cuff inflation of endotracheal tube palpated in supra-sternal notch
   E. Chest wall movement
   F. "Fogging" of endotracheal tube or iGel
   G. Airflow felt through endotracheal tube or iGel
   H. Compliance of bag with ventilation
   I. Observation of pink membranes and "non-deterioration"
   J. Gastric contents in endotracheal tube imply in esophagus
   K. Vocalization implies endotracheal tube in esophagus
   L. Palpation of endotracheal tube passing the cords via Sellick's Maneuver

II. Placement Confirmation Using Continuous Waveform ETCO2: See Zoll X-Series Continuous Waveform ETCO2 Monitoring Procedure

III. Placement Confirmation Using Colorimetric CO2 Detector: See CO2 Detector (EZ Cap II) Procedure

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Time of intubation or iGel placement
II. Size of endotracheal tube or iGel
III. Presence and quality of breath sounds
IV. Absence of air movement in the epigastric area
V. Application of Continuous Waveform ETCO2
VI. Method used to secure ET tube or iGel
VII. Confirmation of placement after moving patient
VIII. Record ETCO2 readings in the appropriate section of the ePCR
IX. Any complications

NOTES:

I. Head movement has been shown to dislodge correctly placed and secured endotracheal tubes. Secure the head with a c-collar and head block device to restrict movement.
II. Blue corrugated tubing should be used as an intermediary between the BVM and the endotracheal tube or iGel to provide a "cushion" and decrease inadvertent dislodgement with accidental and sudden movements.
III. Endotracheal tube and iGel placement should be confirmed after each patient movement.
IV. When removing the patient from the unit, disconnect the BVM from the endotracheal tube or iGel until the patient is out and the wheels are lowered.

V. None of the clinical signs are absolute; there are documented cases of unrecognized esophageal intubation using each of these techniques.
VI. “When in doubt, take it out” and assure oxygenation and ventilation.
VII. If an initial attempt at intubation results in esophageal intubation, the endotracheal tube may be left in the esophagus to provide a landmark for another attempt if this does not impede BVM ventilation.

CPAP PROCEDURE

INDICATIONS:

CPAP is indicated in all patients in whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, asthma, COPD, etc. The patient must have an adequate mental status and a spontaneous respiratory drive in order to permit the CPAP device to function properly.

CONTRAINDICATIONS:

I. Decreased or Altered Mental Status.
II. Facial features or deformities that prevent an adequate mask seal.
III. Vomiting or excessive respiratory secretions.
IV. Inability to maintain own airway.
V. SBP < 90mmHg

PRECAUTIONS:

I. Emesis may result in aspiration

TECHNIQUE:

I. Ensure adequate oxygen supply to CPAP device. Limit the time spent on portable oxygen.
II. Explain the procedure to the patient.
III. Place the delivery mask over the mouth and nose. To improve compliance and tolerance, manually hold the mask for 3-5 minutes while continuously reassuring the patient. Oxygen should be flowing through the device at this point.
IV. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.
V. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications.
VI. Evaluate the response of the patient, assessing general appearance, breath sounds, and oxygen saturation.
VII. Frequently reassess the patient, being vigilant for worsening respiratory failure or arrest.
VIII. Add nebulizer as needed.

DOCUMENTATION:

I. Document time, vital signs, sidestream ETCO2, FIO2 and clinical response on EPCR.
II. When adding medications, document medication, time, vital signs, and clinical response epcr.

DOCUMENTATION:

I. Document time, vital signs, FIO2 and clinical response on EPCR.
II. When adding medications, document medication, time, vital signs, and clinical response epcr.

KANSAS CITY MISSOURI EMS PROTOCOLS

DUODOTE PROCEDURE

INDICATIONS: Emergent treatment of nerve agent or organophosphate poisoning.

CONTRAINDICATIONS: None if symptoms of nerve agent or organophosphate poisoning are present

PRECAUTIONS: Ensure that no objects obstruct the administration site at lateral thigh in clothes pockets, etc.

TECHNIQUE: (CAUTION: Never touch the green tip (needle end)!)

I. Before injecting (Do not remove gray safety release until ready to use)
   A. Tear open the plastic pouch at any of the notches. Remove the DuoDote Auto-Injector from the pouch.
   B. Place the DuoDote Auto-Injector in your dominant hand. Firmly grasp the center of the DuoDote Auto-Injector with the green tip (needle end) pointing down.
   C. With your other hand, pull off the gray safety release. The DuoDote Auto-Injector is now ready to be administered.

II. Select site and inject
   A. The injection site is the mid-outer thigh area. The DuoDote Auto-Injector can inject through clothing. However, make sure pockets at the injection site are empty.
   B. Swing and firmly push the green tip straight down (a 90 degree angle) against the mid-outer thigh. Continue to firmly push until you feel the DuoDote Auto-Injector trigger.
   C. IMPORTANT: After the auto-injector triggers, hold the DuoDote Auto-Injector in place against the injection site for approximately 10 seconds.

III. After injecting
   A. Remove the DuoDote Auto-Injector from the thigh and look at the green tip. If the needle is visible, the drug has been administered. If the needle is not visible, check to be sure the gray safety release has been removed and repeat the previous steps beginning with Step 4, but push harder in Step 5.
   B. After the drug has been administered, push the needle against a hard surface to bend the needle back against the DuoDote Auto-Injector.
   C. Put the DuoDote Auto-Injector into the plastic pouch, if available. Leave used DuoDote Auto-injector(s) with the patient to see the number of DuoDote Auto-Injectors that have been administered.
   D. Immediately move yourself and the patient away from the contaminated area and seek definitive medical care for the patient.

COMPLICATIONS:

I. Failure to administer full dose
II. Bleeding from administration site
III. Under dosing in sever poisoning

DOCUMENTATION REQUIREMENTS:

I. Indications
II. Dosing

NOTES: Does not replace standard therapy (i.e., oxygen and monitoring)

KANSAS CITY MISSOURI FIRE EMS PROTOCOLS

END TIDAL CO2 MONITORING PROCEDURE

INTRODUCTION:

I. CO2 is a product of cellular metabolism that is removed from the body by ventilation, thus end-tidal air has a high pCO2. Inspired air has essentially no CO2. The CO2 monitor is a device which measures the pCO2 of expired air and displays a numerical value of measured end-tidal CO2. The unit can display a capnogram that demonstrates the change in pCO2 during inspiration and expiration by a waveform on a monitor and will calculate and display respiratory rate based on the measured time interval between detection peaks of the CO2 waveform.
II. In the cardiac arrest patient, CO2 may not be carried to the lungs because of poor perfusion. Therefore, the expired pCO2 may be very low.

INDICATIONS:

I. The Zoll X-Series EtCO2 option is indicated for the continuous noninvasive monitoring of end tidal carbon dioxide (EtCO2) and respiration rate in intubated patients.
II. The X-Series EtCO2 option supports two methods for continuous measurement of end tidal carbon dioxide and respiration rate. The method used will be the Oridion Microstream Filterline CO2 Sensor attached to an airway adapter that connects to an endotracheal tube, mask or disposable mouthpiece.
III. Any patient that has had an iGel (or other) supraglotic airway placed.
IV. Any patient that has had an endotracheal tube placed.
V. Any patient that is receiving BVM ventilations via tracheostomy tube.

CONTRAINDICATION:

I. Mouth to adjunct ventilations
II. Patients less than 15 kg (30 lbs) in weight

PRECAUTIONS:

I. The Zoll X-Series is able to monitor ETCO2 for adult, pediatric, and neonatal patients.
II. The CO2 monitor is an adjunct used to help confirm correct advanced airway placement and continuously monitor placement. It does not replace clinical evaluation.
III. Always ensure the integrity of the patient breathing circuit after insertion of the airway adapter by verifying proper ventilation by auscultation and by verifying a proper CO2 waveform (capnogram) on the monitor display.
IV. Failure to recognize deterioration in patient status with changes in ETCO2 levels or loss of capnogram.

TECHNIQUE:

I. Initial Verification of Endotracheal Tube Placement or iGel:
    a. Turn on the monitor and ensure that the CAPNOSTAT Sensor is plugged into the monitor.
    b. Attach CAPNOSTAT Sensor to the adapter and ensure adaptor is placed between endotracheal tube and BVM or ventilator.
    c. Once setup is complete, press CO2 soft button on the left side of the unit. The numeric CO2 display appears on the screen and displays the message “initializing”. The CO2 display gives the current EtCO2 value and after a delay of approximately 1 minute, the patients respiratory rate (in bpm), identified as BR. Check to see if displayed properly by displaying of wave form.
    d. Continually monitor indicator and waveform which changes with ventilation, throughout transport.

e. Patients who do not require intubation but do require the use of nebulizer, the detector may be connected to the nebulizer and the same procedure followed to monitor EtCO2 and to observe waveform capnography.

II. Continuing Verification of Endotracheal Tube or iGel Placement:
   a. If the EtCO2 monitor changes to very low or no indicated EtCO2 and/or loss of capnogram, then either:
      i. The endotracheal tube or iGel has become dislodged from the trachea.
      OR
      ii. The patient has deteriorated and now has poor pulmonary perfusion.
      OR
      iii. There is a problem with the sampling circuit of the device.

III. Ensure that the Oridion CO2 detector is correctly plugged into the Zoll monitor and that the cable is intact, that the detection device is placed properly and attached to the airway adapter, and the airway adapter is properly placed in the airway circuit and CO2 button has been pressed.

DOCUMENTATION REQUIREMENTS:

I. Time of intubation or iGel placement
II. Size of endotracheal tube or iGel
III. Presence and quality of breath sounds
IV. Absence of air movement in the epigastric area
V. Application of Continuous Waveform ETCO2
VI. Method used to secure ET tube or iGel
VII. Confirmation of placement after moving patient
VIII. Record ETCO2 readings in the appropriate section of the ePCR
IX. Any complications

NOTES:

I. Not effective for detecting right mainstem or pharyngeal intubation
II. If there is no ETCO2 level detected and no capnogram, then recheck equipment and/or use other means to verify placement.

KANSAS CITY MISSOURI EMS PROTOCOLS

iGEL PROCEDURE

INDICATIONS:

I. An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
II. Inability to adequately ventilate a patient with a Bag Valve Mask with or without airway adjuncts thus requiring a more advanced airway

CONTRAINDICATIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. Prepare and position the patient. Head extended into sniffing position unless concern for C-Spine injury.
II. Select appropriate i-gel airway. Have suction ready.
III. Visualize oropharynx and remove any gross debris.
IV. Insert i-gel following the anatomy using steady pressure until a definitive resistance is felt.
V. Ensure the i-gel is fully seated, locating the solid black line at approximately tooth level.
VI. Secure the iGel.
VII. Apply mainstream ETCO2 monitoring
VIII. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove i-gel and ventilate patient with bag-valve mask.

COMPLICATIONS: N/A

DOCUMENTATION:

I. Record Mainstream Waveform Capnography (ETCO2) readings into the vital signs matrix of the EPCR
II. Document i-gel size, time, and attempts/success in the EPCR.
III. Document positive or negative breath sounds before and after each movement of the patient.

KANSAS CITY MISSOURI EMS PROTOCOLS

INTRANASAL DRUG ADMINISTRATION PROCEDURE

INDICATIONS:

I. Emergent need for medication administration
II. No IV has been established
III. Seizures (Midazolam)
IV. Altered mental status suspected narcotic overdose (Naloxone)
V. Analgesic medication administration (Fentanyl)
VI. Chemical restraint for combative patient (Midazolam)
VII. Glucagon in hypoglycemia without IV access

CONTRAINDICATIONS:

I. Excessive nasal discharge
II. Bleeding from nares
III. Mucosal destruction
IV. Current patient use of nasal vasoconstrictors (neosynephrine)

PRECAUTIONS: Total volume delivered should not exceed 0.5mL per nare per administration

TECHNIQUE:

I. Draw up proper dosage (see appropriate protocol)
II. Expel air from syringe
III. Attach the MAD device vis luer lock
IV. If volume of dose to be delivered exceeds 0.5mL, divide volume equally and administer into both nares
V. Place MAD device just inside nare and briskly compress the syringe plunger to deliver medication onto nasal mucosa
VI. Repeat in other if dose volume requires as indicated above

COMPLICATIONS:

I. Gently pushing the plunger will not result in adequate atomization
II. Fluid may escape from nares
III. Not 100% effective

DOCUMENTATION REQUIREMENTS:

I. Indications for procedure
II. Description of procedure
III. Dosage used
IV. Response to intervention

NOTES: Does not replace standard therapy (IV, O2, and monitoring)

KANSAS CITY MISSOURI EMS PROTOCOLS

INTRAOSSEOUS PROCEDURE

INDICATIONS:

I. Patients where rapid, regular IV access is unavailable with any of the following:
   A. Cardiac arrest
   B. Multisystem trauma with severe hypovolemia and/or a significantly burned patient with no IV access.
   C. Severe dehydration with vascular collapse and/or loss of consciousness.
   D. Respiratory failure / Respiratory arrest.
II. Any other immediately life-threatening, peri-arrest clinical condition in which IV access is unobtainable.

CONTRAINDICATIONS:

I. Suspected Fracture at or proximal to proposed intraosseous insertion site.
II. History of Osteogenesis Imperfecta
III. Current or recent infection at proposed intraosseous insertion site.
IV. Previous intraosseous insertion or joint replacement at the selected site.

PRECAUTIONS:

I. Transport is required for any patient that receives intraosseous (IO) placement and does not meet Termination of Resuscitation criteria.
   A. The placement and subsequent removal of IO needles in the pre-hospital environment is NOT currently supported by literature.

TECHNIQUE:

I. Don personal protective equipment (gloves, eye protection, etc.).
II. Identify appropriate insertion site.
   A. Adults:
      1. Proximal Humerus: On an adducted arm with a flexed elbow and an internally rotated humerus, approximately 1 to 2 cm above the surgical neck, on the most prominent aspect of the greater tubercle.
      2. Proximal Tibia: On an extended leg, approximately 2 cm medial to the tibial tuberosity, or approximately 3 cm (two finger widths) below the patella and approximately 2 cm medial, along the flat aspect of the tibia.
   B. Pediatrics:
      1. Proximal Tibia (**Primary Site**): With the leg fully extended, locate the insertion point approximately 1 cm (or one finger-width) below and slightly medial to the tibial tuberosity, along the flat medial surface of the tibia. This site must be attempted twice—once on each leg—prior to considering the distal femur site.
      2. Distal Femur (**Alternative Site for Patients <6 Years of Age**): With the leg securely outstretched and the knee stabilized in extension, identify the patella by palpation. The insertion point is located just proximal to the patella (no more than 1 cm) and approximately 1–2 cm medial to the midline of the femur.
III. Prep the selected site with a providone-iodine or chlorhexidine solution.
IV. Appropriate needle angle:
   A. Proximal Humerus: Aim the needle tip at a 45-degree angle to the anterior plane and posteromedial.
   B. Proximal Tibia (Adult) and Proximal Tibia (Pediatric): Aim the needle tip at a 90-degree angle to the center of the bone.
   C. Distal Femur (Pediatric): Aim the needle set tip at a 90-degree angle to the bone for insertion.
V. Push needle tip through the skin until tip rests firmly against the bone. The 5 mm mark from the hub must be visible above the skin for confirmation of adequate needle set length.
VI. Power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further! [Note: Avoid recoil, do NOT pull back on the driver when releasing the trigger.]
VII. Remove the stylet and place in an approved sharps container.
VIII. Stabilize and secure the needle with the dressing included in the packaging.

IX. Verify needle placement.
   A. Needle feels secure.
   B. Attach a syringe filled with at least 5 ml NS
   C. Aspirate bone marrow

X. Inject at least 5-10 ml of NS in an adult or 2-5 cc of NS in a pediatric patient to clear the lumen of the needle and open the intramedullary space.

XI. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.

XII. Re-verify placement prior to each infusion and assess frequently for complications, including extravasation which can lead to compartment syndrome. Following the administration of any intraosseous medications, flush the line with IV fluid.

KANSAS CITY MISSOURI EMS PROTOCOLS

NASOGASTRIC/OROGASTRIC TUBE INSERTION PROCEDURE

Nasogatric/Orogastric intubation is indicated for decompression of a distended stomach caused by aggressive positive-pressure ventilation. It should always be preceded by airway or intubation of the trachea with an endotracheal tube, in order to protect the airway from possible aspiration.

INDICATIONS: Cardiopulmonary arrest with gastric distension compromising ventilation efforts.

CONTRAINDICATIONS:

I. Conscious patient
II. Non-intubated patient
III. The nasogastric tube should not be used in those patients with midface trauma. If the cribriform plate has been fractured, the tube could be placed in the patient's brain.

PRECAUTIONS:

I. Despite careful technique, the Levine tube may become lodged in the trachea. It is imperative that ET and Levine tube placement be monitored continuously.
II. Incorrect NG insertion technique may cause trauma and bleeding from the nasal turbinates. If placed incorrectly, pull back gently on the Levine tube and advance again.
III. The tube may coil up in the posterior pharynx. Visualize the patient's oropharynx. If a coil of the Levine tube is visualized, pull back gently until the tip of the tube is visible in the posterior pharynx, then advance the tube again.
IV. The Levine tube is not to be used for medication or fluid administration.

TECHNIQUE:

I. Nasogastric Route (Adults Only)
    A. Lubricate the tip and the first few inches of a number 16 french Levine tube generously with water-soluble lubricant.
    B. Pass the tube GENTLY along the floor of the nasal passage.
    C. As the tube begins to enter the oropharynx, you will feel a lessening of resistance of the tube. Advance the tip of the tube into the stomach. The appropriate length to insert is approximately equal to the distance between the nose and the umbilicus.
    D. Verify correct placement by connecting an irrigating syringe, pushing 20mL of air into the Levine tube, and auscultating over the stomach for the sound of gurgling.
    E. Connect the Levine tube to portable or on-board suction (low) to provide continuous decompression.
II. Orogastric Route (Children and Adults)
    A. Using a laryngoscope and proper size blade, visualize the trachea and insure the ET tube is properly placed.
    B. Visualize the esophagus immediately posterior to the trachea. Quickly advance the lubricated Levine tube (number 16 french for adults, number 12 french for children) through the mouth into the esophagus.
    C. Advance the tip of the tube into the stomach. The appropriate length to insert is approximately equal to the distance between the mouth and the umbilicus.
    D. Verify correct placement by connecting an irrigating syringe, pushing 20mL of air into the Levine tube, and auscultating over the stomach for the sound of gurgling.
    E. Connect the Levine tube to portable or on-board suction (low) to provide continuous decompression.

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS: N/A

NOTES: N/A

KANSAS CITY MISSOURI EMS PROTOCOLS

NEEDLE THORACOSTOMY PROCEDURE

INDICATIONS:

I. Tension pneumothorax is a clinical diagnosis which should be considered when the following signs/symptoms are present:
   A. Progressing severe respiratory distress
   B. Progressing shock
   C. Decreased or absent breath sounds on the involved side
   D. Jugular venous distension
   E. Tympany to percussion on the involved side
   F. Tracheal deviation away from the involved side

II. 2 of the above signs/symptoms MUST be present or approval from a Medical Control should be obtained prior to performing the procedure.

III. Tension pneumothorax is most common in the patient with:
   A. Chest trauma
   B. The intubated patient with high airway pressures causing rupture of the bronchioles or alveoli

CONTRADICTIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. Locate the second intercostal space in the mid clavicular line on the involved side of the chest.
II. Cleanse with betadine or alcohol as time permits.
III. Insert a large gauge “over the needle” catheter (use 18 gauge if < 2 months age) through the open end of a glove finger tip, puncture, and advance needle to hub of catheter to establish the flutter valve mechanism.
IV. Insert the needle/catheter with attached flutter valve into the chest just over the top of the third rib.
V. As you enter the pleural space air and/or blood will escape.
VI. Advance the catheter and remove the needle.
VII. Secure in place.
VIII. The catheter has a tendency to kink. If reaccumulation of air in the pleural space is occurring, proceed with repeat needle thoracostomy.

COMPLICATIONS:

I. Creation of pneumothorax.
II. Damage to lung or viscera.
III. Bleeding (intercostal vessels are below each rib, therefore always go above the rib).
IV. Infection.

DOCUMENTATION REQUIREMENTS:

I. Indications for procedure
II. Technique used
III. Response to intervention

NOTES: N/A

KANSAS CITY MISSOURI EMS PROTOCOLS **NON-INVASIVE BLOOD PRESSURE MONITORING PROCEDURE**

INDICATIONS:

The Zoll X-Series NIBP option is indicated for the non-invasive measurement of arterial blood pressure for resting patients during treatment and transport. The NIBP option is designed to measure blood pressure for adult and pediatric patients. The unit allows you to take a single blood pressure measurement, or automatic measurements at repeating intervals. The blood pressure information (including the patient's systolic, diastolic, and mean blood pressure values) is shown on the X-Series monitor in the NIBP display area.

CONTRAINDICATIONS:

The Zoll X-Series NIBP option is not indicated for use on neonatal patients or infants whose upper arm circumference is less than 17cm. Never use the X Series to monitor NIBP on one patient while simultaneously monitoring ECG on another.

PRECAUTIONS:

NIBP should not be utilized without first obtaining or confirming the systolic and diastolic blood pressure with a manual sphygmomanometer, and a manual confirmation should be obtained whenever there is a change of 30mmHg or greater.

TECHNIQUE:

To take safe and accurate blood pressure measurements using the X-Series NIBP option, you must perform the following steps:

I. Select the proper size cuff
   A. The NIBP option comes with a cuff that inflates to cut off the patient's blood flow and then deflates slowly to allow the blood flow to resume gradually. To take accurate measurements, you must use the proper sized cuff. Bladder length should be at least 80 percent of the limb circumference, while the cuff width should be equal to 40 percent of the limb circumference. Select the appropriate size cuff for the patient from the following table:

Caution Use only hoses and cuffs that are approved by ZOLL Medical Corporation. Use the following guidelines when selecting the appropriate hose and cuff:

	Adult Mode	**Pediatric Mode**	**Neonate Mode**
Cuffs (typical cuff labeling)	Adult, Large Adult, Small Adult, Child, Thigh	Child, Small Child, Small Adult, Infant, Newborn	Neonate #1 to #5 -- disposable Newborn (#6), Infant (#7) -- reusable
Recommended Limb Circumference	15 cm or greater.	7.7 to 25 cm	15 cm or less

Hoses	Adult	Adult	Neonate/Infant (DisposableCuff only) * Reusable Newborn (#6) and Infant (#7) cuffs use the Adult Hose.

Caution Selection of the correct cuff is critical to the accuracy of NIBP measurements. Using a cuff that is too small results in measurements higher than the patient's actual blood pressure. Using a cuff that is too large results in measurements lower than the patient's actual blood pressure.

The X Series unit uses the same definitions of Neonates, Pediatrics, and Adults as defined in the AAMI SPI0:2002 standard:

Neonate or Newborn	Children 28 days or less of age if born at term (37 weeks gestation or more); otherwise, up to 44 gestational weeks
Pediatric or Child	Individuals between 29 days and 16 years of age
Adult	Individuals greater than 16 years of age

II. Ensure the hose is connected to the X Series unit and to the cuff.
III. Apply the cuff to the patient. Confirm appropriate size with cuff indicator. (Index arrow on cuff falls within range markings on cuff)
IV. Press NIBP soft key on right side of the unit to start NIBP measurement. (The default initial inflation pressure is 180 mmHg.)
V. Note indication that measurement is being obtained in lower left corner of display. Patient must remain still for accurate reading to be obtained.
VI. Read result and note measurement. If systolic blood pressure is greater than 180 mmHg, the cuff will re-inflate and attempt repeated measurement.

COMPLICATIONS:

I. Failure to recognize unstable or deteriorating patient.
II. Delay in treatment or transport waiting for measurement.
III. Injury to limb from cuff over-inflation.

NOTES:

Reference: Zoll X series No n-invasive Blood Pressure Insert, February 2012

KANSAS CITY MISSOURI EMS PROTOCOLS

ORAL ENDOTRACHEAL INTUBATION PROCEDURE

INDICTATIONS:

I. An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
II. Inability to adequately ventilate a patient with a Bag Valve Mask with or without airway adjuncts thus requiring a more advanced airway.

CONTRAINDICATIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. Prepare, position and oxygenate the patient with 100% Oxygen.
II. Select proper laryngoscope, ET tube and stylette, if used. Have suction, Waveform Capnography (EtCO2), and back-up Endotracheal Tube Introducer (Gum Elastic Bougie) ready.
III. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you if needed).
IV. Limit each intubation attempt to no more than 30 seconds with adequate re-oxygenation utilizing a BVM between attempts.
V. Visualize ET tube passing through vocal cords.
VI. Inflate the cuff with 10mL of air.
VII. Confirm and document tube placement using Continuous Waveform Capnography (EtCO2).
VIII. 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.
IX. Secure the tube to the patient.
X. After 3 ventilations, ETCO2 should be >20 or comparable to pre-intubation values. If < 20, check for adequate circulation, equipment, and ventilatory rate. If ETCO2 still < 20 without physiologic explanation, remove the ET Tube and ventilate by BVM.

DOCUMENTATION:

I. Record Waveform Capnography (EtCO2) readings in the vital signs matrix of the epcr.
II. Document ETT size, time, attempts/success, and placement location by the centimeter marks either at the patient's teeth or lips in the epcr.
III. Document positive or negative breath sounds before and after each movement of the patient.

KANSAS CITY MISSOURI EMS PROTOCOLS

PATIENT RESTRAINT

The purpose of this policy is to set forth principles and procedures for the prehospital patient restraint (PPR) of persons at risk for harm to self or others, including emergency medical services personnel.

The safety of EMS personnel is paramount for the consideration, initiation, and application of PPR. Also, the protection of patients from self-harm or harm to others while maintaining patient dignity to the greatest extent possible while utilizing the least restrictive method of restraint appropriate to the situation.

This policy applies to all patients whom have demonstrated violence toward self or others, or there is reason to believe that combative or violent behavior is imminent, through actions or verbalizations by the patient or reasonable layperson bystanders.

INDICATIONS:

I. All patients who are demonstrating physical harm to self or others including, but not limited to, evidence of suicidal or homicidal behavior, by act or verbalization.
II. All patients demonstrating decreased ability to care for self as evidence by, but not limited to, cognitive impairment or suspected intoxication leading to exposure of self or others to potentially limb or life threatening situations.
III. Patient with altered mental status leading to decreased capacity to understand situation and circumstances of their current medical condition resulting in aggressive or combative behavior towards emergency personnel.
IV. Patients in custody of law enforcement or under involuntary detention.

CONTRAINCATIONS: N/A

PRECAUTIONS: N/A

TECHNIQUE:

I. When at all possible, the patient should be approached in a calm, non-threatening and supporting manner. Verbal de-escalation efforts should be attempted unless there is imminent danger to patient or bystanders. If the EMS personnel believe that their personal safety is at risk, law enforcement should be contacted for assistance.
II. When imminent danger to the patient or others is identified, a unified, multiple emergency personnel approach should be made to gain control of the patient. Placement of physical restraints, including approved hood with spit shield, approved soft wrist and ankle restraints should be considered first. Progressive restraint beginning with wrists, then ankles, to immobilization on long spine board should be determined to provide the least amount of restraint necessary to accomplish protection of crew and patient.
III. Hard extremity restraints including handcuffs and shackles should be used only when other methods fail or unusable due to circumstances and efforts to replace with approved restraints made.
IV. If handcuffs or shackles are used, they should only be placed by appropriate law enforcement personnel and when law enforcement will travel with the patient or in immediate vicinity of the ambulance. EMS personnel should always have available, the means to immediately remove restraints.
V. Patients under arrest shall be thoroughly searched by law enforcement prior to being placed into any ambulance. Law enforcement agencies retain the responsibility for safe transport of patients under arrest or involuntary detention.
VI. Patients should be restrained in a supine position and immobilized on a long spine board whenever possible. It is never appropriate to “sandwich” patient between boards, or to “hog-tie” in any fashion a patient for transport by EMS. Any restraint placed should not compromise normal respiratory efforts or circulation.

VII. Vital signs and patient monitoring should be accomplished as soon as possible after placement of appropriate restraints. Potential causes of the behavior, including hypoxemia and hypoglycemia, should be considered and efforts to identify and manage as soon as possible.

VIII. **ONCE PHYSICAL RESTRAINTS ARE IN PLACE, CHEMICAL RESTRAINT SHOULD BE STRONGLY CONSIDERED AND ADMINISTERED IF THE PATIENT CONTINUES TO EXHIBIT BEHAVIOR IN RESTRAINTS THAT COULD HARM SELF OR OTHERS. CHEMICAL RESTRAINT SHOULD ONLY BE UTILITZED WHEN THE PATIENT CAN BE ADEQUATELY AND CONTINUOUSLY MONITORED BY THE PARAMEDIC. REFER TO COMBINED BEHAVIORAL/PSYCHIATRIC DISORDER PROTOCOL**

IX. Once restrained, the patient should be isolated and placed into the ambulance as soon as possible and transported to the closest appropriate facility as per the Determination of Hospital Destination Policy.

X. Physical restraints should be reassessed at a minimum of every ten minutes during transport for the first hour, and every thirty minutes thereafter. The restrained extremities should be assessed for neurovascular function and documented.

XI. Always considered consultation with on-line medical control for questions or assistance in determining the most appropriate restraint method for any situation. Patients with medical conditions that appear to compromise their ability to consent for or decline care may be restrained as necessary and transported without law enforcement authority in situations in which a life-threatening emergency exists or potentially exists. Medical control should be contacted in all instances where patients are transported against their consent unless under arrest or duly exercised involuntary detention.

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Detailed description of scene, situation, and patient behaviors
II. Note assistance by other emergency providers
III. Complete vital signs including pulse oximetry initially and at hospital arrival at a minimum
IV. EKG rhythm analysis
V. Detailed description of patient injuries and any bystander injuries
VI. Description of restraint method(s) and re-examination(s)

KANSAS CITY MISSOURI EMS PROTOCOLS

PULSE OXIMETRY PROCEDURE

The pulse oximeter is a cutaneous monitor used as an adjunct in the assessment of respiratory issues. The device also assists in evaluating improvement or deterioration during treatment. This device is never used to withhold O2 to a patient who needs it. Any patient who would currently receive O2 per system protocol, or who appears to clinically need it, should continue to be given oxygen.

INDICATIONS:

I. The following is a partial list of situations where pulse oximetry may be used:
   A. Only for use in perfusing patient
   B. Respiratory disorders (e.g. Asthma, COPD, respiratory distress, airway obstruction or injury)
   C. Cardiovascular disorders (e.g. CHF, chest pain, dysrhythmia)
   D. Altered mental status (e.g. Coma, Overdose, CVA, Seizures)
   E. Trauma
II. The pulse oximeter must be used prior to and after intubation or assisted ventilation of the perfusing patient
III. The pulse oximeter must be used prior to and after administering sedative agents

CONTRAINDICATIONS:

I. Non-perfusing rhythm

PRECAUTIONS:

I. Pulse oximetry values may be inaccurate in a variety of situations:
   a. Inaccurate readings can be seen with patient movement, the presence of nail polish, vasoconstriction, decreased peripheral perfusion, hypotension, hypothermia, abnormal hemoglobins, hypovolemia, carbon monoxide, poisoning, smoke inhalation, and methemoglobinemia
   b. Prehospital personnel should correlate the SaO2 reading with the clinical status of the patient
II. Sickle cell anemia (readings are generally falsely low secondary to the abnormal hemoglobin molecule)

TECHNIQUE:

I. Check vital signs
II. Turn on the Zoll X-Series monitor
III. Ensure that the pulse oximetry probe cable is connected to the monitor.
IV. Select appropriate site. Avoid placing the probe on areas distal to orthopedic injuries or distal to a blood pressure cuff
V. Place probe on the patient
VI. Read the pulse rate, O2 saturation, and document findings at least every 10 minutes and with any change in therapy or clinical condition
VII. Oxygen will be applied or increased according to the clinical setting. Although normal SaO2 levels are > 95%, SaO2 levels above 90% are generally acceptable in almost any adult patient. Pediatric patients in respiratory distress should be placed on supplemental oxygen regardless of the oxygen saturation reading
   A. For patient's not on home O2 therapy, oxygen should be applied via nasal cannula or mask per system protocol
   B. Patients currently on chronic home O2 therapy should have an initial SaO2 reading done. Oxygen may be increased until SaO2 levels of 90%-92% are obtained.

Reference: Zoll X-Series Pulse Oximetry (SpO2) Insert, February 2012

KANSAS CITY MISSOURI EMS PROTOCOLS

EPINEPHRINE 1:100000 (PUSH DOSE) PROCEDURE

INDICATIONS: For use in the management of bradycardia, hypotension/shock, and post-resuscitation care

CONTRAINDICATIONS: Known hypersensitivity

PRECAUTIONS: In patients taking digitalis, epinephrine may exacerbate ventricular ectopy

TECHNIQUE:

I. Take a 10mL saline flush and eject 1mL of normal saline
II. Into this syringe draw up 1mL of Epinephrine from the 1:10000 preload.
III. This now gives you 100mcg Epinephrine 1:100000 in 10mL syringe, 10mcg/mL

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Time medication given
II. Paramedic giving medication
III. Dose given
IV. Route given

NOTES:

KANSAS CITY MISSOURI EMS PROTOCOLS

RAPID GLUCOSE DETERMINATION PROCEDURE

INDICATIONS:

I. Any suspected alteration in glucose level that might impact patient assessment or treatment. This could include patients with:
   A. Altered Mental Status
   B. Behavioral or Psychiatric Disorders
   C. Hyper or Hypothermia
   D. Ingestions or Overdose
   E. Seizures
   F. Cardiac Arrest

CONTRAINDICATIONS: N/A

PRECAUTIONS: N/A

I. Airway, breathing, and circulation should be assessed and treated in the initial evaluation of every patient and obtaining a rapid bedside glucose determination should not interfere with this evaluation and treatment.
II. If problems arise with the device, obtaining a rapid bedside glucose determination should not delay the administration of glucose, if indicated.

TECHNIQUE: Refer to the manufacturer's instructions for specific directions on the utilization of each model of glucometer in use.

COMPLICATIONS:

I. Pain, infection or bleeding at the site of lancet (or IV) stick.
II. Delay in administration of glucose.

DOCUMENTATION REQUIREMENTS:

I. Include the following (minimum):
   A. The blood glucose level obtained
   B. Complications

NOTES: N/A

KANSAS CITY MISSOURI EMS PROTOCOLS

SPINAL MOTION RESTRICTION PROCEDURE

BACKGROUND: Spinal Motion Restriction utilizes a cervical collar, the cot mattress, and adequately and appropriately securing the patient in order to limit the excessive motion of the spinal column during patient transport. The goal is to minimize secondary injury to spine in patients who have, or may have, an unstable spinal injury, and most importantly, to minimize patient morbidity from the use of immobilization devices.

INDICATIONS:

Spinal Motion Restriction is indicated in trauma patients who sustain a mechanism of injury sufficient to cause a neck or back injury.

I. GCS < 15
II. Evidence of intoxication
III. Painful or distracting injury
IV. Pain during unassisted range of motion
V. Signs of spinal cord injury such as:
    A. Sensory loss
    B. Weakness
    C. Paralysis
    D. Numbness, tingling, or burning
    E. Pain, deformity, or tenderness to the neck or back
VI. Exercise caution for injury and consider c-collar placement:
    A. Patients over 65 years old
    B. Patients under 5 years old
    C. Any patient with a history of osteoporosis, bone disease, or vertebral disease
VII. Patients presenting to KCFD on a LSB from another medical provider may be subject to the SMR Procedure under the Spinal Trauma Protocol

CONTRAINDICATIONS:

I. Some patients, due to size or age, will not be able to be managed through in-line stabilization and standard cervical collars. Never force a patient from a non-neutral position. Manual stabilization or improvised padding may be required during transport
II. Patients with penetrating injury to the neck should not be placed in a cervical collar or other spinal precautions regardless of whether they are exhibiting neurologic symptoms or not. Doing so can lead to delayed identification of injury or airway compromise, and has been associated with increased mortality

PRECAUTIONS:

I. Assess the scene to determine the mechanism of injury
II. Patients may be safely immobilized by being placed supine on gurney with cervical collar and straps and will not generally require a spine board
III. Reserve long spine board use for the movement of patients whose injuries limit ambulation. Remove from the long spine board as soon as is practical
IV. If a patient absolutely needs transport on a spinal board, long boards should be padded
V. These patients (except in cardiac arrest) should NOT be transported to the hospital while still secured to a long spine board. Dangers of transporting a patient on a long spine board include but are not limited to;
    A. Potential airway compromise or aspiration in immobilized patient with nausea/vomiting, or with facial/oral bleeding
    B. Excessively tight immobilization straps can limit chest excursion and cause hypoventilation
    C. Prolonged immobilization on spine board can lead to ischemic pressure injuries to skin

D. Prolonged immobilization on spine board can be very uncomfortable for patient

VI. Children are abdominal breathers, so immobilization straps should go across chest and pelvis and not across the abdomen, when possible

VII. Children have disproportionately larger heads. When securing pediatric patients to a spine board, the board should have a recess for the head, or the body should be elevated approximately 1-2 cm to accommodate the larger head size and avoid neck flexion when immobilized

VIII. In an uncooperative patient, avoid interventions that may promote increased spinal movement

TECHNIQUE:

I. Gather appropriate devices

II. Assess neurological exam and distal pulses pre-procedure

III. While maintaining in-line stabilization in a neutral/middle position, place the patient in an appropriately sized cervical collar (stabilization should not involve traction or tension)

IV. If patient is clinically stable, alert, and without neurological deficits:

A. If currently ambulating, position patient onto the stretcher and place supine

B. If patient is sitting in vehicle or chair and feels able to, they may self-extricate to the stretcher

C. If patient is sitting in vehicle or chair and feels unable to self-extricate, use a long spine board to extricate from vehicle or chair to cot, removing the patient from the long spine board via log-roll after placement on the stretcher.

D. If patient is lying on the ground or other surface, use a long spine board or scoop stretcher to move the patient to the stretcher, removing the patient from the long spine board via log-roll after placement on the stretcher

V. Ensure that the patient is adequately secured to the stretcher, ensuring minimal movement

VI. Preferred position for transport is supine

VII. Manual in-line stabilization must be used during any transfer

VIII. Assess neurological exam and distal pulses post-procedure

IX. All stretcher to stretcher transfers should be accomplished using manual in-line stabilization.

DOCUMENTATION:

I. History and physical exam findings indicating the use of SMR

II. Patient complaint of neck or spine pain

III. Spinal tenderness

IV. Mental status/GCS

V. Neurologic examination

VI. Evidence of intoxication

VII. Documentation of multiple trauma

VIII. Documentation of mechanism of injury

IX. Document patient capacity with: Any and all barriers to patient care

X. Patient age

XI. Patients under age and not emancipated: Guardian name, contact, and relationship

XII. How the patient was moved to the ambulance cot

XIII. Neurologic exam before and after movement and/or intervention

XIV. Removal from spine board

NOTES:

From NASEMSO Model Clinical Guidelines

KANSAS CITY MISSOURI EMS PROTOCOLS

TRANSCUTANEOUS CARDIAC PACING PROCEDURE

INDICATIONS:

I. Signs of poor perfusion in the presence of bradycardia
   A. Altered mental status
   B. Chest Pain
   C. CHF
   D. Shortness of Air
   E. Syncope
   F. Hypotension/Shock

II. Bradycardic/asystolic cardiac arrest
   A. The outcome of prolonged bradycardic/asystolic cardiac arrest is dismal even with pacing. Indiscriminate pacing of this rhythm is unwarranted.
   B. Pacing of bradycardic/asystole of short duration, especially post countershock bradycardic/asystole is more likely to be useful.

CONTRAINDICATIONS: Prophylactic pacing – the pacer electrodes may be placed in the stable bradycardic patient by should not be used unless the patient deteriorates.

PRECAUTIONS: Transcutaneous pacing is not the initial step in treatment of either unstable bradycardia or bradycardic/systolic cardiac arrest. Appropriate BLS and ALS maneuvers, as mandated by protocol, should be carried out first.

TECHNIQUE:

I. Connect ECG electrodes to patient in standard positions (pacer will not operate without ECG monitor intact).
II. Clean & dry chest. Remove excess hair if necessary to obtain electrode to skin contact.
III. Connect pacing electrodes to matching pacing cable.
IV. Peel off protective covering and attach electrodes to patient's chest as described:
   A. Anterior - Posterior (Preferred due to better capture rates and will not interfere with defibrillation.)
      1. Place negative electrode on left anterior chest halfway between the xiphoid process and left nipple, with the upper edge of the electrode below the nipple line.
      2. Place positive electrode on left posterior chest beneath the scapula and lateral to the spine.
   B. Anterior – Anterior
      1. Place negative electrode on left chest mid-axillary over fourth interspace.
      2. Place positive electrode on right chest, sub- clavicular area.
V. Push "pacer" button.
VI. If no intrinsic beats then skip this step. Insure that each QRS complex is being sensed. If not, then adjust the QRS size and change between leads I, II, III to get the best size.
VII. Select pacing rate
   A. Adults and children ≥ 12 years, begin at 70 bpm.
   B. Children ≥ 1 year and < 12 years, begin at 90 bpm.
   C. Infants < 1 year, begin at 100 bpm.
VIII. Activate pacer by pushing pacer button. The pacer will display a drop down menu to permit selection of rate, mA and to initiate and terminate pacing.
IX. Increase current by 10 mA increments until electrical capture occurs. (Note: The pacer

adjusts upwards by 10 mA and downwards by 5 mA.)

X. Determine that mechanical capture has occurred. If so, consider using tape to secure electrodes to the patches to prevent displacement.

XI. To terminate pacing, select STOP from the pacer screen drop down box.

COMPLICATIONS: N/A

DOCUMENTATION REQUIREMENTS:

I. Monitor information uploaded to EPCR.
II. Documentation of indications for and response to pacing (including mechanical capture)

NOTES:

I. Patient discomfort
   A. Pacing may be painful to the awake patient
   B. Consider Midazolam (simple reassurance may also be helpful)
II. Electrical capture
   A. Usually evidenced by wide QRS
   B. In some patients capture is less obvious and only manifested by minor changes in QRS configuration
III. Mechanical capture
   A. Manifested by signs of improving cardiac output (i.e. increased level of consciousness or BP)
   B. Do not confuse skeletal muscle contractions for carotid or femoral pulse
IV. CPR may be safely accomplished during this procedure
V. Defibrillation/cardioversion may be done without removing pacing electrodes. Charging the defibrillator automatically prompts to turn off the pacer. When pacing is restarted, the pacer returns to the last used setting.
VI. To obtain adequate tissue perfusion, rates may need to be higher than the initial setting.
VII. If pacing is not successful, consider further ALS interventions as indicated.
VIII. While pacing, if you initiate the defibrillation sequence by selecting an energy level, a pop-up box will display a selection to stop pacing.
IX. After defibrillation, when reinitiating pacing, the machine returns to the last used settings.

KANSAS CITY MISSOURI EMS PROTOCOLS

ZOLL AUTOPULSE CPR DEVICE

INDICATIONS: Adult patients in medical cardiac arrest

CONTRAINDICATIONS:

I. Do not use in patients under 18 years old.
II. Do not use in traumatic cardiac arrest.
III. Do not use on patients that weigh over 300lbs.
IV. Do not use on pregnant patients.

PRECAUTIONS:

I. **DO NOT DELAY INITIATION OF MANUAL CHEST COMPRESSIONS FOR DEPLOYMENT OF CPR DEVICE.**
II. **IF AN ISSUE DEVELOPS WITH CPR DEVICE, IMMEDIATELY INITIATE MANUAL CHEST COMPRESSIONS.**
III. The AutoPulse Platform is not intended to be the sole means of carrying the patient. The AutoPulse Platform should be secured to the top of a backboard or other equipment used to carry or transport the patient. During transport, regular checks of the patient's alignment should be performed.
IV. Failure to properly position the LifeBand at the patient's armpit line may cause injury to the patient.
    A. Do not place a strap across the LifeBand.
    B. Do not place your hands or any other objects on or under the LifeBand while the AutoPulse is analyzing the patient of during active operation.
V. Do not place or position the patient on the AutoPulse Platform in either a face down orientation or on the patient's side.
    A. Failure to properly position a patient, both vertically and laterally may cause injury.

TECHNIQUE:

I. Remove ALL clothing from torso (both front and back) to ensure skin-to-platform contact.
II. Align armpits onto yellow line on Platform.
III. Do no twist the chest bands
IV. Maintain chest ands at 90 degrees to Platform and free of obstructions
V. Power up AutoPulse
VI. Close chest bands
VII. Press CONTINUE (green button)
VIII. Press START (green button) to begin compressions
IX. To pause or stop operation press STOP (orange button)

DOCUMENTATION REQUIREMENTS:

I. Initiation of manual chest compressions must be documented in the flow chart under the entry "CPR".
II. Time of deployment of CPR device must be documented in the flow chart under the entry "Mechanical CPR".
III. Zoll EKG Monitor must be uploaded to ESO EHR.

NOTES:

- Information from Zoll AutoPulse Resuscitation System Model 100 User Guide and Quick Reference Guide

KANSAS CITY MISSOURI EMS PROTOCOLS

ZOLL Z VENT PROCEDURE

INDICATIONS:

I. CPAP/BiPAP
II. Interfacility transfers of patients with an advanced airway in place (endotracheal tube, supraglottic airway).

CONTRAINDICATIONS:

I. Chest compressions in progress
II. Suspected pneumothorax or tension pneumothorax
III. Patients with elevated pulmonary pressure syndrome (blast lung, diving barotrauma)

PRECAUTIONS:

I. Have BVM at the ready should a problem with the Z VENT arise
II. DOPE mnemonic for trouble shooting any issue:
    A. **D**ISPLACEMENT: check advanced airway device for displacement or dislodgement
    B. **O**BSTRUCTION: check advanced airway device for obstruction such as mucous plug or kink in tubing
    C. **P**NEUMOTHORAX: assess lung sounds
    D. **E**QUIPMENT FAILURE: disconnect patient from Z VENT and ventilated via BVM
III. **PIP SHOULD NEVER EXCEED 40**
IV. **PRESSURE SUPPORT SHOULD NEVER EXCEED 20**

TECHNIQUE:

I. Ensure all ventilator connections are secure
    A. Ventilator circuit connections
        1. Exhalation port
        2. Transducer port
        3. Gas output port
    B. Remaining connections
        1. Oxygen via high-pressure hose
        2. Power cable
II. Verify power source
III. Start the ventilator by turning the Power Switch to ON
IV. Allow the ventilator to perform it's initial Self Check
V. Use default settings or configure ventilator parameters for the patient
VI. Perform Operational Test
VII. Attach the patient to the ventilator circuit to begin ventilation
VIII. Configure alarms for the patient
IX. Monitor SpO2 (maintain SpO2 > 94%)
X. Monitor ETCO2 (maintain ETCO2 35-45mmHg)

SETTINGS:

I. Emergency Calls
    A. Set Z VENT to Default setting for Adult, Pediatric, or CPAP
    B. Adjust as needed to maintain SpO2 >94% and ETCO2 35-45mmHg
    C. **PIP SHOULD NEVER EXCEED 40**
    D. **PRESSURE SUPPORT SHOULD NEVER EXCEED 20**
II. Inter-facility Transfers
    A. Set Z VENT to current settings being utilized by transferring facility
    B. Adjust as needed to maintain SpO2 > 94% and ETO2 35-45mmHg

DOCUMENTATION:

I. Settings used (parameters, mode, BPM, I:E, VT, PEEP, PIP Limit, FiO2)
   A. Any setting changes implemented
   B. Sidestream VS Mainstream ETCO2
II. Trending vital signs (BP, pulse, SpO2, ETCO2)
III. Patient's toleration of mechanical ventilation
IV. Any sedation needed (time, medication, dose, units, route to documented in the flow chart)
V. Patient's response to sedation or setting changes

NOTES:

- Information from Zoll Z VENT Operators Guide and Zoll Z VENT Quick Reference Guide

KANSAS CITY MISSOURI EMS PROTOCOLS

MEDICATION LIST

Medication	Protocol Utilized
Adenosine	Adult Tachycardia; Pediatric Tachycardia
Albuterol	Adult Asthma/COPD; Combined Allergic Reaction (Anaphylaxis); Pediatric Wheezing
Amiodarone	Adult Cardiac Arrest; Adult Tachycardia; Pediatric Cardiac Arrest; Pediatric Tachycardia
Aspirin	Adult Chest Pain/STEMI
Atropine	Adult Bradycardia; Pediatric Bradycardia; Treatment of Nerve Agent and Organophosphate Casualties: Liquid Exposure; Treatment of Nerve Agent and Organophosphate Casualties: Vapor Exposure
Atrovent	Adult Asthma/COPD; Pediatric Wheezing
Calcium Chloride	Adult Cardiac Arrest; Combined Overdose/Poisoning; Entrapment/Crush Injury
Dextrose 10%	Combined Hypoglycemia
Diphenhydramine	Combined Allergic Reaction (Anaphylaxis); Combined Behavioral/Psychiatric Disorder
Epinephrine 1:1000	Adult Asthma/COPD; Combined Allergic Reaction (Anaphylaxis); Pediatric Wheezing
Epinephrine 1:10000	Adult Cardiac Arrest; Neonatal Resuscitation; Pediatric Bradycardia; Pediatric Cardiac Arrest
Epinephrine 1:100000 (Push Dose)	Adult Bradycardia; Combined Hypovolemia/Shock; Combined Post Resuscitation
Fentanyl	Adult Chest Pain/STEMI; Combined Pain Control; Burn; Entrapment/Crush Injury; Extremity Trauma;
Magnesium Sulfate	Adult Cardiac Arrest; Adult Tachycardia; Combined Seizure
Methylprednisolone	Adult Asthma/COPD; Combined Hypotension/Shock; Pediatric Wheezing
Midazolam	Adult Bradycardia; Combined Behavioral/Psychiatric Disorder; combined Post Resuscitation; Combined Seizure
Naloxone	Combined Altered Mental Status; Combined Overdose/Poisoning
Nitro Paste	Adult CHF/Pulmonary Edema
Nitroglycerin	Adult Chest Pain/STEMI; Adult CHF/Pulmonary Edema
Normal Saline/Lactated Ringers	Adult Bradycardia; Adult Chest Pain/STEMI; Combined Allergic Reaction; Combined Hypotension/Shock; Combined Post Resuscitation; Pediatric Bradycardia; Pediatric Wheezing; All Trauma Protocols
Ondansetron	Combined Non-Traumatic Abdominal Pain/Vomiting
Oral Glucose	Combined Hypoglycemia
Oxygen	All Protocols
Sodium Bicarbonate	Adult Cardiac Arrest; Combined Overdose/Poisoning; Entrapment/Crush Injury

KANSAS CITY MISSOURI EMS PROTOCOLS

ADENOSINE (ADENOCARD)

I. PHARMACOLOGY AND ACTIONS:

A. Adenosine is an endogenous nucleoside present in all cells of the body. Cardiac effects of adenosine include: slowing conduction through AV node, and coronary and peripheral vasodilation. The half-life is less than 10 seconds due to cellular uptake and metabolism.

II. INDICATIONS:

A. Regular rhythm narrow complex tachycardia > 150 BPM in adults or > 220 BPM in pediatrics. If the cardiac rate is less than the designated criteria rate, consider other etiologies and contact Medical Control to discuss etiology and treatment.

1. Unstable patient – the standard treatment is emergent cardioversion. Adenosine may be indicated while setting up to sedate and cardiovert the patient.

2. Stable patient – only supportive care is necessary for the asymptomatic patient. Many patients have symptoms and yet are not truly unstable. Adenosine may be indicated in this subset of patients after consultation with Medical Control.

B. Wide complex tachycardia > 150 BPM in which the etiology is uncertain and IV lidocaine trials are ineffective.

III. CONTRAINDICATIONS:

A. Patients with an allergy to adenosine

IV. PRECAUTIONS:

A. May produce transient first, second, or third degree AV blocks or asystole.

B. May cause bronchospasm in asthma patients.

C. Effects are antagonized by methylxanthines (caffeine, theophylline)

D. Effects are potentiated by dipyridamole (Persantine) and carbamazepine (Tegretol).

V. ADMINISTRATION:

A. Establish an IV as close to the core as is practical (e.g. antecubital vein)

B. Administer by rapid IV bolus at injection port closest to the patient and follow by a saline flush.

C. For specific doses, refer to the applicable protocol

D. Only acceptable route of administration is intravenous (IV)

VI. SPECIAL CONSIDERATIONS:

A. Is not effective in

1. Sinus tachycardia

2. Atrial fibrillation

3. Atrial flutter

4. Ventricular tachycardia

B. Frequent, transient side effects include:

1. Facial flushing

2. Dyspnea

3. Chest pressure

4. Nausea

5. Headache

6. Light headedness

VII. PROTOCOLS USED IN:

A. Adult Tachycardia

B. Pediatric Tachycardia

KANSAS CITY MISSOURI EMS PROTOCOLS

ALBUTEROL (PROVENTIL)

I. PHARMACOLOGY AND ACTIONS:

A. Albuterol is a relatively selective Beta-2 agonist which increases intracellular cyclic AMP causing reduced myoplasmic Ca++ and therefore smooth muscle relaxation and bronchodilation. Albuterol also has some Beta-1 agonist activity which can increase myocardial contractility, irritability (arrhythmogenic), and rate.

II. INDICATIONS:

A. Bronchospasm due to any etiology including: asthma, COPD, allergic reactions, and pulmonary infections.

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Do not neglect more basic maneuvers such as O2, appropriate airway control (including intubation), and appropriate ventilation (including BVM).

B. Use with caution (i.e. close monitoring of vital signs, patient condition, and EKG monitor) in patients with coronary artery disease, dysrhythmias, hypertension, prior recent beta adrenergic drug use, monamine oxidase inhibitor use, or tricyclic antidepressant use.

C. Albuterol may lower the serum potassium level.

D. Albuterol may exacerbate congestive heart failure.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. Acceptable routes of administration include nebulizer and metered dose inhaler (MDI).

VI. SPECIAL CONSIDERATION:

A. Tremors, nervousness, nausea, vomiting, and cardiac irritability may be manifest and warrant termination of treatment.

VII. PROTOCOLS USED IN:

A. Adult Asthma/COPD

B. Combined Allergic Reaction

C. Pediatric Wheezing

KANSAS CITY MISSOURI EMS PROTOCOLS

AMIODARONE (CORDARONE)

I. PHARMACOLOGY AND ACTIONS:

A. Amiodarone is a class III antiarrhythmic that blocks the myocardial calcium, potassium, and sodium channels in cardiac tissue. This results in the prolongation of the cardiac action potential and refractory period.

II. INDICATIONS:

A. Cardiac arrest in patient with refractory or recurrent ventricular fibrillation or pulseless ventricular tachycardia

B. Wide complex tachycardia not requiring immediate cardioversion

III. CONTRAINDICATIONS:

A. 2nd or 3rd degree AV block

B. Cardiogenic shock

IV. PRECAUTIONS:

A. Wide complex tachycardia

B. Sympathomimetic toxidromes, i.e., cocaine or amphetamine overdose

C. NOT to be used to treat ventricular escape beats or accelerated idioventricular rhythms

V. ADMINISTRATIONS:

A. For specific doses, refer to the applicable protocol

B. Acceptable routes of administrations include intravenous (IV) and intraosseous (IO)

VI. SPECIAL CONSIDERATIONS:

A. Has been proven to cause hypotension

B. Has been proven to cause bradycardia

VII. PROTOCOLS USED IN:

A. Adult Cardiac Arrest

B. Adult Tachycardia

C. Pediatric Cardiac Arrest

D. Pediatric Tachycardia

KANSAS CITY MISSOURI EMS PROTOCOLS
ASPIRIN (ACETYLSALICYLIC ACID)

I. PHARMACOLOGY AND ACTIONS:

A. Aspirin has been proven to reduce mortality and re-infarction rates in myocardial infarction by altering platelet function and prolonging bleeding time. This is not an anticoagulant and does not effect the clotting cascade.

II. INDICATIONS:

A. Use in patients with chest pain considered to be of cardiac ischemic origin.

III. CONTRAINDICATIONS:

A. Patients with known allergies to aspirin or nonsteroidal anti-inflammatory drugs (NSAID). (e.g. ibuprofen, ketoprofen, Naprosyn, or Relafen).

IV. PRECAUTIONS: N/A

V. ADMINISTRATION:

A. For specific doses refer to the applicable protocol.

B. Route of administration is oral (PO); chewed or swallowed.

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

A. Adult Chest Pain/STEMI

KANSAS CITY MISSOURI EMS PROTOCOLS

ATROPINE SULFATE

I. PHARMACOLOGY AND ACTIONS:

A. Atropine is a vagolytic and therefore increases heart rate and electrical conduction within the heart.

II. INDICATIONS:

A. Used in cardiac resuscitation of symptomatic bradycardia.

B. Used in the treatment of organophosphate and nerve agent poisoning.

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Atropine may induce tachycardia; therefore, it should be used with caution in patients with coronary artery disease or ongoing myocardial ischemia.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. Acceptable routes of administration include intravenous (IV), intraosseous (IO), and endotracheal (ET).

VI. SPECIAL CONSIDERATIONS:

A. Ventricular fibrillation has occurred after IV administration of atropine.

B. Excessive doses of atropine may cause delirium, ataxia, blurred vision, tachycardia, or coma.

VII. PROTOCOLS USED IN:

A. Adult Bradycardia

B. Pediatric Bradycardia

C. Treatment of Nerve Agent and Organophosphate Casualties: Liquid Exposure

D. Treatment of Nerve Agent and Organophosphate Casualties: Vapor Exposure

ATROVENT (IPRATROPRIUM BROMIDE)

I. PHARMACOLOGY AND ACTIONS:

A. Atrovent is chemically related to atropine, but has minimal systemic absorption in the inhaled form. Atrovent causes bronchodilation without the anticholinergic side effects of atropine.

II. INDICATIONS:

A. Bronchospasm in patients with emphysema or chronic bronchitis.

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Do not neglect more basic maneuvers such as oxygen, airway control, and proper ventilation.

B. Generally considered safe but is controversial in patients with asthma.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. Acceptable routes of administration include nebulizer only.

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

A. Adult COPD/Asthma

B. Pediatric Wheezing

KANSAS CITY MISSOURI EMS PROTOCOLS

CALCIUM CHLORIDE

I. PHARMACOLOGY AND ACTIONS:

- **A.** Calcium increases myocardial contractile function.
- **B.** Calcium has a myocardial cellular membrane stabilizing effect with hyperkalemia.

II. INDICTIONS:

- **A.** Known or suspected hyperkalemia
- **B.** Known or suspected hypocalcemia
- **C.** As an antidote for toxicity from calcium channel blocker overdose

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

- **A.** Use with caution in patients receiving digitalis (digoxin) because of the increased ventricular irritability associated with digitalis toxicity.
- **B.** Calcium chloride will precipitate when mixed with sodium bicarbonate.
- **C.** Extravasation of calcium chloride can result in tissue necrosis.
- **D.** Calcium chloride is not routinely used as a first line cardiac arrest drug.

V. ADMINISTRATION:

- **A.** For specific doses, refer to the applicable protocol.
- **B.** Acceptable routes of administration include intravenous (IV), and intraosseous (IO).

VI. SPECIAL CONSIDERATIONS:

- **A.** Calcium chloride may be useful in the treatment of calcium channel blocker overdoses.

VII. PROTOCOLS USED IN:

- **A.** Adult Cardiac Arrest
- **B.** Combined Overdose/Poisoning
- **C.** Entrapment/Crush

DEXTROSE

I. PHARMACOLOGY AND ACTIONS:

A. Glucose is the major metabolic substrate for energy metabolism. Although all tissues need glucose, the brain is particularly sensitive to low glucose levels. Glucose specifically reverse hypoglycemia

II. INDICATION:

A. Confirmed hypoglycemia with a rapid bedside glucose test

B. Suspected hypoglycemia as manifested by altered mental status (including apparent drug or alcohol use, seizure or postictal state) or coma

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Extravasation of glucose will cause skin necrosis. The IV should be secure and the free return of blood should be checked once or twice during administration. If extravasation does occur, immediately stop administration. Notify the ED staff upon arrival of possible glucose extravasation.

B. High glucose levels have been associated with worsened neurologic outcomes of patients with stroke, cardiac arrest, and low perfusion states. When these exist, it is preferable to only administer glucose after hypoglycemia has been documented by a rapid bedside glucose test.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol

B. Acceptable routes of administration include intravenous (IV) and intraosseous (IO)

VI. SPECIAL CONSIDERATIONS:

A. Consider oral glucose if mental status permits it use

B. One bolus should raise the blood sugar by 100-200%

VII. **PROTOCOLS USED IN:**

A. Combined Hypoglycemia

DIPHENHYDRAMINE

I. PHARMACOLOGY AND ACTIONS:

A. Diphenhydramine is an antihistamine which competitively blocks H-1 histamine receptors. Histamine can cause bronchoconstriction, vasodilation and capillary leak. It also has some anticholinergic (atropine like) effects as well as direct CNS depressant effects.

II. INDICATIONS:

A. Anaphylaxis

1. Mild anaphylaxis

2. Anaphylaxis with respiratory distress

3. Anaphylactic shock

B. Dystonic reaction

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. In anaphylaxis, oxygen, epinephrine, fluids, and albuterol should be utilized prior to administration of diphenhydramine.

B. Diphenhydramine causes sedation.

C. Due to anticholinergic effects, use with caution in patients with glaucoma, prostatism, or peptic ulcer disease.

D. Hypotension or hypertension may occur after IV use.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol

B. Acceptable routes of administration include intravenous (IV), intraosseous (IO), and intramuscular (IM).

VI. SPECIAL CONSIDERATION: N/A

VII. PROTOCOLS USED IN:

A. Combined Allergic Reaction

B. Combined Behavioral/Psychiatric Disorder

KANSAS CITY MISSOURI EMS PROTOCOLS

EPINEPHRINE

I. PHARMACOLOGY AND ACTIONS:

A. Epinephrine is a natural catecholamine that acts to stimulate sympathetic (i.e. fight or flight) activity. Accordingly this exhibits an increase in blood pressure, coronary blood flow, cardiac electrical activity, heart rate, strength of contraction and broncho-dilatation. Epinephrine also make ventricular fibrillation more susceptible to defibrillation.

II. INDICATIONS:

A. Used in cardiac arrest protocol for ventricular fibrillation, pulseless ventricular activity, asystole, bradycardia, and pulseless electrical activity.

B. Used to treat severe bronchospasm or laryngospasm as seen in asthma and anaphylaxis

C. Used to treat unremitting hypotension after appropriate fluid resuscitation in post-cardiac arrest, cardiogenic shock, or other medical etiology

D. Used in bradycardia if poor perfusion persists secondary to transcutaneous pacing and appropriate fluid resuscitation

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Epinephrine should be used with caution in patients with suspected myocardial ischemia, history of coronary artery disease, or age greater than 50.

B. In patients greater than 50 years of age, the role epinephrine in asthma is controversial.

C. In patients taking digitalis, epinephrine may exacerbate ventricular ectopy.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. Acceptable routes of administration include intravenous (IV), intramuscular (IM) at lateral thigh, intraosseous (IO), and endotracheal (ET).

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

A. EPINEPHRINE 1:1000

1. Adult Asthma/COPD
2. Combined Allergic Reaction
3. Pediatric Wheezing

B. EPINEPHRINE 1:10000

1. Adult Cardiac Arrest
2. Neonatal Resuscitation
3. Pediatric Bradycardia
4. Pediatric Cardiac Arrest

C. EPINEPHRINE 1:100000 (PUSH DOSE)

1. Adult Bradycardia
2. Combined Hypotension/Shock
3. Combined Post Resuscitation

KANSAS CITY MISSOURI EMS PROTOCOLS

FENTANYL CITRATE

I. PHARMACOLOGY AND ACTIONS:

- **A.** Acts as an opiate agonist
- **B.** Alters the patient's perception of pain and acts as an analgesic by stimulating opiate receptor sites

II. INDICATIONS:

- **A.** The relief of moderate to severe acute pain
- **B.** As an analgesic in patients with ischemic chest pain
- **C.** Sedation after advanced airway placement

III. CONTRAINDICATIONS:

- **A.** Trauma
  - **1.** Head injury
  - **2.** Paralysis or new neurologic finding
  - **3.** Burns involving the airway or causing respiratory compromise
  - **4.** Facial trauma involving the airway or causing respiratory compromise
- **B.** Medical
  - **1.** Respiratory distress or compromise (Asthma or COPD)
  - **2.** New cardiac dysrhythmia is present
  - **3.** Altered mental status
  - **4.** Third trimester pregnancy
- **C.** Drugs
  - **1.** Drug/alcohol intoxication
  - **2.** Sensitivity/allergy to opiates/fentanyl
- **D.** Hypotension or suspected shock (SBP < 100mmHg)
- **E.** Pulse rate < 60 bpm

IV. PRECAUTIONS:

- **A.** This drug causes decreased respiratory drive, and as such should only be given while monitoring pulse oximetry and closely monitoring respiratory status.
- **B.** Overdose and side effects can be countered by the administration of naloxone
- **C.** This drug may cause hypotension and direct myocardial depression.
- **D.** Cardiac monitoring accompanied by frequent blood pressure checks are mandatory.
- **E.** Sidestream ETCO2 monitoring is mandatory
- **F.** Other precautions as listed in other applicable protocols

V. ADMINISTRATION:

- **A.** For specific doses, refer to applicable protocol
- **B.** May be administered intravenous (IV), intraosseous (IO), intramuscular (IM), or intranasal (IN)

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

- **A.** Adult Chest Pain/STEMI
- **B.** Combined Pain Control
- **C.** Combined Sedation

KANSAS CITY MISSOURI EMS PROTOCOLS

GLUCAGON

I. PHARMACOLOGY AND ACTIONS:

A. Glucagon is a hormone secreted by the pancreas. Administration raises blood glucose levels by causing the breakdown of hepatic glycogen stores into glucose. Glucagon also decreases gut motility. Exogenous administration can also stimulate catecholamine release.

II. INDICATIONS:

A. Symptomatic hypoglycemia, confirmed with a rapid bedside glucose test, when IV access is unobtainable. IV access unobtainable means the paramedic is unable to start an IV in less than or equal to 3 attempts or if the paramedic judges IV attempts to be unlikely successful due to anatomic or other considerations. (i.e. history of difficult access, morbid obesity, etc.)

III. CONTRAINDICATIONS:

A. Known hypersensitivity to glucagon

B. Known adrenal gland tumor such as pheochromocytoma (due to extreme hypertension from possible catecholamine release).

IV. PRECAUTIONS:

A. Glucagon is only effective if there are sufficient stores of glycogen within the liver.

B. Supplemental glucose should be given to prevent secondary hypoglycemia as soon as the patient is conscious and able to tolerate oral administration.

C. Although side effects are rare, glucagon can cause nausea and vomiting.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. The acceptable routes of administration are intramuscular (IM), intranasal (IN), or subcutaneous (SQ).

VI. SPECIAL CONSIDERATIONS:

A. Consider oral glucose if mental status permits its use. Return to consciousness following the administration of glucagon usually takes from 5 to 20 minutes.

VII. PROTOCOLS USED IN:

A. Combined Hypoglycemia

B. Combined Overdose/Poisoning

KANSAS CITY MISSOURI EMS PROTOCOLS

Hydroxocobalamin (Cyanokit)

I. PHARMACOLOGY AND ACTIONS:

A. Cyanide is an extremely toxic poison. In the absence of rapid and adequate treatment, exposure to a high dose of cyanide can result in death within minutes due to the inhibition of cytochrome oxidase resulting in arrest of cellular respiration.

B. Hydroxocobalamin directly binds to cyanide forming a natural form of vitamin B12, cyanocobalamin, which is then excreted in the urine.

II. INDICATIONS:

A. Known or suspected cyanide poisoning.

B. Cyanide should be suspected in occupational or other smoke exposures (e.g., firefighting, industrial accidents, chemical warfare).

III. CONTRAINDICATIONS:

A. Known hypersensitivity to Hydroxocobalamin.

IV. PRECAUTIONS:

A. Most common adverse reactions include transient chromaturia, erythema, rash, increased blood pressure, nausea, headache, and injection site reactions.

V. ADMINISTRATION:

A. Acceptable route of administration is Intravenous (IV)

B. CYANOKIT requires a separate intravenous line for administration.

C. For specific dosing, refer to appropriate protocol.

VI. SPECIAL CONSIDERATIONS:

A. CYANOKIT administration for cyanide poisoning may be lifesaving for the pregnant woman and fetus. Treatment should not be withheld due to pregnancy.

VII. PROTOCOLS USED IN:

A. Combined Cyanide Poisoning

KANSAS CITY MISSOURI EMS PROTOCOLS

MAGNESIUM SULFATE

I. PHARMACOLOGY AND ACTIONS:

A. Magnesium sulfate reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction. In cardiac patients, it stabilizes the potassium pump, correcting repolarization. It also shortens the Q-T interval in the presence of ventricular arrhythmias due to drug toxicity or electrolyte imbalance. In respiratory patients, it may act as a bronchodilator in acute bronchospasm due to asthma or other bronchospastic disease.

II. INDICATIONS:

A. Torsade de pointes associated with prolonged QT interval

B. Actively seizing patient in 3rd trimester pregnancy or 1 month post-partum if no known seizure history

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Known to cause bradycardia

B. Known to cause hypotension

C. Known to cause respiratory depression

V. ADMINISTRATION:

A. For specific dose, refer to the applicable protocol

B. Acceptable routes of administration include intravenous (IV), and intraosseous (IO)

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

A. Adult Cardiac Arrest

B. Adult Tachycardia

C. Combined Seizure

KANSAS CITY MISSOURI EMS PROTOCOLS

METHYLPREDNISOLONE (SOLU-MEDROL)

I. PHARMACOLOGY AND ACTIONS:

- **A.** Methylprednisolone is a synthetic steroid that suppresses acute and chronic inflammation.
- **B.** Potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity

II. INDICATIONS:

- **A.** Severe asthma
- **B.** COPD
- **C.** Suspected Addisonian crisis (cardiovascular collapse in patient at risk for adrenal insufficiency)

III. CONTRAINDICATIONS:

- **A.** Evidence of active GI bleed

IV. PRECAUTIONS:

- **A.** Most adverse reactions are a result of long-term therapy and include gastrointestinal bleeding, hypertension, and hyperglycemia

V. ADMINISTRATION:

- **A.** For specific doses, refer to the applicable protocol
- **B.** Only acceptable routes of administration include intravenous (IV), and intraosseous (IO)

VI. SPECIAL CONSIDERATIONS:

- **A.** Must be reconstituted and used immediately
- **B.** The effect of methylprednisolone is generally delayed for several hours
- **C.** Methylprednisolone is not considered a first line drug. Be sure to attend to the patient's primary treatment priorities (i.e. airway, ventilation, beta-agonist nebulization) first.
- **D.** If primary treatment priorities have been completed and there is time while in route to hospital, then methylprednisolone can be administered.
- **E.** Don not delay transport to administer this drug

VII. PROTOCOLS USED IN:

- **A.** Adult Asthma/COPD
- **B.** Combined Hypotension/Shock
- **C.** Pediatric Wheezing

KANSAS CITY MISSOURI EMS PROTOCOLS

MIDAZOLAM HYDROCHLORIDE (VERSED)

I. PHARMACOLOGY AND ACTIONS:

- **A.** Midazolam is a water soluble, short acting sedative with muscle relaxing and amnesic properties similar to diazepam (Valium).
- **B.** Its relatively short duration of actin makes it the drug of choice for sedation when prolonged effects are not needed or wanted.
- **C.** Midazolam given intranasally (IN) has been shown to be safe and effective for the management of acute seizures in pediatric patients.

II. INDICATIONS:

- **A.** Intranasal administration in seizure patients without IV established.
- **B.** Sedation and amnesia prior to performing synchronized cardioversion / cardiac pacing
- **C.** Chemical restraint
- **D.** Sedation after advanced airway placement

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

- **A.** Respiratory depression and/or hypotension are potential complications.
- **B.** The patient's respiratory status should be monitored closely when using midazolam.
- **C.** Pulse oximetry is mandatory to monitor the patient's oxygen saturation.
- **D.** Cardiac monitoring accompanied by frequent blood pressure checks are mandatory.
- **E.** Sidestream ETCO2 monitoring is mandatory.

V. ADMINISTRATION:

- **A.** For specific doses, refer to the applicable protocol.
- **B.** May be administered intravenous (IV), intraosseous (IO), intramuscular (IM), or intranasal (IN) .

VI. SPECIAL CONSIDERATIONS:

- **A.** Airway support equipment and IV fluids must be readied for use prior to the administration of midazolam (with exception of pediatric seizures) in the event that blood pressure and ventilator support are required.

VII. PROTOCOLS USED IN:

- **A.** Adult General Airway
- **B.** Adult Bradycardia
- **C.** Adult Tachycardia
- **D.** Combined Behavioral/Psychiatric Disorder
- **E.** Combined Post Resuscitation
- **F.** Combined Sedation
- **G.** Combined Seizure

NALOXONE HYDROCHLORIDE (NARCAN)

I. PHARMACOLOGY AND ACTIONS:

A. Naloxone is a narcotic antagonist which blocks narcotic effects by occupying, without activating, narcotic receptor sites. The duration of action is 20 to 60 minutes

II. INDICATION:

A. Used for the reversal of narcotic effects, especially respiratory depression, due to overdose of narcotic drugs by any route

B. Used diagnostically in coma of unknown origin etiology to rule out (or reverse) narcotic depression

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Airway and ventilation always take priority over an IV and Naloxone

B. In appropriate clinical situations (i.e. a known or suspected narcotics abuser) it may be advisable to restrain the patient prior to administering Naloxone

C. In patients who are physically dependent on narcotics, withdrawal symptoms may be precipitated

V. ADMINISTRATION:

A. For specific doses refer to the applicable protocol

B. Acceptable routes of administration include: intravenous (IV), intraosseous (IO), endotracheal (ET), intramuscular (IM), or intranasal (IN)

VI. SPECIAL CONSIDERATIONS:

A. The duration of action of Naloxone is shorter than many narcotics and so the patient must be monitored closely for return of CNS or respiratory depression.

B. Very large doses may be needed to reverse some narcotics (i.e. propoxyphene – Darvon; pentazocine – Talwin)

VII. PROTOCOLS USED IN:

A. Combined Altered Mental Status

B. Combined Overdose/Poisoning

KANSAS CITY MISSOURI EMS PROTOCOLS

NITROGLYCERIN

I. PHARMACOLOGY AND ACTIONS:

A. Nitroglycerin functions to dilate smooth muscle within arteries and veins. Consequently, this decreases the work of the heart, increases blood supply to cardiac tissue, and lowers blood pressure.

II. INDICATIONS:

A. Used to treat chest pain of cardiac origin

B. Used to treat congestive heart failure with pulmonary edema

III. CONTRAINDICTIONS:

A. Erectile Dysfunction medications have been shown to potentiate the hypotensive effects of nitrates.

B. The administration of organic nitrate within 36 hours of taking Erectile Dysfunction medications is contraindicated.

C. Presence of Inferior STEMI on 12 Lead ECG

1. Unless Hypertensive Emergency with DBP > 130mmHg and presence of chest pain or CHF

IV. PRECAUTIONS:

A. Because of nitroglycerin's tendency to lower blood pressure, it should be given with caution. Vital signs are to be monitored.

B. Patients should expect a headache after taking nitroglycerin.

V. ADMINISTRATION:

A. For specific doses, refer to the applicable protocol.

B. Acceptable routes of administration include sublingual (SL) for tablets, and transdermal (TD) for 2% ointment.

VI. SPECIAL CONSIDERATION:

A. Patients being treated with nitroglycerin should be on a monitor and have an IV in place.

B. Sublingual nitroglycerin should produce a "fizzing" effect when placed under the tongue. If the "fizzing" is not present, the nitroglycerin may not be effective.

VII. PROTOCOLS USED IN:

A. Adult Chest Pain/STEMI

B. Adult CHF/Pulmonary Edema

ONDANSETRON HYDROCHLORIDE (ZOFRAN)

I. PHARMACOLOGY AND ACTIONS:

- **A.** Ondansetron blocks the actions of chemicals in the body that can trigger nausea and vomiting
- **B.** Ondansetron is used to prevent nausea and vomiting

II. INDICATIONS:

- **A.** The relief of nausea/vomiting

III. CONTRAINDICATIONS:

- **A.** Allergy to ondansetron (Zofran), or to similar medicines such as dolasetron (Anzemet), granisetron (Kytril), or palonosetron (Aloxi)
- **B.** Severe liver disease
- **C.** Prolonged QT syndrome
- **D.** Cardiac dysrhythmias

IV. PRECAUTIONS:

- **A.** This drug causes decreased level of consciousness
- **B.** This drug may prolong QT interval and result in cardiac dysrhythmias

V. ADMINISTRATION:

- **A.** For specific doses, refer to applicable protocol
- **B.** May be administered intravenous (IV), or oral (PO)

VI. SPECIAL CONSIDERATIONS: N/A

VII. PROTOCOLS USED IN:

- **A.** Combined Non-Traumatic Abdominal Pain/Vomiting

OXYGEN

I. PHARMACOLOGY AND ACTIONS:

A. Oxygen is necessary for normal cellular energy production. Tissue hypoxia leads to cellular damage and death. Supplemental oxygen should raise blood oxygen levels and should improve tissue hypoxia.

B. In normal individuals, breathing is regulated by changes in blood carbon dioxide levels. There must be a large decrease in blood oxygen to stimulate breathing.

II. INDICATION:

A. Suspected hypoxemia or respiratory distress of any kind

B. Acute chest pain

C. Shock

D. Major trauma

E. All acutely ill patients

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

A. Supplemental oxygen does nothing for ventilation. Insure adequate ventilation.

B. A small percentage of patients with COPD breathe because they are hypoxic. Supplemental oxygen may depress ventilation in these patients. Therefore, the COPD patient should generally be given low doses of oxygen. However, adequate oxygen therapy should not be withheld due to this concern. Hypoventilations can be avoided by coaching the patient or actively ventilating with BVM or per iGel or ET tube.

C. Whenever practical, humidified oxygen should be provided (e.g. asthmatics and infants). Non-humidified oxygen promotes heat loss via the airway, thickens secretions, and is drying to the mucous membranes

V. ADMINISTRATION:

A. For specific flow rates and routes, refer to the applicable protocol

B. Acceptable routes of administration include nasal cannula, mask, bag-valve device, and nebulization devices

C. Titration of Oxygen to improve SpO2 to 94% or better.

VI. SPECIAL CONSIDERATIONS:

A. Restlessness may be a sign of hypoxia

B. Oxygen toxicity is not a concern in the field

C. Some patients tolerate one modality (i.e. mask or nasal cannula) better than another. Use your best judgement

D. Nasal cannulas also work on “mouth breathers”

VII. **PROTOCOLS USED IN:**

A. Consider for use in all protocols.

KANSAS CITY MISSOURI EMS PROTOCOLS

SODIUM BICARBONATE

I. PHARMACOLOGY AND ACTIONS:

- **A.** Sodium bicarbonate serves as a buffer for acidosis.
- **B.** $H^+ + HCO_3^- = H_2CO_3 + CO_2$

II. INDICATIONS:

- **A.** Known or suspected hyperkalemia
- **B.** Known or suspected tricyclic antidepressant overdose
- **C.** Considered during CPR only after adequate ventilation and chest compressions are insured. The patient should be intubated and there should exist a continued cardiac arrest interval during which defibrillations, epinephrine, and lidocaine have been utilized.

III. CONTRAINDICATIONS: N/A

IV. PRECAUTIONS:

- **A.** Administration of sodium bicarbonate rapidly generates carbon dioxide which can result in tissue and cerebrospinal fluid acidosis.
- **B.** Sodium bicarbonate is not recommended for routine use in cardiac arrest patients.

V. ADMINISTRATION:

- **A.** For specific doses, refer to the applicable protocol.
- **B.** Acceptable routes of administration include intravenous (IV), and intraosseous (IO).

VI. SPECIAL CONSIDERATIONS:

- **A.** Sodium bicarbonate may be useful in the treatment of tricyclic antidepressant overdose.
- **B.** Adequate ventilation is a major buffering agent and is essential prior to the administration of sodium bicarbonate.

VII. PROTOCOLS USED IN:

- **A.** Adult Cardiac Arrest
- **B.** Combined Overdose/Poisoning
- **C.** Entrapment/Crush Injury

KANSAS CITY MISSOURI EMS PROTOCOLS

12 LEAD ECG INTERPRETATION MAP

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

SITE	FACING	RECIPROCAL
SEPTAL	V1, V2	NONE
ANTERIOR	V3, V4	NONE
ANTEROSEPTAL	V1, V2, V3, V4	NONE
LATERAL	I, aVL, V5, V6	II, III, aVF
ANTEROLATERAL	I, aVL, V3, V4, V5, V6	II, III, aVF
INFERIOR	II, III, aVF	I, aVL
POSTERIOR	NONE	V1, V2, V3, V4

APGAR SCORE

THE APGAR SCORE

MNEMONIC	0 POINTS	1 POINTS	2 POINTS
Appearance	blue or pale	blue extremities pink body	body and extremities pink, no cyanosis
Pulse	absent	< 100 beats per minute	>100 beats per minute
Grimace	no response to stimulation, floppy	grimace on suction or aggressive stimulation	cry on stimulation
Activity	none	some flexion of arms and legs	active flexion against resistance
Respirations	absent	weak, irregular and slow	strong crying

Copyright © CodeHealth Inc. Graphic by Medzcool LLC

CINCINNATI PREHOSPITAL STROKE SCALE



Arm Drift

The patient closes eyes and extends both arms straight out, with palms up for 10 seconds

- Normal – both arms move the same or both arms do not move at all (other findings, such as pronator drift, may be helpful)
- **Abnormal – one arm does not move or one arm drifts downward**

Facial Droop

The patient shows teeth or smile

- Normal – both sides of the face move equally
- **Abnormal – one side of the face does not move as well as the other side**



Abnormal Speech

The patient repeats "you can't teach an old dog new tricks"

- Normal – patient uses correct words with no slurring
- **Abnormal – patient slurs words, uses the wrong words, or is unable to speak**

GLASGOW COMA SCALE

ADULT GLASGOW COMA SCALE	
Eye Opening Response	
• Spontaneous – open with blinking at baseline	4
• To verbal stimuli, command, speech	3
• To pain only (not applied to face)	2
• No response	1
Verbal Response	
• Oriented	5
• Confused conversation, but able to answer questions	4
• Inappropriate words	3
• Incomprehensible speech	2
• No response	1
Motor Response	
• Obeys commands for movement	6
• Purposeful movement to painful stimulus	5
• Withdraws in response to pain	4
• Flexion: decorticate posturing	3
• Extension: decerebrate posturing	2
• No response	1
Total	

PEDIATRIC GLASGOW COMA SCALE (PGCS)				
	> 1 Year		**< 1 Year**	**Score**
EYE OPENING	Spontaneously		Spontaneously	4
	To verbal command		To shout	3
	To pain		To pain	2
	No response		No response	1
MOTOR RESPONSE	Obeys		Spontaneous	6
	Localizes pain		Localizes pain	5
	Flexion-withdrawal		Flexion-withdrawal	4
	Flexion-abnormal (decorticate rigidity)		Flexion-abnormal (decorticate rigidity)	3
	Extension (decerebrate rigidity)		Extension (decerebrate rigidity)	2
	No response		No response	1
	> 5 Years	**2-5 Years**	**0-23 months**	
VERBAL RESPONSE	Oriented	Appropriate words/phrases	Smiles/coos appropriately	5
	Disoriented/confused	Inappropriate words	Cries and is consolable	4
	Inappropriate words	Persistent cries and screams	Persistent inappropriate crying and/or screaming	3
	Incomprehensible sounds	Grunts	Grunts, agitated, and restless	2
	No response	No response	No response	1
TOTAL PEDIATRIC GLASGOW COMA SCORE (3-15):				

PEDIATRIC VITAL SIGN RANGES BY AGE

General Vital Signs and Guidelines

Age	Heart Rate (beats/min)	Blood Pressure (mmHg)	Respiratory Rate (breaths/min)
Premature	110-170	SBP 55-75 DBP 35-45	40-70
0-3 months	110-160	SBP 65-85 DBP 45-55	35-55
3-6 months	110-160	SBP 70-90 DBP 50-65	30-45
6-12 months	90-160	SBP 80-100 DBP 55-65	22-38
1-3 years	80-150	SBP 90-105 DBP 55-70	22-30
3-6 years	70-120	SBP 95-110 DBP 60-75	20-24
6-12 years	60-110	SBP 100-120 DBP 60-75	16-22
> 12 years	60-100	SBP 110-135 DBP 65-85	12-20

EPINEPHRINE 1:100000 (PUSH DOSE)

PUSH DOSE PRESSORS

from the EMCrit Podcast (blog.emcrit.org) and EM:RAP

EPINEPHRINE

Has alpha and beta1/2 effects so it is an inopressor
Do not give cardiac arrest doses (1 mg) to patients with a pulse

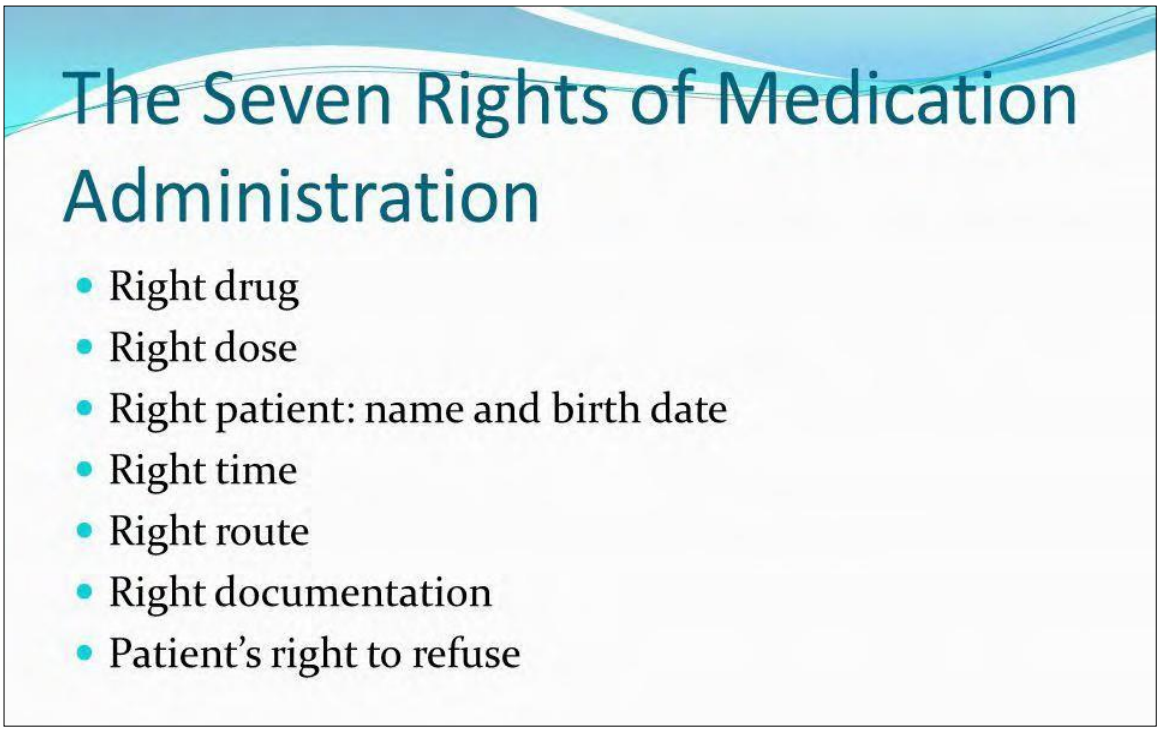
Mixing Instructions:

- Take a 10 ml syringe with 9 ml of normal saline
- Into this syringe, draw up 1 ml of epinephrine from the cardiac amp (Cardiac amp contains Epinephrine 100 mcg/ml)
- Now you have 10 mls of Epinephrine 10 mcg/ml



Onset-1 minute
Duration-5-10 minutes
Dose-0.5-2 ml every 2-5 minutes (5-20 mcg)

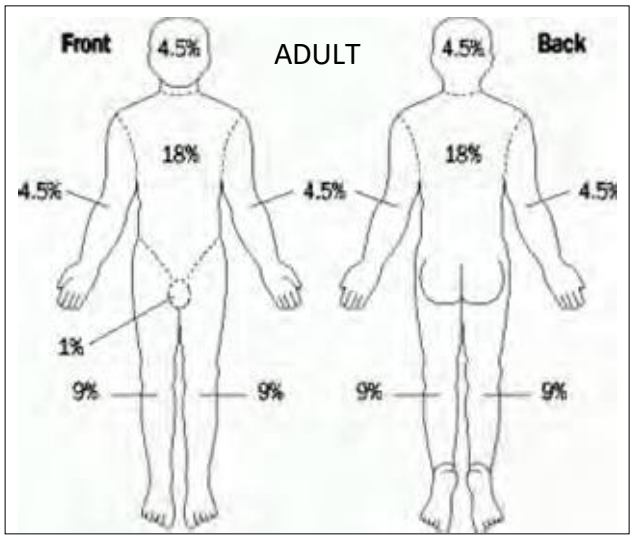
RIGHTS OF MEDICATION ADMINISTRATION

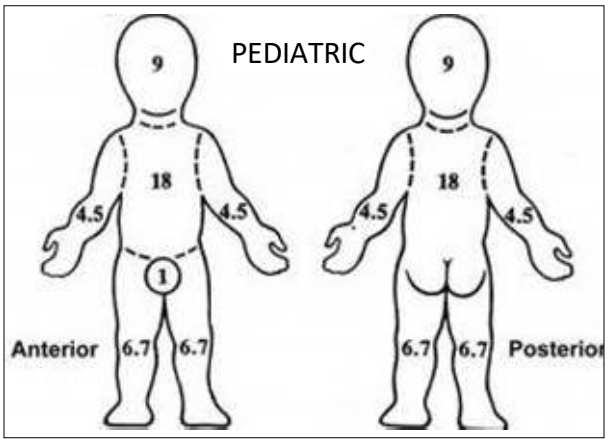


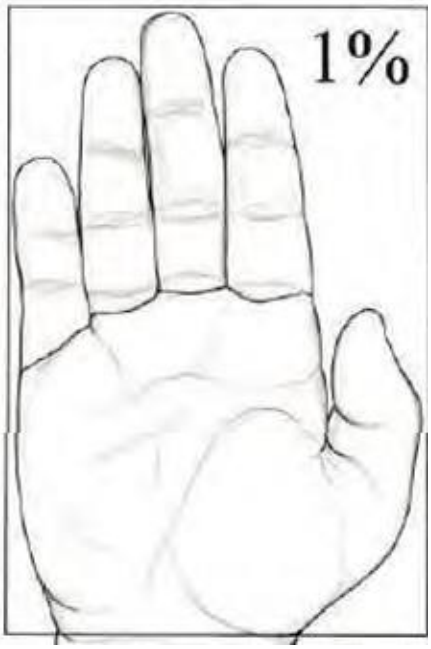
TCD DESTINATIONS

TRAUMA CENTERS	STEMI CENTERS	STROKE CENTERS		BURN CENTERS	LVAD DESTINATIONS
		Primary	Comprehensive		
Liberty Hospital	Centerpoint	Belton Regional Medical Center	KU Medical Center	Children's Mercy Hospital	KU Medical Center
North Kansas City Hospital	KU Medical Center	Centerpoint	Research Medical Cetner	KU Medical Center	St Lukes Plaza
Truman Medical Center Hospital Hill	Lee's Summit Medical Center	Lee's Summit Medical Center	St Lukes Plaza	Research Medical Center	
Children's Mercy Hospital - Adele Hall Campus (Downtown)	Liberty Hospital	Liberty Hospital			
St Lukes Plaza	Menorah Medical Center	North Kansas City Hospital			
KU Medical Center	North Kansas City Hospital	St Joseph Medical Center			
Research Medical Center	Olathe Medical Center	St Lukes East			
Overland Park Regional Medical Center	Overland Park Regional	St Lukes North			
Centerpoint Medical Center	Providence Medical Center	St Mary's Blue Springs			
	Research Medical Center				
	Shawnee Mission Medical Center				
	St Joseph Medical Center				
	St Lukes East				
	St Lukes Plaza				
	St Lukes North				
	St Lukes South				
	St Mary's Blue Springs				
	Truman Medical Center Hospital Hill				

TOTAL BODY SURFACE AREA

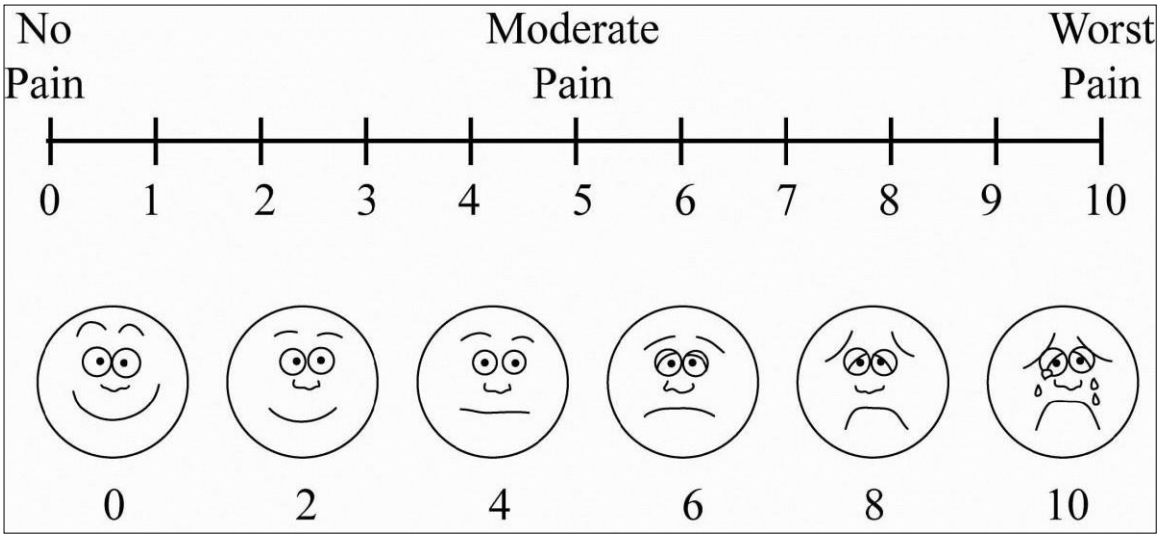






Surface of patient's palm, including fingers is equal to approximately 1% of their Total Body Surface Area

PAIN SCALE



tPA EXCLUSION CRITERIA

Thrombolytic (tPA) Exclusion Criteria:

- Head Trauma at onset
- History of recent bleeding, current bleeding, surgery or invasive procedure in the past three months
- Bleeding disorder
- Blood thinners / Anticoagulation medication

ZOLL AUTOPULSE CPR DEVICE

AutoPulse® Quick Reference Guide

For Adult (≥18 years) Non-Traumatic Cardiac Arrest

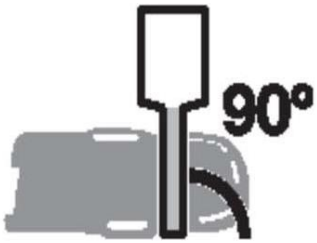
Maximum Patient Weight 300 lbs.



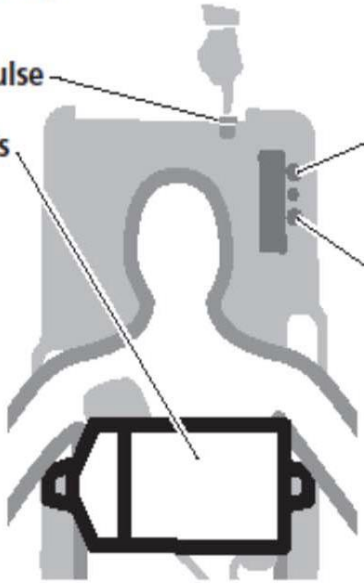
- Remove ALL clothing from torso (both front and back) to ensure skin-to-platform contact
- Align armpits onto yellow line on Platform



Do not twist the chest bands



Maintain chest bands at 90 degrees to Platform and free of obstructions



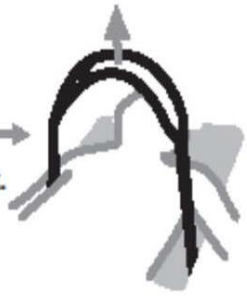
1. Power up AutoPulse
2. Close chest bands
3. Press CONTINUE (green button)
4. Press START (green button) to begin compressions

To pause or stop operation press STOP (orange button)

Follow all local protocols and procedures.

Review User Guides and complete in-service training.

Troubleshooting



For Fault/User Advisory

- Lift up and fully extend both chest bands.
- Check both lateral and vertical patient alignment.
- Verify that chest bands are not twisted, are 90 degrees to the Platform and are free of obstructions.
- Press RESTART (green button) and follow on-screen instructions to begin compressions.

If you cannot rectify problem immediately open chest bands and revert to manual CPR.

← LifeBand® instructions on other side

ZOLL.

P/N 10596-001 Rev. 11

ZOLL Z VENT

Z Vent™
Quick Reference Guide

ZOLL.

Ventilator Connections and Setup

Warning! Do not use this ventilator in MRI environments

1. Make the following ventilator connections and ensure that all connections are secure:

   Ventilator circuit connections:

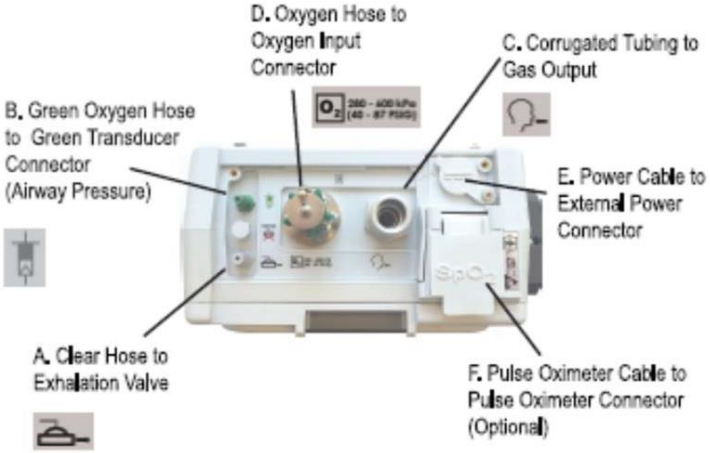
   a. Exhalation port
   b. Transducer port
   c. Gas output port

   Remaining connections:

   d. Oxygen via high-pressure hose (Compressed O_2: 55 psig [380 kPa])
   e. Power cable

   Optional connections:

   f. Pulse oximeter



For complete details on operating the ventilator, refer to the ZOLL Z Vent Ventilator Operator's Guide.

9652-000506-01 Rev. A

Z Vent ™
Quick Reference Guide

ZOLL.

Ventilator Connections and Setup

2. Verify the power source (battery and/or external power).
3. Start the ventilator by turning the Power Switch to "I" (ON).
4. Allow the ventilator to perform it's inital Self Check.



5. Use default settings or configure ventilator parameters for the patient.
6. Perform Operational Test (Refer to Operator's Guide for details).
7. Attach the patient to the ventilator circuit to begin ventilation.
8. Configure the alarms for the patient.

Warning! DO NOT leave the patient unattended.

Z Vent™
Quick Reference Guide

ZOLL.

Ventilator Settings

1. To change settings, press the applicable parameter button to highlight the setting:
   - Single press for primary parameters (only solid text parameters can be adjusted).
   - Double/multiple press for secondary parameters/alarm limits.
   - Press and hold for context menus.



2. Turn the Dial to the desired value.
3. Press the Accept button to confirm the selection.

Note: Popup messages (settings conflict, alarm disable, extreme ranges) may appear that require you to confirm, or change, operating parameters.



Z Vent™ Quick Reference Guide

ZOLL.

Alarms

For complete details on all alarms and resolution details, refer to the ZOLL Z Vent Ventilator Operator's Guide.



Green: Patient and ventilator are operating as intended.

Yellow (Low Priority): Patient and ventilator are functioning within set parameters; however, the operator must be aware of conditions during ventilator operation.

Red (Medium and High Priority): Patient and/or ventilator are not performing as intended and immediate attention is required.

To mute low and medium priority alarms, press the Cancel button (✕).



Z Vent™
Quick Reference Guide

ZOLL.

Low Flow (O_2 Reservoir) Oxygen Source Use

Warning! Oxygen supply source components must be MRI compatible

1. Attach the O_2 supply hose to the 3-liter adapter and the gas source.
2. Configure the O_2 source:
   a. Concentrator use: start the O_2 concentrator, set to maximum flow, and adjust as required.
   b. Flow meter use: set to patient's approximate minute volume flow, and adjust as required.
3. Configure the ventilator, using the appropriate patient setting:
   a. Press and hold the FIO_2 parameter button; the FIO_2 menu displays.
   b. Use the dial to turn on setting.
   c. Press the Accept buttton to confirm the selection; the + icon displays in the O_2 parameter window.
4. Attach the ventilator circuit and pulse oximeter to the patient.
5. Monitor the patient and the pulse oximeter, and adjust O_2 flow to maintain the desired pulse oximeter level.

