STATE OF OHIO

EMS BOARD

REGIONAL PHYSICIANS ADVISORY BOARD

Emergency Medical Services
Guidelines and Procedures Manual

INTRODUCTION

Ohio emergency medical services providers strive everyday to deliver the highest standard of emergency medical services to the people of Ohio. On behalf of the State Board of Emergency Medical Services, the Regional Physician Advisory Board was charged with proposing a protocol for EMS agencies to use as a guideline in setting that high standard. The proposed protocol is not mandatory for Ohio EMS agencies. However, the EMS Board recommends that EMS agencies adopt the protocol as a means of ensuring that all injured or ill persons will be provided the same EMS services no matter where in the state their injury or illness occurs. The EMS Board offers this recommendation pursuant to Section 4765.09, Ohio Revised Code.

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REGIONAL PHYSICIAN'S ADVISORY BOARD

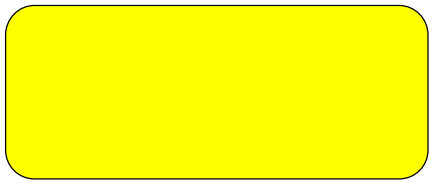
EMERGENCY MEDICAL SERVICES BOARD

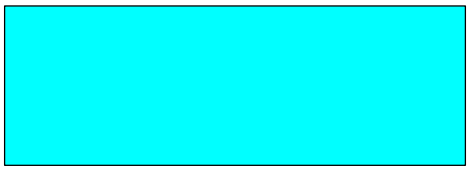
PREHOSPITAL PATIENT CARE GUIDELINES AND PROCEDURES

All algorithms are color coded to denote procedures which may be performed by each level of certification. To perform procedure color coded red, Medical Control must be contacted for permission.

Higher levels of certification will perform lower level evaluations and procedures when interpreting the algorithms.

KEY TO ALGORITHMS





EMT PARAMEDIC (P)

ON
LINE
MEDICAL
CONTROL

ABDOMINAL PAIN

GENERAL CONSIDERATIONS

A. It is important to remember that abdominal pain can be caused by a large number of different disease processes. The organ systems that may be involved in abdominal pain include, esophagus, stomach, intestinal tract, liver, pancreas, spleen, kidneys, male and female genital organs, bladder, as well as referred pain from the chest that can involve the heart, lungs or pleura. Abdominal pain may also be caused by muscular and skeletal problems.

B. There are a limited number of problems that present with abdominal pain that are life-threatening or may become life-threatening.

1. Myocardial Infarction
2. Perforated stomach, gallbladder, or bowel
3. Gastrointestinal bleeding with pain - usually due to an ulcer
4. Hemorrhagic pancreatitis
5. Appendicitis
6. Diabetic ketoacidosis
7. Ruptured esophagus (this usually presents with chest pain)
8. Dissecting or ruptured abdominal aortic aneurysm
9. Certain toxic mushrooms ingestion and other toxic ingestion
10. Ectopic pregnancy

C. Abdominal pain emergencies are likely to lead to death due to blood or fluid loss with resultant shock. There may also be severe electrolyte abnormalities that can cause arrhythmias.

Myocardial Infarction may present as abdominal pain especially in the diabetic and elderly.

EMT-B

A. Secure airway

1. Administer oxygen as needed to treat shock and/or respiratory distress
2. Apply Pulse Oximeter and treat per Pulse Oximeter procedure, if available.

B. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially, recent surgery, any abnormal ingestion, previous trauma, related medical diseases
Last Meal
Events leading to present illness

C. Assess additional associated signs and symptoms:

1. Nausea / vomiting blood or coffee grounds
2. Constipation / diarrhea - black, tarry or bloody bowel movements
3. Problems with urination
4. Menstrual abnormality
5. Fever
6. Tenderness, rigidity, and presence or absence of bowel sounds.
7. Cardiac associated symptoms: Dyspnea, Diaphoresis, SOB

D. Transport in position of comfort, preferable supine with knees flexed, unless there is respiratory distress

E. Give nothing by mouth

F. PASG only in hypotensive patients with suspected ruptured abdominal aortic aneurysm.

EMT-I

A. If there is concern about the possibility of blood or fluid loss, start an IV of saline, and run at a keep open rate or saline lock. If hypotensive, run IV, maintain perfusion.

B. Monitor ECG during transport

C. PASG only in hypotensive patients with suspected ruptured abdominal aortic aneurysm.

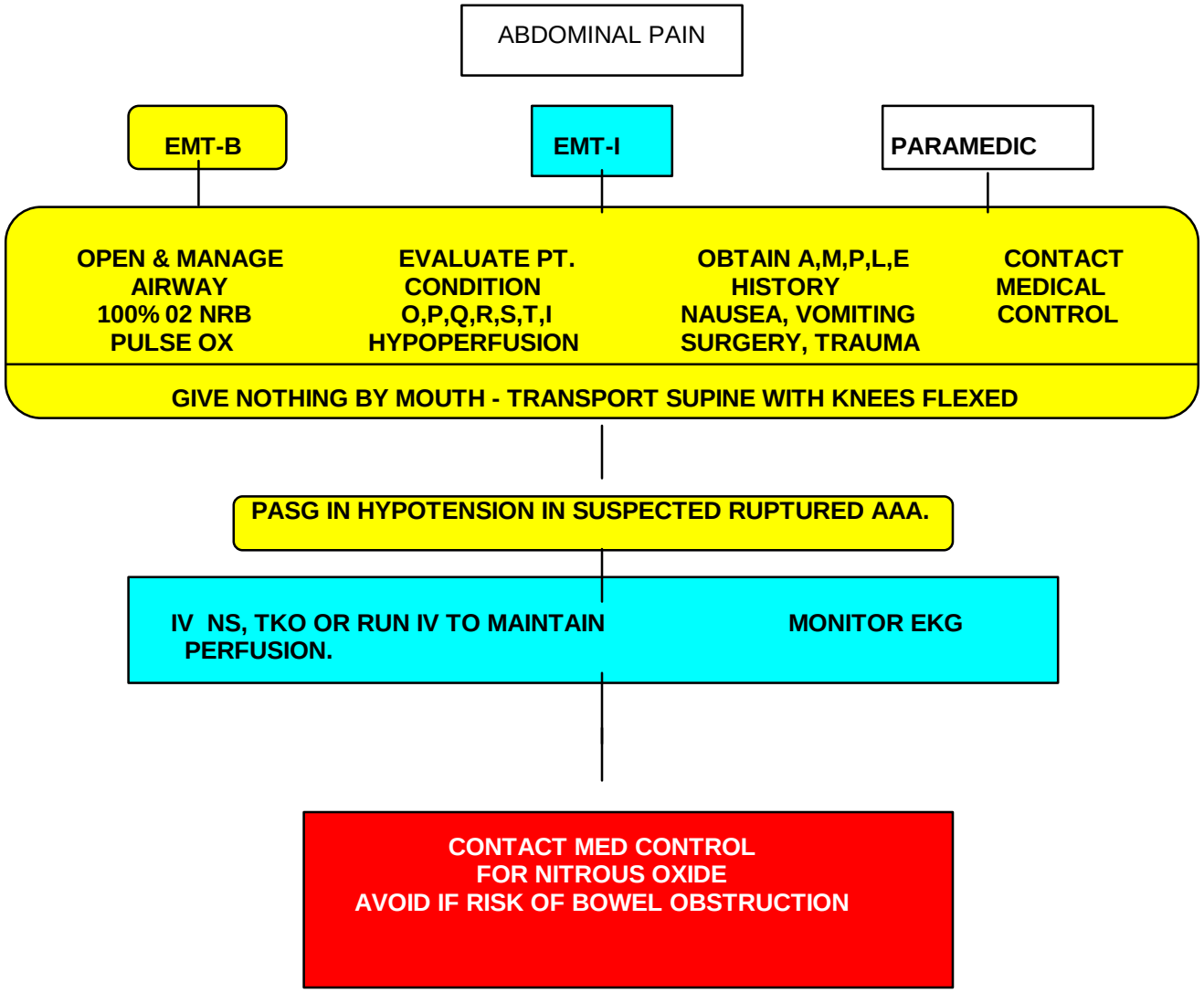
EMT-P

A. Obtain orthostatic vital signs and if hypotensive, run IV to maintain perfusion.

B. Monitor ECG during transport

C. PASG only in hypotensive patients with suspected ruptured abdominal aortic aneurysm.

D. Consider administration of antiemetic medication for nausea per local guidelines.



ALTERED LEVEL OF CONSCIOUSNESS

EMT-B

A. Secure airway, and consider cervical spine injury

1. Administer 100% oxygen by NRB mask
2. Apply Pulse Oximeter and treat per Pulse Oximeter procedure
3. Be prepared to hyperventilate and/or assist ventilations with oral or nasal airway and BVM or PPV

B. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially, diabetic, seizures, stroke, head injury, drug abuse
Last Meal
Events leading to present illness

Assess the unresponsive patient using the Glasgow Coma scale. Patients with scores of 8 or less have poor prognosis and need ALS as soon as possible.

In possible stroke patients who are alert, assessment of language, motor responses and sensation must be completed to establish baselines for future changes.

C. Consider administration of glucose with intact gag reflex.

D. Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene.

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Apply monitor and check rhythm

C. Start IV saline, TKO, while enroute to hospital

D. Check blood sugar or draw blood chemistry tube.

E. If blood sugar greater than 400 and signs of hypoperfusion are present, administer IV fluid bolus of at least 250cc of saline. May be repeated if no response in 10 minutes.

DO NOT DELAY TRANSPORT

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. If patient does not have a secure, protected airway, intubate per Intubation Procedure

C. Apply monitor and check rhythm

D. Start IV saline TKO.

E. If signs of CVA, contact Med Control.

F. Consider determination of blood sugar level, if available.

1. If blood sugar less than 80, administer IV bolus, 50cc of 50% dextrose. May be repeated in 10 minutes if blood sugar remains below 80.

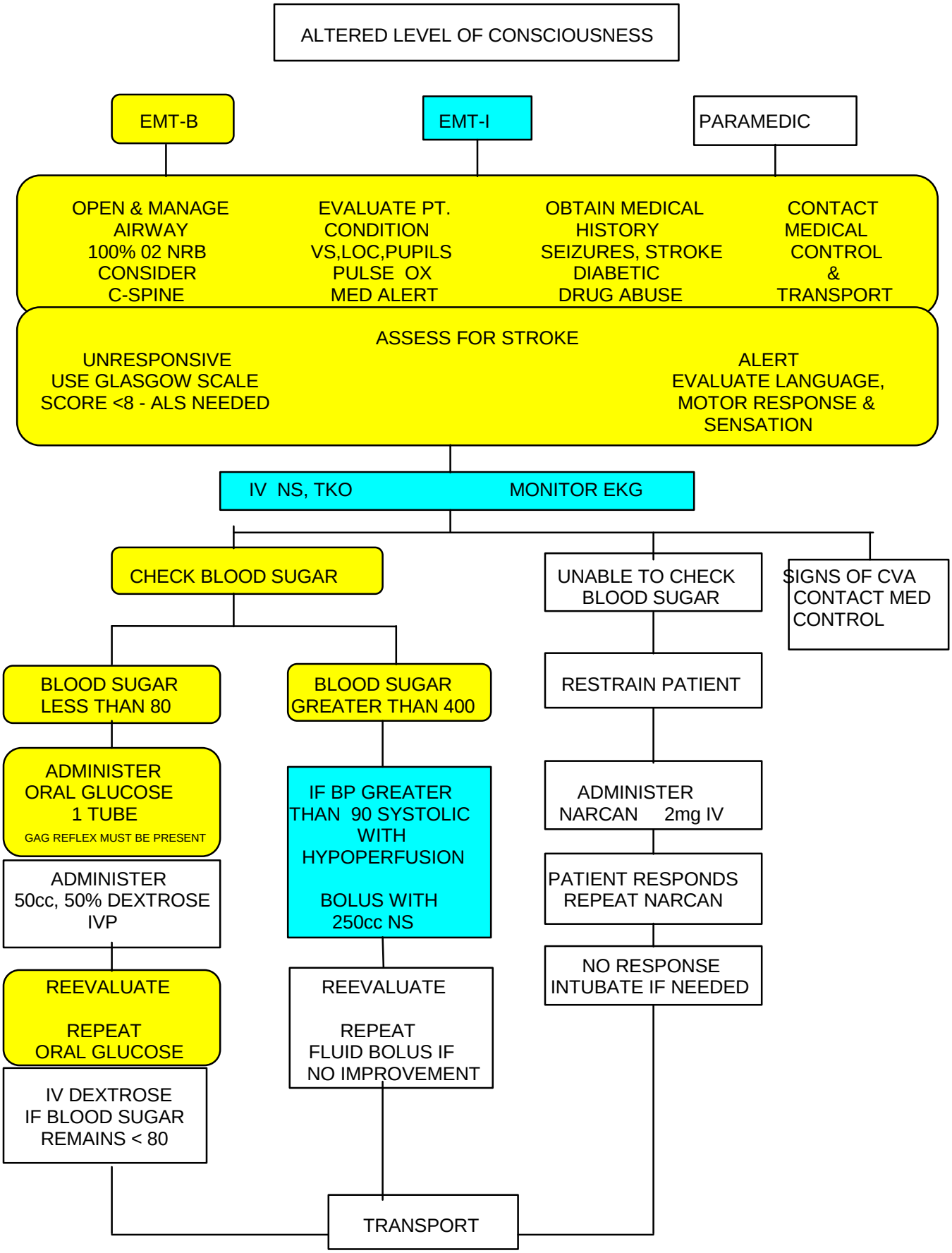
2. If blood sugar greater than 400 and signs of hypoperfusion are present, administer IV fluid bolus of at least 250cc of saline. May be repeated if no response in 10 minutes.

3. If unable to check blood sugar and LOC is decreased administer IV bolus, 50cc of 50% dextrose

G. If respirations are impaired, or there is a high index of suspicion of narcotic overdose and patient does not respond to dextrose or fluid bolus, administer Narcan 2mg IV push If patient improves somewhat with Narcan but is not fully awake, repeat dose

CONSIDER PATIENT RESTRAINT BEFORE ADMINISTRATION OF NARCAN
SEE RESTRAINT POLICY

H. Re-evaluate patient condition, contact Medical Control, and transport to hospital


ALTERED LEVEL OF CONSCIOUSNESS
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
100% 02 NRB
CONSIDER C-SPINE
EVALUATE PT. CONDITION
VS,LOC,PUPILS
PULSE OX
MED ALERT
OBTAIN MEDICAL HISTORY
SEIZURES, STROKE
DIABETIC
DRUG ABUSE
CONTACT MEDICAL CONTROL & TRANSPORT
ASSESS FOR STROKE
UNRESPONSIVE
USE GLASGOW SCALE
SCORE <8 - ALS NEEDED
ALERT
EVALUATE LANGUAGE, MOTOR RESPONSE & SENSATION
IV NS, TKO
MONITOR EKG
CHECK BLOOD SUGAR
UNABLE TO CHECK BLOOD SUGAR
SIGNS OF CVA
CONTACT MED CONTROL
BLOOD SUGAR LESS THAN 80
BLOOD SUGAR GREATER THAN 400
RESTRAIN PATIENT
ADMINISTER ORAL GLUCOSE 1 TUBE
GAG REFLEX MUST BE PRESENT
IF BP GREATER THAN 90 SYSTOLIC WITH HYPOPERFUSION
BOLUS WITH 250cc NS
ADMINISTER NARCAN 2mg IV
ADMINISTER 50cc, 50% DEXTROSE IVP
PATIENT RESPONDS REPEAT NARCAN
REEVALUATE
REPEAT ORAL GLUCOSE
REEVALUATE
REPEAT FLUID BOLUS IF NO IMPROVEMENT
NO RESPONSE INTUBATE IF NEEDED
IV DEXTROSE IF BLOOD SUGAR REMAINS < 80
TRANSPORT

GENERAL CONSIDERATIONS

A. In the treatment of cardiac arrhythmias, current American Heart Association guidelines were referred to for guideline development

B. Always provide oxygen support, make the patient comfortable, and provide reassurance

C. Transport is essential when Advanced Cardiac Life Support is not available within 10 minutes of receipt of the call

EMT-B / EMT-I

A. Open and manage the airway and provide 100% oxygen by NRB mask. Apply pulse oximeter and treat per pulse oximeter procedure

B. Make patient comfortable and provide reassurance

C. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially CARDIAC
Last Meal
Events leading to present illness

D. If patient is experiencing an unusual and/or irregular heart rate or pulse, if available, the cardiac monitor may be applied and a strip run for evaluation by the Physician at the Emergency Department. This should only be done during transport, and you must advise the patient you are doing this for the Physician and you do not have the ability to interpret the strip.

E. Establish communications with Medical Control and advise of patient condition. Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene

PARAMEDIC

A. Assume charge of situation and confer with EMT's about condition of patient and situation

B. Apply cardiac monitor and determine arrhythmia

C. Start IV saline, TKO or saline lock

D. Treat arrhythmia as follows:

1. Bradycardia, Second and Third degree AV blocks

a. Good perfusion - Transport

b. Poor perfusion:

i. External pacemaker set at 80 beats per minute and start at 20 milliamps increasing by 20 milliamps until mechanical capture is obtained;

NOTE: Atropine may be administer while preparing for pacing

ii. Atropine 0.5 -1.0mg IVP, subsequent doses 1.0mg every 5 minutes up to 3mg (0.04mg/kg), or until heart rate is 60 and an adequate SBP is obtained (SBP greater than 90 with adequate level of consciousness).

ii. If perfusion is poor after maximum dose of atropine, dopamine drip: 400mg dopamine (5ml) in 500ml D5W or NS to yield a solution of 800 mcg/ml;

Titrate the infusion until heart rate is 60 with an adequate SBP of 90 and LOC is improved.

2. Atrial Flutter/Fibrillation with rapid ventricular rate:

a. Good perfusion - Transport

b. Poor perfusion with a SBP less than 90 mmHg and ventricular rate greater than 150:

i. Synchronous cardioversion:

(a) Consider sedation (versed/valium, 3-5mg IV)
(b) Cardiovert 50 joules
(c) Cardiovert 100 joules
(d) Cardiovert 200 joules
(e) Cardiovert 300 joules
(f) Cardiovert 360 joules

ii. Transport; contact Medical Control for further orders

3. Atrial / Junctional Tachycardia

a. Good perfusion - Transport

b. Poor perfusion with a SBP less than 90 mmHg and ventricular rate greater than 150:

i. Vagal Maneuvers

ii. Administer adenosine, 6mg RAPID IV bolus over 1 to 3 seconds followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

iii. If no conversion, repeat adenosine in 1-2 minutes, 12mg RAPID IV bolus followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

iv. If no conversion, repeat adenosine in 1-2 minutes, 12mg RAPID IV bolus followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

MAXIMUM OF 3 DOSES (30mg) OF ADENOSINE

v. No response, synchronous cardioversion:

(a) Consider sedation (versed/valium, 3-5mg IV)
(b) Cardiovert 50 joules
(c) Cardiovert 100 joules
(d) Cardiovert 200 joules
(e) Cardiovert 300 joules
(f) Cardiovert 360 joules

vi. Transport; contact Medical Control for further orders

4. Atrial Flutter/Fibrillation Atrial /Junctional Tachycardia and patient unconscious:

a. Synchronous cardioversion:

(a) Consider sedation (versed/valium, 3-5mg IV)
(b) Cardiovert 50 joules
(c) Cardiovert 100 joules
(d) Cardiovert 200 joules
(e) Cardiovert 300 joules
(f) Cardiovert 360 joules

b. Transport; contact Medical Control for further orders

5. Supraventricular Tachycardia with a pulse

a. Patients who are alert and oriented with normal blood pressure and ventricular rate less than 150 are considered stable.

i. Transport

b. Patients with ventricular heart rate greater than 150 beats per minute, hypotensive, with chest pain, shortness of breath and/or altered level of consciousness are considered unstable.

i. Administer adenosine, 6mg RAPID IV bolus over 1 to 3 seconds followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

ii. If no conversion, repeat adenosine in 1-2 minutes, 12mg RAPID IV bolus followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

iii. If no conversion, repeat adenosine in 1-2 minutes, 12mg RAPID IV bolus followed IMMEDIATELY with a 20cc bolus of saline(within 5 seconds)

MAXIMUM OF 3 DOSES (30mg) OF ADENOSINE

iv. If no response to adenosine synchronous cardioversion:

(a) Consider sedation (versed/valium, 3-5mg IV)
(b) Cardiovert 100 joules
(c) Cardiovert 200 joules
(d) Cardiovert 300 joules
(e) Cardiovert 360 joules

6. PVCs in suspected heart related difficulty: i.e. chest pain, pulse greater than 60, multifocal, more than six per minute and more than two in a row

a. Treat underlying causes; hypoxia, hypoperfusion, etc.

b. Contact Medical Control if required

c. Lidocaine bolus IV - 1.0mg/kg (75-100mg)

INITIATE TRANSPORT AFTER FIRST DOSE OF LIDOCAINE

d. If no response - Repeat lidocaine bolus IV 0.5mg/kg every 8 minutes to a 3mg/kg maximum

e. At any time during treatment the patient converts, repeat lidocaine IV bolus, 50 mg every 20 minutes or initiate lidocaine drip

7. Sinus Tachycardia - Transport

8. Ventricular Tachycardia:

a. Patient with a pulse (stable):

i. Lidocaine bolus IV - 1.5mg/kg (75-100mg)

INITIATE TRANSPORT AFTER FIRST DOSE OF LIDOCAINE

ii. If no response - Repeat lidocaine bolus IV 0.75mg/kg every 5 minutes to a 3mg/kg maximum

iii. At any time during treatment the patient converts, repeat lidocaine IV bolus, 50 mg every 20 minutes

iv. If no response with maximum dose of lidocaine:

Consider Synchronous Cardioversion:

(a) Consider sedation (versed/valium, 3-5mg IV bolus)
(b) Cardiovert 100 joules
(c) Cardiovert 200 joules
(d) Cardiovert 300 joules
(e) Cardiovert 360 joules

iv. At any time during treatment the patient converts, repeat lidocaine IV bolus, 50 mg every 20 minutes OR start lidocaine drip at 2 to 4mg/min.

b. Patient with a pulse and hypotension (SBP less than 90 mmHg), chest pain, shortness of breath and/or altered level of consciousness, is considered unstable

i. Synchronous Cardioversion:

(a) Consider sedation (versed/valium 3-5mg IV bolus)
(b) Cardiovert 100 joules
(c) Cardiovert 200 joules
(d) Cardiovert 300 joules
(e) Cardiovert 360 joules

ii. Lidocaine bolus IV - 1.5mg/kg (75-100mg)

INITIATE TRANSPORT AFTER FIRST DOSE OF LIDOCAINE

iii. If no response - Repeat lidocaine bolus IV 0.5mg/kg every 8 minutes to a 3mg/kg maximum

iv. At any time during treatment the patient converts, repeat lidocaine IV bolus, 50 mg every 20 minutes OR start lidocaine drip at 2 to 4mg/min.

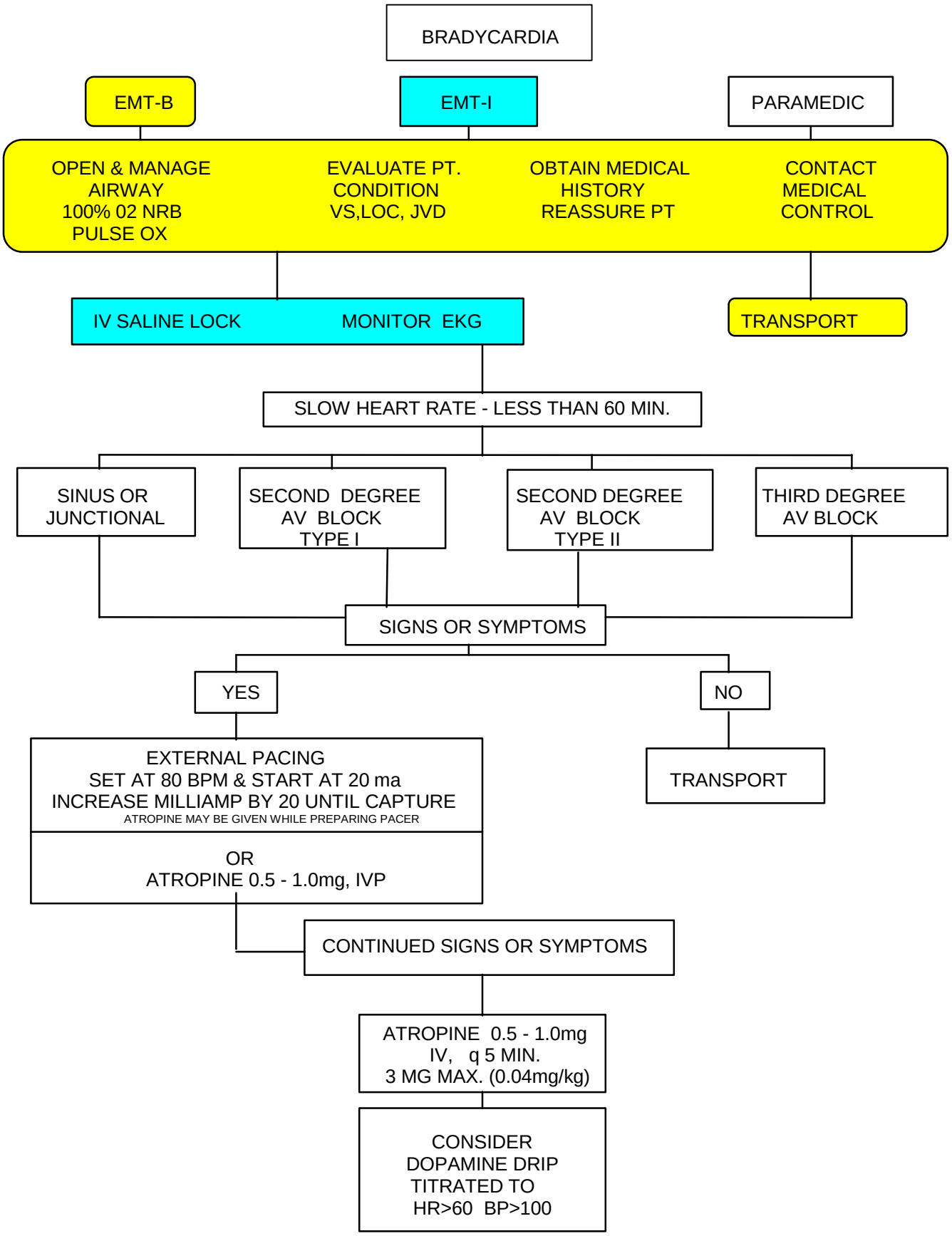
v. Repeat Synchronous Cardioversion:

(a) Cardiovert 100 joules
(b) Cardiovert 200 joules
(c) Cardiovert 300 joules
(d) Cardiovert 360 joules

vi. If no conversion - Bretylium bolus 5mg/kg 300-500mg over an 8 to 10 minutes

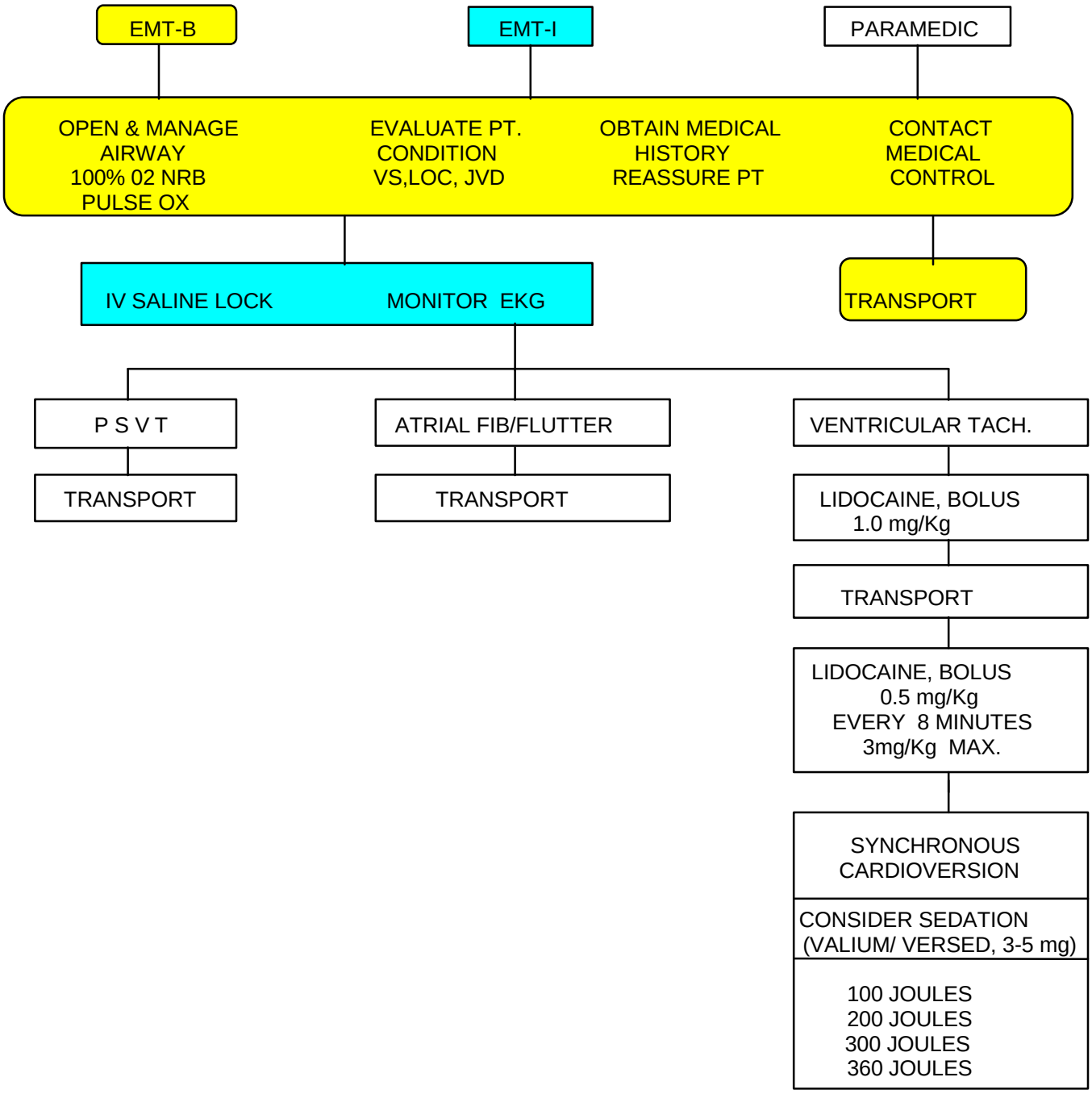
c. Unconscious patient with no pulse

i. Treat as Ventricular Fibrillation


BRADYCARDIA
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
100% 02 NRB
PULSE OX
EVALUATE PT. CONDITION
VS,LOC, JVD
OBTAIN MEDICAL HISTORY
REASSURE PT
CONTACT MEDICAL CONTROL
IV SALINE LOCK
MONITOR EKG
TRANSPORT
SLOW HEART RATE - LESS THAN 60 MIN.
SINUS OR JUNCTIONAL
SECOND DEGREE AV BLOCK TYPE I
SECOND DEGREE AV BLOCK TYPE II
THIRD DEGREE AV BLOCK
SIGNS OR SYMPTOMS
YES
NO
EXTERNAL PACING
SET AT 80 BPM & START AT 20 ma
INCREASE MILLIAMP BY 20 UNTIL CAPTURE
ATROPINE MAY BE GIVEN WHILE PREPARING PACER
OR
ATROPINE 0.5 - 1.0mg, IVP
TRANSPORT
CONTINUED SIGNS OR SYMPTOMS
ATROPINE 0.5 - 1.0mg
IV, q 5 MIN.
3 MG MAX. (0.04mg/kg)
CONSIDER
DOPAMINE DRIP
TITRATED TO
HR>60 BP>100

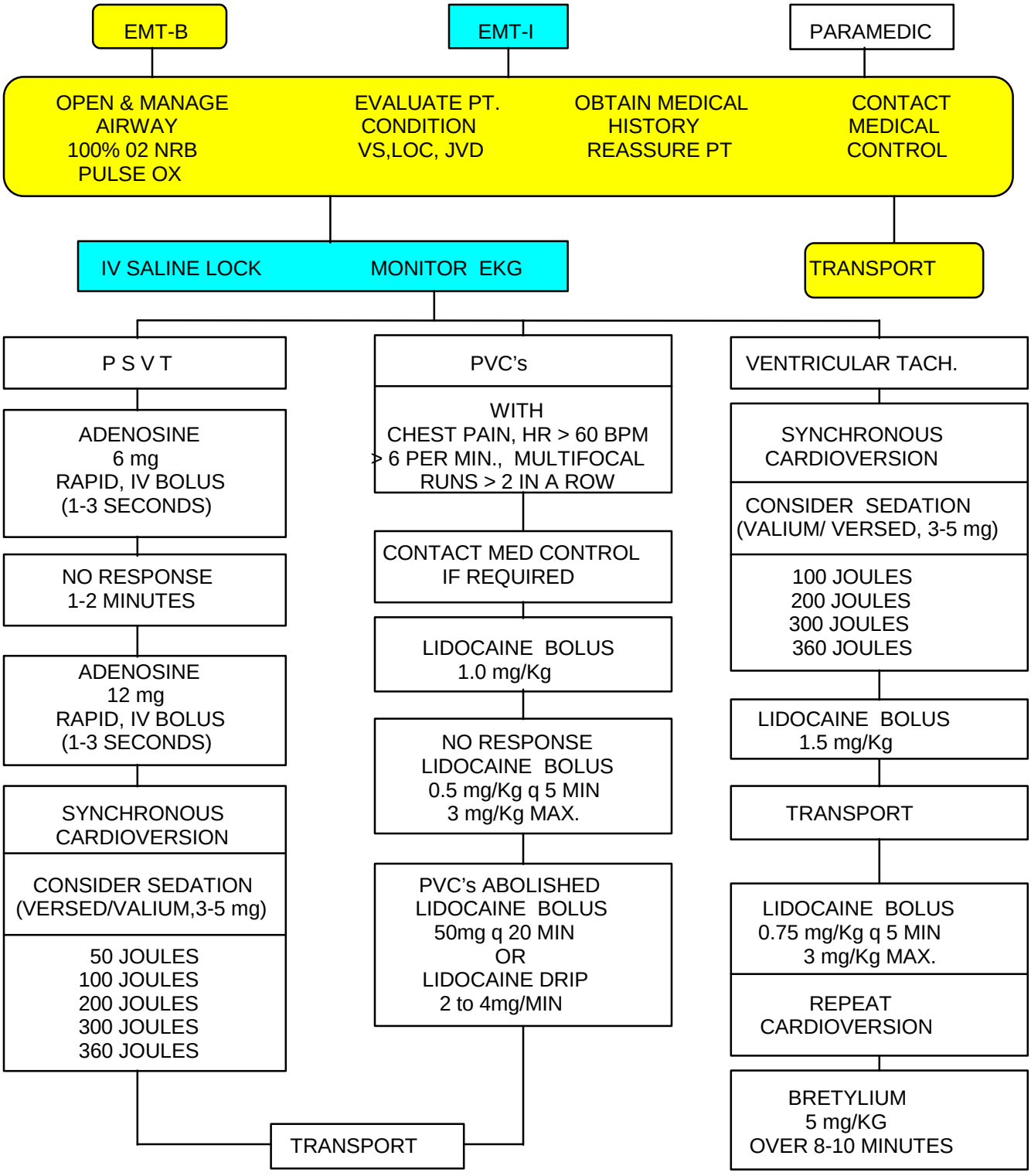
STABLE TACHYCARDIA

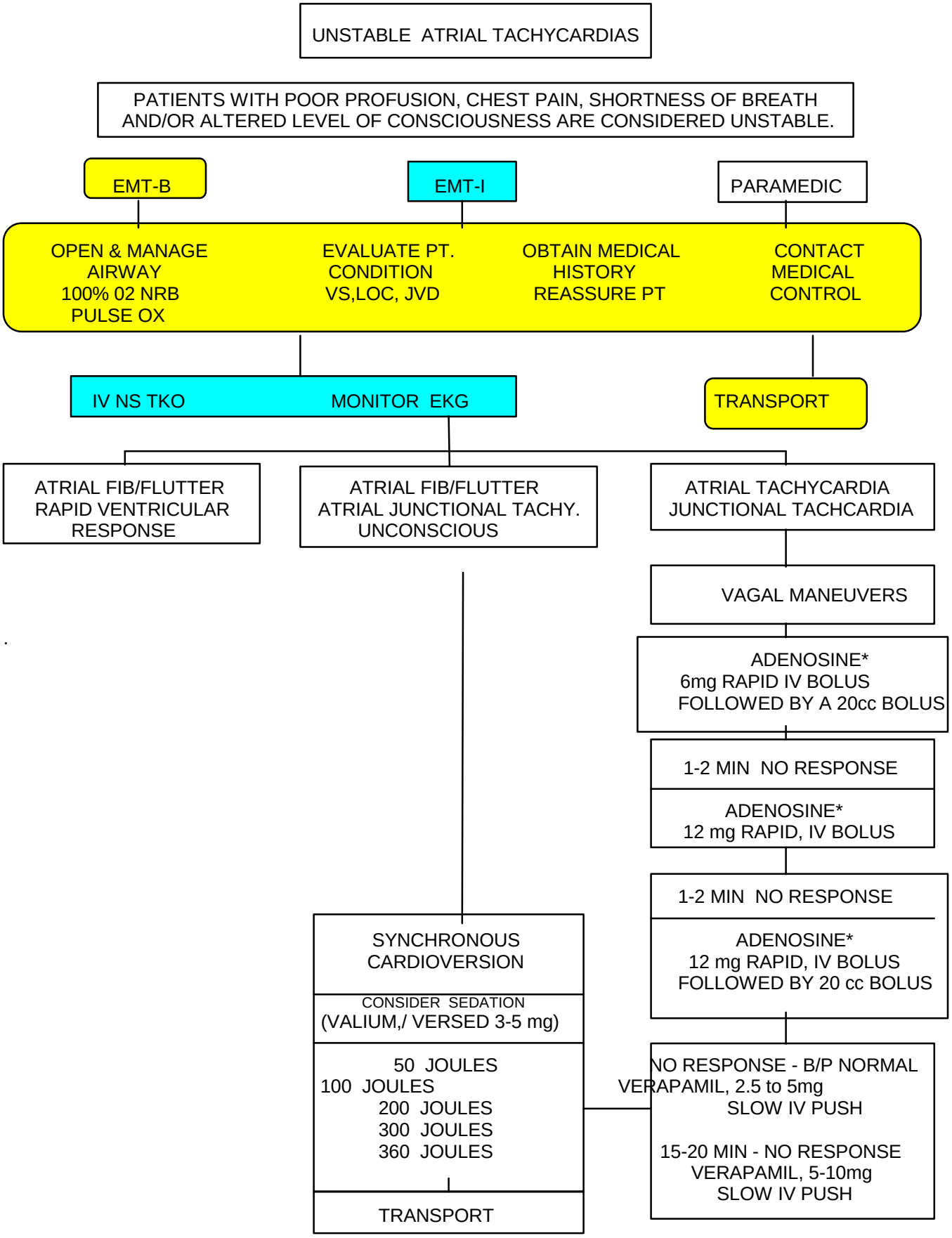
PATIENTS WITH A PULSE, GOOD PROFUSION AND ALERT AND ORIENTATED ARE CONSIDERED STABLE.



UNSTABLE TACHYCARDIAS

PATIENTS WITH POOR PROFUSION, CHEST PAIN, SHORTNESS OF BREATH AND/OR ALTERED LEVEL OF CONSCIOUSNESS ARE CONSIDERED UNSTABLE.




UNSTABLE ATRIAL TACHYCARDIAS
PATIENTS WITH POOR PROFUSION, CHEST PAIN, SHORTNESS OF BREATH AND/OR ALTERED LEVEL OF CONSCIOUSNESS ARE CONSIDERED UNSTABLE.
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
100% 02 NRB
PULSE OX
EVALUATE PT. CONDITION
VS,LOC, JVD
OBTAIN MEDICAL HISTORY
REASSURE PT
CONTACT MEDICAL CONTROL
IV NS TKO
MONITOR EKG
TRANSPORT
ATRIAL FIB/FLUTTER
RAPID VENTRICULAR RESPONSE
ATRIAL FIB/FLUTTER
ATRIAL JUNCTIONAL TACHY.
UNCONSCIOUS
ATRIAL TACHYCARDIA
JUNCTIONAL TACHCARDIA
VAGAL MANEUVERS
ADENOSINE*
6mg RAPID IV BOLUS
FOLLOWED BY A 20cc BOLUS
1-2 MIN NO RESPONSE
ADENOSINE*
12 mg RAPID, IV BOLUS
1-2 MIN NO RESPONSE
ADENOSINE*
12 mg RAPID, IV BOLUS
FOLLOWED BY 20 cc BOLUS
SYNCHRONOUS CARDIOVERSION
CONSIDER SEDATION
(VALIUM,/ VERSED 3-5 mg)
50 JOULES
100 JOULES
200 JOULES
300 JOULES
360 JOULES
TRANSPORT
NO RESPONSE - B/P NORMAL
VERAPAMIL, 2.5 to 5mg
SLOW IV PUSH
15-20 MIN - NO RESPONSE
VERAPAMIL, 5-10mg
SLOW IV PUSH

.

BURNS

GENERAL INSTRUCTIONS

A. The first priority is to assure scene safety and then remove the patient from heat and flame, electrical or chemical exposure

B. Airway, Breathing, and Circulation must be stabilized before attending to the burn

C. Patient with extensive burns must be monitored for hypothermia avoid use of ice and/or prolonged cold compresses. When in doubt, always cover with dry dressing

D. In caring for the burn, the EMT should:

1. Stop the Burning
2. Reduce the Pain
3. Prevent Contamination

E. Patients with critical burns only, transport per local protocol.

F. When dealing with contaminated environments, EMTs must have appropriate protective clothing. If not available, contact appropriate Haz Mat service for such equipment.

G. Gross decontamination must be done at the scene. Advise receiving facility if complete decontamination was not done at the scene, and be prepared to transport to decontamination area.

EMT-B

A. Open and manage airway and provide 100% oxygen by NRB mask or bag valve mask (BVM)

B. Determine type of burn and treat as follows:

1. Thermal (dry and moist):

a. Stop burning process: i.e. remove patient from heat source, cool skin, remove clothing

b. If patient starts to shiver or skin is cool, stop cooling process

c. Estimate extent (%) and depth of burn (see chart). Determine seriousness (see chart) of burn. Contact Medical Control and transport accordingly.

d. Cover burn areas with DRY bulky dressing

2. Radiation Burns:

a. Treat as thermal burns except when burn is contaminated with radioactive source, then treat as chemical burn

b. Wear appropriate protective clothing when dealing with contamination

c. Contact HAZ MAT TEAM for assistance in contamination cases

3. Chemical Burns:

   a. EMTs must wear appropriate protective clothing and respirators

   b. Remove patient from contaminated area to decontamination site (NOT SQUAD)

   c. Determine chemicals involved; contact appropriate agency for chemical information

   d. Remove patient's clothing and flush skin

   e. Leave contaminated clothes at scene. Cover patient over and under before loading into squad.

   f. Patient should be transported by personnel not involved in decontamination process

   g. Determine severity (see chart), contact Medical Control and transport accordingly

   h. Relay type of substance involved to Medical Control.

4. Electrical Burns

   a. Shut down electrical source; do not attempt to remove patient until electricity is CONFIRMED to be shut off.

   b. Assess for visible entrance and exit wounds and treat as thermal burns

   c. Assess for internal injury, i.e., vascular damage, tissue damage, fractures, and treat accordingly

   d. Determine severity of burn, contact Medical Control and transport accordingly

5. Inhalation Burns:

   a. Always suspect inhalation burns when the patient is found in closed smoky environment and/or exhibits any of the following: burns to face/neck, singed nasal hairs, cough and/or stridor, soot in sputum,

   b. Provide oxygen therapy, contact Medical Control and transport

EMT-I

A. Assist EMT with airway

B. Assist in determining type of burn and its treatment

C. For Hypovolemia, start IV per shock guidelines

DO NOT DELAY TRANSPORT FOR IV

PARAMEDIC

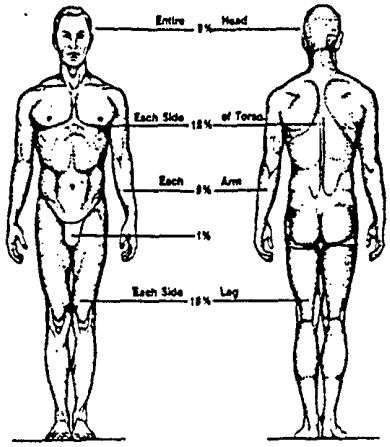
A. Assume charge - confer with EMTs about patient condition and circumstances

B. Apply cardiac monitor and treat arrhythmia, especially with electrical burns

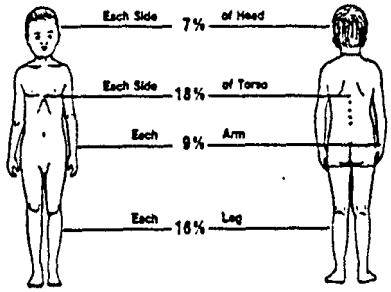
C. Provide endotracheal intubation per procedure guidelines

D. Consider pain relief per local protocol:

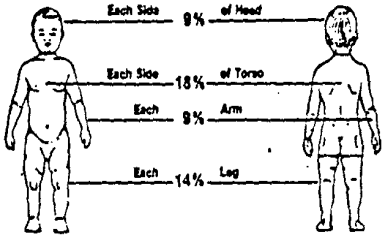
RULE OF NINES



Percentage of Adult Body Surface



Percentage of Child Body Surface



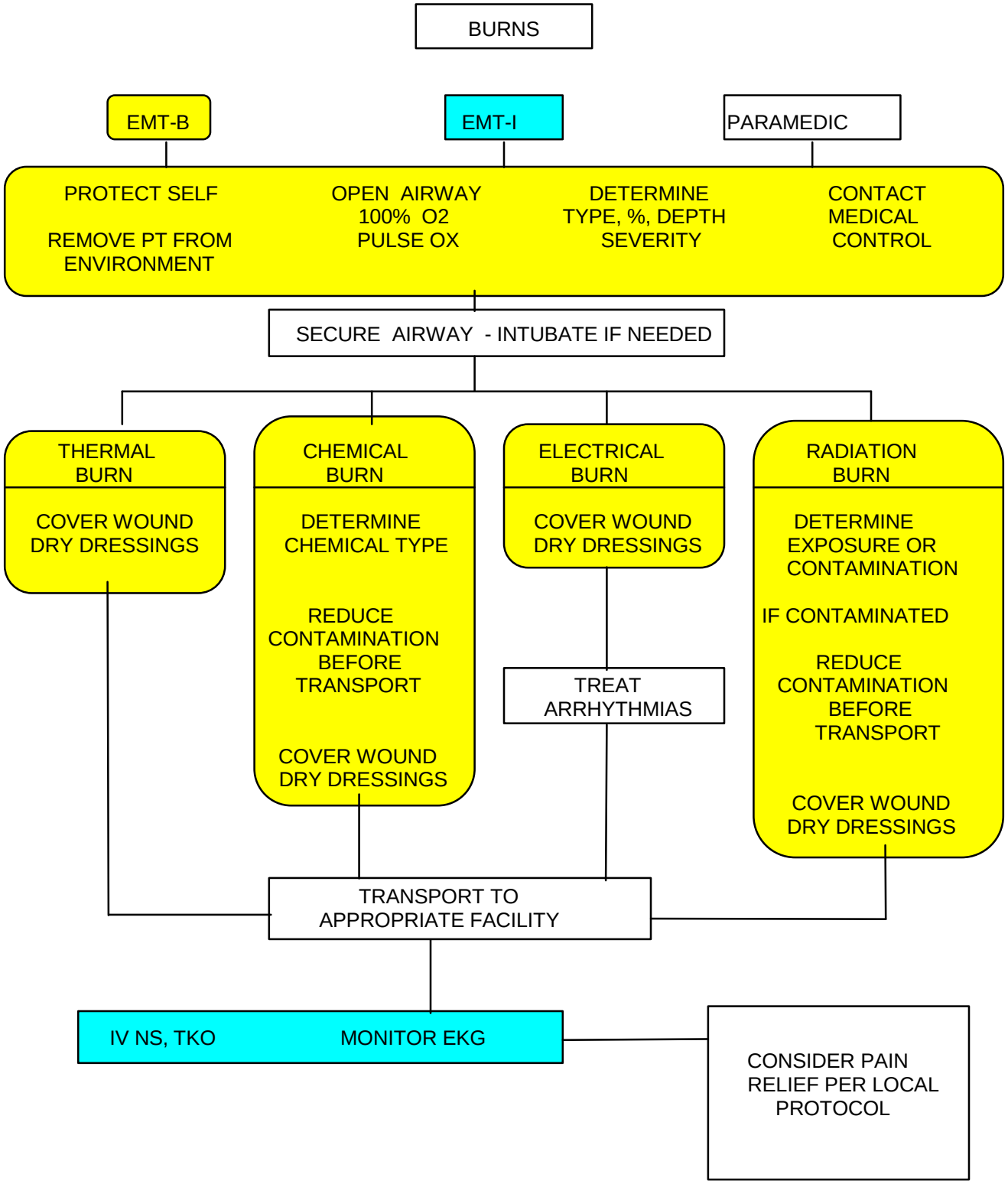
Percentage of Infant Body Surface

1% is equal to the surface of the palm of the patient's hand. If unsure of %, describe injured area.

SERIOUSNESS OF BURNS

MINOR	MODERATE	CRITICAL
1st degree < 70% 2nd degree < 10% +3rd degree < 2%	1st degree > 70% +2nd degree 10-30%	2nd degree > 30% 3rd degree > 2% Any burns with trauma. Any burns with head, face, feet, genitalia involved.

\+ Only if hands, face, feet or genitalia are NOT involved.


BURNS
EMT-B
EMT-I
PARAMEDIC
PROTECT SELF
REMOVE PT FROM ENVIRONMENT
OPEN AIRWAY
100% O2
PULSE OX
DETERMINE
TYPE, %, DEPTH
SEVERITY
CONTACT
MEDICAL
CONTROL
SECURE AIRWAY - INTUBATE IF NEEDED
THERMAL BURN
COVER WOUND
DRY DRESSINGS
CHEMICAL BURN
DETERMINE
CHEMICAL TYPE
REDUCE
CONTAMINATION
BEFORE
TRANSPORT
COVER WOUND
DRY DRESSINGS
ELECTRICAL BURN
COVER WOUND
DRY DRESSINGS
TREAT
ARRHYTHMIAS
RADIATION BURN
DETERMINE
EXPOSURE OR
CONTAMINATION
IF CONTAMINATED
REDUCE
CONTAMINATION
BEFORE
TRANSPORT
COVER WOUND
DRY DRESSINGS
TRANSPORT TO
APPROPRIATE FACILITY
IV NS, TKO
MONITOR EKG
CONSIDER PAIN
RELIEF PER LOCAL
PROTOCOL

CARDIAC ARREST

GENERAL INSTRUCTIONS

A. CPR should not be interrupted for more than 15 seconds until spontaneous pulse is established.

B. If IV cannot be established, epinephrine, atropine or lidocaine may be administered through the endotracheal tube

C. When a defibrillator (Automated or Manual) is immediately available three shocks should be administered, if indicated, after assessment and ventricular fibrillation is identified.

D. If there is no response to an adequate trial of ALS on the scene, Termination of resuscitation should be considered. (See Termination guidelines)

E. CPR should not be interrupted for more than 15 seconds and each IV push medication should be followed by a 20cc flush.

EMT-B

A. If an Automated External Defibrillator (AED) is available:

1. Assess patient for respiratory and cardiac arrest.

2. Apply AED and activate device. Start verbal documentation which must include:

* EMS delivering care, unit number and ID of EMT
* Initial call information (i.e. man down, drowning, etc.)
* Initial patient assessment, findings and impression
* Care given to this point
* Ongoing outcomes of care delivered to patient

a. "No Shock Advised"

i. CPR as recommended by the American Heart Association.

ii. Ventilate with 100% oxygen by two-person bag valve mask or oxygen powered, manually triggered ventilation device and oral or nasal airway.

Ventilation should be delivered over two seconds and cricoid pressure can be considered to help reduce gastric distention.

iii. Establish communications with Medical Control and advise of cardiac arrest.

iv. Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene.

b. “Shock Advised”

i. Deliver three stacked shocks (shocks without pulse checks)

1. Defibrillate 200 joules

2. No Change - Second defibrillation 300 joules

3. No change - Third defibrillation 360 joules

ii. After third shock - CPR as recommended by the American Heart Association for one minute.

iii. Ventilate with 100% oxygen by two-person bag valve mask or oxygen powered, manually triggered ventilation device and oral or nasal airway.

Ventilation should be delivered over two seconds and cricoid pressure should be considered to help reduce gastric distention.

iv. Establish communications with Medical Control and advise of cardiac arrest.

v. After one minute of CPR - Activate AED to assess rhythm and deliver three stacked shocks, if indicated.

1. Defibrillate 360 joules

2. No Change - Second defibrillation 360 joules

3. No change - Third defibrillation 360 joules

vi. After third shock - CPR as recommended by the American Heart Association. - Transport patient to ambulance.

“TURN AED OFF DURING MOVEMENT OF PATIENT”

vii. Before transport - Activate AED to assess rhythm and deliver three stacked shocks, if indicated.

1. Defibrillate 360 joules

2. No Change - Second defibrillation 360 joules

3. No change - Third defibrillation 360 joules

viii. Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene.

EMT-I

A. Assume charge and confer with EMT as to patient condition and circumstances

ALLOWS AED TO COMPLETE “STACKED SHOCK” SEQUENCE IF IN PROGRESS.

B. Apply cardiac monitor and check rhythm

C. If monitor shows Ventricular Fibrillation:

1. Defibrillate 200 joules
2. No Change - Second defibrillation 300 joules
3. No change - Third defibrillation 360 joules
4. CPR for one minute and check patient's pulse
5. No Change - Defibrillate 360 joules
6. No Change - Second defibrillation 360 joules
7. No change - Third defibrillation 360 joules
8. Transport patient to ambulance continuing CPR.
9. Assess rhythm, no Change - Defibrillate 360 joules
10. No Change - Second defibrillation 360 joules
11. No change - Third defibrillation 360 joules
12. Transport to advanced life support with continued CPR

D. Check pulse, intubate patient, start IV of saline, contacts Medical Control and advise of patient condition, while continuing CPR

PARAMEDIC

A. Assume charge and confer with EMT as to patient condition and circumstances

ALLOWS AED TO COMPLETE “STACKED SHOCK” SEQUENCE IF IN PROGRESS.

ALLOWS EMT-I TO COMPLETE MANUAL DEFIBRILLATION CYCLE IN PROGRESS.

B. Apply monitor. If one of the following conditions exist, treat as follows:

1. Ventricular Fibrillation / Pulseless Ventricular Tachycardia:

a. No Change - Defibrillate 200 joules

b. No Change - Second defibrillation 300 joules

c. No Change - Third defibrillation 360 joules

d. Check pulse, intubate patient, start IV of saline, and continuing CPR

e. No Change - Administer 1mg 1:10,000 epinephrine IV bolus every 3 to 5 minutes.

Epinephrine given through ET tube as a 2mg bolus of 1:1,000 diluted with 10ml of normal saline.

f. Continue CPR to circulate drugs

g. No Change - defibrillate at 360 joules

h. No Change - lidocaine 1.5mg/kg IV bolus. Repeat boluses every five minutes to a maximum of 3mg/kg.

Lidocaine given through ET tube at 3mg/kg

i. No Change - defibrillate at 360 joules

j. No Change - lidocaine 1.5mg/kg IV bolus

k. No Change - defibrillate at 360 joules

l. No Change - bretylium at 5mg/kg IV bolus

m. Sodium bicarbonate 1mEq/kg

NOTE: Value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for the routine cardiac arrest sequence. Consideration of its use is appropriate with prolonged resuscitation with return of perfusing rhythm, hemodialysis patients in cardiac arrest, drowning, hyperkalemia or when tricyclic overdose is suspected.

n. Defibrillate at 360 joules

o. Bretylium at 10mg/kg IV bolus

p. Defibrillate at 360 joules, No Change - TRANSPORT

t. Change to Rhythm:

i. Strong pulse

(a) If converted with Lidocaine - Lidocaine bolus, 50mg every 20 minutes (3mg/kg max) OR start lidocaine drip at 2 to 4mg/min.
(b) If converted with Bretylium - Continue with Bretylium administration

ii. Hypotension and bradycardia - See Arrhythmia Protocol

iii. No pulse - CPR

2. Asystole / Pulseless Electrical Activity (PEA):

a. Check pulse, intubate patient, start IV of saline, administer 500cc saline bolus and while continuing CPR

b. TREAT CAUSE: consider hypovolemia or hypothermia, cardiac tamponade, tension pneumothorax, pulmonary embolism, hypoxemia or acidosis, hypoglycemia.

i. Administer 500mg bolus calcium chloride IVP for dialysis patients in arrest

c. EXTERNAL PACING IN WITNESSED ARREST.

Set rate at 100 beats per minute and set amperage at 200 milliamps.

d. Administer 1mg 1:10,000 epinephrine IV bolus every 3 to 5 minutes

Epinephrine given through ET tube as a 2mg bolus of 1:1,000 diluted with 10ml of normal saline.

e. CPR - circulate drugs

f. Administer atropine - 1mg IV bolus every 5 minutes until maximum dose of 0.04mg/kg is achieved to a 3mg maximum.

NOTE: In PEA atropine is administered only when the rate is less than 60

g. CPR - circulate drugs

h. Sodium bicarbonate 1mEq/kg

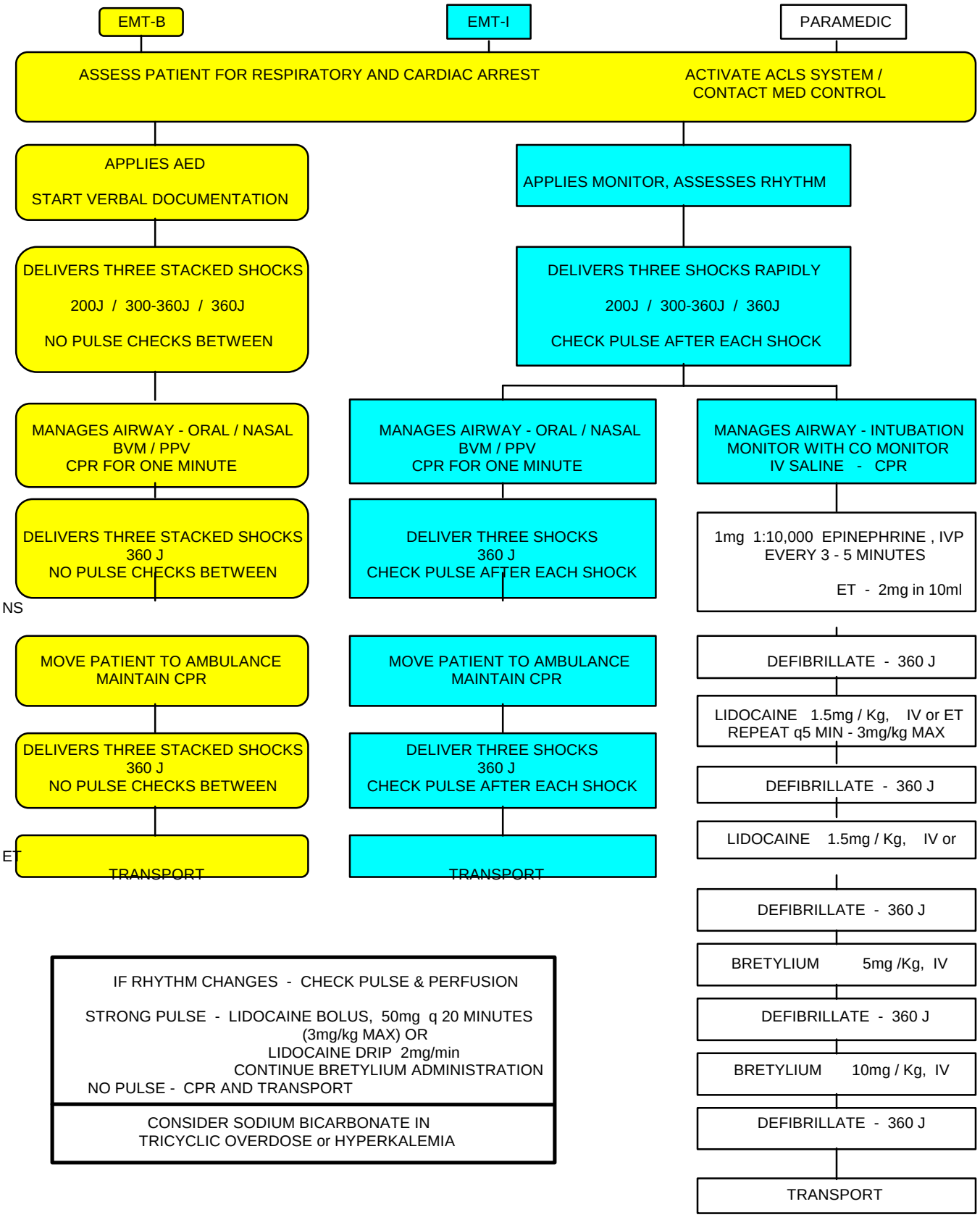
NOTE: Value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for the routine cardiac arrest sequence. Consideration of its use is appropriate with prolonged resuscitation with return of perfusing rhythm, hemodialysis patients in cardiac arrest, drowning, hyperkalemia or when tricyclic overdose is suspected.

i. CPR - circulate drugs

j. No Change

k. Contact Medical Control for possible consideration of termination of resuscitation.

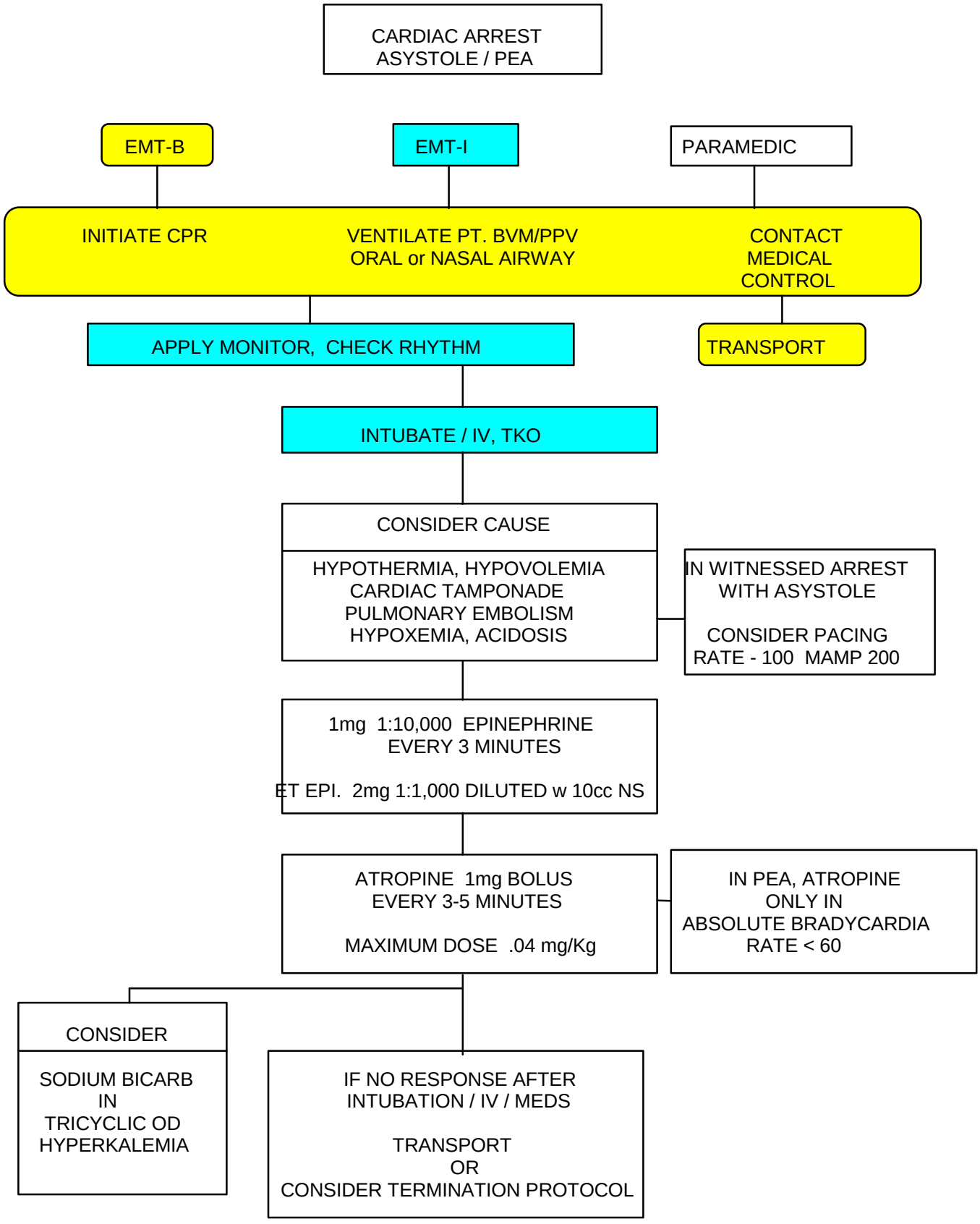
CARDIAC ARREST
V-FIB / PULSELESS V-TACH



IF RHYTHM CHANGES - CHECK PULSE & PERFUSION

STRONG PULSE - LIDOCAINE BOLUS, 50mg q 20 MINUTES
(3mg/kg MAX) OR
LIDOCAINE DRIP 2mg/min
CONTINUE BRETYLIUM ADMINISTRATION
NO PULSE - CPR AND TRANSPORT

CONSIDER SODIUM BICARBONATE IN
TRICYCLIC OVERDOSE or HYPERKALEMIA


CARDIAC ARREST
ASYSTOLE / PEA
EMT-B
EMT-I
PARAMEDIC
INITIATE CPR
VENTILATE PT. BVM/PPV
ORAL or NASAL AIRWAY
CONTACT
MEDICAL
CONTROL
APPLY MONITOR, CHECK RHYTHM
TRANSPORT
INTUBATE / IV, TKO
CONSIDER CAUSE
HYPOTHERMIA, HYPOVOLEMIA
CARDIAC TAMPONADE
PULMONARY EMBOLISM
HYPOXEMIA, ACIDOSIS
IN WITNESSED ARREST
WITH ASYSTOLE
CONSIDER PACING
RATE - 100 MAMP 200
1mg 1:10,000 EPINEPHRINE
EVERY 3 MINUTES
ET EPI. 2mg 1:1,000 DILUTED w 10cc NS
ATROPINE 1mg BOLUS
EVERY 3-5 MINUTES
MAXIMUM DOSE .04 mg/Kg
IN PEA, ATROPINE
ONLY IN
ABSOLUTE BRADYCARDIA
RATE < 60
CONSIDER
SODIUM BICARB
IN
TRICYCLIC OD
HYPERKALEMIA
IF NO RESPONSE AFTER
INTUBATION / IV / MEDS
TRANSPORT
OR
CONSIDER TERMINATION PROTOCOL

SPECIAL RESUSCITATION SITUATIONS

Special resuscitation situation are cardiopulmonary arrest or other life-threatening emergencies that require modification or extension of conventional life support techniques.

NEAR DROWNING

GENERAL INFORMATION

A. The key to success is the provision of early, effective ventilatory support.

B. It is essential that the EMT exercise caution and take steps to insure their own safety while retrieving the victim from the water.

EMT-B

A. Open airway and start rescue breathing as soon as possible, even if the victim has not been removed from the water

B. Ventilate with 100% oxygen by two-person bag valve mask or oxygen powered, manually triggered ventilation device and oral or nasal airway. Oxygen should be warmed to 42^{O} C, if available

Ventilation should be delivered over two seconds and cricoid pressure should be considered to help reduce gastric distention

Always consider C-spine injury.

C. It is not recommended to drain fluid from lungs unless ventilations are impaired. If ventilation impairment should occur, suction the airway for not more than 15 seconds.

D. Start chest compressions as soon as victim is removed from the water and onto a hard surface

E. Patient may show signs of hypothermia. Handle patient VERY gently; rough handling or movement can cause cardiac arrhythmia. Warm the patient removing wet cloths and covering with blankets then transport IMMEDIATELY.

EMT-I

A. Assume charge and confer with EMT as to patient condition and circumstances

B. Apply cardiac monitor and check rhythm. Follow normal cardiac arrest guidelines

C. Start IV of saline warmed to 46^{O} C if possible.

D. Check pulse, intubate patient and continuing CPR

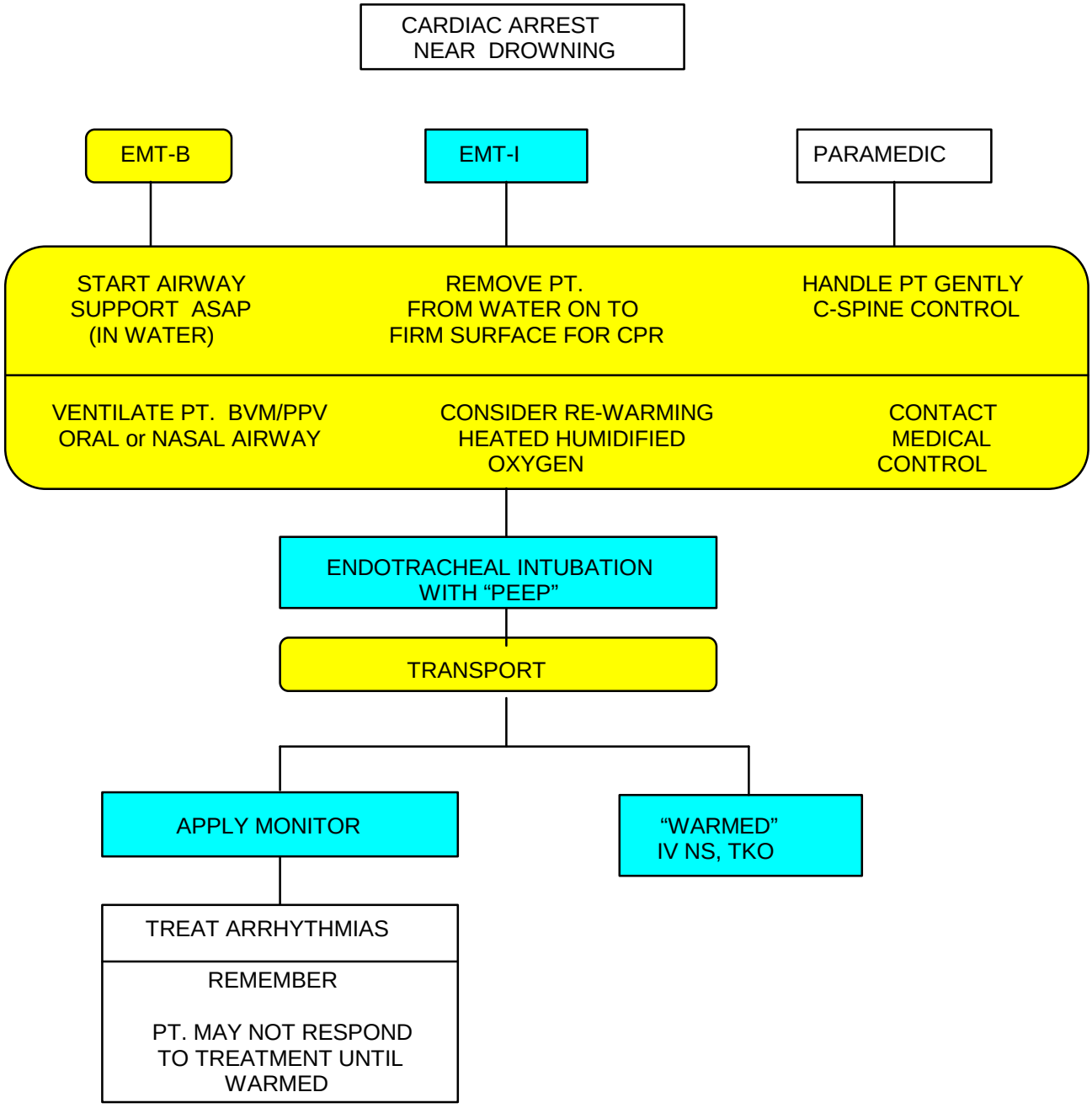
PARAMEDIC

A. Assume charge and confer with EMT as to patient condition and circumstances

B. If EMT is in a cycle of defibrillation, complete cycle before continuing

C. Intubate patient, suction airway and provide ventilation with positive end expiration pressure (PEEP) if available.

D. Apply cardiac monitor and check rhythm. Follow hypothermia cardiac arrest guidelines.



CARDIAC CHEST PAIN

EMT-B

A. Open and manage the airway and provide oxygen by nasal cannula 4 lpm and increase as needed with respirator distress. Apply pulse oximeter and treat per procedure.

B. Make patient comfortable and provide reassurance.

C. Evaluate patient's general appearance, relevant history of current condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially cardiac, stroke, recent surgeries, bleeding problems CNS problems and/or pregnancy
Last Meal
Events leading up to present illness

D. Assess the patient to determine if pain is cardiac in origin. Patients with pain of cardiac origin and have the following signs and/or symptoms are likely candidates for thrombolytic therapy:

* Previous myocardial infarction
* Age over 30
* Systolic pressure less than 180 and diastolic less than 110
* Persistent pain for 15 minutes or longer
* Lack of stroke, bleeding or CNS problem history
* Lack of trauma or surgery in the last two weeks
* No pregnancy

If the patient answers yes to the above, notify Medical Control patient fits profile.

THIS ASSESSMENT SHOULD BE DONE DURING TRANSPORT

F. If patient is conscious and alert with previous history of angina pain and is taking nitroglycerin or nitrostat, administer 0.4 mg tablet or spray of nitroglycerin sublingually. Assure medication is prescribed for patient, is not out of date and contact Medical Control.

Monitor patient's condition, especially blood pressure. Dosage may be repeated in 5 minutes if pain does not subside, B/P does not drop below 100 systolic and there is no change in level of consciousness.

G. If patient is experiencing an unusual and/or irregular heart rate or pulse, if available, the cardiac monitor may be applied and a strip run for evaluation by the Physician at the Emergency Department. This should only be done during transport, and you must advise the patient you do not have the ability to interpret the strip, but the ED Physician will.

H. Establish communications with Medical Control and advise of patient condition. Transport IMMEDIATELY.

EMT-I

A. Assist EMT, obtain patient condition and circumstance.

B. Apply monitor and check rhythm.

C. Start IV, saline , TKO, while enroute to hospital. DO NOT DELAY TRANSPORT

PARAMEDIC

A. Assume charge of situation and confer with EMT's about condition of patient and situation.

B. With chest pain, even if it clearly cannot be determined to be cardiac in origin, the Paramedic should:

1. Support the airway and provide oxygen.

2. Hypotension with signs of shock and patient is suspected of being in cardiogenic shock (BP less than 70-90 mm Hg systolic with poor profusion):

a. Establish IV saline TKO in large vein

b. Establish second IV in large major vessel for dopamine administration, 400mg dopamine in 500ml D5W to yield a solution of 800 mcg/ml;

Start infusion at 5 mcg/kg/min (9 gtts/min) and titrate the infusion until heart rate is 60 or > with improved BP and LOC.

IF IV INFILTRATES, REPORT TO THE ED PHYSICIAN AS SOON AS POSSIBLE

3. Relieve pain

a. If patient is conscious and alert , administer 0.4 mg tablet or spray of nitroglycerin sublingually after establishment of an IV. Monitor patient's condition. Dosage may be repeated in 5 minutes intervals if pain does not subside and SBP is above 90mm Hg.

b. If patient is alert, complaining of severe pain, systolic B/P is above 90mm Hg and pain is not relieved by nitroglycerin, contact Medical Control, if required and request nitrous oxide and/or morphine sulfate.

i. Morphine dosage: Small frequent titrated IV dose 5mg every 5 minutes as needed until desired effect is achieved.

ii. Do not use morphine on COPD or volume depletion.

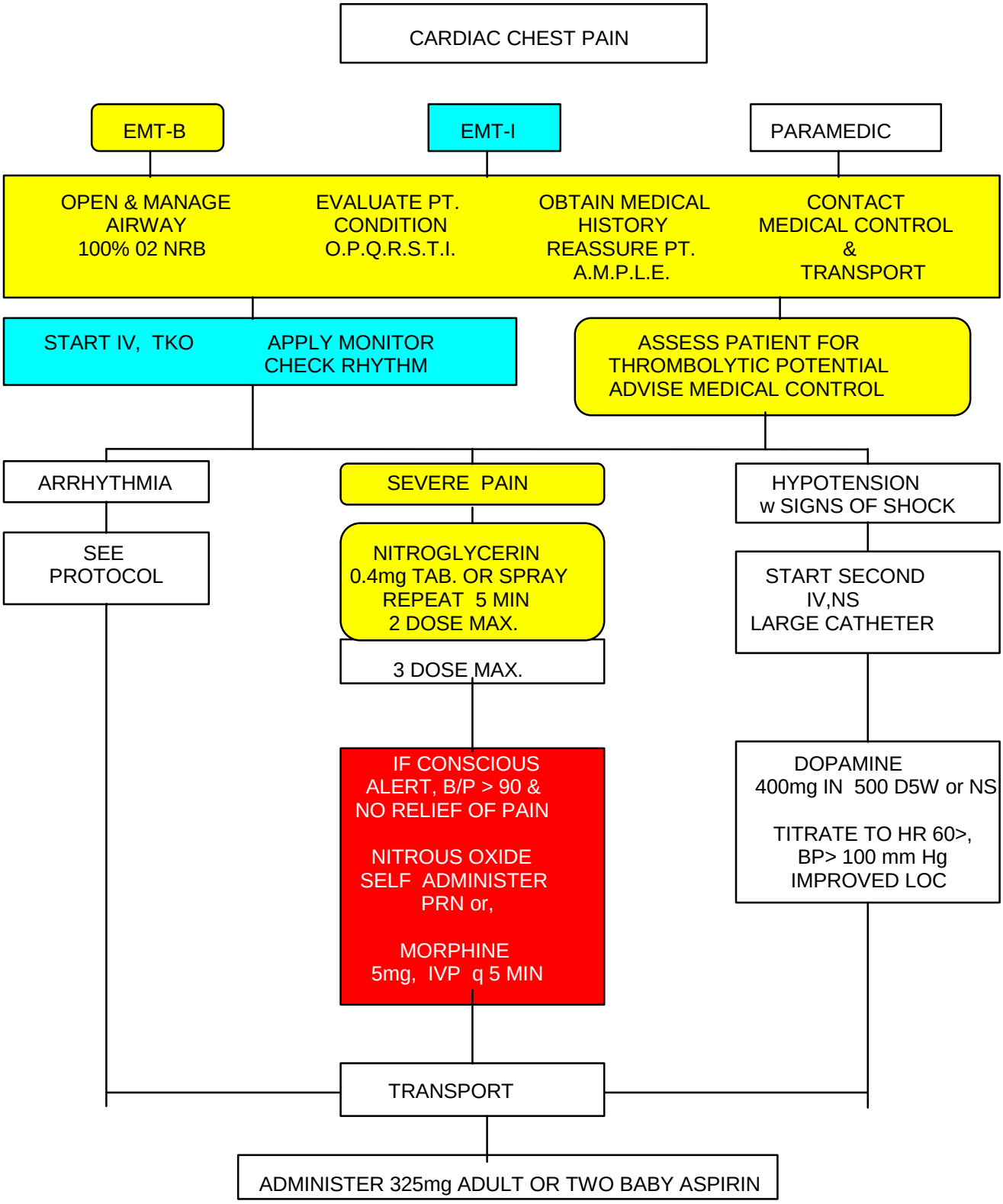
iii. With morphine and nitrous oxide, monitor respiration and blood pressure every five minutes.

4. Correct cardiac arrhythmia - Arrhythmia guidelines.

5. Transport to a medical facility.

6. When patient fits thrombolytic profile, administer one 325mg aspirin or two baby aspirin.

BE SURE TO CHECK FOR TRUE ASPIRIN ALLERGY vs PEPTIC DISTRESS


CARDIAC CHEST PAIN
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY 100% 02 NRB
EVALUATE PT. CONDITION O.P.Q.R.S.T.I.
OBTAIN MEDICAL HISTORY REASSURE PT. A.M.P.L.E.
CONTACT MEDICAL CONTROL & TRANSPORT
START IV, TKO
APPLY MONITOR CHECK RHYTHM
ASSESS PATIENT FOR THROMBOLYTIC POTENTIAL ADVISE MEDICAL CONTROL
ARRHYTHMIA
SEVERE PAIN
HYPOTENSION w SIGNS OF SHOCK
SEE PROTOCOL
NITROGLYCERIN 0.4mg TAB. OR SPRAY REPEAT 5 MIN 2 DOSE MAX.
START SECOND IV,NS LARGE CATHETER
3 DOSE MAX.
IF CONSCIOUS ALERT, B/P > 90 & NO RELIEF OF PAIN
NITROUS OXIDE SELF ADMINISTER PRN or,
MORPHINE 5mg, IVP q 5 MIN
DOPAMINE 400mg IN 500 D5W or NS
TITRATE TO HR 60>, BP> 100 mm Hg IMPROVED LOC
TRANSPORT
ADMINISTER 325mg ADULT OR TWO BABY ASPIRIN

CHILDBIRTH/OBSTETRICAL EMERGENCIES

GENERAL INSTRUCTIONS

A. Unless delivery is imminent, transport to a hospital with obstetrical capabilities

B. Imminent delivery is when the baby's head is visible in the vaginal opening during a contraction (crowning)

C. A visual inspection of the perineal area should only be done when contractions are less than 5 minutes apart and/or there is bleeding or fluid discharge

D. The EMT should not place a gloved hand inside the vagina except in the case of breech delivery with entrapped head or a prolapsed umbilical cord.

E. During delivery, gentle pressure with a flat hand on the baby's head should be applied to prevent an explosive delivery

F. A mother in active labor should be placed on the cot or floor to prevent the newborn from falling after delivery

EMT-B

A. Obtain history of patient condition and pregnancy: Contraction duration and interval, Due date, Number of pregnancies and number of live children, Pre-natal care and possible complications.

B. Determine transport or delivery. Transport unless crowning is present during a contraction; contact Medical Control

C. Always try to transport mother to her hospital designated for delivery.

Transport mother on left side with head slightly elevated to relieve pressure on mother's vena cava created by baby. Pressure could cause a decrease in mother's and baby's heart rate.

D. If delivery is imminent, prepare equipment and follow guidelines for delivery.

1. Equipment: OB Kit, Oxygen and BVM, towels and blankets, cot, large dressings

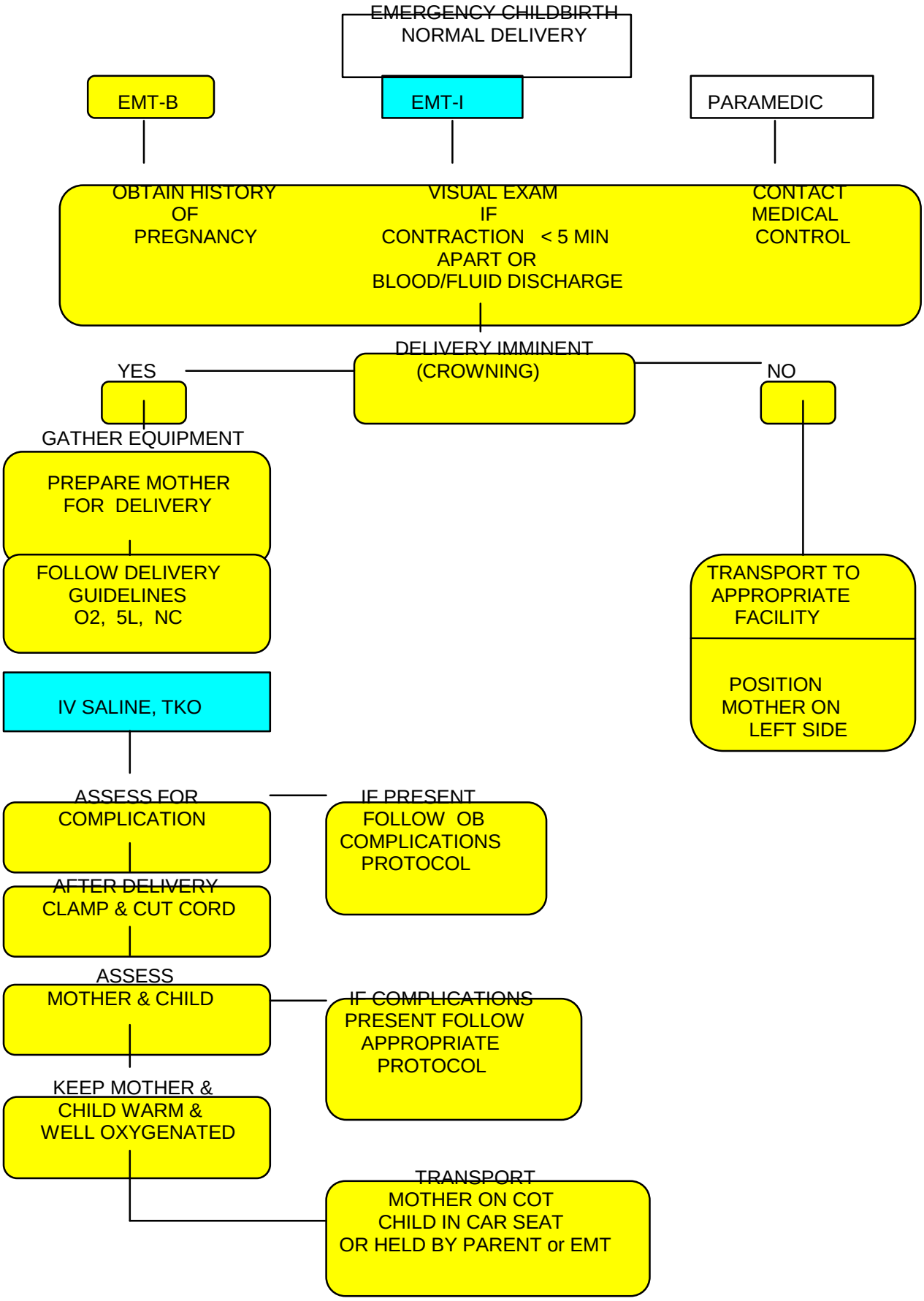
E. After delivery, transport mother on cot and baby in car seat if available, or have parent or EMT hold baby during transport

F. Keep mother and child warm and monitor airways and signs of shock

EMT-I / PARAMEDIC

A. Assist EMT, obtain patient condition and circumstance

B. Start IV saline if hypovolemic shock or excessive bleeding is present


EMERGENCY CHILDBIRTH
NORMAL DELIVERY
EMT-B
EMT-I
PARAMEDIC
OBTAIN HISTORY OF PREGNANCY
VISUAL EXAM IF CONTRACTION < 5 MIN APART OR BLOOD/FLUID DISCHARGE
CONTACT MEDICAL CONTROL
DELIVERY IMMINENT (CROWNING)
YES
NO
GATHER EQUIPMENT
PREPARE MOTHER FOR DELIVERY
FOLLOW DELIVERY GUIDELINES O2, 5L, NC
IV SALINE, TKO
TRANSPORT TO APPROPRIATE FACILITY
POSITION MOTHER ON LEFT SIDE
ASSESS FOR COMPLICATION
IF PRESENT
FOLLOW OB COMPLICATIONS PROTOCOL
AFTER DELIVERY
CLAMP & CUT CORD
ASSESS MOTHER & CHILD
IF COMPLICATIONS
PRESENT FOLLOW APPROPRIATE PROTOCOL
KEEP MOTHER & CHILD WARM & WELL OXYGENATED
TRANSPORT
MOTHER ON COT
CHILD IN CAR SEAT
OR HELD BY PARENT or EMT

DELIVERY COMPLICATIONS

CONTACT MEDICAL CONTROL AS SOON AS ANY COMPLICATION IS DISCOVERED

A. Cord Around Baby's Neck:

1. As baby's head passes out the vaginal opening, feel for the cord. Initially try to slip cord over baby's head; if too tight, clamp cord in two places and cut between clamps.

B. Breech Delivery:

1. Footling Breech, which is one or both feet delivered first

2. Frank Breech, which is the buttocks first presentation

   a. When the feet or buttocks first become visible, there is normally time to transport patient to nearest facility.

   b. If upper thighs or the buttock have come out of the vagina, delivery is imminent.

   c. If the child's body has delivered and the head appears caught in the vagina, the EMT must support the child's body and insert two fingers into the vagina along the child's neck until the chin is located. At this point, the two fingers should be placed between the chin and the vaginal canal and then advanced past the mouth and nose.

   d. After achieving this position a passage for air must be created by pushing the vaginal canal away from the child's face. This air passage must be maintained until the child is completely delivered.

C. Excessive Bleeding Pre-delivery:

1. If bleeding is excessive during this time and delivery is imminent, in addition to normal delivery procedures, the EMT should use the hypovolemic shock guidelines.

2. If delivery is not imminent, patient should be transported on her left side and shock guidelines followed.

D. Excessive Bleeding Post-delivery:

1. If bleeding appears to be excessive, start IV of saline.

2. If placenta has been delivered, massage uterus and put baby to mother's breast.

3. Follow hypovolemia shock guidelines.

E. Prolapsed Cord:

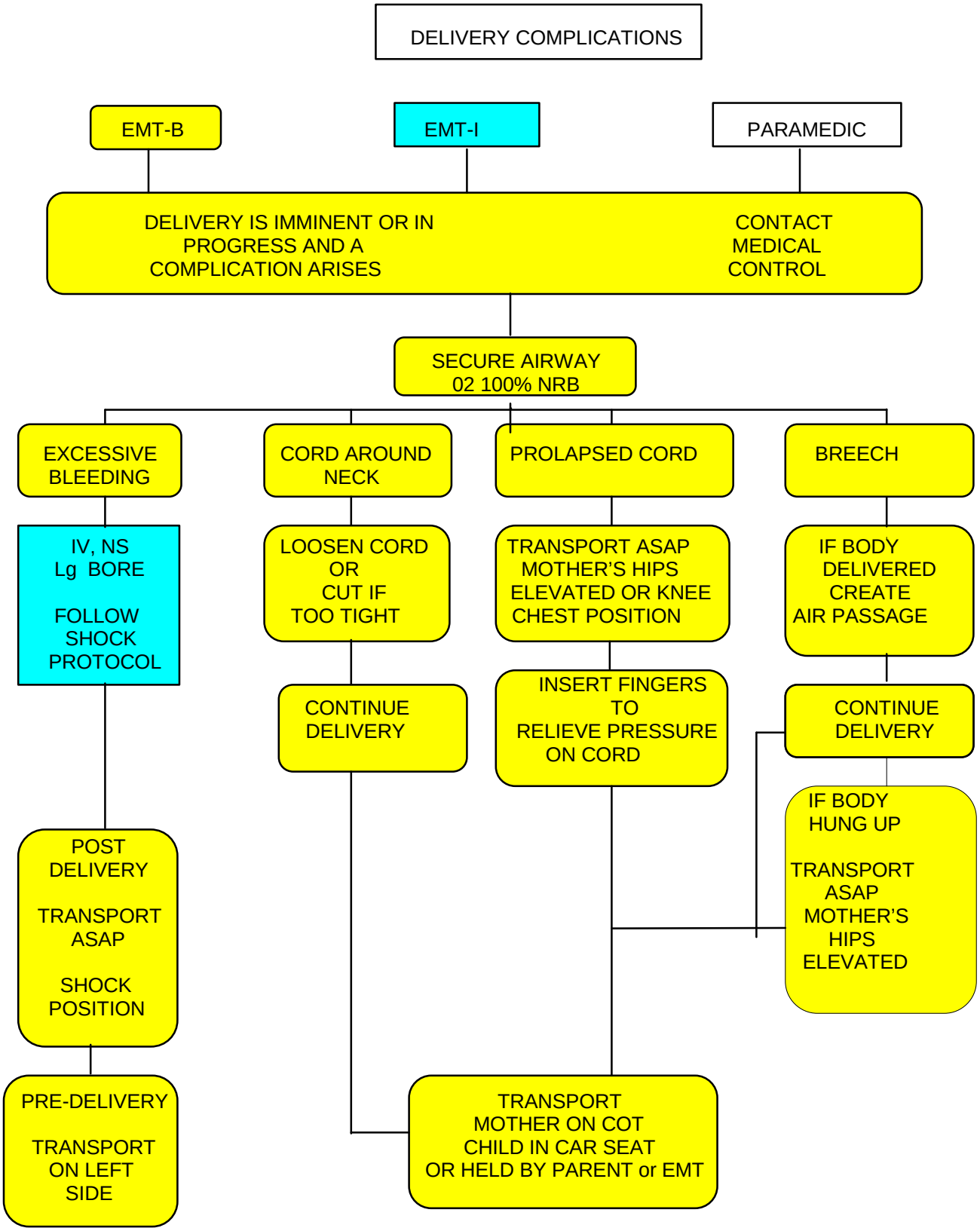
1. When the umbilical cord passes through the vagina and is exposed, the EMT should check cord for a pulse.

2. The patient should be transported with hips elevated or in the knee chest position and a moist dressing around cord.

3. If umbilical cord is seen or felt in the vagina, insert two fingers to elevate presenting part away from cord, distribute pressure evenly when occiput presents

4. DO NOT attempt to push the cord back

5. High flow oxygen and transport IMMEDIATELY


DELIVERY COMPLICATIONS
EMT-B
EMT-I
PARAMEDIC
DELIVERY IS IMMINENT OR IN PROGRESS AND A COMPLICATION ARISES
CONTACT MEDICAL CONTROL
SECURE AIRWAY 02 100% NRB
EXCESSIVE BLEEDING
CORD AROUND NECK
PROLAPSED CORD
BREECH
IV, NS Lg BORE
FOLLOW SHOCK PROTOCOL
LOOSEN CORD OR CUT IF TOO TIGHT
TRANSPORT ASAP MOTHER'S HIPS ELEVATED OR KNEE CHEST POSITION
IF BODY DELIVERED CREATE AIR PASSAGE
CONTINUE DELIVERY
INSERT FINGERS TO RELIEVE PRESSURE ON CORD
CONTINUE DELIVERY
IF BODY HUNG UP
TRANSPORT ASAP MOTHER'S HIPS ELEVATED
POST DELIVERY
TRANSPORT ASAP
SHOCK POSITION
PRE-DELIVERY
TRANSPORT ON LEFT SIDE
TRANSPORT MOTHER ON COT CHILD IN CAR SEAT OR HELD BY PARENT or EMT

OBSTETRICAL EMERGENCIES

A. Miscarriage: Premature termination of a pregnancy

1. Assess for shock and treat per shock guidelines.

2. Give psychological support to patient and/or family

3. Be sure to take all expelled tissue with you to the hospital

B. Ectopic Pregnancy: When growth and development of a fertilized egg occurs outside the uterus

1. Patient may experience severe abdominal pain.

2. May have intra-abdominal and/or vaginal bleeding and discharge.

3. Patient may not know she is pregnant

4. Treat for Hypovolemic Shock except for abdominal section of PASG

5. Transport supine with knees flexed

6. Take any expelled tissue with you to the hospital

C. Cardiac Arrest: Cardiac resuscitation of the expectant mother is unique due to the changes in the maternal cardiovascular and respiratory physiology

1. Precipitating events for cardiac arrest include: Pulmonary embolism, trauma, hemorrhage or congenital or acquired cardiac disease.

2. Standard resuscitative guidelines should be carried out.

3. When the mother is supine, the fetus may compress the iliac vessels, the inferior vena cava, and the abdominal aorta. To minimize effects of the fetus pressure on venous return:

   a. Place a wedge (pillow) under the right abdominal flank and hip, or

   b. Apply continuous manual displacement of the uterus to the left

D. Third Trimester Bleeding.

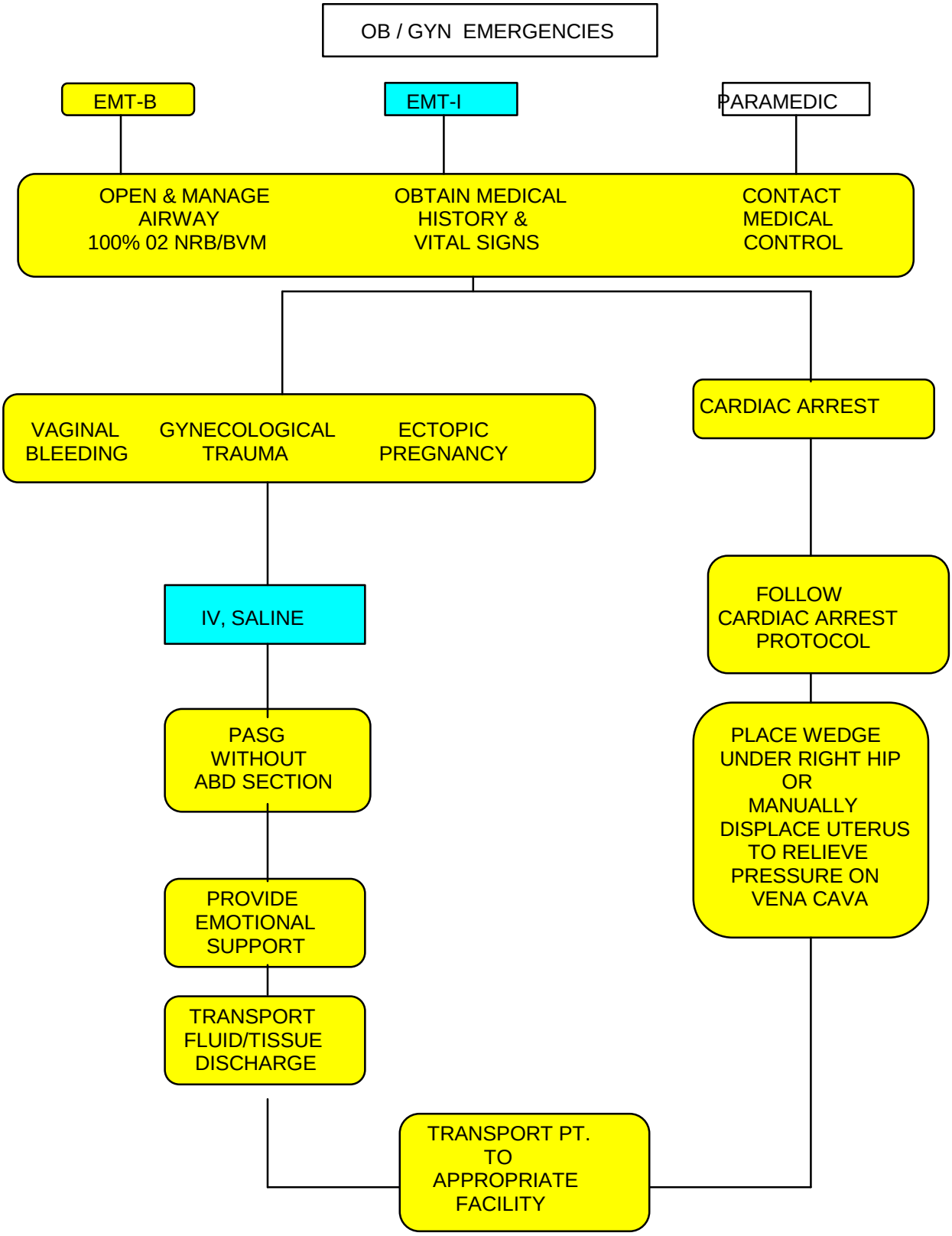
1. Abruptio placenta - premature separation of placenta from uterine wall. Characterized by abdominal pain and vaginal bleeding

   a. Bleeding may be dark
   b. Uterus tender

2. Placenta previa - placenta partially or completely covers the cervical (birth) canal Characterized by painless vaginal bleeding

   a. Bleeding may be bright red
   b. Uterus may be non-tender

3. Never do vaginal exam


OB / GYN EMERGENCIES
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY 100% 02 NRB/BVM
OBTAIN MEDICAL HISTORY & VITAL SIGNS
CONTACT MEDICAL CONTROL
VAGINAL BLEEDING
GYNECOLOGICAL TRAUMA
ECTOPIC PREGNANCY
CARDIAC ARREST
IV, SALINE
FOLLOW CARDIAC ARREST PROTOCOL
PASG WITHOUT ABD SECTION
PLACE WEDGE UNDER RIGHT HIP OR MANUALLY DISPLACE UTERUS TO RELIEVE PRESSURE ON VENA CAVA
PROVIDE EMOTIONAL SUPPORT
TRANSPORT FLUID/TISSUE DISCHARGE
TRANSPORT PT. TO APPROPRIATE FACILITY

DIABETIC EMERGENCIES

EMT-B

A. Secure and maintain airway. Support with 100% O_2 by NRB mask.

B. Obtain relevant medical history: OPQRST

1. Has patient eaten today?
2. Has patient taken insulin?
3. Onset
4. Medication - Type and time taken

C. Determine blood sugar level

1. Blood sugar less than 80, administer oral glucose to conscious and alert patients only

2. Unable to obtain blood sugar, transport and contact Medical Control for guidance

D. Establish communications with Medical Control and advise of patient condition. Consider transport time of < 5 minutes.

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Apply monitor and check rhythm

C. Start IV saline, TKO, while enroute to hospital.

DO NOT DELAY TRANSPORT

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. Apply monitor and check rhythm

C. Start IV saline, TKO.

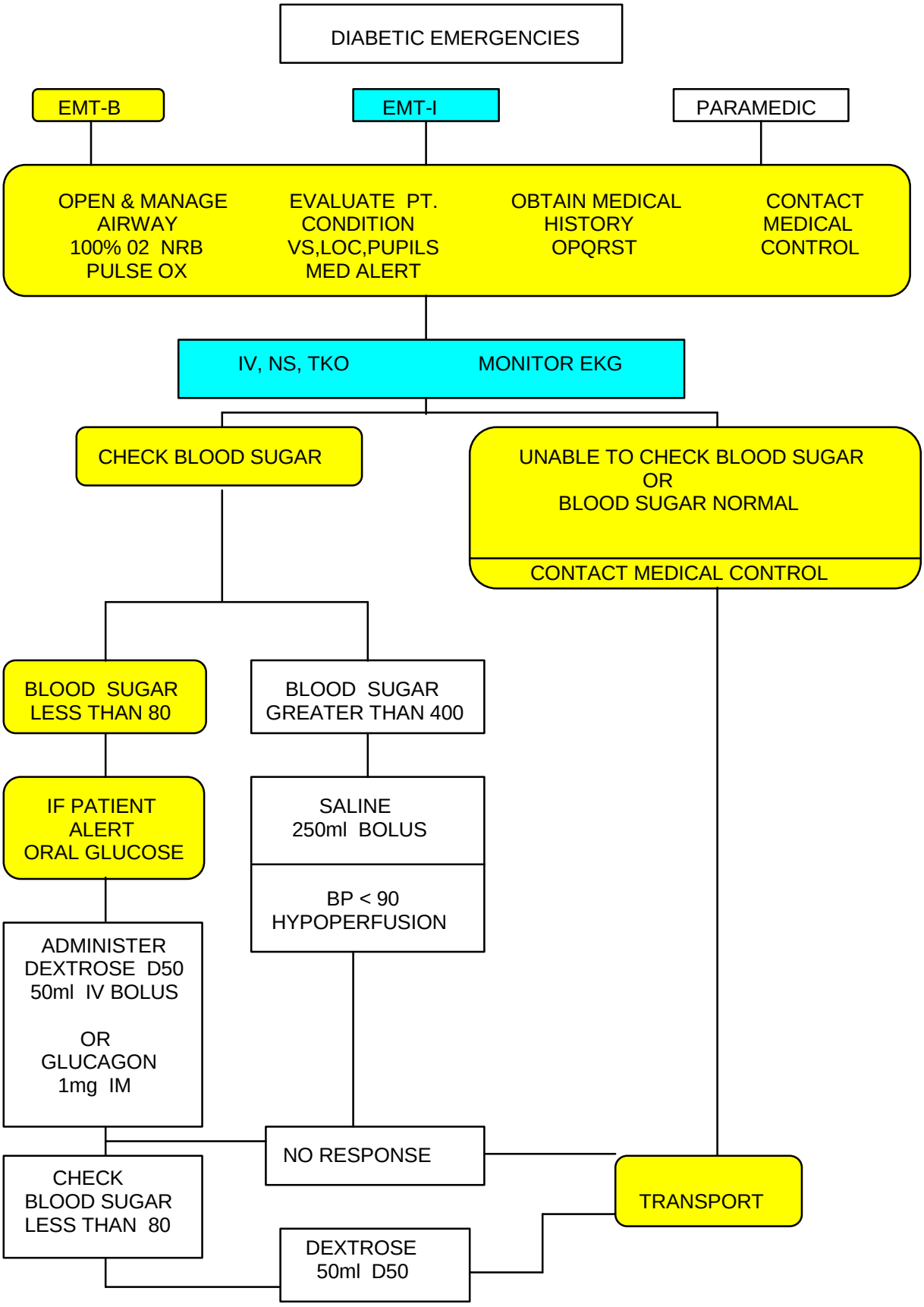
D. Determine blood sugar level.

1. Blood sugar less than 80, administer 50cc D50 IV push immediately or Glucagon 1mg IM.

2. Blood sugar greater than 400, and hypoperfusion is present, infuse patient with 250cc bolus of saline

3. Unable to obtain blood sugar, transport and contact Medical Control for guidance

E. If patient has an altered level of consciousness, follow Altered LOC Protocol


DIABETIC EMERGENCIES
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
100% 02 NRB
PULSE OX
EVALUATE PT. CONDITION
VS,LOC,PUPILS
MED ALERT
OBTAIN MEDICAL HISTORY
OPQRST
CONTACT MEDICAL CONTROL
IV, NS, TKO
MONITOR EKG
CHECK BLOOD SUGAR
UNABLE TO CHECK BLOOD SUGAR
OR
BLOOD SUGAR NORMAL
CONTACT MEDICAL CONTROL
BLOOD SUGAR LESS THAN 80
BLOOD SUGAR GREATER THAN 400
IF PATIENT ALERT
ORAL GLUCOSE
SALINE
250ml BOLUS
BP < 90
HYPOPERFUSION
ADMINISTER
DEXTROSE D50
50ml IV BOLUS
OR
GLUCAGON
1mg IM
NO RESPONSE
CHECK
BLOOD SUGAR
LESS THAN 80
TRANSPORT
DEXTROSE
50ml D50

EYE INJURY

GENERAL CONSIDERATIONS

TRAUMA

A. Do not allow eye injury to distract you from the basics of trauma care

B. Do not remove any foreign body imbedded in the eye or orbit. Stabilize any large protruding foreign bodies.

C. With blunt trauma to the eye, if time permits, examine the globe briefly for gross laceration as the lid may be swollen tightly shut later. Scleral rupture may lie beneath an intact conjunctiva.

1. Exert no pressure on the globe when doing the exam or when covering for transport

2. A light sterile wet dressing may be used to cover the eye for transport - avoid pressure directly to the eye by covering with a protective shield, (metal patch, drinking cup)

   Do not delay transport by covering the eye if the patient has other life-threatening injuries.

D. Covering both eyes when only one eye is injured may help to minimize trauma to the injured eye, but in some cases the patient is too anxious to tolerate this

E. Transport patient sitting upright unless other life threats prohibit this from being done.

CHEMICAL BURNS

A. When possible determine type of chemical involved first. The eye should be irrigated with copious amounts of water or saline, using IV tubing wide open for a minimum of 15 minutes started as soon as possible. Any delay may result in serious damage to the eye.

B. Consider the use of topical ophthalmic anesthetic should be placed in the eye prior to irrigation. Always check to determine if the patient has any allergy to anesthetic agents

C. Always obtain name and, if possible, a sample of the contaminant or ask that they be brought to the hospital as soon as possible

CONTACT LENSES

A. If possible, contact lenses should be removed from the eye; be sure to transport them to the hospital with the patient. If the lenses cannot be removed, notify the ED personnel as soon as possible.

B. If the patient is conscious and alert, it is much safer and easier to have the patient remove their lenses

ACUTE, UNILATERAL VISION LOSS

A. When a patient suddenly loses vision in one eye with no pain, there may be a central retinal artery occlusion. Urgent transport and treatment is necessary.

B. Patient should be transported flat.

EMT-B / EMT-I

A. Keep patient calm and lying flat, unless otherwise indicated

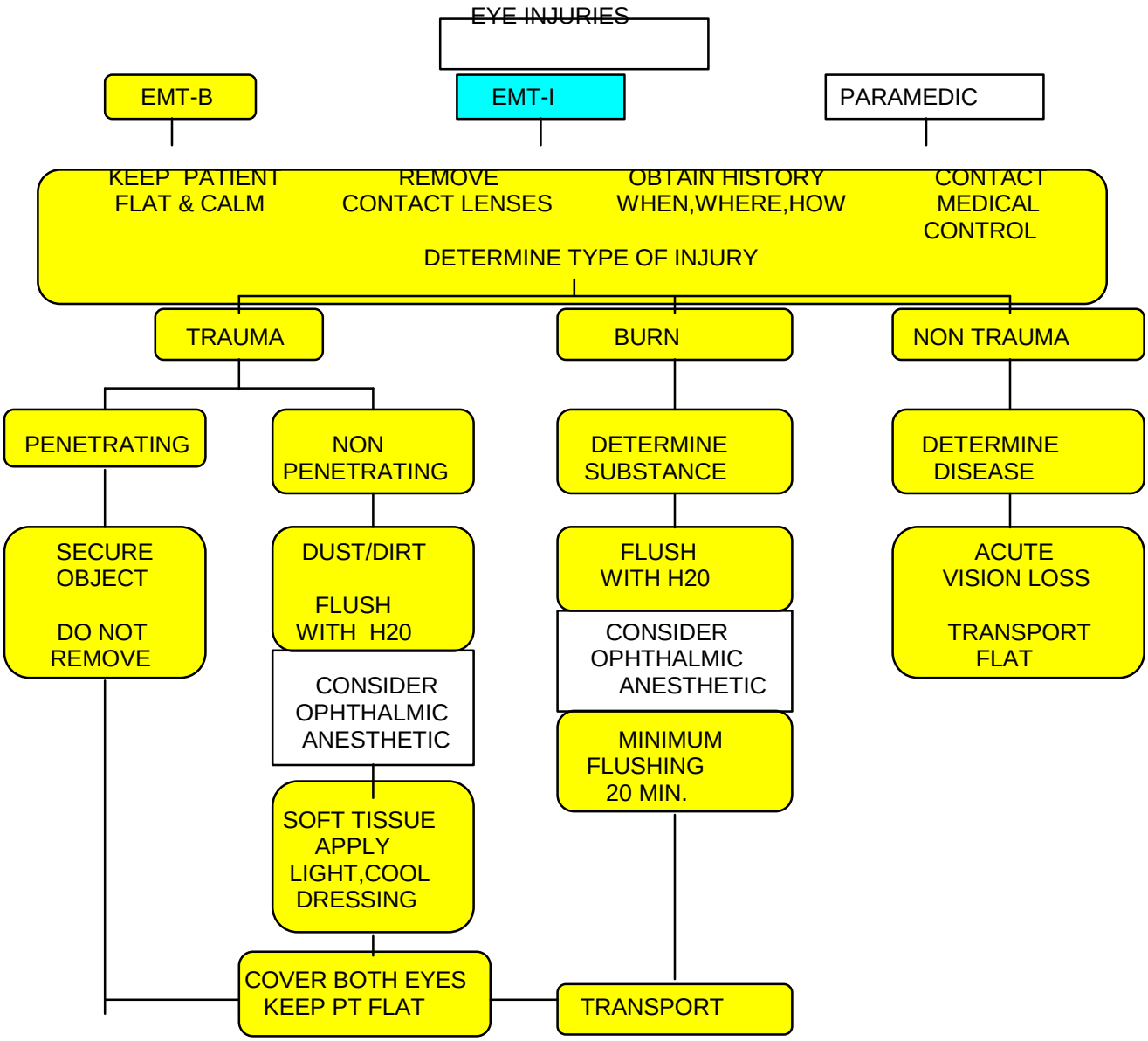
B. Obtain history of injury: Type, Where, When, How.

C. Establish communications with Medical Control and advise of patient condition. Transport immediately, unless an advanced life support unit is enroute and has an ETA of less than 5 minutes.

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation.

B. In cases where eyes may need irrigation, administer two (2) drops of topical ophthalmic anesthetic (i.e. Tetracaine) in eyes



HYPOTHERMIA / FROSTBITE

GENERAL CONSIDERATIONS

A. This guidelines was written to assist those instances of hypothermic injury involving long evacuation and transport time. When possible, all treatment should be left for a hospital setting.

B. Generalized Hypothermia:

1. The most common mechanism of death in hypothermia is ventricular fibrillation. If the hypothermia victim is in ventricular fibrillation, CPR should be initiated. If V fib is <u>not</u> present, then all treatment and transport decisions should be tempered by the fact that V fib can be caused by rough handling, noxious stimuli or even minor mechanical disturbances, this means that respiratory support with 100% oxygen should be done gently, including intubation, avoiding hyperventilation.

2. In the absence of monitor-confirmed V fib, the decision to initiate CPR must consider the following:

   a. Hypothermia may produce profound bradycardia and the pulse should be taken for at least 60 seconds before concluding that the patient is pulseless.
   b. Hypothermia can exert a protective effect on body tissues. The hypothermia victim's own cardiac activity, even when profoundly bradycardic may be preferred to CPR perfusion, especially in light of the fact that CPR may well precipitate V fib.

3. The heart is most likely to fibrillate between 85-88 degrees F. (29-31 degrees C.) Defibrillate VS / VT up to a total of three shocks (200 J, 300 J, 360 J).

4. Since fibrillation is so difficult to convert without rewarming, measures to rewarm should be instituted in any hypothermia victim with V fib. The decision to rewarm should be made in consultation with Medical Control and should consider the following factors:

   a. Method of rewarming available
   b. Time / distance from hospital
   c. Squad capability of treating V fib (ALS? BLS?)

5. Shivering stops below 90 degrees F. (32 degrees C).

6. Consider hypoglycemia in the hypothermic patient.

7. Wet clothing robs heat from the body more than it insulates and should be removed, protecting victim from wind.

8. Never give hot liquids by mouth.

9. Generalized hypothermia can occur whenever the ambient temperature is less than body temperature and the body is not capable of maintaining that temperature. For example, an elderly debilitated patient sitting over night in a room which is at 66 degrees F. may become hypothermic from that exposure alone. Suspect hypothermia in the injured, elderly, or debilitated patient.

C. Local Hypothermia (frostbite):

1. Thawing should be done under controlled conditions. It is extremely painful.

2. Complete rewarming requires active heating for prolonged period. Partial rewarming is worse than none. Therefore, rewarming should rarely be done in the field.

EMT-B

A. Secure airway, and consider cervical spine injury

1. Administer warmed 100% oxygen, if available, by NRB mask and or BVM.

B. Move patient to warm environment , remove any wet clothing and cover with blankets.

C. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially, length of exposure, unconsciousness, was the patient wet, drugs/alcohol ingestion, did injured areas thaw and freeze.
Last Meal
Events leading to present illness

D. Assess vital signs, mental status, temperature of patient and environment and evidence of local injury.

E. Generalized Hypothermia with Arrest

1. CPR and Transport unless AED or ALS is available in less than 5 minutes.

2. If an Automated External Defibrillator (AED) is available:

a. Assess patient for respiratory and cardiac arrest.

b. Apply AED and activate device. Start verbal documentation which must include:

* EMS delivering care, unit number and ID of EMT
* Initial call information (i.e. man down, drowning, etc.)
* Initial patient assessment, findings and impression
* Care given to this point
* Ongoing outcomes of care delivered to patient

i. "No Shock Advised"

(a) CPR as recommended by the American Heart Association.

(b) Establish communications with Medical Control and advise of cardiac arrest.

(c) Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene.)

ii. "Shock Advised"

(a) Deliver three stacked shocks (shocks without pulse checks)

(i) Defibrillate 200 joules

(ii) No Change - Second defibrillation 300 joules
(iii) No change - Third defibrillation 360 joules

F. Generalized Hypothermia Without Arrest

1. Do not initiate CPR if there is any pulse present, no matter how bradycardic.

2. Use oxygen, high flow. Do not hyperventilate. Do not use adjunctive airway equipment unless absolutely necessary. If necessary, use least intrusive measures which will adequately assure airway and ventilation.

3. Avoid rough handling, unnecessary stimulation.

4. If rewarming is undertaken, rewarm rapidly by applying warm packs or hot water bottles to trunk, neck and groin only.

5. Do not allow conscious patients to ambulate, exercise or move about.

G. Local Hypothermia (frostbite):

1. Protect the injured areas from pressure, trauma, friction. Remove all covering from injured parts. Do not rub. Do not break blisters.

2. Do not thaw injured part with local heat in excess of 100-110 degrees F. (water that is comfortably hot to the touch without burning).

3. Do not allow limb to thaw if there is a chance that limb may refreeze before evacuation is complete.

4. Maintain core temperature by keeping patient warm with blankets, warm fluids, etc.

5. Transport and contact Medical Control of situation

EMT-I

A. Confer with EMT-B's and confirm assessment.

B. During Transport :

1. Apply cardiac monitor, check rhythm and treat according to cardiac guidelines. Maximum defibrillations three (3) shocks, 200 J, 300 J, 360 J.

2. Intubation, oxygenate with 100% O2, warm/humidified if available.

3. IV / warm NS, if available. If hypotension, 200-300 cc push. Contact Medical Control.

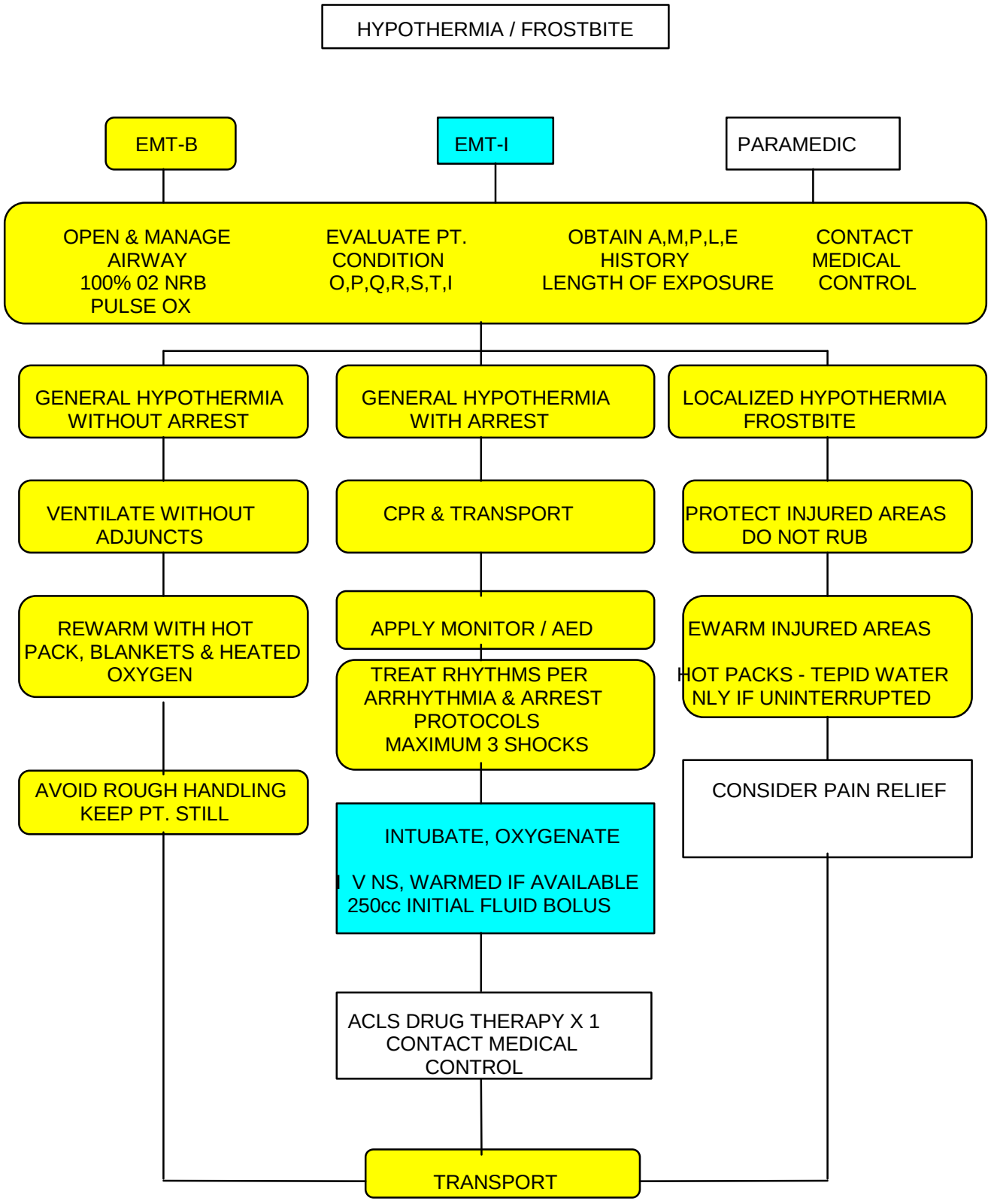
EMT-P

A. Confer with EMT's and confirm assessment.

Hypothermia/Frostbite (cont)

B. During Transport :

1. Apply cardiac monitor, check rhythm and treat according to cardiac guidelines.
2. Intubation, oxygenate with 100% O2, warm/humidified if available.
3. IV / warm NS, if available. If hypotension, 250 cc push.
4. Evaluate Blood sugar for possible dextrose administration
5. One round of ACLS medication.
6. When rewarming patients consider pain relief:


HYPOTHERMIA / FROSTBITE
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
100% 02 NRB
PULSE OX
EVALUATE PT. CONDITION
O,P,Q,R,S,T,I
OBTAIN A,M,P,L,E HISTORY
LENGTH OF EXPOSURE
CONTACT MEDICAL CONTROL
GENERAL HYPOTHERMIA WITHOUT ARREST
GENERAL HYPOTHERMIA WITH ARREST
LOCALIZED HYPOTHERMIA FROSTBITE
VENTILATE WITHOUT ADJUNCTS
CPR & TRANSPORT
PROTECT INJURED AREAS
DO NOT RUB
REWARM WITH HOT PACK, BLANKETS & HEATED OXYGEN
APPLY MONITOR / AED
EWARM INJURED AREAS
HOT PACKS - TEPID WATER
NLY IF UNINTERRUPTED
TREAT RHYTHMS PER ARRHYTHMIA & ARREST PROTOCOLS
MAXIMUM 3 SHOCKS
AVOID ROUGH HANDLING
KEEP PT. STILL
CONSIDER PAIN RELIEF
INTUBATE, OXYGENATE
V NS, WARMED IF AVAILABLE
250cc INITIAL FLUID BOLUS
ACLS DRUG THERAPY X 1
CONTACT MEDICAL CONTROL
TRANSPORT

HEAT EXPOSURE

GENERAL CONSIDERATIONS

A. Recognize that the very old, very young and patients with a history of spinal injury are the ones most likely to suffer related illness. Other contributory factors may include heart medications, diuretics, cold medications and/or psychiatric medications.

B. Heat exposure can occur either due to increased environmental temperatures or prolonged exercise or a combination of both. Environments with temperature above 90°F and humidity over 60% present the most risk.

C. Types of heat related illness:

1. Heat Stroke - The most serious type of exposure illness, usually due to prolonged exposure to heat, inadequate fluid replacement and deficient thermoregulatory function.

   The patient will often experience inadequate perspiration with body temperatures reaching 105°F or greater. The skin is usually hot and dry and there may be an altered LOC and/or coma. Seizures may also occur.

   Cardiovascular collapse is the usual cause of death.

2. Heat Exhaustion - A more moderate form of heat exposure associated with dehydration combined with overexertion.

   The skin is cooler and the core temperature is below 105°F. The patient may experience syncope with orthostatic hypotension.

3. Heat Cramps - The mildest form of heat exposure caused by dehydration, overexertion and electrolyte abnormalities.

   The skin is moist with muscle cramps, usually affecting large muscle groups.

D. When altered mental status is present consider other causes such as hypoglycemia, stroke and/or shock.

EMT-B

A. Secure airway, and consider cervical spine injury.

1. Administer oxygen, maintaining a 95% SpO_2 or BVM.

B. Move patient to cool environment, remove any tight clothing.

C. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially, length of exposure, unconsciousness, drugs/alcohol ingestion

Last Meal
Events leading to present illness

D. Assess vital signs every 15 minutes, mental status, temperature of patient and environment.

E. Determine type of exposure:

1. Heat Stroke (hot and insufficient sweating)

a. Patient alert and oriented, may give fluid orally if there is no nausea and/or vomiting.

b. Patient with altered LOC, transport and:

i. cool with mist or cool wet sheet with fan, air conditioning and/or open windows:

ii. apply cold packs to axilla, groin and neck. (Avoid shivering)

2. Heat Exhaustion (pale, moist, may be orthostatic)

a. Patient alert and oriented, may give fluid orally if there is no nausea and/or vomiting.

b. Patient with altered LOC, transport and:

i. apply cold packs to axilla, groin and neck. (Avoid shivering)

3. Heat Cramps

a. Patient alert and oriented, may give fluid orally if there is no nausea and/or vomiting.

EMT-I

A Confer with EMT-B's and confirm assessment.

B. During transport:

1. Apply cardiac monitor, check rhythm and treat according to cardiac protocol.

2. IV NS if hypoperfusion is present, 250cc push NS. Contact Medical Control.

EMT-P

A Confer with EMT's and confirm assessment.

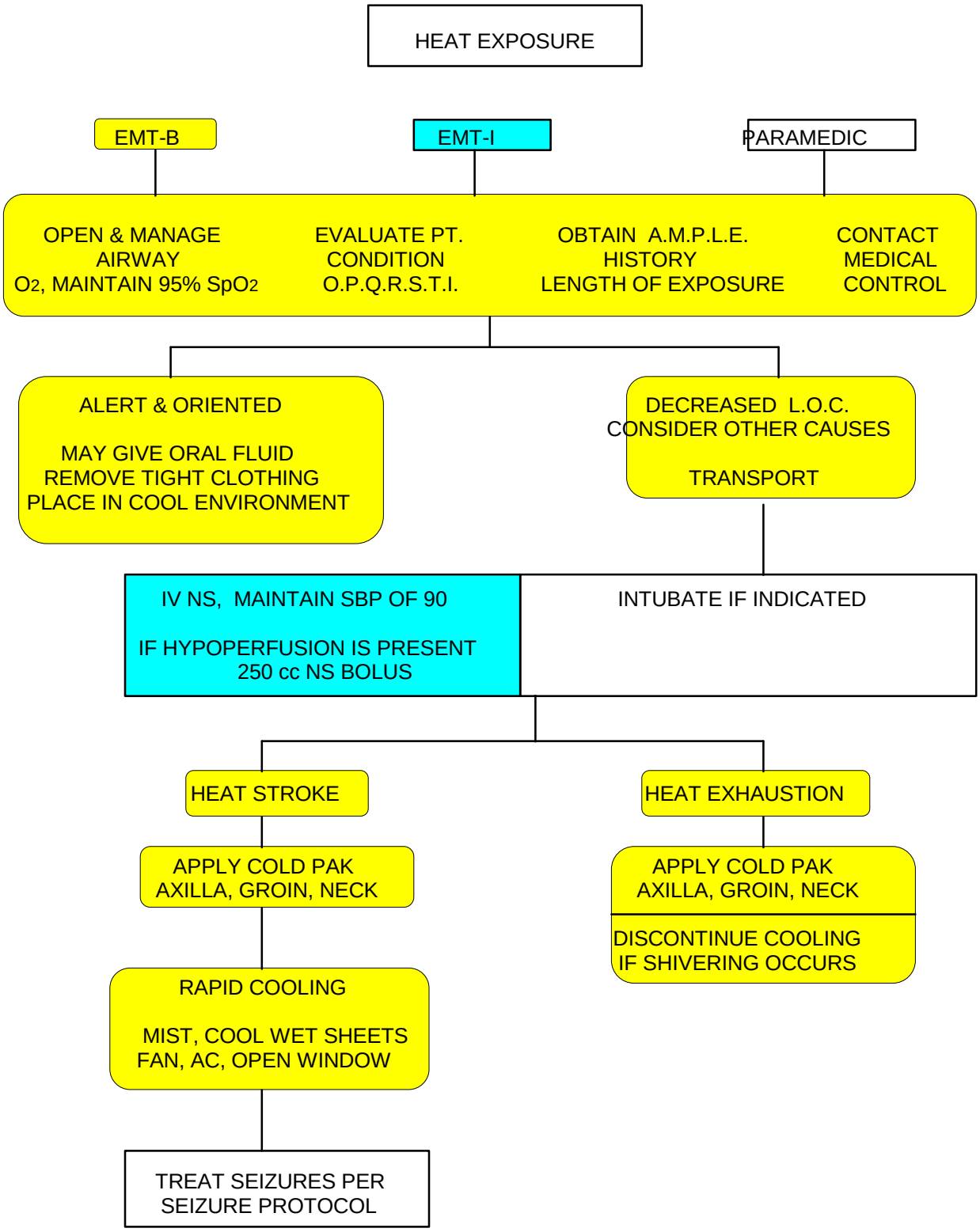
B. During transport:

1. Apply cardiac monitor, check rhythm and treat according to cardiac protocol.

2. Intubation, oxygenate with 100% O_2, if indicated.

3. IV NS if hypoperfusion is present, 250cc push NS. Contact Medical Control.

4. Treat seizures per seizure protocol.


HEAT EXPOSURE
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY
O2, MAINTAIN 95% SpO2
EVALUATE PT. CONDITION
O.P.Q.R.S.T.I.
OBTAIN A.M.P.L.E. HISTORY
LENGTH OF EXPOSURE
CONTACT MEDICAL CONTROL
ALERT & ORIENTED
MAY GIVE ORAL FLUID
REMOVE TIGHT CLOTHING
PLACE IN COOL ENVIRONMENT
DECREASED L.O.C.
CONSIDER OTHER CAUSES
TRANSPORT
IV NS, MAINTAIN SBP OF 90
IF HYPOPERFUSION IS PRESENT
250 cc NS BOLUS
INTUBATE IF INDICATED
HEAT STROKE
HEAT EXHAUSTION
APPLY COLD PAK
AXILLA, GROIN, NECK
APPLY COLD PAK
AXILLA, GROIN, NECK
DISCONTINUE COOLING
IF SHIVERING OCCURS
RAPID COOLING
MIST, COOL WET SHEETS
FAN, AC, OPEN WINDOW
TREAT SEIZURES PER
SEIZURE PROTOCOL

POISONING

GENERAL CONSIDERATIONS

EMTs and Paramedics will consider the possibility of accidental or self poisoning under the following conditions:

A. History of observed or admitted accidental or intentional ingestion
B. Coma
C. History of known suicide gesture
D. Suggestive intoxicated behavior (hyperactive, hypoactive, unstable walk, lethargic)

EMT-B

A. Establish airway

B. Obtain relevant history

1. What, when, why taken (if known)
2. Quantity taken (if known))
3. Victim's age and weight

C. Take whatever container the substance came from to the hospital along with readily obtainable samples of medication unless this results in an unreasonable delay of transport

D. Evaluate patient's:

1. Breath sounds (rales)
2. Level of consciousness
3. Pupil size
4. Evidence of head injury

E. Depending on route poison entered body apply the following:

1. Ingested Poisons - Transport [Contact Medical Control for prolonged transports, > 30 minutes or for recommendation for charcoal administration.]
2. Inhaled Poisons -

    a. Remove from toxic area
    b. Secure airway, support with 100% oxygen
    c. Assist in ventilation if necessary

3. Absorbed Poisons

    a. Remove victim's clothing
    b. Identify substance
    c. Flush skin with water before and during transport if possible - at least 10-15 minutes
    d. If eyes are involved flush with water or saline for 10-15 minutes

4. Injected Poisons

    a. Secure and maintain airway
    b. Find substance and introduction system, if possible

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Apply monitor and check rhythm

C. Start IV saline, TKO, while enroute to hospital. DO NOT DELAY TRANSPORT

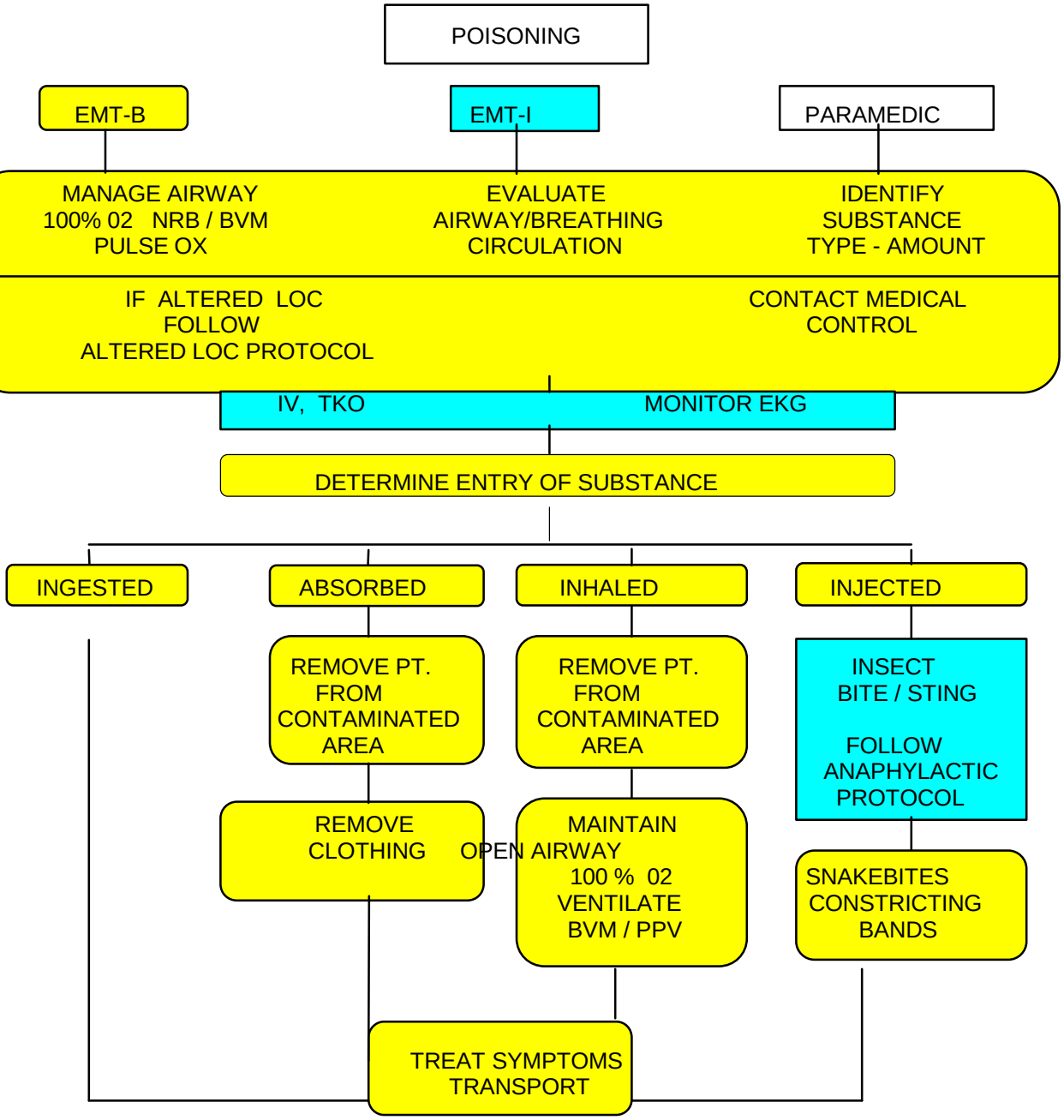
PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. If patient has an altered level of consciousness, follow the Altered Level of Consciousness Protocol

C. Start IV saline, TKO

D. Contact Medical Control for prolonged transports, >30 minutes or for recommended for charcoal administration.


POISONING
EMT-B
EMT-I
PARAMEDIC
MANAGE AIRWAY
100% 02 NRB / BVM
PULSE OX
EVALUATE
AIRWAY/BREATHING
CIRCULATION
IDENTIFY
SUBSTANCE
TYPE - AMOUNT
IF ALTERED LOC
FOLLOW
ALTERED LOC PROTOCOL
CONTACT MEDICAL
CONTROL
IV, TKO
MONITOR EKG
DETERMINE ENTRY OF SUBSTANCE
INGESTED
ABSORBED
INHALED
INJECTED
REMOVE PT.
FROM
CONTAMINATED
AREA
REMOVE PT.
FROM
CONTAMINATED
AREA
INSECT
BITE / STING
FOLLOW
ANAPHYLACTIC
PROTOCOL
REMOVE
CLOTHING
OPEN AIRWAY
MAINTAIN
100 % 02
VENTILATE
BVM / PPV
SNAKEBITES
CONSTRICTING
BANDS
TREAT SYMPTOMS
TRANSPORT

PSYCHIATRIC EMERGENCIES

EMT-B / EMT-I / PARAMEDIC

A. Obtain relevant history:

1. Previous psychiatric hospitalization, when and where
2. Where does patient receive psychiatric care?
3. What drugs does patient take (including alcohol)?

B. Calm the patient

C. Evaluate patient's:

1. Vital signs
2. General appearance

D. Contact Medical Control and advise of patient condition

E. Transport patients to appropriate facility.

F. Contact local law enforcement for assistance with violent patients

NOTE: Restraints may be used to protect the patient ,technicians, and bystanders. See restraint policy.

G. ALL patients who are not making rational decisions should be transported for medical evaluation. *

Threat of suicide, overdose of medication, drugs, or alcohol, and/or threats to the health and well being of others are NOT considered rational.

* Refer to Refusal Protocol

RESPIRATORY DISTRESS

EMT-B

A. Open airway and check for breathing

1. Airway obstructed:

a. Manual clearing
b. Abdominal or chest thrust
c. Suction
d. If airway cannot be cleared in 60 seconds:

i. Transport immediately to nearest hospital
ii. Do not take history
iii. Do not make further physical assessment

2. Airway is open, breathing absent, pulse present:

a. Ventilate patient 100% oxygen by two person bag valve mask or oxygen powered, manually triggered ventilation device with nasal or oral airway once every five seconds

b. Ventilation should be delivered over two seconds and cricoid pressure should be considered to help reduce gastric distention

3. Airway is open and patient is in distress:

a. Administer 100% O_2 by NRB mask;

b. Be prepared to assist ventilations;

c. Evaluate breath sounds:

i. Clear breath sounds: Treat cause - (MI, pulmonary embolism, metabolic disturbance, hyperventilation) Transport

ii. Wheezes present:

(a) Minor allergic reaction: Support with oxygen, observe patient carefully. Transport

(b) Severe allergic reaction (allergy, asthma)

(i) Secure airway and support with oxygen

(ii) Ask patient or bystanders if epinephrine by auto-injector has been prescribed for these situations and do they have the medication with them

(iii) IF MEDICATION IS NOT AVAILABLE - Transport immediately, unless ALS unit is enroute and has an ETA of less than 5 minutes. (Consider transport time)

(iv) IF MEDICATION IS AVAILABLE:

(aa) Assure medication is prescribed for patient

(bb) Check medication - cloudiness, expiration date, administration method

(cc) Contact Medical Control, if possible

(dd) Administer medication in mid-thigh and hold injector firmly against leg for at least ten seconds to assure all medication is injected

(ee) Record patient reaction to medication and relay to Medical Control - be sure to have vital signs

(ff) Transport immediately

(c) Patient with COPD (emphysema, asthma, bronchitis)

(i) Minor distress;

(aa) Put patient in position of comfort, support with LOW flow oxygen

(ii) Severe distress;

(aa) Set patient up, assist ventilations with HIGH flow O2

(bb) Ask patient or bystanders if a bronchial dilator by inhaler has been prescribed for these situations and do they have the medication with them

(cc) IF MEDICATION IS NOT AVAILABLE - Transport immediately, unless ALS unit is enroute and has an ETA of less than 5 minutes. (Consider transport time)

(dd) IF MEDICATION IS AVAILABLE:

(i) Assure medication is prescribed for patient

(ii) Check medication - expiration date, administration method

(iii) Contact Medical Control, if possible

(iv) Administer medication by having the patient exhale, then activate spray during inhalation, and have patient hold breath for ten seconds so medication can be absorbed

USE SPACER IF AVAILABLE

(v) Record patient reaction to medication and relay to Medical Control - be sure to have vital signs

(vi) Transport immediately

iii. Rales present (pulmonary edema)

(a) Set patient up, administer HIGH flow oxygen by NRB and/or BVM and transport

iv. Breath sounds absent

(a) Treat cause: pneumothorax, hemothorax, lower airway obstruction

B. Pulse Oximeter and monitor patient condition and treat accordingly

C. Evaluate patient's general appearance, relevant history of condition and determine:

Onset
Provokes
Quality
Radiates
Severity
Time
Interventions

Allergies
Medication
Past Medical History - especially RESPIRATORY
Last Meal
Events leading to present illness

D. Contact Medical Control, advise of patient condition, and TRANSPORT

EMT-I

A. Assist EMT; obtain patient condition and circumstance

B. Reassess breath sounds and treat as follows:

1. Airway open, breath sounds absent

a. Endotracheal intubation
b. Provide 100% O2 by BVM or PPV
c. Treat cause and transport

2. Airway obstructed:

a. Try to visualize obstruction with laryngoscope if basic procedures are unsuccessful

I. Remove foreign body with Magill forceps if possible

3. Wheezes present:

i. Severe systemic allergic reaction

(a) Give 0.3mg (1:1000) epinephrine by injection subcutaneously

(b) May be repeated during transport if patient condition does not improve and Medical Control has been contacted

(c) If caused by sting or bite, apply constricting band between bite and heart, apply ice pack to slow swelling and spread of poison

D. Apply monitor and check rhythm

E. Start IV saline, TKO, while enroute to hospital DO NOT DELAY TRANSPORT

PARAMEDIC

A. Assume charge of situation and confer with EMT's about condition of patient and situation

B. Reassess breath sounds and treat as follows:

1. Airway open, breath sounds absent

a. Endotracheal intubation
b. Provide 100% O2 by BVM or PPV
c. Treat cause and transport

2. Airway obstructed:

a. Try to visualize obstruction with laryngoscope if basic procedures are unsuccessful

I. Remove foreign body using Magill Forceps if possible

b. If airway cannot be cleared, perform a cricothyrotomy

3. Spontaneous breathing with breath sounds:

a. Clear breath sounds:

i. Treat cause - (MI, pulmonary embolism, metabolic disturbance, hyperventilation)

b. Wheezes present:

i. Severe systemic allergic reaction

(a) Start IV saline

(b) Give 0.3mg (1:1000) epinephrine by injection subcutaneously

(c) Consider seeking Medical Control

(d) If patient is hypotensive and IV has been established, 0.5mg (1:10,000) epinephrine, IVP, SLOWLY

(e) If caused by sting or bite, apply constricting band between bite and heart, apply ice pack to slow swelling and spread of poison

(f) In patients with hypertension, CVA, CAD, pregnancy, consider Glucagon 1mg IM or IV instead of epinephrine.

(g) Benadryl (diphenhydramine) administered 1mg/kg (50 mg) IM or IV.

NOTE: This is especially indicated when drug reactions are suspected and SBP is above 90.

(h) Proventil (albuterol) breathing treatment: 2.5mg (3cc) of proventil in aerosol unit with oxygen flow at 8 liters per minute

ii. Patient with asthma:

(a) Minor distress:

(i) Put patient in position of comfort, support with oxygen

(ii) Consider proventil (albuterol) breathing treatment: 2.5mg (3cc), of proventil (albuterol) in aerosol unit with oxygen flow at 8 liters per minute

(b) Severe distress:

(i) Sit patient up, assist ventilations with HIGH flow oxygen

(ii) Proventil (albuterol) breathing treatment: 2.5mg (3cc) of proventil in aerosol unit with oxygen flow at 8 liters per minute

(iii) Contact Medical Control for possible administration of epinephrine or glucagon.

(c) Start IV saline

iii. Patient with COPD:

(a) Minor distress:

(i) Put patient in position of comfort, support with LOW flow oxygen

(ii) Proventil (albuterol) breathing treatment: 2.5mg (3cc) of proventil (albuterol)in aerosol unit with oxygen flow at 8 lpm.

(b) Severe distress:

(i) Sit patient up, assist ventilations with HIGH flow oxygen

(ii) Proventil (albuterol)breathing treatment: 2.5mg (3cc) of proventil (albuterol)in aerosol unit with oxygen flow at 8 lpm.

(iii) Start IV saline

c. Rales present:

i. Pulmonary edema:

(a) Look for and note cyanosis, hypotension, coughing, wheezing, labored breathing, diaphoreses, pitting edema, tachypnea, apprehension, and inability to talk

(b) Patient has normal blood pressure or is hypertensive:

(i) Administer sublingual nitroglycerin 0.4mg three times at five minute intervals (tablet or spray)

Maintain BP above 100 systolic

(ii) Establish IV and administer lasix (1 mg/kg) IV over one to two minutes.

(iii) Transport patient.

(iv) Consider morphine sulfate for analgesia as well as hemodynamic response. Morphine sulfate is of considerable usefulness in both AMI and APE

(aa) Dosage: Small frequent titrated IV doses 5mg every 5 minutes needed until desired effect is achieved

(bb) Do not use on COPD or volume depletion

(cc) Monitor vital signs, especially respirations and blood pressure, every 5 minutes

d. Breath sound asymmetrical or absent:

i. Spontaneous Pneumothorax:

(a) Transport in position of comfort.

ii. Sucking chest wound:

(a) Seal open wound, 3 sides, monitor for tension situation

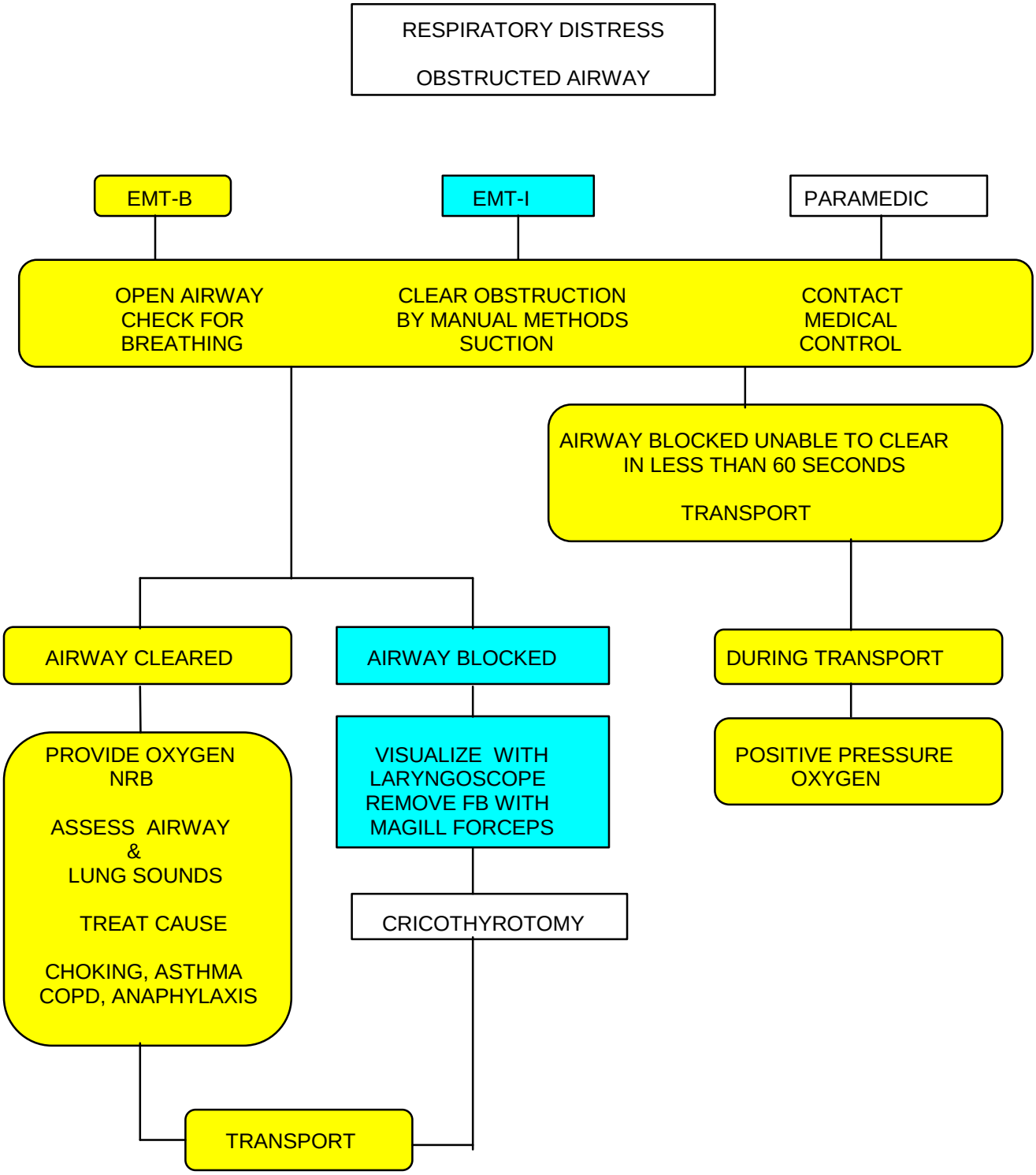
iii. Tension pneumothorax

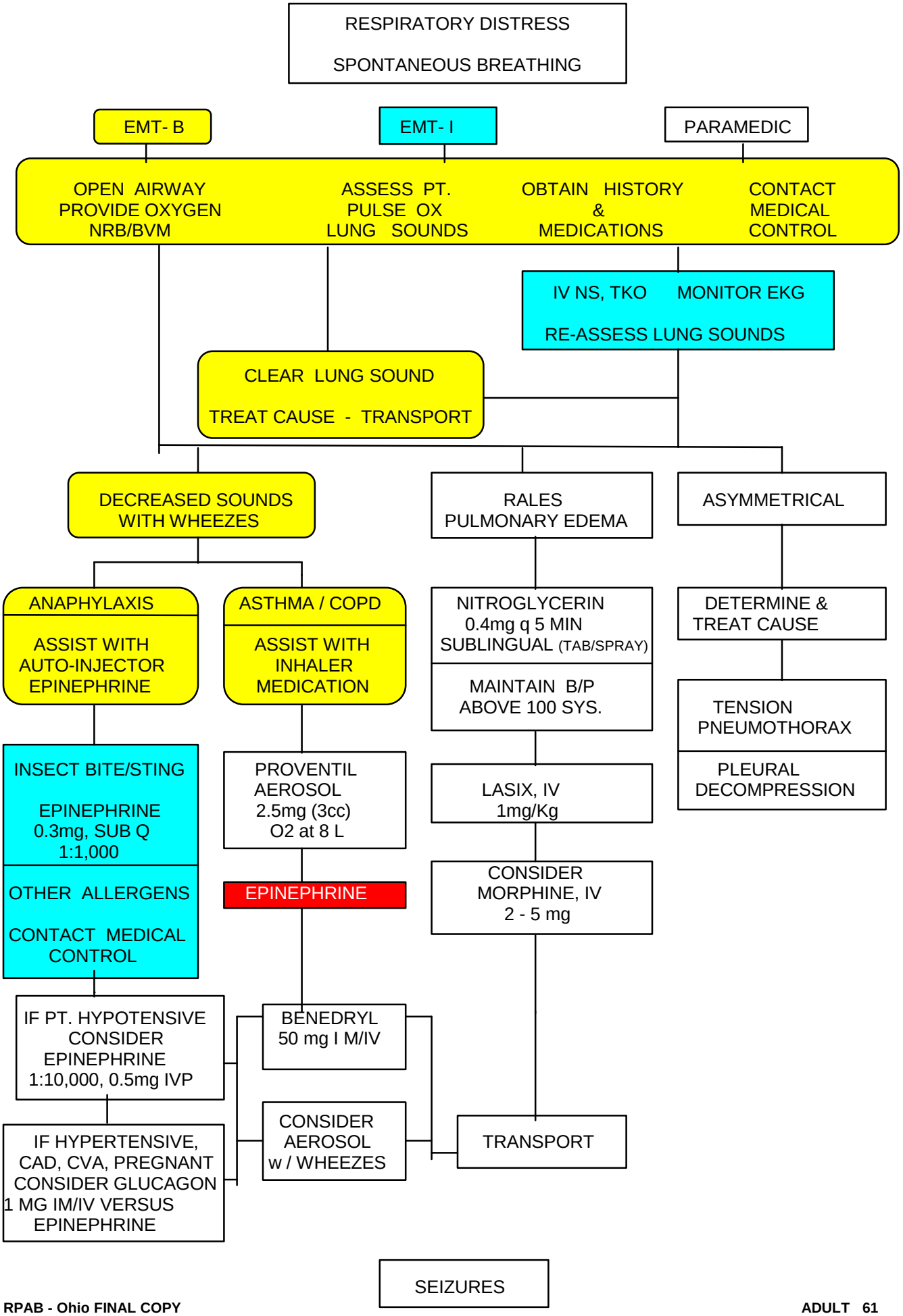
(a) Pleural decompression

iv. Lower airway obstruction

(a) Place in position of comfort

(b) 100% humidified O2 by NRB


RESPIRATORY DISTRESS
OBSTRUCTED AIRWAY
EMT-B
EMT-I
PARAMEDIC
OPEN AIRWAY
CHECK FOR
BREATHING
CLEAR OBSTRUCTION
BY MANUAL METHODS
SUCTION
CONTACT
MEDICAL
CONTROL
AIRWAY BLOCKED UNABLE TO CLEAR
IN LESS THAN 60 SECONDS
TRANSPORT
AIRWAY CLEARED
AIRWAY BLOCKED
DURING TRANSPORT
PROVIDE OXYGEN
NRB
ASSESS AIRWAY
&
LUNG SOUNDS
TREAT CAUSE
CHOKING, ASTHMA
COPD, ANAPHYLAXIS
VISUALIZE WITH
LARYNGOSCOPE
REMOVE FB WITH
MAGILL FORCEPS
POSITIVE PRESSURE
OXYGEN
CRICOTHYROTOMY
TRANSPORT


RESPIRATORY DISTRESS
SPONTANEOUS BREATHING
EMT- B
EMT- I
PARAMEDIC
OPEN AIRWAY
PROVIDE OXYGEN
NRB/BVM
ASSESS PT.
PULSE OX
LUNG SOUNDS
OBTAIN HISTORY
&
MEDICATIONS
CONTACT
MEDICAL
CONTROL
IV NS, TKO MONITOR EKG
RE-ASSESS LUNG SOUNDS
CLEAR LUNG SOUND
TREAT CAUSE - TRANSPORT
DECREASED SOUNDS
WITH WHEEZES
RALES
PULMONARY EDEMA
ASYMMETRICAL
ANAPHYLAXIS
ASSIST WITH
AUTO-INJECTOR
EPINEPHRINE
ASTHMA / COPD
ASSIST WITH
INHALER
MEDICATION
NITROGLYCERIN
0.4mg q 5 MIN
SUBLINGUAL (TAB/SPRAY)
MAINTAIN B/P
ABOVE 100 SYS.
DETERMINE &
TREAT CAUSE
TENSION
PNEUMOTHORAX
PLEURAL
DECOMPRESSION
INSECT BITE/STING
EPINEPHRINE
0.3mg, SUB Q
1:1,000
OTHER ALLERGENS
CONTACT MEDICAL
CONTROL
PROVENTIL
AEROSOL
2.5mg (3cc)
O2 at 8 L
EPINEPHRINE
LASIX, IV
1mg/Kg
CONSIDER
MORPHINE, IV
2 - 5 mg
IF PT. HYPOTENSIVE
CONSIDER
EPINEPHRINE
1:10,000, 0.5mg IVP
BENEDRYL
50 mg I M/IV
IF HYPERTENSIVE,
CAD, CVA, PREGNANT
CONSIDER GLUCAGON
1 MG IM/IV VERSUS
EPINEPHRINE
CONSIDER
AEROSOL
w / WHEEZES
TRANSPORT
SEIZURES

GENERAL CONSIDERATIONS

A. The seizure has usually stopped by the time the EMS personnel arrive (Postictal state)

B. The basic rule with seizures is to "protect and support" the patient, if trauma, consider cervical immobilization

C. Aspiration precautions include:

1. Coma position: a side lying position with the head lowered 15 to 30 degrees
2. Suction readily available
3. If possible, mouth cleared of foreign bodies (food, gum, dentures)

EMT-B

A. Place patient away from objects on which they might injure themselves; protect but do not restrain them

B. Clear and maintain airway, consider cervical spine injury

C. Administer 100% oxygen with NRB mask

D. Obtain history from bystanders:

1. Seizure history
2. Description of onset of seizure
3. Medications
4. Other known medical history (especially head trauma, diabetes, drugs, alcohol, stroke, heart disease)

E. Evaluate:

1. Evidence of head trauma
2. Drug abuse

F. Bring medication with patient if available

G. Establish communications with Medical Control and advise of patient condition. Transport immediately, unless an Advanced Life Support unit is enroute and has an ETA of less than 5 minutes.

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Apply monitor and check rhythm

C. Start IV, saline, TKO, while enroute to hospital if seizures are persistent or recurrent.
DO NOT DELAY TRANSPORT

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. Make sure patient has good airway, if status epilepticus, nasotracheal intubation may be necessary

C. Start IV saline TKO if seizures are persistent or recurrent .

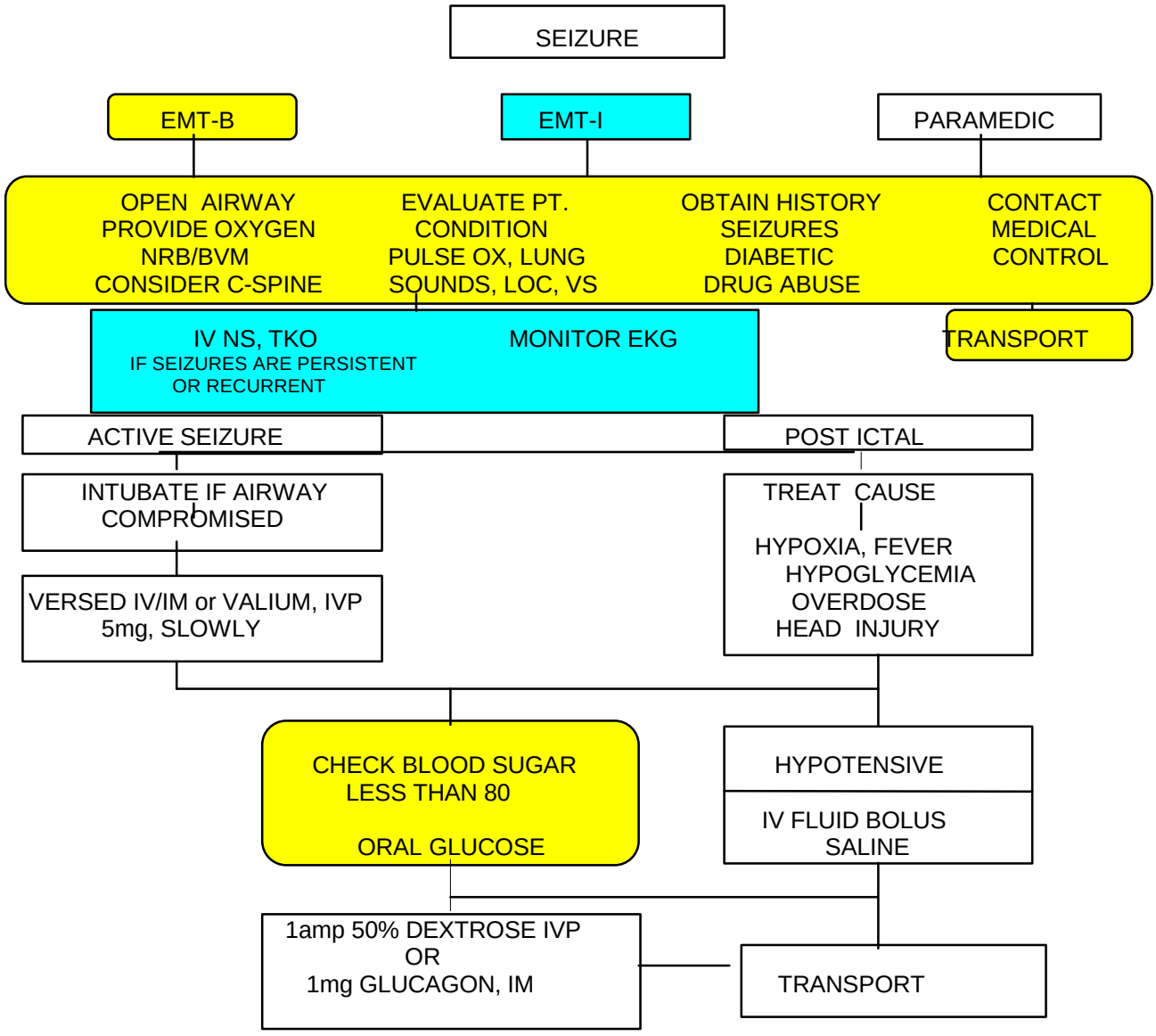
D. Determine blood sugar level

1. Blood sugar less than 80, administer 50cc of 50% dextrose IV push immediately or 1mg glucagon IM.

E. In repeated seizure activity administer valium(diazepam) IV or consider versed(midazolam) IV/IM

1. Initial bolus of 5mg. and titrate to patient's condition up to a 10 mg. maximum

F. After versed or valium monitor airway; be prepared to intubate and assist ventilation with BVM or PPV In status epilepticus, nasotracheal intubation may be necessary



SHOCK

GENERAL CONSIDERATIONS

A. Shock is the failure of the body to circulate blood and oxygen properly and perfuse body tissue

B. Shock can be due to:

1. Hypovolemic - fluid loss
2. Cardiogenic - pump failure
3. Neurogenic - vasodilation
4. Anaphylactic - allergic reaction
5. Septic - infection, vasodilatation
6. Respiratory - lack of oxygen

C. Priorities of care in shock situations are:

1. Provide an adequate airway and oxygenation
2. Recognize the type of shock present and its treatment
3. Replace body fluids

EMT-B

A. Establish airway; administer oxygen 100% by NRB mask. Assist ventilation as required with oral or nasal airway and BVM. Obtain Pulse Ox reading and treat accordingly.

B. Obtain relevant medical history: CAUSE

C. Place patient in proper shock position:

1. Hypotension - lying flat with feet elevated
2. Respiratory difficulty - head elevated

D. Maintain body temperature:

1. Patient cold - Warm them up
2. Patient hot - Cool them down

E. Consider PASG per local protocol

F. Treat the cause

G. Evaluate the patient's:

1. Respiratory status
2. Circulatory status - pulse, B/P
3. Level of consciousness
4. Evidence of trauma to abdomen, chest, head

H. Establish communications with Medical Control and advise of patient condition. Transport Immediately, unless an advanced life support unit is enroute and has an ETA of less than 5 minutes.

EMT-I

A. Assist EMT; obtain patient condition and circumstance

B. Hypovolemic, Neurogenic, or Septic Shock:

1. During transport to the hospital, start IV saline, PASG guidelines. DO NOT DELAY TRANSPORT

C. Anaphylaxis from an insect bite or sting:

1. Breathing difficulty with low blood pressure:

a. Start IV saline, PASG guidelines

b. Give 0.3mg (1:1000) epinephrine by injection subcutaneously

2. Hives, itching, and/or swelling: Contact Medical Control for possible administration of epinephrine.

D. Apply Monitor and check rhythm

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. Apply monitor and follow guidelines for Arrhythmias

C. Identify type of shock and treat as follows:

1. Hypovolemic, Neurogenic, Septic:

a. Start IV of saline

b. If transport will be prolonged, or if entrapment exists, contact Medical Control

c. If Hypovolemic Shock persists despite above measures start second saline IV

2. Cardiogenic:

a. Treat cause by following Arrhythmia, Chest Pain, and Cardiac Arrest Protocols.

b. If patient has B/P of less than 70-90 mm Hg systolic with poor profusion:

i. Establish second IV in large peripheral vessel for dopamine administration:

(a) Dopamine 400mg in 500cc D5W or NS

(b) Start infusion at 5mcg/kg/min and titrate the infusion until adequate heart rate, blood pressure, and level of consciousness are achieved.

NOTE: If IV infiltrates, report to the ED physician as soon as possible

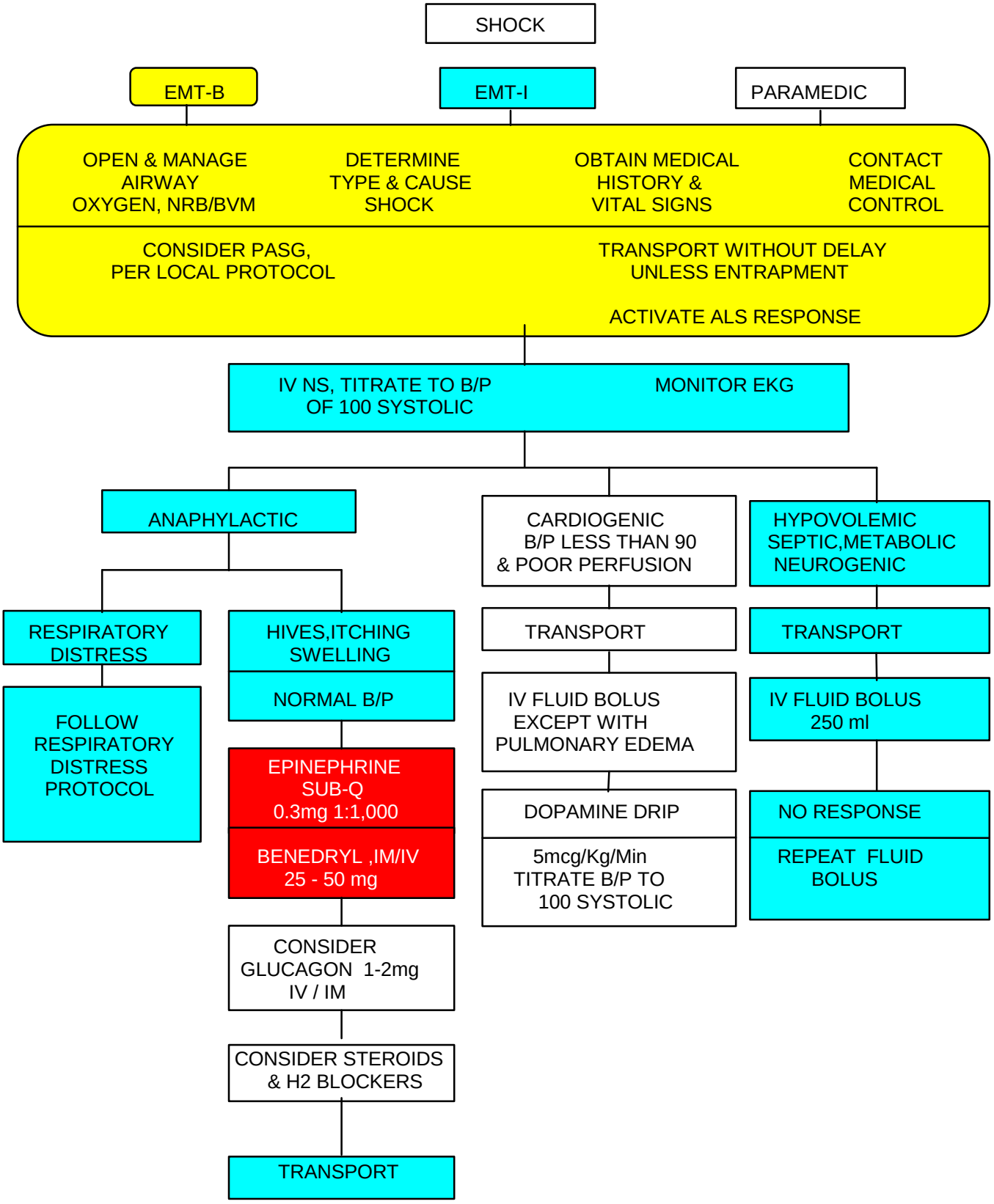
ii. Establish second IV Saline TKO in large peripheral vein if time permits

3. Anaphylactic:

   a. Respiratory distress, follow Respiratory Distress Protocol

   b. Hives, itching, and/or swelling normal B/P: Contact Medical Control for possible administration of epinephrine and/or benedryl

   c. If patient is on beta blocking medication, hypertensive, has known coronary artery disease and/or is pregnant:, consider administering glucagon 1-2mg IV or IM.


SHOCK
EMT-B
EMT-I
PARAMEDIC
OPEN & MANAGE AIRWAY OXYGEN, NRB/BVM
DETERMINE TYPE & CAUSE SHOCK
OBTAIN MEDICAL HISTORY & VITAL SIGNS
CONTACT MEDICAL CONTROL
CONSIDER PASG, PER LOCAL PROTOCOL
TRANSPORT WITHOUT DELAY UNLESS ENTRAPMENT
ACTIVATE ALS RESPONSE
IV NS, TITRATE TO B/P OF 100 SYSTOLIC
MONITOR EKG
ANAPHYLACTIC
CARDIOGENIC B/P LESS THAN 90 & POOR PERFUSION
HYPOVOLEMIC SEPTIC,METABOLIC NEUROGENIC
RESPIRATORY DISTRESS
HIVES,ITCHING SWELLING
NORMAL B/P
TRANSPORT
TRANSPORT
FOLLOW RESPIRATORY DISTRESS PROTOCOL
EPINEPHRINE SUB-Q 0.3mg 1:1,000
BENEDRYL ,IM/IV 25 - 50 mg
IV FLUID BOLUS EXCEPT WITH PULMONARY EDEMA
IV FLUID BOLUS 250 ml
DOPAMINE DRIP
5mcg/Kg/Min TITRATE B/P TO 100 SYSTOLIC
NO RESPONSE
REPEAT FLUID BOLUS
CONSIDER GLUCAGON 1-2mg IV / IM
CONSIDER STEROIDS & H2 BLOCKERS
TRANSPORT

ACUTE STROKE

General Considerations

A. Patients who experience transient ischemic attack (TIA) develop most of the same signs and symptoms as those who are experiencing a stroke. The signs and symptoms of TIA's can last from minutes up to one day. Thus the patient may initially present with typical signs and symptoms of a stroke, but those findings may progressively resolve. The patient needs to be transported, without delay, to the most appropriate hospital for further evaluation.

B. Some patients who have had a stroke may be unable to communicate but can understand what is being said around them.

C. Place the patient's affected or paralyzed extremity in a secure and safe position during patient movement and transport.

D. Hypertension in stroke patients routinely should not be treated in the prehospital setting.

Any treatment of hypertension must be an ON-LINE issue.

Nitroglycerin should not be used unless signs and symptoms consistent with AMI or APE are present.

E. New therapies for stroke are now available. However, successful use is only possible during a short time window after the start of symptoms. Early notification of the receiving hospital and minimizing scene time are important parts of a strategy to treat patients quickly.

F. Time of onset of signs and symptoms must always be obtained, documented and relayed to the receiving facility.

Time of symptom onset needs to be accurately determined for consideration of thrombolytic therapy.

In patients whose symptoms were present upon awakening, their symptom onset is estimated from the last time that the patient's neurological status was known to be normal, or the time just prior to going to sleep.

G. A simple method of physical exam for the stroke patient is:

1. ask the patient to say " the sky is blue in Ohio",
2. ask the patient to smile or show their teeth,
3. ask the patient to hold their arms straight up in front with palms up, have the patient close their eyes and watch arm drift. (palms turns down)

    a. if only one palm turns down the test is positive
    b. if both arms drift down, the result are unclear

H. Assessment should also include Glasgow Coma Score. Patient's with scores of 8 or less have poor prognosis and need ALS as soon as possible.

EMT-B

A. Open and manage the airway and provide oxygen by nasal cannula 4 lpm and increase as needed with respiratory distress.

Apply pulse oximeter and treat per procedure. Maintain 95% SpO_2.

Be prepared to hyperventilate and/or assist ventilations with oral or nasal airway and BVM or PPV

B. Evaluate patient's general appearance, relevant history of condition and determine:

Onset	Allergies
Provokes	Medication (i.e. Blood thinners; coumadin, warfarin, heparin)
Quality	Past Medical History - especially, diabetic, seizures, stroke, TIA,
Radiates	head injury, drug abuse, hypertension,
Severity	arrhythmias.
Time	Last Meal
Interventions	Events leading to present illness

C. Determine blood sugar level.

1. Blood sugar less than 80, administer 1 tube of oral glucose. May be repeated in 10 minutes if blood sugar remains below 80.

PATIENT MUST HAVE A GAG REFLEX.

2. Blood sugar greater than 80 TRANSPORT..

D. If unable to check blood sugar, with signs of stroke, establish communications with Medical Control and advise of patient condition.

Transport IMMEDIATELY unless an advanced life support unit is enroute and has an ETA of less than 5 minutes to the scene.

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Apply monitor and check rhythm

C. Start saline lock or IV saline TKO, while enroute to hospital

DO NOT DELAY TRANSPORT

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. If patient does not have a secure, protected airway, intubate per Intubation Procedure

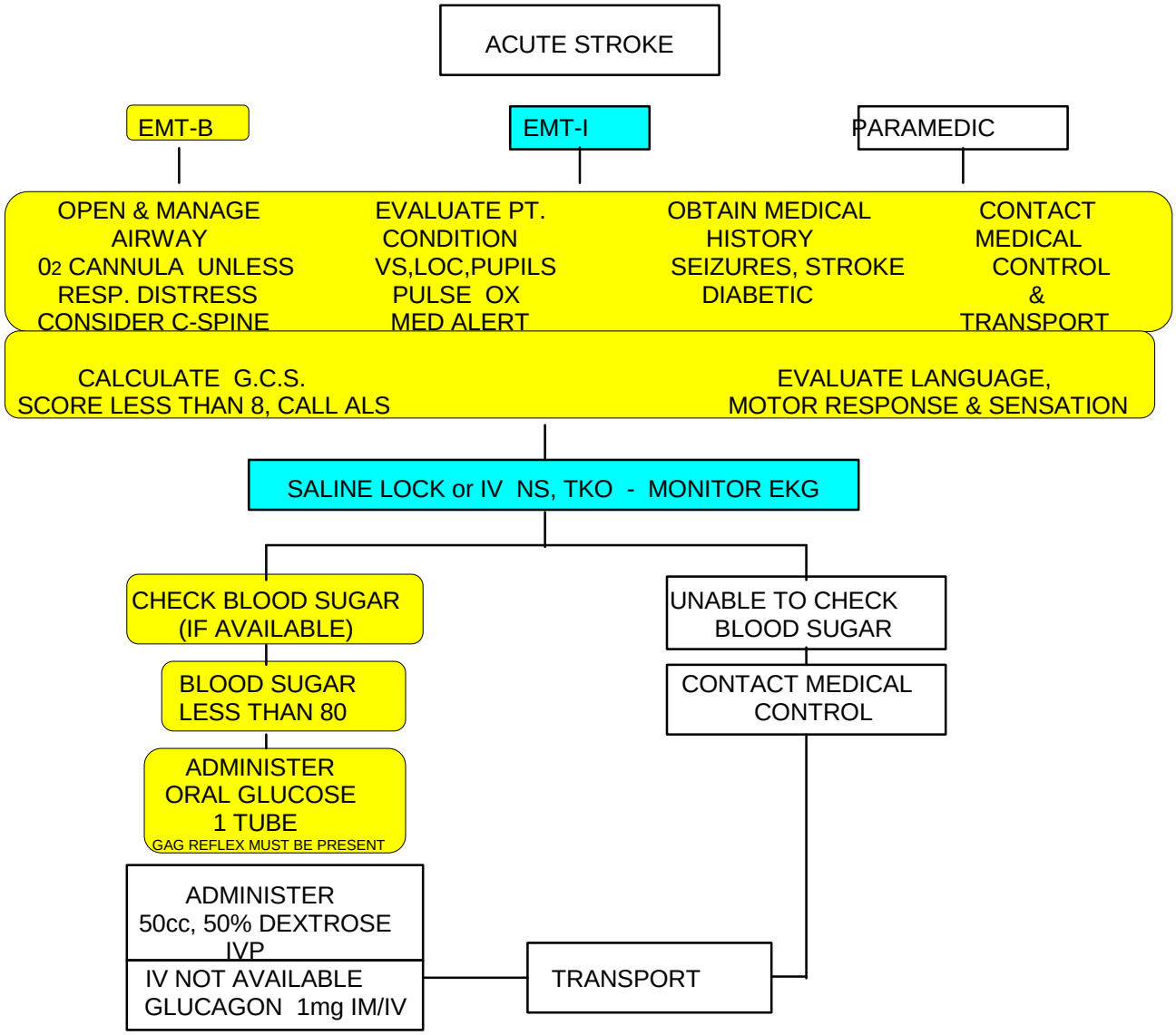
C. Apply monitor and check rhythm

D. Establish saline lock or IV saline TKO.

E. Determine blood sugar level.

1. If blood sugar less than 80, administer IV bolus, 50cc of 50% dextrose or Glucagon 1mg IM/IV may be repeated in 10 minutes if blood sugar remains below 80.

H. Re-evaluate patient condition, contact Medical Control, and transport to hospital



TRAUMA EMERGENCIES

GENERAL CONSIDERATIONS

A. Scene size up - assure scene is safe, determine mechanism of injury, determine number of patients and request additional help if needed

B. Rapid assessment and recognition of major trauma/multiple system trauma is essential to the subsequent treatment

C. Once the patient is determined to be an actual or potential major trauma/multiple system patient, personnel on scene and/or medical control must quickly determine the appropriate course of action including:

1. Requesting aeromedical evacuation from scene (See Aeromedical Evacuation Procedure)

2. Ground transportation directly to an appropriated facility. (When requesting bypass of nearest facility, this action must be approved by Medical Control)

D. In cases where the victim must be transported by ground units, because of transport times every effort should be made to limit on-scene time to 10 minutes or less

THIS CANNOT BE STRESSED ENOUGH !!!

E. If patient is entrapped or inaccessible, contact Medical Control and advise of condition and circumstances

F. If time permits, each patient should be evaluated by the Glasgow Coma Scale and the score relayed to Medical Control

EMT-B

A. Trauma Assessment

1. Initial assessment - establish life threats, chief complaints, assess airway and initiate appropriate therapies, assess circulation and control major bleeding, establish a general impression of patient condition and prioritize patient for transport

2. Urgent patient

a. Rapid trauma assessment - quick head to toe survey utilizing DECAP BTLS. Obtain baseline vital signs and SAMPLE history.

b. TRANSPORT IMMEDIATELY

c. Detailed physical exam and ongoing assessment - during transport, evaluate patient head to toe and assess effectiveness of treatments to this point.

3. Non-urgent patient - single or non-life threatening injury

a. Focused physical exam of injured area and management of the situation.

b. Detailed physical exam and ongoing assessment - evaluate patient head to toe and assess effectiveness of treatments to this point.

c. Transport patient

B. Urgent trauma treatment

1. Establish airway, breathing and circulation; maintain C-spine immobilization
2. Administer 100% oxygen and apply Oximeter
3. Control hemorrhage by appropriate method - Apply PASG if indicated
4. TRANSPORT immediately
5. During transportation
    a. Splint individual fracture
    b. Evaluate patient's:
        i. Pulses distal to the fracture site
        ii. Distal skin color, temperature, neurological status
    c. Obtain relevant history:
        i. Where, When, How
        ii. Mechanism of injury
6. Establish communications with Medical Control and advise of patient condition and need for Trauma Team.

C. Non-urgent trauma treatment

1. Establish airway, breathing and circulation; maintain C-spine immobilization
2. Administer 100% oxygen and apply Oximeter
3. Control hemorrhage by appropriate method - Apply PASG if indicated
4. Splint all fracture(s) (IN NON-LIFE THREATENING SITUATION ONLY)
    a. Evaluate patient's:
        i. Pulses distal to the fracture site
        ii. Distal skin color, temperature, neurological status
5. Obtain relevant history:
    a. Where, When, How
    b. Mechanism of injury

H. Establish communications with Medical Control and advise of patient condition.

EMT-I

A. Assist EMT; obtain patient condition and circumstance

B. Start IV saline to maintain perfusion and SBP of 90, PASG guidelines

IV MUST NOT DELAY TRANSPORTATION

C. Apply cardiac monitor and check rhythm

PARAMEDIC

A. Assume charge of situation and confer with EMTs about condition of patient and situation

B. Treat for shock per Shock Protocol

C. If the patient is conscious and alert and complaining of severe pain, administer Nitrous Oxide per guidelines and/or administer Morphine Sulfate as follows:

1. Small frequent doses of 5mg every 5 minutes and titrate to patient condition

2. DO NOT USE ON HEAD TRAUMA, CHEST INJURY, RESPIRATORY DISTRESS DUE TO TRAUMA, OR ON ANY PATIENT WITH VOLUME DEPLETION OF ANY CAUSE.

SPECIFIC INJURIES

A. Chest Wounds:

1. For sucking chest wounds or open pneumothorax, always cover the wound with a non-porous dressing and seal 3 sides.

2. Stabilize flail chest with trauma dressing

B. Evisceration:

1. Cover organs with sterile dressing moistened with saline

2. Lay the patient flat and elevate the knees

C. Complete Amputations:

1. Control bleeding by the most appropriate method; remember tourniquet is a last resort

2. Always take time to find the avulsed part, but do not delay patient transport, and transport it to the hospital as follows:

a. Put part in a cool, dry sterile dressing

D. Pneumothorax / Hemothorax / Tension Pneumothorax:

1. Transport patient in position of comfort and watch for signs of a tension pneumothorax

2. Symptoms of tension pneumothorax:

a. Chest pain or evidence of trauma
b. Tachypnea
c. Tachycardia
d. JVD
e. May initially exhibit hypertension progressing to hypotension
f. Hyperresonance on affected side
g. Diminished or absent breath sounds of affected side
h. Audible wheeze
i. Tracheal deviation away from affected side (latent sign)

NOTE: Significant tension pneumothorax may present exhibiting any or all of the

above

3. Pleural decompression per procedure

E. Head Injury:

1. Evaluate patient condition:

   a. Level of Consciousness
   b. Pupillary size and reaction
   c. Glasgow Coma Scale results

2. Transport with head elevated 8 to 10 inches by tilting backboard, and C-spine immobilized

3. Maintain airway, support with 100% oxygen by NRB mask and/or BVM

   a. Orotracheal, nasotracheal, or digital intubation may be indicated and should be accomplished gently with in-line C-spine immobilization

   b. Do not hesitate to take control of airway

   c. Hyperoxygenate when there are signs of cerebral herniation:

      i. Blown pupils, bradycardia, posturing

F. Spinal Injuries:

1. Immobilize spine - See Cervical Immobilization Assessment Protocol

2. Cervical Immobilization Assessment

   a. Cervical immobilization should be used if the following criteria are met.

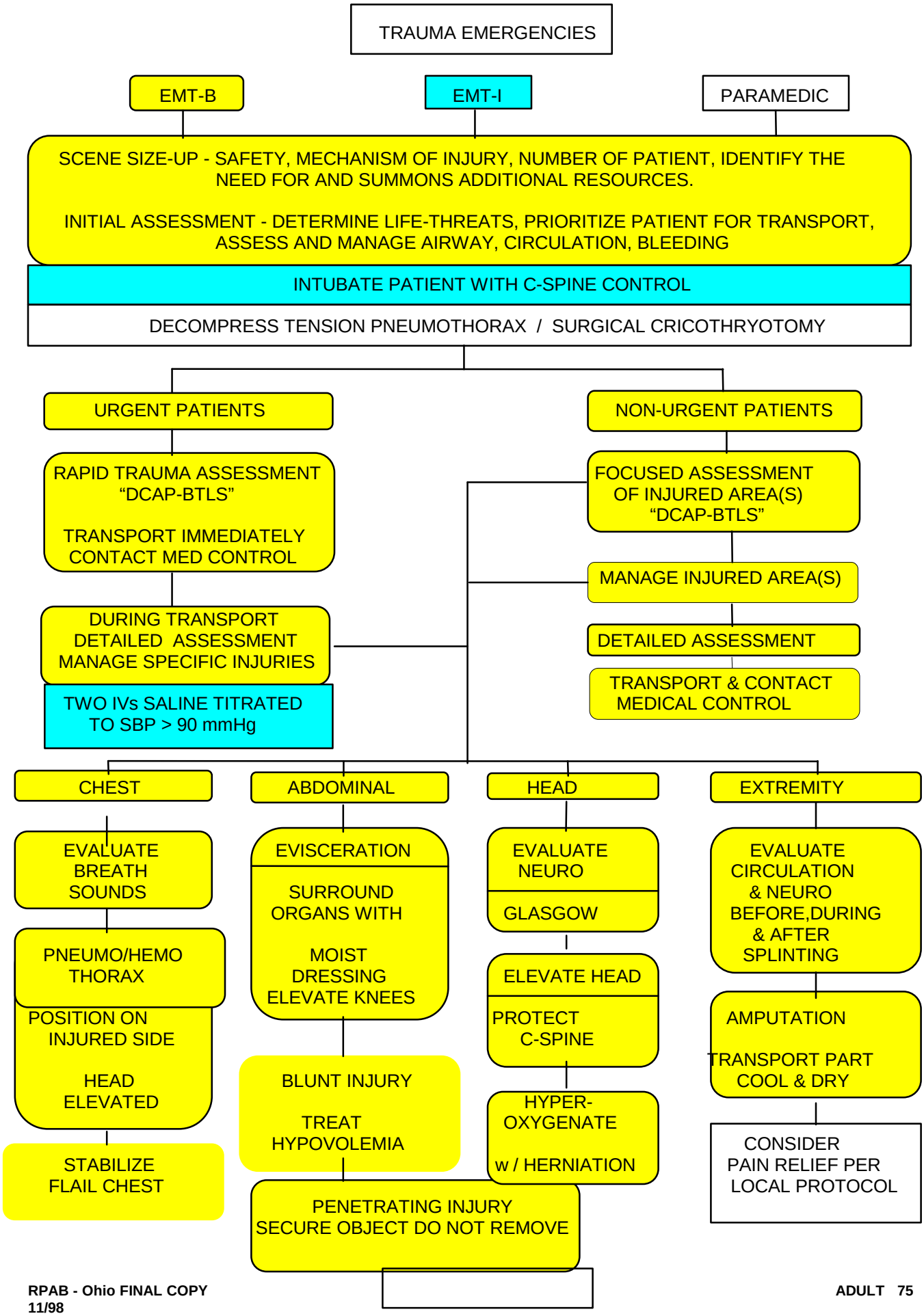
      I. The patient complains of neck pain
      ii. The patient has pain on palpation of the neck
      iii. The patient complains of neurologic deficits or is found upon physical exam to have neurologic deficits. (subjective: numbness, tingling, weakness) (objective: loss or diminished sensation or motor weakness)
      iv. The patient with altered LOC and impaired competence whether from drugs, alcohol or head injury and suggestive mechanism of injury for neck injury (refer to Refusal of Service for impaired competence criteria)
      v. The patient with suggestive mechanism of injury for neck injury and the patient has other major distracting injuries.
      vi. The patient has neck pain with any head motion

   b. All patients that DO meet the above criteria shall have full cervical immobilization.

3. If patient is wearing a helmet, see Helmet Removal Protocol in the Special Procedures Section

4. Always contact Medical Control and relay information regarding patient to the hospital. Spinal cord injury patients may need to be delivered to another facility if the hospital initially contacted cannot handle this injury.

5. If patient is alert and complaining of severe pain consider pain relief per local protocol.


TRAUMA EMERGENCIES
EMT-B
EMT-I
PARAMEDIC
SCENE SIZE-UP - SAFETY, MECHANISM OF INJURY, NUMBER OF PATIENT, IDENTIFY THE NEED FOR AND SUMMONS ADDITIONAL RESOURCES.
INITIAL ASSESSMENT - DETERMINE LIFE-THREATS, PRIORITIZE PATIENT FOR TRANSPORT, ASSESS AND MANAGE AIRWAY, CIRCULATION, BLEEDING
INTUBATE PATIENT WITH C-SPINE CONTROL
DECOMPRESS TENSION PNEUMOTHORAX / SURGICAL CRICOTHRYOTOMY
URGENT PATIENTS
NON-URGENT PATIENTS
RAPID TRAUMA ASSESSMENT "DCAP-BTLS"
TRANSPORT IMMEDIATELY CONTACT MED CONTROL
FOCUSED ASSESSMENT OF INJURED AREA(S) "DCAP-BTLS"
MANAGE INJURED AREA(S)
DURING TRANSPORT DETAILED ASSESSMENT MANAGE SPECIFIC INJURIES
DETAILED ASSESSMENT
TRANSPORT & CONTACT MEDICAL CONTROL
TWO IVs SALINE TITRATED TO SBP > 90 mmHg
CHEST
ABDOMINAL
HEAD
EXTREMITY
EVALUATE BREATH SOUNDS
EVISCERATION
SURROUND ORGANS WITH
MOIST DRESSING
ELEVATE KNEES
EVALUATE NEURO
GLASGOW
EVALUATE CIRCULATION & NEURO BEFORE,DURING & AFTER SPLINTING
PNEUMO/HEMO THORAX
POSITION ON INJURED SIDE
HEAD ELEVATED
BLUNT INJURY
TREAT HYPOVOLEMIA
ELEVATE HEAD
PROTECT C-SPINE
AMPUTATION
TRANSPORT PART COOL & DRY
STABILIZE FLAIL CHEST
HYPER-OXYGENATE
w / HERNIATION
CONSIDER PAIN RELIEF PER LOCAL PROTOCOL
PENETRATING INJURY
SECURE OBJECT DO NOT REMOVE

GENERAL INFORMATION

A. Resuscitation should not be attempted in cardiac arrest patients with hemicorporectomy, decapitation, or total body burns, nor in patients with obvious, severe blunt trauma who are without vital signs, pupillary response, or an organized or shockable cardiac rhythm at the scene. Patients in cardiac arrest with deep penetrating cranial injuries and patients with penetrating cranial or truncal wounds associated with asystole and a transport time of more than 15 minutes to a definitive care facility are unlikely to benefit from resuscitative efforts.

Trauma victims who are initially found by EMTs in cardiac arrest or found at the scene without vital signs may be considered dead and follow the DOA policy.

B. Extensive, time-consuming care of trauma victims in the field is usually not warranted. Unless the patient is trapped, they should be enroute to a Medical Facility within 10 minute after arrival of the ambulance on the scene

EMT-B

A. Ventilate with 100% oxygen by two-person bag valve mask or oxygen powered, manually triggered ventilation device and oral or nasal airway

Ventilation should be delivered over two seconds and cricoid pressure should be considered to help reduce gastric distention

Always consider C-spine injury

B. Basic CPR with consideration of C-spine

C. Immobilize C-spine, apply PASG's and TRANSPORT IMMEDIATELY

EMT-I

A. Assist EMT, obtain patient condition and circumstance

B. Start two IVs, saline, after PASGs have been utilized and during transport to the hospital

C. Check pulse, intubate patient, contact Medical Control and advise of patient condition, while continuing CPR

PARAMEDIC

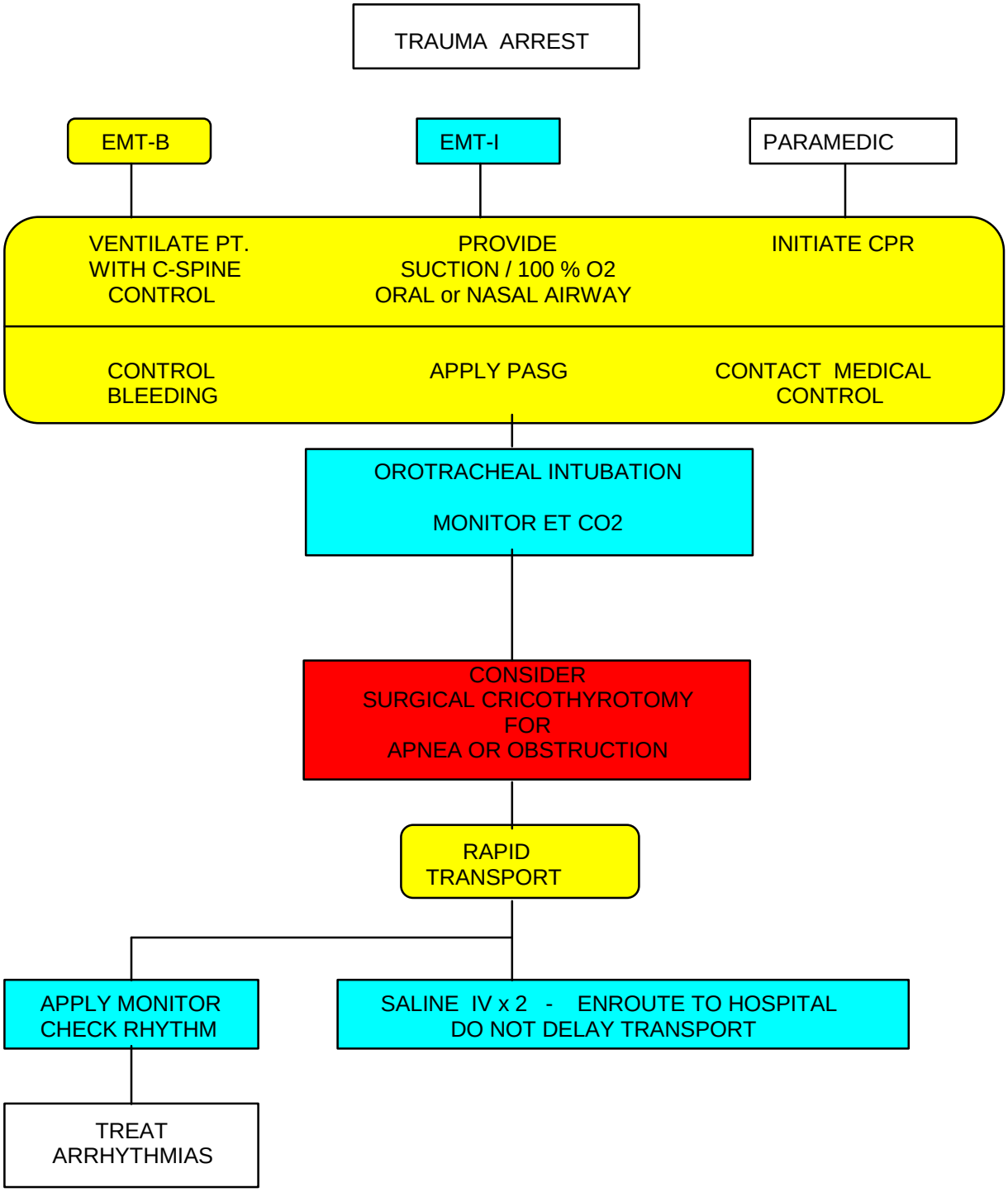
A. Assume charge and confer with EMT as to patient condition and circumstances

B. Intubate patient:

1. Patients should be intubated orotracheally without movement of the C-spine

2. If orotracheal intubation is not possible, or an obstruction is present, then a cricothyrotomy may be necessary per local protocol

C. Assess cause of patient's condition and treat according to appropriate guidelines


TRAUMA ARREST
EMT-B
EMT-I
PARAMEDIC
VENTILATE PT. WITH C-SPINE CONTROL
PROVIDE SUCTION / 100 % O2 ORAL or NASAL AIRWAY
INITIATE CPR
CONTROL BLEEDING
APPLY PASG
CONTACT MEDICAL CONTROL
OROTRACHEAL INTUBATION
MONITOR ET CO2
CONSIDER SURGICAL CRICOTHYROTOMY FOR APNEA OR OBSTRUCTION
RAPID TRANSPORT
APPLY MONITOR CHECK RHYTHM
SALINE IV x 2 - ENROUTE TO HOSPITAL DO NOT DELAY TRANSPORT
TREAT ARRHYTHMIAS

GLASGOW COMA SCALE

		GCS
EYES	SPONTANEOUSLY	4
	TO VERBAL COMMAND	3
	TO PAIN	2
	NO RESPONSE	1
BEST MOTOR RESPONSE	OBEYS VERBAL COMMAND	6
	PURPOSEFUL MOVEMENT TO PAIN	5
	FLEXION - WITHDRAWAL	4
	FLEXION - ABNORMAL	3
	EXTENSION	2
	NO RESPONSE	1
BEST VERBAL RESPONSE	ORIENTED & CONVERSES	5
	DISORIENTED & CONVERSES	4
	INAPPROPRIATE WORDS	3
	INCOMPREHENSIBLE SOUNDS	2
	NO RESPONSE	1

REVISED TRAUMA SCORE

		RTS
GLASGOW COMA SCALE	13 - 15	4
	9 - 12	3
	6 - 8	2
	4 - 5	1
	0 - 3	0
RESPIRATORY RATE	10 - 29	4
	MORE THAN 29	3
	6 - 9	2
	1 - 5	1
	0	0
SYSTOLIC BLOOD PRESSURE	LESS THAN 89	4
	76 - 89	3
	50 - 75	2
	1 - 49	1
	0	0

AEROMEDICAL TRANSPORT

GENERAL CONSIDERATIONS

Control of a medical emergency scene should be the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing prehospital emergency stabilization and transport. When an EMS unit is requested and dispatched to the scene of an emergency, a doctor/patient relationship has been established between the patient and the physician providing medical direction for the EMS unit. Where on-line medical direction exists, treatment and transport of the patient are the ultimate responsibility of the on-line physician. Where on-line medical direction does not exist, treatment and transport of the patient is the ultimate responsibility of the off-line physician or physician committee.

Activation of an EMS air ambulance is a MEDICAL CONTROL DECISION. A request for an air ambulance should be made by adequately trained pre-hospital care providers (either BLS or ALS) only after consultation with an on-line medical control physician or by written protocol as defined by the EMS System Medical Control Authority.

If, under extraordinary circumstances and/or an EMT is unable to contact Medical Control and they feel aeromedical transport is essential, they may initiate the direct request of a helicopter for transport or assistance.

The EMT must document that Medical Control could not be contacted and the circumstances of the incident.

The following circumstances would lend themselves well to helicopter evacuation. Calling the air ambulance should be considered, in the interest of time, before calling Medical Control:

1. Suspected serious trauma with any the following conditions to a patient who will require an extrication time of longer than 15-20 minutes: Unsecured airway, Unconsciousness Hypotension with tachycardia, Unable to obtain venous access.

2. Serious injury or illness in a patient who is not easily accessible to land vehicles, but where an adequate clearing for helicopter landing is nearby

3. Scenes of numerous seriously-injured patients

PROCEDURE FOR SUMMONING AEROMEDICAL TRANSPORT

A. Assess patient and/or scene

B. Institute appropriate treatment and/or extrication(follow Trauma or Medical protocols)

C. CONTACT MEDICAL CONTROL

D. Contact appropriate Aeromedical Transport

EMS UNIT HAS ON-LINE MEDICAL DIRECTION AND THE AEROMEDICAL TEAM HAS A PHYSICIAN PRESENT:

A. Until the patient becomes the full responsibility of the flight physician, the on-line physician is responsible. If there is any disagreement between the flight physician and the on-line physician, the EMS personnel must only take orders from the on-line physician and place the flight physician in radio or telephone contact with the on-line physician.

B. Once care of the patient is turned over to the aeromedical team, patient care responsibility rests with the flight physician.

C. The receiving hospital should be determined in consultation between the on-line physician and the flight physician.

COMMUNICATIONS

A member of the prehospital care team must contact Medical Control at the earliest time conducive to good patient care. This may mean that the hospital is contacted from the scene if assistance is needed in the patient's immediate care or permission is required for part of the patient care deemed necessary by the paramedic or EMT in charge.

When possible, the member of the team most knowledgeable about the patient should be the one calling in the report.

Although all EMTs and paramedics have been trained to give a full, complete report, this is often not necessary and may interfere with the physician's duties in the Emergency Department. Reports should be as complete but concise as possible to allow the physician to understand the patient's condition. It is not an insult for the physician to ask questions after the report is given. This is often more efficient than giving a thorough report consisting mostly of irrelevant information.

If multiple victims are present on the scene, it is advisable to contact Medical Control with a preliminary report. This should be an overview of the scene, including the number of victims, seriousness of the injuries, estimated on-scene and transport times to the control hospital or possible other nearby facilities. This allows preparation for receiving the victims and facilitates good patient care.

When calling in a report it should begin by identification of the squad calling, and the level of care which is able to be provided to the patient (i.e., basic, advanced or medic), and the nature of the call (who you need to talk with, physician or nurse).

CODE THREE PATIENTS -- MOST SERIOUSLY ILL

This category is for the most seriously ill or injured patients.

1. Type of Squad: Basic, Intermediate, Paramedic
2. Age and Sex of Patient:
3. Type of Situation: Injury and/or Illness
4. Specific Complaint: Short and to the point (i.e., chest pain, skull fracture)
5. Mechanism: MVA / MCA / Fall
6. Vital Signs: B/P / Pulse / Resp. / LOC / EKG
7. Patient Care: Airway Management, Circulatory Support, Drug Therapy
8. General Impression: Stable / Unstable
9. ETA to Medical Facility

CODE TWO PATIENTS -- SIGNIFICANTLY ILL

This category is for individuals who have significant signs or symptoms of illness or injury, and at this time are stable.

1. Type of Squad: Basic, Intermediate, Paramedic
2. Age and Sex of Patient:
3. Type of Situation: Injury and/or Illness
4. Specific Complaint: Short and to the point (i.e.,10% 2nd degree burn to leg)
5. Mechanism: MVA / MCA / Fall
6. Vital Signs: B/P / Pulse / Resp. / LOC / EKG
7. ETA to Medical Facility

CODE ONE PATIENTS -- MINOR ILLNESSES

This category covers all minor illness or injury circumstances and the patient is in no danger of developing any significant signs or symptoms.

1. Type of Squad: Basic, Intermediate, Paramedic
2. Age and Sex of Patient:
3. Type of Situation: Injury and/or Illness
4. Specific Complaint: Short and to the point (i.e., ABD pain for the last two weeks)

Code I (non transport) for minors

If after evaluation of a minor, the EMT and medical control agree that the patient is a Code I, that minor can be left in the care of a responsible adult that is not the parent or legal guardian. The responsible adult may be a family friend, neighbor, school bus driver, teacher, school official, police officer, social worker, or other person at the discretion of medical control and the EMT.

Once the above information is given, wait for further requests and/or orders from Medical Control.

If the patient requires special care; (i.e., security; interpreter; additional people for lifting, isolation for infection, vermin infestation, or hazardous material) this information should also be relayed.

TYPES OF PATIENTS ACCORDING TO TRIAGE PRIORITY

CODE THREE PATIENTS

Airway and/or Breathing Difficulty
Cardiac Arrest
Circulation Difficulty (Bleeding and/or Shock)
Open Chest and Abdominal Injury
Complicated Childbirth
Chest Pain
Unconsciousness
Severe Head Injury
Severe Burns
Severe Poisoning
Status Epilepticus
Altered LOC
Multiple Fractures

CODE TWO PATIENTS

C-spine Injury
Acute ABD Pain
Moderate Burns
Normal Childbirth
Violent and/or Combative Patient
Psychiatric

CODE ONE PATIENTS

Minor Injury
Minor Illness

PROTOCOL FOR DOA

GENERAL STATEMENT

A. When a DOA is encountered, the squad members should avoid disturbing the scene or the body as much as possible, unless it is necessary to do so in order to care for and assist other victims. Once it is determined that the victim is, in fact, dead the squad members should move as rapidly as possible to transfer responsibility or management of the scene to the Police Department and/or Coroner's Office. It is the squad member's responsibility to notify the Coroner's Office directly or to ensure that the Coroner's Office has been notified by a police officer on the scene.

A determination that the victim is dead rests with the squad members. Any of the following may be used as guidelines to support the determination that a victim is deceased:

1. There is an injury which is incompatible with life (i.e.,decapitated, or burned beyond recognition).

    a. Cardiac arrest, secondary to massive blunt trauma without signs of exsanguinating hemorrhage (i.e. limb amputation).

2. The victim shows signs of decomposition, rigor mortis, or extremely dependent lividity.

3. If the patient is an adult with an unwitnessed cardiac arrest, has a history of an absence of vital signs for greater than 20 minutes, and is found in asystole, not secondary to hypothermia or cold water drowning.

4. If the patient is an infant or child with an unwitnessed cardiac arrest and is found in asystole, except;

    a. In hypothermic patients with a downtime of less than 30 minutes.

    b. In cold water drownings if recovered if less than 1 hour.

5. If there are valid DNR (Do Not Resuscitate) orders, see DNR Protocol.

6. If the patient has a history of terminal disease, the family refuses resuscitation and permission to pronounce the patient dead is given by Medical Control**.**

<u>CAUTION:</u> IF ANY DOUBT EXISTS THAT THE VICTIM IS DEAD AT THE TIME OF ARRIVAL OF THE SQUAD, RESUSCITATIVE MEASURES SHOULD BE INSTITUTED IMMEDIATELY. WHENEVER RESUSCITATIVE MEASURES ARE INSTITUTED, THEY MUST BE CONTINUED UNTIL ARRIVAL AT A HOSPITAL OR UNTIL A PHYSICIAN HAS PRONOUNCED THE VICTIM DEAD OR A VALID DNR IS PRONOUNCED .

DO NOT RESUSCITATE/SUPPORT CARE GUIDELINES

BACKGROUND

A. Prehospital (out of hospital) providers are called to care for patients who are known to have incurable or terminal illnesses on an ever increasing basis. Examples of such patients include those with metastatic cancer, AIDS, severe CVA's. Many patients, and/or their families have intelligently and consciously altered their consent for treatment, made out a living will, or entered into Hospice care agreements.

EMS providers and medical control physicians often find these encounters confusing, frustrating, and charged with emotion. This is especially true when there is no prearranged document or consistent, rational or standardized approach by which to care for these patients and their families.

These guidelines are designed to help EMS providers and medical control physicians determine how, when, and to what level of resuscitation a patient desires or requires. A newer "pro-active" approach is to refer to DNR as **SUPPORT** Care. Ohio ACEP and EMS Board are actively working to develop and pass into law a State of Ohio **SUPPORT** Care (DNR) policy.

LIVING WILL & DURABLE POWER OF ATTORNEY DOES NOT MEAN DNR

DEFINITION

A. DNR orders are defined to withhold CPR and Advanced Life Support from patients suffering from terminal illness.

A DNR order may be written with specific guidelines such as Comfort Care only or Full Medical Management with various "check list" treatment modalities (e.g., medications, blood products, tube feedings), but if not otherwise noted implies not initiating or continuing the following: CPR, intubation, advanced airway management, manual or mechanical ventilatory support, electrical monitoring or therapy, administering ACLS drugs.

DNR orders do not mean "DO NOT TREAT!"

Prehospital providers and medical control physicians must be sensitive to and actively involved with the administration of other palliative and supportive care interventions, such as to make the patient comfortable, relieve their pain, allay both the patients' and families' fear and apprehension.

Other interventions may, but not necessarily include: oxygen administration; suctioning the airway; IV fluids; control bleeding; splinting; position for comfort; contacting a private/hospice physician or nurse; transport of the patient to a hospital or hospice.

ACTION / IDENTIFICATION

A. The procedure or action by which a healthcare provider identifies a patient with a DNR/Support Care order is usually by one of three (3) methods:

1. A valid DNR/Support Care document is present.

2. The patient, guardian or family refuses care.
3. The patient is wearing a DNR/Support Care bracelet/ID.

B. Valid DNR/Support Care orders are characterized by:

1. A properly signed, witnessed, and written document.
2. It is dated within two (2) years.
3. It is written by a physician or nurse.

a. If written by a nurse and not countersigned by a physician:

1. The order must include the physician's name.
2. It must state that it is a verbal or telephone order.
3. The order must be less than two (2) weeks old.
4. The patient must be a nursing home or Hospice patient.

b. If there is no written order, but a physician requests the patient be made DNR, the physician should directly contact Medical Control.

C. The following minimum data should be included on the EMS Run Sheet:

1. Name, gender, age.
2. Attending/Hospice physician's names.
3. Date, time, location of run.
4. Event, description, history.
5. Assessment: vital signs; physical exam.
6. Treatment, if applicable.
7. Revocation, if applicable.

REVOCATION

A. A DNR/Support Care patient may revoke their status at any time by:

1. Direct communication with the prehospital provider.
2. The private physician is directed by the patient, guardian or family to revoke the order. This must be either by written or direct verbal order. This scenario may occur when the patient cannot communicate with the EMS provider.

ACCOMPANIMENT

A. It is imperative that a copy of, or the original DNR/Support Care order accompany the patient wherever the patient goes. This policy will help prevent confusion about, or inappropriate initiation of advanced care modalities for any terminally ill patient.

GENERAL STATEMENT

A. Permission not to treat or transport a patient must come from the base station physician. The EMT may not accept a refusal unless it is authorized by the base station. This decreases the EMT's and Paramedic's liability. Direct communication between the physician and the patient may resolve many questions and often convinces the patient of the importance of treatment and transport. The following is an outline of legal principles which may help the EMT to understand patient refusal.

1. Consent

   a. The patient has the responsibility and right to consent to or refuse treatment. If he or she is unable to do so, a legal guardian has this right.

   b. A durable power of attorney is an authorization that allows a patient's wishes to be followed even when he or she becomes incompetent.

   c. When waiting to obtain lawful consent from the person authorized to make such consent would present a serious risk of death, serious impairment of health or would prolong severe pain or suffering of the patient, treatment may be undertaken to avoid those risks without consent. In no event should legal consent procedures be allowed to delay immediately required treatment.

   d. In non-emergency cases involving minors, consent should be obtained from the parent or legal guardian prior to undertaking any *treatment.* All children must be evaluated for acuity of illness, regardless of obtaining parental consent.

   e. AGE: Patient must be over 18 years of age or "emancipated" to be permitted to consent or refuse treatment. A child under 18 years of age who is married or is living away from home and is financially independent of his/her parents, may consent for their own care and may consent to medical or surgical care for his/her child.

   f. If the patient is under age, consent should be from:

      1. Legal guardian
      2. Natural parent
      3. Adopted parent

   g. NOTE: There has not been a single reported decision that held a physician liable where beneficial care was provided to a minor without obtaining consent.

2. Mental Competence - Decision Making Capability

   a. A person is mentally competent if he:

      1. Is capable of understanding the nature and consequences of the proposed treatment.
      2. Has sufficient emotional control, judgment, and discretion to manage his own affairs.

b. Ascertaining that the patient is oriented, has an understanding of what happened and may possibly happen if treated or not treated, and a plan of action - such as whom he will call for transportation home - should be adequate for these determinations.

c. Patients with impaired cerebral perfusion, in shock, postictal, or under the influence of drugs will be unlikely to fulfill these criteria.

d. If the patient is not mentally competent under these guidelines, consent should be obtained from another responsible party - who must also be mentally competent and must be 21 years of age - in the following order of preference:

1. Legal guardian
2. Spouse
3. Adult son or daughter
4. Parent
5. Adult brother or sister

e. If the patient is not mentally competent and none of the above persons can be reached, the person should be treated and transported to a medical facility. It is preferable under such circumstances to obtain concurrence of a police officer in this course of action.

f. If the patient himself is not competent to consent and a legal guardian as defined under "d" is present, and if that person is competent, he or she has the same right to consent or refuse treatment as the patient himself. Those wishes cannot be ignored in a non-life-threatening situation.

3. Code I (non transport) for minors

a. If after evaluation of a minor, the EMT and medical control agree that the patient is a Code I, that minor can be left in the care of a responsible adult that is not the parent or legal guardian. The responsible adult may be a family friend, neighbor, school bus driver, teacher, school official, police officer, social worker, or other person at the discretion of medical control and the EMT.

PROCEDURE FOR REFUSAL

A. If a patient wishes to refuse either treatment, examination or transportation, the following steps will be taken.

1. The EMT will complete a Patient Refusal Checklist (see enclosed example) prior to contacting medical control.

2. Medical control must be contacted and the refusal check list reviewed. This contact and the orders that were given must be documented. If unable to contact medical control, document why.

3. The patient must be advised of the benefits of treatment and transport as well as the specific risks of refusing treatment and transport.

4. The patient must be able to relate to the EMT in his or her own words what these risks and benefits are.

5. The patient will be provided with a refusal information sheet, also attached. A copy of this refusal information sheet or the refusal section of the check list will be signed by the patient, dated, and both will be kept with the patient's file.

EMS PATIENT REFUSAL CHECKLIST

1. ASSESSMENT OF PATIENT (CIRCLE APPROPRIATE RESPONSE)

ALCOHOL / DRUGS INGESTION PER HISTORY OR EXAM Y / N
ALTERED LEVEL OF CONSCIOUSNESS Y / N
HEAD INJURY Y / N
ORIENTED TO: PERSON PLACE TIME SITUATION

2. MEDICAL CONTROL

CONTACTED VIA: PHONERADIO TIME _____
UNABLE TO CONTACT ( ) MEDICAL CONTROL PHYSICIAN _____

If medical control not able to be contacted, explain in comment section of checklist
ORDERS:

( ) INDICATED TREATMENT / TRANSPORT MAY BE REFUSED BY PATIENT
( ) USE REASONABLE FORCE / RESTRAINT TO PROVIDE TREATMENT
( ) USE REASONABLE FORCE AND / OR RESTRAINT TO TRANSPORT

OTHER _____

3. PATIENT ADVISED (CIRCLE APPROPRIATE RESPONSE)

* MEDICAL TREATMENT / EVALUATION NEEDED Y / N
* AMBULANCE TRANSPORT NEEDED Y / N
* FURTHER HARM MAY RESULT WITHOUT MEDICAL TREATMENT OR EVALUATION Y / N
* TRANSPORT BY MEANS OTHER THAN AMBULANCE COULD BE HAZARDOUS IN LIGHT OF THE PATIENT'S PRESENT ILLNESS OR INJURY Y / N
* PATIENT PROVIDED WITH REFUSAL ADVICE SHEET Y / N
* PATIENT WOULD NOT ACCEPT REFUSAL SHEET Y / N

4. DISPOSITION

( ) REFUSED ALL EMS SERVICES
( ) REFUSED TRANSPORT, ACCEPTED FIELD TREATMENT
( ) REFUSED FIELD TREATMENT, ACCEPTED TRANSPORT
( ) RELEASED IN CARE OR CUSTODY OF SELF
( ) RELEASED IN CUSTODY OF LAW ENFORCEMENT AGENCY
AGENCY _____
OFFICER _____
( ) RELEASED IN CARE OR CUSTODY OF RELATIVE OR FRIEND
NAME _____
RELATION _____

5. COMMENTS

_____
_____
_____
___

EMT SIGNATURE _____ DATE _____ TIME _____

OFFICER _____ DATE _____ TIME _____

REFUSAL INFORMATION SHEET

PLEASE READ AND KEEP THIS FORM

This form has been given to you because you have refused treatment and/or transport by the Emergency Medical Service. Your health and safety are our primary concern, so even though you have decided not to accept our advice, please remember the following:

1. The evaluation and/or treatment provided to you by the EMS squad is not a substitute for medical evaluation and treatment by a doctor. We advise you to get medical evaluation and treatment.

2. Your condition may not seem as bad to you as it actually is. Without treatment your condition or problem could become worse. If you are planning to get medical treatment, a decision to refuse treatment or transport by the EMS may result in a delay which could make your condition or problem worse.

3. Medical evaluation and/or treatment may be obtained by calling your doctor, if you have one, or by going to any hospital Emergency Department in this area, all of which are staffed 24 hours a day by Emergency physicians. You may be seen at these Emergency Departments without an appointment.

4. If you change your mind or your condition becomes worse and you decide to accept treatment and transport by the Emergency Medical Service, please do not hesitate to call us back. We will do our best to help you.

5. [ ] **If the box at the left has been checked,** it means that **y**our problem or condition has been discussed with an Emergency physician at the medical control hospital by radio or telephone, and the advise given to you by the Emergency Medical Service has been issued or approved by the Emergency physician.

*** I have been informed of the dangers of my not being treated and/or transported by the Emergency Medical Services, for my condition, for treatment by an emergency department or private physician. I release _____ and consulting hospital their employees and officers from all liability for any adverse results caused by my decision.

I have received a copy of this information sheet.

Signature: _____

Circle one: Patient Spouse Parent Guardian

Print Name: _____

EMT Signature: _____ Witness: _____

Print Name: _____ _____

Report Number: _____ Date: _____

NON-TRANSPORTS

A number of EMS calls result in non-transport of the patient or victim. If an individual is not transported by the squad, the following guidelines will apply:

1. In the event of a patient assist call and no Emergency Medical Services are rendered, a report should be made but Medical Control need not be contacted.

2. If the patient refuses treatment or transport, the patient refusal procedure should be followed.

3. If the patient is requesting transport and the EMT in charge does not feel it is necessary to transport the patient, Medical Control must be contacted and approve the EMS refusal. This includes any case that might be transported by car or private ambulance.

   a. A Code I Advisory Sheet should be initiated and given to the patient. (See Code I Advisory Sheet)

4. Code I (non transport) for minors

   If after evaluation of a minor, the EMT and medical control agree that the patient is a Code I, that minor can be left in the care of a responsible adult that is not the parent or legal guardian. The responsible adult may be a family friend, neighbor, school bus driver, teacher, school official, police officer, social worker, or other person at the discretion of medical control and the EMT.

CODE I ADVISORY SHEET

You have been evaluated by an EMS provider. It has been determined that you do not need an ambulance at this time. THIS DOES NOT MEAN THAT YOU SHOULD NOT BE SEEN BY A PHYSICIAN. THE EVALUATION AND TREATMENT YOU RECEIVED WAS TO DETERMINE THE SEVERITY OF YOUR PROBLEM AND WHETHER OR NOT YOU NEEDED AN AMBULANCE; IT IS NOT A SUBSTITUTE FOR FINAL EVALUATION AND TREATMENT BY A PHYSICIAN.

We advise you to see a physician at this time. You may decide that you don't need to see a physician now, but if you don't then you must take the risk that you will not receive treatment that you need and that this may cause problems for you later on. The following may help you decide:

1. If you have a cut, only a physician should decide whether or not you need stitches. Most physicians recommend stitches within 8 hours because after that the risk of an infection becomes much greater.

2. If you have a cut, scrape or burn and have not had a tetanus (lockjaw) shot within 5 years, you may need one. You do not need to get a tetanus shot immediately, but you should not delay this more than 24 hours.

3. Many burns do not appear to be as bad as they really are. Also, serious problems can develop from some burns which may be prevented by early medical treatment.

4. If the pain or other discomfort you had has gone away, it does not necessarily mean the problem that caused it has gone away.

5. If you decide you don't need to see a physician and then change your mind, don't wait. The longer you wait, the more problems you may have.

USE COMMON SENSE!!!

"IF I DON'T HAVE A PHYSICIAN, OR CAN'T SEE MY PHYSICIAN NOW, WHAT CAN I DO?"

GO TO THE NEAREST EMERGENCY DEPARTMENT OR CALL BACK EMERGENCY MEDICAL SERVICES.

Patient Signature _____ Date _____

EMT Signature _____

Report # _____

HEAVY PATIENTS

GENERAL CONSIDERATIONS

Less than one percent of the population has a weight in excess of 300 lbs. This means that in any community there may be one or more individuals who fall into this extreme. As patients, these individuals are frequently classed as high risk because of the increased medical complications associated with their excess weight. In the EMS system they present the additional problem of movement and transportation. These individuals have the right to expect prompt and expert emergency medical care. Therefore, in order to facilitate the care of these individuals without risking the health of EMS workers, the following protocol is established.

A. In managing a patient with weight over 300 lbs., consider moving the patient with at least 6 individuals to assist. At the scene, as many EMS personnel as can be mobilized may be supplemented by police or other safety personnel as appropriate. If 6 individuals are not available, mutual aid will be required.

B. It may be necessary to remove doors, walls or windows. The situation is no different than extrication from a vehicle, although property damage may be higher. At all times the patient's life must be the first priority.

C. The patient is to be placed on at least 2 (double) backboards or other adequate transfer device for support.

D. The patient is to be loaded on a cot that is in the down position, and the cot is to be kept in the down position at all times.

E. Three (3) EMS personnel are to accompany the patient during transport. If additional personnel are available they are to travel in a separate vehicle.

F. The patient will be loaded directly from the squad onto a special hospital bed for this type of patient, which will be brought to the ED entrance.

G. It is NECESSARY TO NOTIFY THE HOSPITAL WELL IN ADVANCE of arrival so that preparations can be completed in a timely fashion.

H. If individuals in the community are known to fall within this special category it is appropriate to inform them in advance of the type of assistance they can expect from the EMS system, and help them make plans well in advance to assist you. When calling for the squad, and if they identify themselves and their special needs, it will promote the timeliness of your efforts.

ON SCENE EMT INTERVENER

On a EMS run where an unknown EMT from outside the responding EMS agency wishes to intervene in the care of patients, the following steps should be initiated:

1. Ideally, if no further assistance is needed, the offer should be declined.

2. If the intervener's assistance is required or may significantly contribute to the care of the patient:

   a. Obtain proper identification of a valid Ohio EMT card. Acceptance of borderline states' EMT cards are at the discretion of individual EMS services. Notation of intervener name, address and certification numbers must be documented on the run report.

3. Significant involvement with patient care or variance from protocols will require the intervener to accompany the patient to the hospital.

PHYSICIAN AT THE SCENE

GOOD SAMARITAN PHYSICIAN

This is a physician with no previous relationship to the patient, who is not the patient's private physician, but is offering assistance in caring for the patient. The following criteria must be met for this physician to assume any responsibility for the care of the patient:

1. Medical Control must be informed and give approval.

2. The physician must have proof they are a physician. They should be able to show you their medical license. Notation of physician name, address and certification numbers must be documented on the run report.

3. The physician must be willing to assume responsibility for the patient until relieved by another physician, usually at the emergency department.

4. The physician must not require the EMT to perform any procedures or institute any treatment that would vary from protocol and/or procedure.

If the physician is not willing or able to comply with all the above requirements, his assistance must be courteously declined.

PHYSICIAN IN HIS/HER OFFICE, OR URGENT CARE CENTER

1. EMS should perform its duties as usual under the supervision of Medical Control or by protocol.

2. The physician may elect to treat the patient in his office.

3. The EMT should not provide any treatment under the physician's direction that varies from protocol. If asked, the EMT should decline until contact is made with Medical Control.

4. Once the patient has been transferred into the squad, the patient's care comes under Medical Control.

RESTRAINT POLICY

GENERAL GUIDELINES

A. Soft restraints are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves or others. EMS providers must remember that aggressive violent behavior may be a symptom of medical conditions such as but not limited to:

1. Head Trauma
2. Alcohol/Drug related problems
3. Metabolic disorders (i.e., hypoglycemia, hypoxia, etc.)
4. Psychiatric/Stress related disorders

B. Patient health care management remains the responsibility of the EMS provider. The method of restraint shall not restrict the adequate monitoring of vital signs, ability to protect the patient's airway, compromise peripheral neurovascular status or otherwise prevent appropriate and necessary therapeutic measures. It is recognized that evaluation of many patient parameters requires patient cooperation and thus may be difficult or impossible.

C. All restraints should have the ability to be quickly released, if necessary.

D. Restraints applied by law enforcement (i.e., handcuffs) require a law enforcement officer to remain available to adjust restraints as necessary for the patient's safety. This policy is not intended to negate the need for law enforcement personnel to use appropriate restraint equipment to establish scene control.

E. Patients shall not be transported in a face down prone position to ensure adequate respiratory and circulatory monitoring and management.

F. Restrained extremities should be monitored for color, nerve and motor function, pulse quality and capillary refill at the time of application and every 15 minutes thereafter.

G. Restraint documentation on the EMS report shall include:

1. Reason for restraint
2. Agency responsible for restraint application(i.e., EMS, Police)
3. Documentation of cardio-respiratory status and peripheral neurovascular status

TRANSPORT TO FREE-STANDING EMERGENCY CARE CLINICS

EMS units should not transport patients to free-standing emergency care clinics (or private physicians' offices) in response to emergency calls except:

1. When directed by Medical Control.

2. If specifically authorized by on-line medical direction.

3. When the EMS unit is following protocols approved by Medical Control that authorize such transports under certain circumstances.

4. When the EMS unit is a private service responding to a call in which the patient and/or the family requests transport to such facility and the patient is clearly in stable condition.

From the perspective of an EMS system, free-standing emergency care clinics are no different, and no more appropriate as an EMS transport destination, than any private physician's office, unless they have been through a health system agency or regional EMS review.

A free-standing emergency clinic is not automatically expected to be incorporated into the EMS system. However, in certain circumstances these facilities may be a valuable component.

NON-HOSPITAL TRANSFER POLICY

GUIDELINES FOR TRANSFER FROM A NON-HOSPITAL LOCATION TO A NON-HOSPITAL LOCATION: HOME TO HOSPICE; HOSPICE TO HOME

A. On occasion, the out of hospital provider(s) will be called upon to transport a patient from a non-hospital location to another non- hospital facility such as Hospice Center or from Hospice to home or a doctor's office. The provider(s) will follow the written or pre-existing orders of the patient's physician or physician approved Hospice Center orders for the transport. At times, a Hospice nurse may arrive or already be at the scene. He/she should be able to help review orders and/or care directives such as DNR or "Support Care" orders to enable transport in accordance with the wishes of the patient and his/her family. A Hospice patient by definition is DNR.

Medical Control does not need to be contacted unless the DNR is revoked. However, if the provider(s) feels the need to contact Medical Control for advice or direction, the provider(s) will clearly advise Medical Control of the patient's terminal condition and DNR status.

If medication(s) needs to be "wasted", e.g., Morphine, Valium or Versed, then the receiving Hospice supervisor, nurse or EMS supervisor may witness and document appropriate disposal of the said medication(s) and administration equipment, e.g., needle(s), syringe(s), IV catheter(s), Heparin or saline lock(s) or IV lines and/or solutions. Medications or equipment should never be transported to an Emergency Department to be disposed of or wasted. Any and all waste materials will be disposed of into approved and appropriately labeled containers.

INTERFACILITY PATIENT TRANSPORT GUIDELINES

The transportation of patients from one healthcare facility to another should be carried out in an orderly and expeditious manner. Regardless of origin or destination, patients remain the responsibility of the transferring physician until received by the accepting physician or his/her agent. The transfer papers and accompanying record must document the reason for transfer as well as the time of contact and the name of the receiving facility, physician and/or accepting agent in accordance with nationally recognized standards and federal regulations.

The decision regarding the level and scope of practice of the out-of-hospital transporting agency and the individual providers should be made in consultation with the receiving physician and must be appropriate to the stability of the patient and their medical and equipment needs. The provider will be responsible for carrying out the orders of the transferring physician during the transfer unless acting as the agent of the receiving facility with superseding medical control, or if a physician accompanies the patient. Any questions or concerns regarding those orders, including but not limited to Do Not Resuscitate (DNR) orders, medications or treatments, must be answered or clarified prior to departure. The route(s) of travel, possible diversionary medical facilities and their phone or radio call numbers should also be determined.

If unanticipated problems or concerns arise during transport, direct, on-line medical control will be obtained. If for technical or logistical reasons this is not possible, the transporting agent should follow written protocols or standing orders until the transferring, receiving or nearest diversionary facility can be contacted on-line.

TERMINATION OF RESUSCITATION EFFORTS

"Resuscitation may be discontinued in the prehospital setting when the patient is nonresuscitable after an adequate trial of ACLS."

In accordance with the Journal of American Medical Association's guidelines for cardiopulmonary resuscitation and emergency cardiac care, the above statement encourages local medical directors to develop guidelines for prehospital care providers to terminate resuscitation efforts when the patient's survivability is questionable.

A trial of ACLS, according to the guidelines, occurs when:

1) adequate BLS has been provided for a reasonable length of time;

2) endotracheal intubation has been successfully accomplished;

3) intravenous access has been achieved and rhythm-appropriate medications and countershocks for ventricular fibrillation have been administered according to protocol; and

4) persistent asystole or agonal electrocardiographic patterns are present and no reversible causes are identified.

The State of Ohio Regional Physician Advisory Board has adopted the following criteria for termination of resuscitation efforts at the scene following unmonitored, out of hospital, adult, primary cardiac arrest.

Paramedic personnel under local medical control authority may terminate resuscitation when:

1) adult cardiopulmonary arrest (not associated with trauma, body temperature aberration, respiratory etiology, or drug overdose);

2) standard ACLS in accordance with American Heart Association guidelines has been carried out for over 20 minutes;

3) no restoration of circulation (spontaneous pulse rate of greater than 60 beats per minute for at least a 5 minute period); and

4) absence of persistent, recurring, or refractory ventricular fibrillation/tachycardia or any continuous neurological activity (e.g., spontaneous respirations, eye opening or motor response).

When the above conditions have been met, the paramedic should contact medical control and request termination of resuscitation.

Documentation should be completed and forwarded to the appropriate Medical Control Authority within 48 hours of the run.

CHEST DECOMPRESSION

GENERAL CONSIDERATIONS

The treatment of tension pneumothorax involves decompression of the affected chest cavity to release the pressure that has developed.

Decompression can be achieved, with minimal risk, by the insertion of a 14 or 16 gauge needle into the second inter-costal space at the midclavicular line. Also an approach in the mid-axillary line between the fifth and sixth rib is possible, and considered safer by some physicians.

The needle must be inserted superior to the rib because the intercostal artery, vein and nerve follow the inferior portion of the rib.

INDICATION

Tension pneumothorax indicated by:

A. Diminished or absent lung sounds

B. Cyanosis and difficulty breathing

C. Distended neck veins

D. Tachycardia, tachypnea, hypotension, narrow pulse pressure

E. Tracheal shift to the unaffected side (May not always be present)

PROCEDURE

A. Prepare equipment: 14 or 16 gauge needle, antiseptic solution (Intracath needle with stylet removed is preferred, because sheath provides one-way valve.)

B. Locate site:

1. Second or third intercostal space, midclavicular
2. Fourth intercostal space between the forth and fifth rib, midaxillary

C. Prep site, if time permits

D. Insert the needle just superior to the rib until a rush of air is felt and/or heard

E. Secure needle in place

F. Support patient with 100% oxygen and transport without delay

CONTRAINDICATIONS

Insufficient training.

CRICOTHYROTOMY

INDICATIONS

Unable to intubate by another route. This may be seen with:

A. Cervical spine injuries

B. Maxillo facial trauma

C. Laryngeal trauma

D. Oropharyngeal obstruction from:

1. Edema from infection, caustic ingestion, allergic reaction, and/or inhalation injuries

2. Foreign body

3. Mass Lesion

E. Oral or nasotracheal intubation contraindicated for any reason

COMPLICATIONS

A. Postoperative bleeding

B. Late bleeding

C. Abscess behind packing

D. Cellulitis of neck

E. Subcutaneous emphysema

F. Voice change

G. Feeling of lump in throat

H. Persistent stoma

I. Obstructive problems

J. Misplacement of the airway

NEEDLE CRICOTHYROTOMY PROCEDURE

If time permits, prep the area with appropriate antiseptic solution. Attach a large angio (14-16 ga) to a syringe, and insert the needle through the cricothyroid membrane (CTM) and aspirate. Aspiration of air indicates proper placement.

If the intention is to use this as a temporary means of oxygenation then the catheter should then be slid into place.

If the needle is going to be used as a guide for formal cricothyrotomy then the catheter should not be used in order to prevent the possibility of shearing off the catheter when the scalpel is used.

A jet ventilator should be used to provide sufficient volume of oxygen at a pressure of no more than 30 psi.

Needle cricothyrotomy is the preferred method in children less than 11 years of age.

SURGICAL CRICOTHYROTOMY PROCEDURE

Make a 2 to 4cm vertical skin incision over cricothyroid membrane. Once the membrane has been exposed, make a 1.5 to 2cm horizontal incision into the membrane and through to the trachea. Maintain a slight caudal direction, with the blade, to avoid damage to vocal cords.

Use forceps or dilator to spread the aperture in the CTM. Again, caution against vocal cord injury by angling instruments caudally.

If time does not allow or equipment is not available, the blunt end of the scalpel can be placed in the incision and twisted to open the aperture.

Insert an appropriate size endotracheal tube (6cm tube). Advance caudally and inflate balloon. When the tube is in place, check breath sounds and secure the tube.

ENDOTRACHEAL INTUBATION

INDICATION

Endotracheal intubation is to be utilized for any victim with respiratory arrest and/or insufficiency to achieve complete control over the airway. It protects the airway from aspiration of foreign material and it allows for intermittent positive pressure ventilation to be achieved with 100% oxygen. It makes the trachea and the respiratory tract available for suctioning, and also eliminates the problem of gastric distention.

HAZARDS

A. Esophageal intubation

B. Tracheal rupture

C. Right mainstem bronchus intubation

D. Broken teeth

E. Laryngospasms

F. Trauma to the oral-pharynx

G. Trauma or puncture of trachea due to misplacement of stylet

ORAL-TRACHEAL INTUBATION

A. Always begin artificial ventilation as soon as possible using mouth-to-mouth, nose-to-nose, bag-valve-mask or oxygen powered manually triggered ventilation device.

B. Assemble and ready equipment:

1. Endotracheal tubes of various sizes
2. Laryngoscope and blades
3. Malleable stylet
4. Magill forceps
5. 10cc syringe
6. Suction apparatus and catheters
7. Water soluble lubricant
8. ET tube tape
9. Oropharyngeal airway

C. Check cuff on tube for leaks and lubricate tube. First attempt should be without stylet. Insert stylet into tube, if necessary.

D. Assemble laryngoscope and check bulb

E. Put victim's head in sniffing position. Do not allow the head to hang over the end of the table or bed; the occiput of the head should be on the same horizontal plane as the back of the shoulders, with the neck somewhat elevated.

ENDOTRACHEAL INTUBATION (cont)

F. Holding the laryngoscope in the left hand, insert the blade to the right of the midline, moving the tongue up and to the left, with the blade ending up in the midline, giving clear visualization of the glottic opening

G. Suction the mouth and the pharynx

H. Visualize the epiglottis and vocal cords

I. Select the proper size tube and insert in with the right hand, starting at the corner of the mouth down into the trachea, past the vocal cords approximately 2 inches

J. Remove laryngoscope and stylet (if used), holding the tube securely with the right hand

K. Attempt to ventilate with mouth-to-tube or bag-valve-mask and check for breath sounds in BOTH lungs

L. If breath sounds are heard, inflate the tube's cuff with 4-6cc of air and secure the tube in place with oropharyngeal airway used as bite block

M. Maintain ventilation until adequate respirations resume or victim is delivered to an emergency department

N. Recheck lungs sounds and verify tube placement each time patient is moved or every 10 minutes

O. Document the intubation by noting the following:

1. Number of attempts
2. Person(s) making attempts
3. Size of tube used
4. Type of laryngoscope blade used on each attempt
5. Lung sounds before intubation
6. Lung sounds after intubation and time of each check
7. Measurement on tube at lips of patient when lung sounds are present
8. Any complications

NASOTRACHEAL INTUBATION

A. Nasotracheal intubation of the airway may be used when the patient has an unprotected, inadequate airway creating hypoxia

B. Nasotracheal intubation is indicated in:

1. Patients with spontaneous breathing when all other methods of airway control and oxygenation proved to be inadequate.

2. Trauma patients when C-spine manipulation must be kept to a minimum and all other methods of airway control and oxygenation prove to be inadequate.

C. Nasotracheal intubation is contraindicated in patients with fractures in the base of the skull or face, and in any patients who are apneic

D. Hazards of nasotracheal intubation include:

1. Nasal hemorrhage
2. Laryngeal damage due to increased manipulation
3. Rupture of cuff balloon from use of Magill forceps

ENDOTRACHEAL INTUBATION (cont)

E. When attempting nasotracheal intubation:

1. Always begin basic airway control and oxygenation as soon as possible.

2. Assemble and ready equipment:

   a. Endotracheal tubes of various sizes (ENDOTROL type)
   b. Laryngoscope and blades
   c. Magill forceps
   d. 10cc syringe
   e. Water soluble lubricant

3. Determine size of tube based on size of nasal opening.

4. Check tube cuff for leaks and lubricate tube; seat 15mm connector firmly into tube

5. Holding tube in dominant hand, place thumb against the 15mm connector and index finger in the ring loop.

6. Insert the tube into the right nostril and advance tube gradually, anterior to posterior, avoiding superior movement which will be met with resistance and could cause injury.

7. As the tube enters the pharynx, listen for breathing and pull on the tip control ring loop to turn the tube anterior towards the trachea

8. When the patient takes a breath, advance the tube into the trachea.

9. Listen for lung sounds, inflate the tube's cuff, maintain ventilation and oxygenation. Confirm tube placement with breath sounds, fogging of tube and end tidal CO_2 monitoring.

10. Intubation attempt should not take longer than 30 seconds.

11. If any resistance is encountered during insertion, abandon procedure and utilize another method of airway control and oxygenation .

12. Recheck lungs sounds and verify tube placement each time patient is moved or every 10 minutes

13. Document the intubation by noting the following:

    a. Number of attempts
    b. Person(s) making attempts
    c. Size of tube used
    d. Lung sounds before intubation
    e. Lung sounds after intubation and time of each check
    f. Measurement on tube at nose of patient when lung sounds are present
    g. Any complications

ENDOTRACHEAL INTUBATION (cont)

TUBE REMOVAL

If the patient begins to breathe spontaneously and effectively and is resisting the presence of the tube, removal of the tube may be necessary. The following procedures will be followed:

A. Explain procedure to victim

B. Prepare suction equipment with large-bore catheter and suction secretions from endotracheal tube, mouth and pharynx

C. The lungs should be completely inflated so that the patient will initially cough or exhale as the tube is taken from the larynx. This is accomplished in 2 ways:

1. The patient is asked to take the deepest breath they possibly can and, at the very peak of the inspiratory effort, the cuff is deflated and the tube removed rapidly; or

2. Positive pressure is administered with a hand-held ventilator and, at the end of deep inspiration, the cuff is deflated and the tube rapidly removed

D. Prepare to suction secretions and gastric content if vomiting occurs

E. Appropriate oxygen is then administered

F. The patient's airway is immediately evaluated for signs of obstruction, stridor or difficulty breathing. The patient should be encouraged to take deep breaths and to cough.

G. The patient is not to be left unattended until there is no doubt of their ability to function without the artificial airway.

TUBE SIZING

The size of tube that can be passed easily into most adults is 8.0 mm (id). Therefore this tube should be tried first on the average adult. The size of tube is judged by the size of the adult, not by age.

For children, the proper tube is usually equal to the size of the child's little finger. The following guide will also help in determining the proper size tube:

Premature.....3mm (id)	18-24 months.....5-6mm (id)
4-24 weeks....4mm (id)	2-4 years.....6mm (id)
6-12 months....4-5mm (id)	4-7 years.....6-7mm (id)
12-18 months....5mm (id)	7-10 years.....7mm (id)

All the above tube sizes are still dependent on the child's size in consideration of age.

Children before puberty should have a cuffless tube, or if the tube has a cuff it should not be inflated after insertion.

ADMINISTRATION OF MEDICATION THROUGH ET TUBE

In the event an intravenous or interosseous route for administration of medication cannot be established, but an endotracheal tube has been properly put in place, medications Such as Narcan, Atropine, Epinephrine and Lidocaine can effectively be administered through the tube.

EMS personnel under this protocol will use the Emergency Medication Tube "EMT" endotracheal tube for all adult patients needing oral-tracheal intubation. For pediatric patients, personnel will use the "Endo-Ject" adapter and catheter. Both of these systems will allow for the administration of medication in accordance with current guidelines, and allow for simultaneous ventilation and medication administration.

The current guidelines state a catheter should be passed beyond the tip of the endotracheal tube, compressions stopped, and the medication sprayed quickly into the lower airway.

Medications should be administered at two (2) times the IV dosage and diluted with 10 ml of saline or sterile water before administration.

If the "EMT" or “Endo-Ject” are not used, the following procedure should be followed:

1. Remove needle from syringe
2. Hyperventilate patient and make sure ET tube and airway are clear of mucous
3. Disconnect ventilation device from tube and squirt medication rapidly into tube
4. Reconnect ventilation device and rapidly ventilate patient to assure passage of medication down tube and airway

SPECIAL NOTE: Do not take longer than 15 seconds to administer medication in order to prevent hypoxia of the patient.

END TIDAL C02 MONITORING

In order to assure placement of the ET tube into the trachea after intubation, end tidal C02 monitoring will be done. This procedure will be achieved by using the Nellcor “Easy Cap” device on adults and the “Pedi-Cap” devices on children under 30 lbs.

This will be achieved through the use of a FEF end tidal C02 detector after each intubation attempt.

Procedure for use:

A. Remove FEF detector from package (Do not remove end caps until ready to use device)

B. Remove end caps immediately before use and shake device to introduce room air

C. Match initial color of the indicator to the purple color labeled "CHECK" on the product dome. If the purple indicator color is not the same or darker, do not use.

D. Insert endotracheal tube (Inflate cuff if tube is equipped with one)

E. Firmly attach FEF detector between the endotracheal tube and the breathing device

F. Ventilate patient with six breaths of moderate tidal volume (may be done quickly). Interpreting result with less than six breaths can yield false results.

G. Compare color of indicator on full end-expiration to color chart on product dome. SEE ALGORITHM

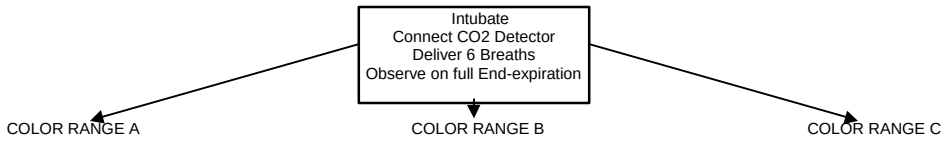
ENDOTRACHEAL INTUBATION (cont)

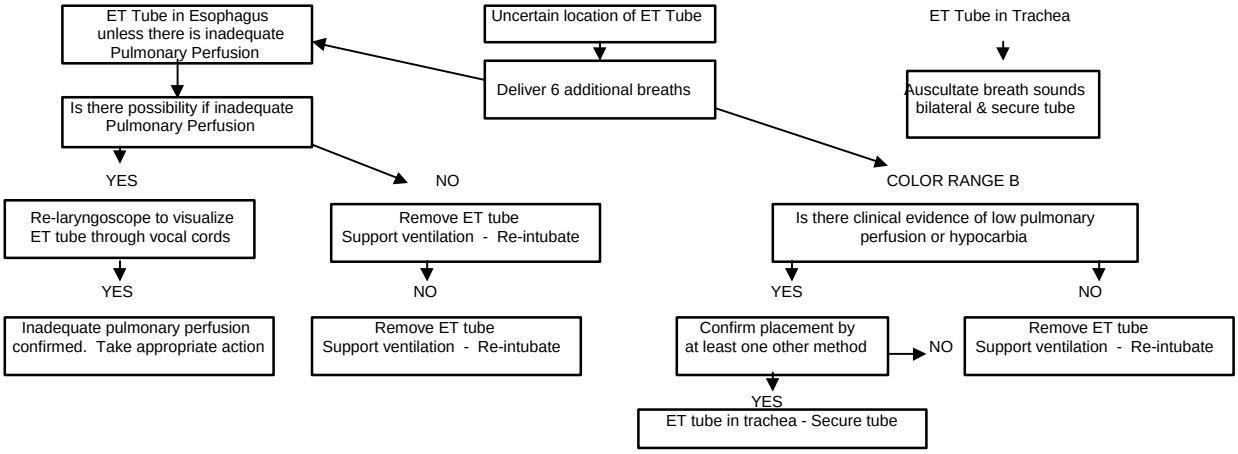
H. If initial intubation attempts fail, the FEF detector can be used for re-intubation on the same patient provided the indicator color still matches the "CHECK" color standard on product dome

I. The FEF detector may left in place during ventilation to assist in monitoring tube placement

J. This device is not to be used for:

1. Detection of hypercarbia
2. Detect mainstem bronchial intubation
3. During mouth to tube ventilations





EXTERNAL PACEMAKER

INDICATIONS

An external pacemaker may be used in the following situations:

A. Patients who are in full arrest with asystole confirmed in two leads, and not responding to medication therapy

B. Patients with symptomatic bradycardia, unresponsive to Atropine

C. Additional patients at the discretion of the on-line Medical Control Physician

APPLICATION

In the conscious patient with bradycardia, the rate is to be set at 80 beats per minute and the current at 20 milliamperes, which is to be increased by 20 milliamperes every 10 seconds until capture is obtained.

In asystole or unconscious bradycardia, the device is to be set at 100 beats per minute and 200 milliamperes. The settings are not to be reduced.

Once electrical capture is obtained, check for mechanical capture (pulse).

The external pacemaker is only to be used on pediatric patients with On-line Medical direction.

Nitroglycerine patches are to be removed before pacing.

IV PROCEDURES

GENERAL CONSIDERATIONS

IVs will be started by the EMT-Intermediate and/or the Paramedic as allowed by each patient care protocol.

IV placement must not delay transport of any critical patient involved in trauma.

Generally, no more than two (2) attempts or more than five minutes should be spent attempting an IV. If unable to initiate IV line, transport patient and notify hospital IV was not able to be started.

IVs may be started on patients of any age providing there are adequate veins and patient's condition warrants an IV

Blood draws for hospital laboratory testing will not be required under this protocol.

IV SOLUTION

0.9% Sodium Chloride will be the only fluid used in the pre-hospital setting under this protocol. Sodium Chloride solution is provided in 250ml bags and 3cc syringes for TKO IVs and 1000ml bag for fluid replacement.

The solution is to be infused as directed by specific treatment protocols.

IV TUBINGS

The following tubing will be used for this protocol:

A. For all adult fluid lines, use regular administration set (15 drop) tubing.

B. For child and infant patients, use 15 drop set with 3-way stopcock and extension tubing.

C. For all patients needing TKO lines, use extension tubing with pre-pierced adapter as saline lock.

V PROCEDURES (cont)

MECHANICS FOR STARTING PERIPHERAL IV

A. Prepare equipment

B. The initial attempt should be the dorsum of hand. Further attempts should proceed to the forearm; do not use the antecubital fossa unless necessary

C. Apply tourniquet

D. Cleanse site with Betadine solution and alcohol. (The only time Betadine is not required is when the patient has and allergy to Betadine type solutions

E. First attempt at insertion on an adult patient should be:

1. 16ga IV catheter for trauma patients

2. 18ga IV catheter for medical patients

G. Attach IV tubing

H. Secure IV using appropriate measures to insure stability of the line

I. Check for signs of infiltration

J. Adjust flow rate

K. Document IV procedure on run sheet.

MECHANICS FOR STARTING EXTERNAL JUGULAR IV LINE

A. Locate external jugular vein

B. Cleanse site with Betadine solution and alcohol. (The only time Betadine is not required is when the patient has and allergy to Betadine type solutions)

C. Select IV catheter

1. On adults, a large bore (16ga or 18ga) may be used

2. Use 2" IV catheter when available

D. Position yourself at patient's head

E. Turn patient's head so as to maximally expose vein and minimize interference of jaw

F. Cannulate the vein by directing the needle caudal at an angle nearly parallel to the neck

G. Attach IV tubing

H. Secure IV using appropriate measures to insure stability of the line

I. Check for signs of infiltration

IV PROCEDURES (cont)

J. Adjust flow rate

K. Document IV procedure on run sheet.

MECHANICS OF STARTING SALINE LOCK

A. Prepare equipment: Attach pre-pierced adapter to extension tubing, Inject saline (approx. 1cc) in to tubing and leave syringe attached to tubing

B. The initial attempt should be the dorsum of hand. Further attempts should proceed to the forearm; the antecubital fossa should not be used for saline locks.

C. Apply tourniquet

D. Cleanse site with Betadine solution and alcohol. (The only time Betadine is not required is when the patient has and allergy to Betadine type solutions

E. 20ga IV catheter should be used for all saline locks.

G. Attach IV tubing and push remaining saline through tubing and catheter. Remove syringe.

H. Secure IV using appropriate measures to insure stability of the line

I. Check for signs of infiltration

J. Document IV procedure on run sheet.

DOCUMENTATION

ALL IV attempts must be recorded on RMH EMS IV/MEDICATION run sheet and include the following:

A. When successful:

i. time IV was started
ii. type and amount of solution hung and infused during run
iii. flow rate
iv. size of catheter or needle used
v. location of IV site
vi. Initials of all EMT's who attempted and/or started IV
vii. Signature of EMT In-charge of run

B. When unsuccessful:

i. time IV was attempted
ii. type of solution
iii. size of catheter or needle used
iv. location of attempted site
v. Initials of all EMT's who attempted and/or started IV
vi. Signature of EMT In-charge of run

C. Record all IV medications given

i. Name of medication
ii. Dosage and amount given
iii. Time ordered (if applicable)
iv. Time given
v. Initial of all EMT's who administered medication
vi. Signature of EMT In-charge of run

INTEROSSEOUS INFUSION

INDICATIONS

A. To establish parenteral means to administer fluids, blood products and parenteral medications, and to draw blood (except for CBC's)

B. May be used in any instance that an IV route would be appropriate

C. Its use should be considered after two IV attempts have failed or if no peripheral IV sites are found

D. This procedure is indicated primarily in children

CONTRAINDICATIONS

A. Osteomyelitis or cellulitis over the proposed site

B. Fracture at or above the proposed site

C. Previous IO attempt at the proposed site

EQUIPMENT

A. 16ga Interosseous Needle

B. Betadine and Alcohol

C. IV setup

D. Syringe for aspiration

C. Lidocaine prn

PROCEDURE

A. Prepare as for a surgical procedure, using sterile technique

B. Attempt to have feet in flexed position against board or sandbag

C. If the patient is alert, consider using a local anesthetic

INTEROSSEOUS INFUSION (cont)

D. The preferred site is the proximal anteromedial tibia, 1-3 cm below the tibial tuberosity
Secondary site is the distal femur, midline, 3 cm above condyle

E. Needle insertion varies between seventy and ninety degree angle to the skin surface, approximately one to two finger breadths distal to the tibial tuberosity. With a straight steady push and/or rotary motion, push needle through subcutaneous tissue and bone until a drop or pop is felt.

F. Once the needle has reached the bone marrow, saline should be injected via syringe to clear needle and then aspiration should be attempted. The infusion should flow freely without evidence of subcutaneous infiltration.

G. The needle should feel firm in position and stand upright without support.

H. Infusion via this route is the same as venous access without limit to rate of administration, drugs pushed or fluid type infused.

I. After removing needle (for successful or unsuccessful attempt), apply pressure to area for five minutes and apply dressing to area.

J. Interosseous infusions of fluid may cause subcutaneous infiltration, osteomyelitis or subcutaneous infections.

PNEUMATIC ANTI-SHOCK GARMENT

INDICATION

A. Class I - Usually indicated, useful and effective

* Hypotension due to ruptured AAA

B. Class IIa - Acceptable, uncertain efficacy, weight of evidence favors usefulness and efficacy

* Hypotension due to suspected pelvic fracture
* Anaphylactic shock (unresponsive to standard therapy)
* Otherwise uncontrollable lower extremity hemorrhage
* Severe traumatic hypotension (palpable pulse, blood pressure not obtainable)

C. Class IIb - Acceptable, uncertain efficacy, may be helpful, probably not harmful

* Elderly
* History of congestive heart failure
* Penetrating abdominal injury
* Paroxysmal supraventricular tachycardia (PSVT)
* Gynecologic hemorrhage (otherwise controlled)
* Hypothermia-induced hypotension
* Lower-extremity hemorrhage (otherwise uncontrolled)
* Pelvic fracture without hypotension
* Ruptured ectopic pregnancy
* Septic shock
* Spinal shock
* Urologic hemorrhage (otherwise uncontrolled)
* Assist intravenous cannulation

D. Class III - Inappropriate option, not indicated, may be harmful

* Adjunct to CPR

* Diaphragmatic rupture
* Penetrating thoracic injury
* Pulmonary edema
* To splint fractures of the lower extremities
* Extremity trauma
* Abdominal evisceration
* Acute myocardial infarction
* Cardiac tamponade
* Cardiogenic shock
* Gravid uterus

CONTRAINDICATIONS

A. Acute cases of Pulmonary Edema

B. Pregnancy - Do not inflate abdominal section

C. Cardiogenic Shock

D. Open wounds of the chest

APPLICATION

Unfold PASG completely and lay on a stretcher or backboard. Then:

A. Put patient on the PASG face up (supine) so that the top of garment will be just below the last rib

B. Wrap the left leg first, then the right leg, then the abdomen. Each should be snug and all Velcro should be fastened. Following this sequence will facilitate quicker application of the garment.

C. Check the victim's vital signs and breath sounds. If symptoms of blood loss are present, inflate PASG. Attach foot pump to PASG at the valves and inflate each section, starting with the leg sections, until: patient's systolic BP reaches 100, velcro fasteners crackle, air escapes the safety valves and/or bleeding stops

D. IF USING A SPLINT, INFLATE ONLY UNTIL GARMENT IS FIRM

E. Close valves, leave hoses and pump attached for transport

REMOVAL

PASGs should not be deflated until:

A. A physician is present and has taken charge of the patient, and

B. Fluids are available for transfusion

The urge to deflate the garment to inspect the wounds should be suppressed. Electrocardiograms and x-rays can be taken and Foley catheters can be inserted while PASG is still on and inflated.

In cases where bleeding is initially present, or hypovolemia is suggested by evident external blood loss, the garment should not be deflated until replacement therapy has begun. Deflation before volume replacement may lead to further shock to a possibly irreversible degree. If the situation permits, gradual deflation with concurrent fluid administration is advisable.

NITRONOX
(Nitrous Oxide - Oxygen Administration)

Nitronox is a self-administered analgesic gas containing a mixture of 50% oxygen and 50% nitrous oxide. Nitronox is supplied in a carrying case containing two cylinders, one of nitrous oxide and one containing oxygen, with a mixing valve and supply tubing. These agents are mixed on administration to deliver a 50% concentration of each to the patient. Negative pressure is required to open the valve, so the patient must have an airtight seal at the face mask.

INDICATIONS

Nitronox should be given to any patient who is alert and complaining of severe pain.

Examples:
- Abdominal pain
- Chest pain secondary to infarction or angina
- Acute urinary retention
- Fractures
- Severe burns
- Kidney stones
- Musculoskeletal trauma

CONTRAINDICATIONS

Nitronox is not to be used in patients with these conditions:

- Altered level of consciousness
- Head injuries
- Chest injuries (blunt or penetrating)
- intoxication
- Maxillofacial injuries
- Psychiatric problems
- COPD (because of the 50% oxygen mixture)
- Pediatric patients under 12 years of age
- Pregnancy
- Respiratory distress

APPLICATION

A. Instruct patients to administer Nitronox to themselves by placing the mask tightly against their face and breathing deeply and slowly

B. Allow mask to fall away from face spontaneously when effects are felt

C. Check Blood Pressure - Nitronox may cause BP to drop in some cases

SPECIAL CONSIDERATIONS

A. Nitronox should never be administered by the EMT or Paramedic. Only self-administration by the patient is to be used.

B. Upon administration of Nitronox, constantly monitor patient to see he does not fall asleep with mask in place.

C. The side effects of Nitrous Oxide, in addition to analgesia, include light-headedness, drowsiness, and very occasionally nausea and vomiting. Changes in heart rate and respiratory rate are minimal.

D. Nitrous Oxide and Oxygen are both non-flammable gases, but both support combustion. For this reason do not use Nitronox in areas where there is a combustion hazard.

E. SPECIAL NOTE TO EMT'S AND PARAMEDICS:

There is an increased risk of liver cancer and birth defects to individuals who are exposed to repeated applications of Nitrous-Oxide. For this reason Nitronox should be used in a well-ventilated environment.

SAFETY ISSUES

A. The Nitronox unit must be stored in the EMS vehicle with its gas cylinders in an "OFF" position when not in use

B. The unit must not be used in any environment where:

1. There are possible ignition sources

2. Other patients are in close proximity (less than 10 ft. away)

3. The room is small and no nitrous oxide alarm is monitoring the gas concentration in ambient air

C. The unit should not be used if the mixture pressure is not in the 30-35 PSI range

D. Any problem with the mechanical status of the apparatus shall be immediately reported to the person in charge, so appropriate evaluation and/or repair can be made before further use

GENERAL CONSIDERATIONS

Pulse oximetry is used in conjunction with other assessment processes to determine the actual available oxygen in the blood for use by body tissue. Pulse oximetry measures the oxygen saturation of the red blood cells, ($\%SpO_2$).

Studies have shown that EMS personnel are fairly accurate in the assessment and treatment of patients in profound hypoxia. However in mild to moderate hypoxic states, EMS personnel sometimes do not react until the patient has progressed to profound hypoxia. Signs of progressive hypoxia need to be identified rapidly and the condition treated before profound hypoxia occurs.

Use of pulse oximetry in conjunction with other assessment processes may sometimes identify those patients in mild to moderate hypoxia, and with proper intervention profound hypoxia can be prevented.

If available, pulse oximetry should be used on all patients. Pulse oximetry should be maintained and evaluated until the patient is delivered to the Emergency Department.

REMEMBER, INITIATE NORMAL AIRWAY AND OXYGENATION SUPPORT REGARDLESS OF THE AVAILABILITY OF PULSE OXIMETRY.

NEVER BASE ANY TREATMENT OR OXYGEN THERAPY SOLELY ON THE READING FROM THE PULSE OXIMETER.

PROCEDURE

A. Select sensor and apply according to manufacturer's recommendations. The following should be noted:

1. Finger Clip Sensors - These are designed for spot-check monitoring of older pediatric and adult patients and/or continuous monitoring less than 30 minutes where patient movement is not expected.

    a. Insert finger (preferably left or right index finger) completely into sensor, keeping fingernail side facing the sensor top. It is specifically recommended that the thumb not be used in the finger clip sensor.

    b. For best results when using the finger clip in longer term monitoring or with active patients, secure the sensor cable independently from the sensor, preferably around the base of the finger. Make sure blood supply to the finger is not impaired by the application of the tape.

PULSE OXIMETRY (cont)

2. Flex Sensor - This sensor is designed for monitoring pediatric and adult patients in which moderate patient movement is expected.

    a. Position the sensor on the top and bottom of the end of the finger or toe. Place the light emitter portion on the finger/toe-nail side and the detector of the side opposite of the nail, making sure to align the emitter and detector through the tissue.

    b. Secure the sensor with 3M Micropore tape, making sure not to restrict blood flow. Attach the sensor cable independently at the base of the finger, again being careful not to restrict blood flow.

3. Infant and Neonatal Sensors - These sensors are designed for continuous monitoring of infants and neonates since fingertip monitoring is impractical.

    a. The infant sensor is designed for application on the big toe of infants greater than 2 kilograms (5 pounds).

    b. The neonatal sensor is designed for application on the foot of infants less than 2 kilograms in weight.

    c. Apply and secure these sensors as described for the flex sensor, being sure not to restrict blood supply to the monitored area.

4. Ear Clip Sensor - This sensor is used when finger clip sensing is not possible. Be sure to clean the ear lobe with alcohol before applying the sensor. Be aware pierced ears may allow some light to pass directly to the detector and result in an inaccurate reading.

5. Reflectance Sensor - This sensor is used on well vascularized skin surfaces in adult patients only. This method is not preferred in the pre-hospital setting.

B. Turn oximeter on and verify operation according to manufacturer's operating procedure.

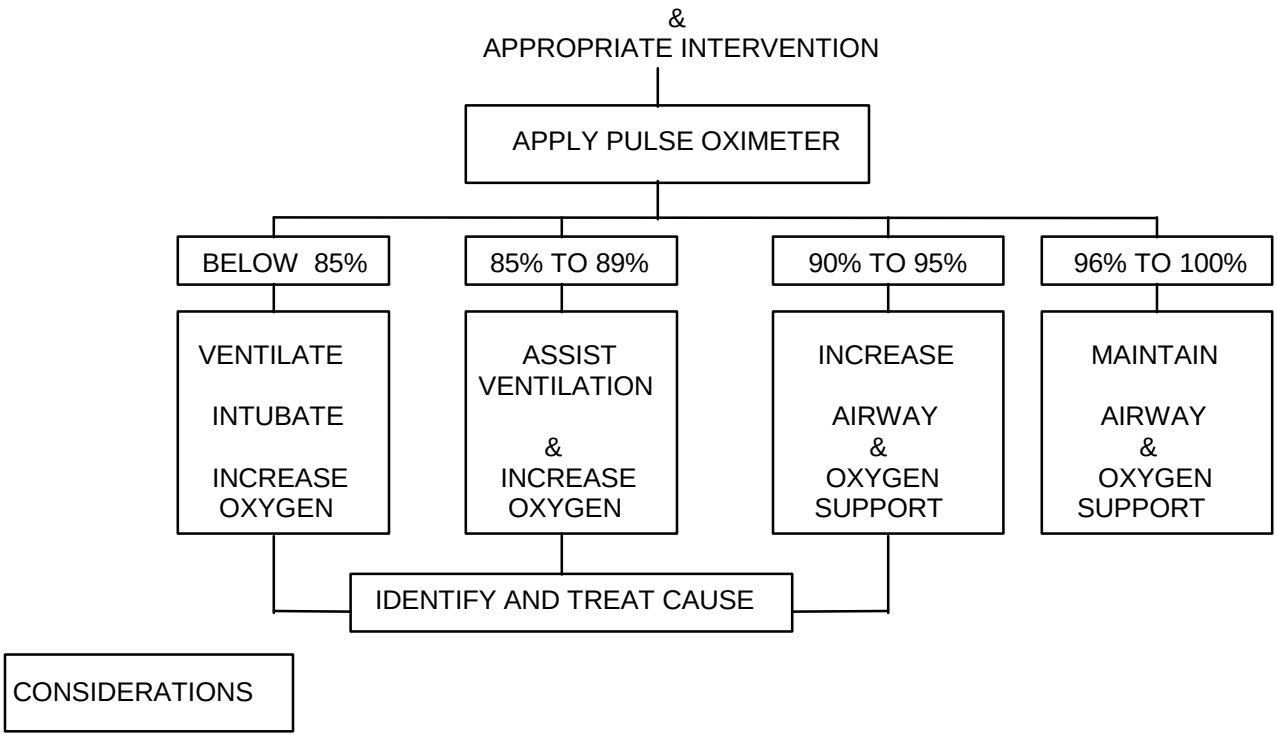
C. A relative operation check can be achieved by applying the sensor to your own finger.

D. Always cleanse sensor site of blood and dirt for reliable reading. Some fingernail polishes may have to be removed to obtain a reading.

E. Apply sensor to patient and obtain reading.

Interpretation of Reading:

100% to 96%	Ideal Range - Maintain oxygen and airway support methods being used
95% to 90%	Mild to Moderate Hypoxemia - Check airway and increase oxygen support until ideal range is achieved
89% to 85%	Severe Hypoxemia - Aggressive airway and oxygen support is essential Look for and treat cause: i.e. COPD, metabolic imbalance, peripheral vascular shutdown
Below 85%	BE PREPARED TO INTUBATE AND/OR ASSIST VENTILATION



CONSIDERATIONS

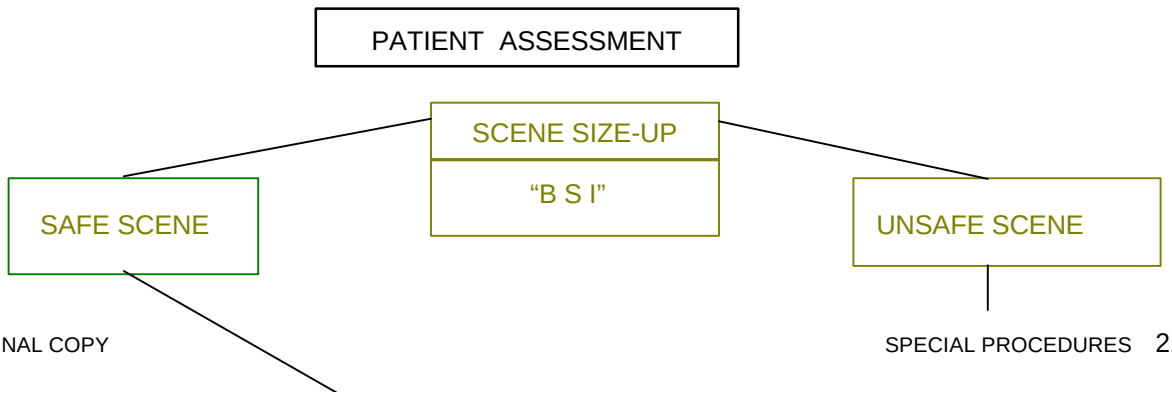
A. Hypovolemic, hypothermic, and peripheral vascular disease patients may not be suitable candidates for pulse oximetry due to peripheral shutdown

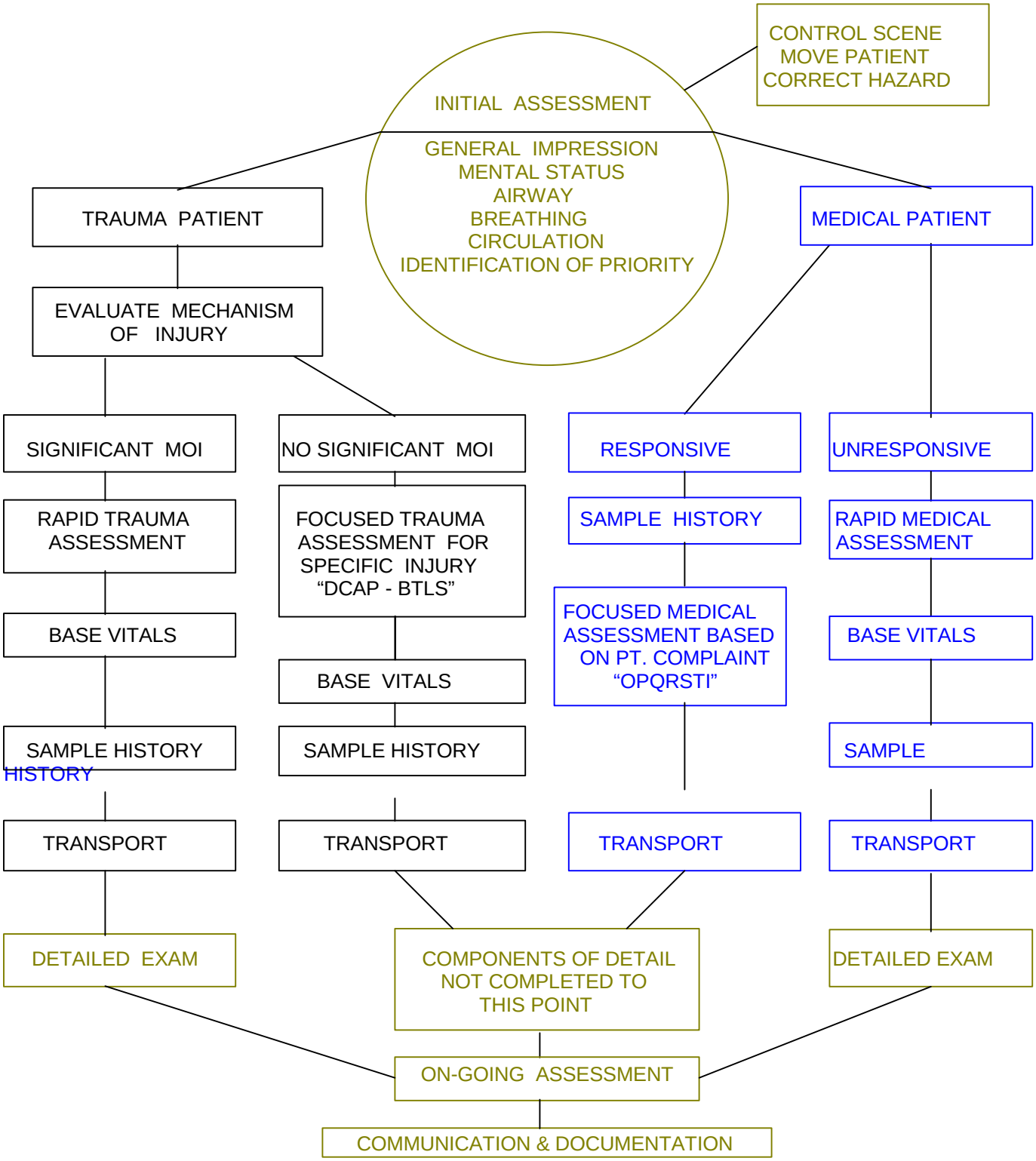
B. Be aware that there may be a 30 to 60 second delay between changes in $\%SpO_2$ conditions and pulse oximetry readings

C. A pulse must be detected by the oximeter to determine the $\%SpO_2$

D. Pulse oximetry is not indicated in carbon monoxide poisoning

E. COPD patients will normally have a low $\%SpO_2$ and should not be treated in accordance with this guideline




CONTROL SCENE
MOVE PATIENT
CORRECT HAZARD
INITIAL ASSESSMENT
GENERAL IMPRESSION
MENTAL STATUS
AIRWAY
BREATHING
CIRCULATION
IDENTIFICATION OF PRIORITY
TRAUMA PATIENT
MEDICAL PATIENT
EVALUATE MECHANISM OF INJURY
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TRANSPORT
TRANSPORT
TRANSPORT
DETAILED EXAM
COMPONENTS OF DETAIL NOT COMPLETED TO THIS POINT
DETAILED EXAM
ON-GOING ASSESSMENT
COMMUNICATION & DOCUMENTATION

INTEROSSEOUS INFUSION

INDICATIONS

A. To establish parenteral means to administer fluids, blood products and parenteral medications, and to draw blood (except for CBC's)

B. May be used in any instance that an IV route would be appropriate

C. Its use should be considered after two IV attempts have failed or if no peripheral IV sites are found

D. This procedure is indicated primarily in children

CONTRAINDICATIONS

A. Osteomyelitis or cellulitis over the proposed site

B. Fracture at or above the proposed site

C. Previous IO attempt at the proposed site

EQUIPMENT

A. 16ga Interosseous Needle

B. Betadine and Alcohol

C. IV setup

D. Syringe for aspiration

C. Lidocaine prn

PROCEDURE

A. Prepare as for a surgical procedure, using sterile technique

B. Attempt to have feet in flexed position against board or sandbag

C. If the patient is alert, consider using a local anesthetic

D. The preferred site is the proximal anteromedial tibia, 1-3 cm below the tibial tuberosity
Secondary site is the distal femur, midline, 3 cm above condyle

E. Needle insertion varies between seventy and ninety degree angle to the skin surface, approximately one to two finger breadths distal to the tibial tuberosity. With a straight steady push and/or rotary motion, push needle through subcutaneous tissue and bone until a drop or pop is felt.

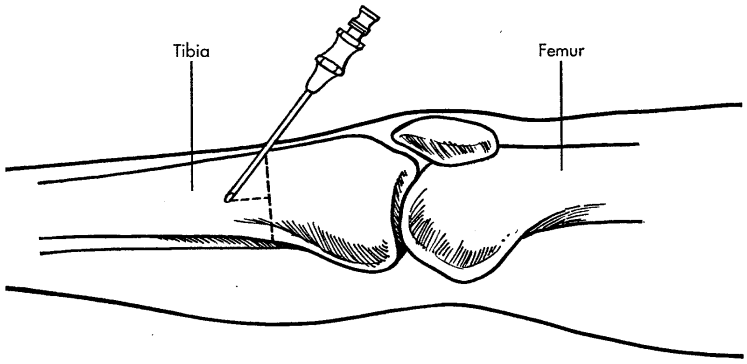
F. Once the needle has reached the bone marrow, saline should be injected via syringe to clear needle and then aspiration should be attempted. The infusion should flow freely without evidence of subcutaneous infiltration.

G. The needle should feel firm in position and stand upright without support.

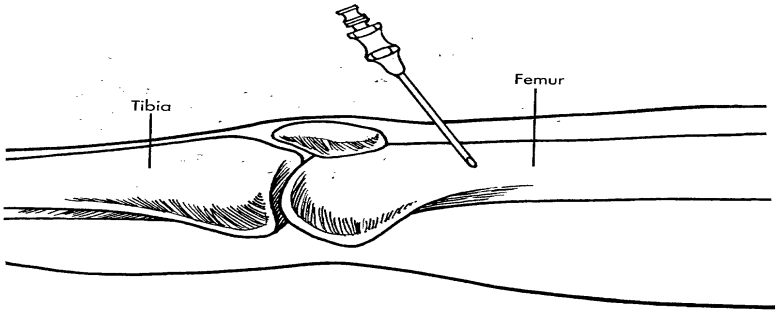
H. Infusion via this route is the same as venous access without limit to rate of administration, drugs pushed or fluid type infused.

I. After removing needle (for successful or unsuccessful attempt), apply pressure to area for five minutes and apply dressing to area.

J. Interosseous infusions of fluid may cause subcutaneous infiltration, osteomyelitis or subcutaneous infections.



Proximal tibial site for intraosseous infusion.



Distal femur site for intraosseous infusion.

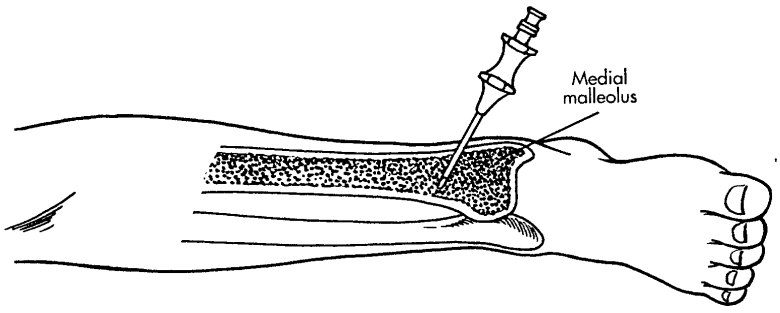


Figure 3-59 Distal tibial site for intraosseous infusion.

PNEUMATIC ANTI-SHOCK GARMENT

INDICATION

A. Class I - Usually indicated, useful and effective

* Hypotension due to ruptured AAA

B. Class IIa - Acceptable, uncertain efficacy, weight of evidence favors usefulness and efficacy

* Hypotension due to suspected pelvic fracture
* Anaphylactic shock (unresponsive to standard therapy)
* Otherwise uncontrollable lower extremity hemorrhage
* Severe traumatic hypotension (palpable pulse, blood pressure not obtainable)

C. Class IIb - Acceptable, uncertain efficacy, may be helpful, probably not harmful

* Elderly
* History of congestive heart failure
* Penetrating abdominal injury
* Paroxysmal supraventricular tachycardia (PSVT)
* Gynecologic hemorrhage (otherwise controlled)
* Hypothermia-induced hypotension
* Lower-extremity hemorrhage (otherwise uncontrolled)
* Pelvic fracture without hypotension
* Ruptured ectopic pregnancy
* Septic shock
* Spinal shock
* Urologic hemorrhage (otherwise uncontrolled)
* Assist intravenous cannulation

D. Class III - Inappropriate option, not indicated, may be harmful

* Adjunct to CPR
* Diaphragmatic rupture
* Penetrating thoracic injury
* Pulmonary edema
* To splint fractures of the lower extremities
* Extremity trauma
* Abdominal evisceration
* Acute myocardial infarction
* Cardiac tamponade
* Cardiogenic shock
* Gravid uterus

CONTRAINDICATIONS

A. Acute cases of Pulmonary Edema

B. Pregnancy - Do not inflate abdominal section

C. Cardiogenic Shock

D. Open wounds of the chest

APPLICATION

Unfold PASG completely and lay on a stretcher or backboard. Then:

A. Put patient on the PASG face up (supine) so that the top of garment will be just below the last rib

B. Check the victim's vital signs and breath sounds. If symptoms of blood loss are present, inflate PASG. Attach foot pump to PASG at the valves and inflate each section, starting with the leg sections, until: patient's systolic BP reaches 100, velcro fasteners crackle, air escapes the safety valves and/or bleeding stops

C. IF USING A SPLINT, INFLATE ONLY UNTIL GARMENT IS FIRM

D. Close valves, leave hoses and pump attached for transport

REMOVAL

PASGs should not be deflated until:

A. A physician is present and has taken charge of the patient, and

B. Fluids are available for transfusion

The urge to deflate the garment to inspect the wounds should be suppressed. Electrocardiograms and x-rays can be taken and Foley catheters can be inserted while PASG is still on and inflated.

In cases where bleeding is initially present, or hypovolemia is suggested by evident external blood loss, the garment should not be deflated until replacement therapy has begun. Deflation before volume replacement may lead to further shock to a possibly irreversible degree. If the situation permits, gradual deflation with concurrent fluid administration is advisable.

NITRONOX
(Nitrous Oxide - Oxygen Administration)

Nitronox is a self-administered analgesic gas containing a mixture of 50% oxygen and 50% nitrous oxide. Nitronox is supplied in a carrying case containing two cylinders, one of nitrous oxide and one containing oxygen, with a mixing valve and supply tubing. These agents are mixed on administration to deliver a 50% concentration of each to the patient. Negative pressure is required to open the valve, so the patient must have an airtight seal at the face mask.

INDICATIONS

Nitronox should be given to any patient who is alert and complaining of severe pain.

Examples:
- Abdominal pain
- Chest pain secondary to infarction or angina
- Acute urinary retention
- Fractures
- Severe burns
- Kidney stones
- Musculoskeletal trauma

CONTRAINDICATIONS

Nitronox is not to be used in patients with these conditions:

- Altered level of consciousness
- Head injuries
- Chest injuries (blunt or penetrating)
- intoxication
- Maxillofacial injuries
- Psychiatric problems
- COPD (because of the 50% oxygen mixture)
- Pediatric patients under 12 years of age
- Pregnancy
- Respiratory distress

APPLICATION

A. Instruct patients to administer Nitronox to themselves by placing the mask tightly against their face and breathing deeply and slowly

B. Allow mask to fall away from face spontaneously when effects are felt

C. Check Blood Pressure - Nitronox may cause BP to drop in some cases

SPECIAL CONSIDERATIONS

A. Nitronox should never be administered by the EMT or Paramedic. Only self-administration by the patient is to be used.

B. Upon administration of Nitronox, constantly monitor patient to see he does not fall asleep with mask in place.

C. The side effects of Nitrous Oxide, in addition to analgesia, include light-headedness, drowsiness, and very occasionally nausea and vomiting. Changes in heart rate and respiratory rate are minimal.

D. Nitrous Oxide and Oxygen are both non-flammable gases, but both support combustion. For this reason do not use Nitronox in areas where there is a combustion hazard.

E. SPECIAL NOTE TO EMT'S AND PARAMEDICS:

There is an increased risk of liver cancer and birth defects to individuals who are exposed to repeated applications of Nitrous-Oxide. For this reason Nitronox should be used in a well-ventilated environment.

SAFETY ISSUES

A. The Nitronox unit must be stored in the EMS vehicle with its gas cylinders in an "OFF" position when not in use

B. The unit must not be used in any environment where:

1. There are possible ignition sources

2. Other patients are in close proximity (less than 10 ft. away)

3. The room is small and no nitrous oxide alarm is monitoring the gas concentration in ambient air

C. The unit should not be used if the mixture pressure is not in the 30-35 PSI range

D. Any problem with the mechanical status of the apparatus shall be immediately reported to the person in charge, so appropriate evaluation and/or repair can be made before further use

PULSE OXIMETRY

GENERAL CONSIDERATIONS

Pulse oximetry is used in conjunction with other assessment processes to determine the actual available oxygen in the blood for use by body tissue. Pulse oximetry measures the oxygen saturation of the red blood cells, ($\%SpO_2$).

Studies have shown that EMS personnel are fairly accurate in the assessment and treatment of patients in profound hypoxia. However in mild to moderate hypoxic states, EMS personnel sometimes do not react until the patient has progressed to profound hypoxia. Signs of progressive hypoxia need to be identified rapidly and the condition treated before profound hypoxia occurs.

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If available, pulse oximetry should be used on all patients. Pulse oximetry should be maintained and evaluated until the patient is delivered to the Emergency Department.

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NEVER BASE ANY TREATMENT OR OXYGEN THERAPY SOLELY ON THE READING FROM THE PULSE OXIMETER.

PROCEDURE

A. Select sensor and apply according to manufacturer's recommendations. The following should be noted:

1. Finger Clip Sensors - These are designed for spot-check monitoring of older pediatric and adult patients and/or continuous monitoring less than 30 minutes where patient movement is not expected.

    a. Insert finger (preferably left or right index finger) completely into sensor, keeping fingernail side facing the sensor top. It is specifically recommended that the thumb not be used in the finger clip sensor.

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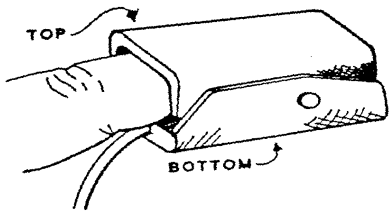

Finger Clip Sensor Positioning

PULSE OXIMETRY (cont)

2. Flex Sensor - This sensor is designed for monitoring pediatric and adult patients in which moderate patient movement is expected.

    a. Position the sensor on the top and bottom of the end of the finger or toe. Place the light emitter portion on the finger/toe-nail side and the detector of the side opposite of the nail, making sure to align the emitter and detector through the tissue.

    b. Secure the sensor with 3M Micropore tape, making sure not to restrict blood flow. Attach the sensor cable independently at the base of the finger, again being careful not to restrict blood flow.

Infant Sensor Placement on Big Toe

3. Infant and Neonatal Sensors - These sensors are designed for continuous monitoring of infants and neonates since fingertip monitoring is impractical.

    a. The infant sensor is designed for application on the big toe of infants greater than 2 kilograms (5 pounds).

    b. The neonatal sensor is designed for application on the foot of infants less than 2 kilograms in weight.

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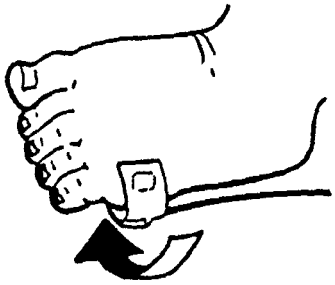

Infant and Neonatal Sensor Placement on Foot

PULSE OXIMETRY (cont)

4. Ear Clip Sensor - This sensor is used when finger clip sensing is not possible. Be sure to clean the ear lobe with alcohol before applying the sensor. Be aware pierced ears may allow some light to pass directly to the detector and result in an inaccurate reading.

5. Reflectance Sensor - This sensor is used on well vascularized skin surfaces in adult patients only. This method is not preferred in the pre-hospital setting.

B. Turn oximeter on and verify operation according to manufacturer's operating procedure.

C. A relative operation check can be achieved by applying the sensor to your own finger.

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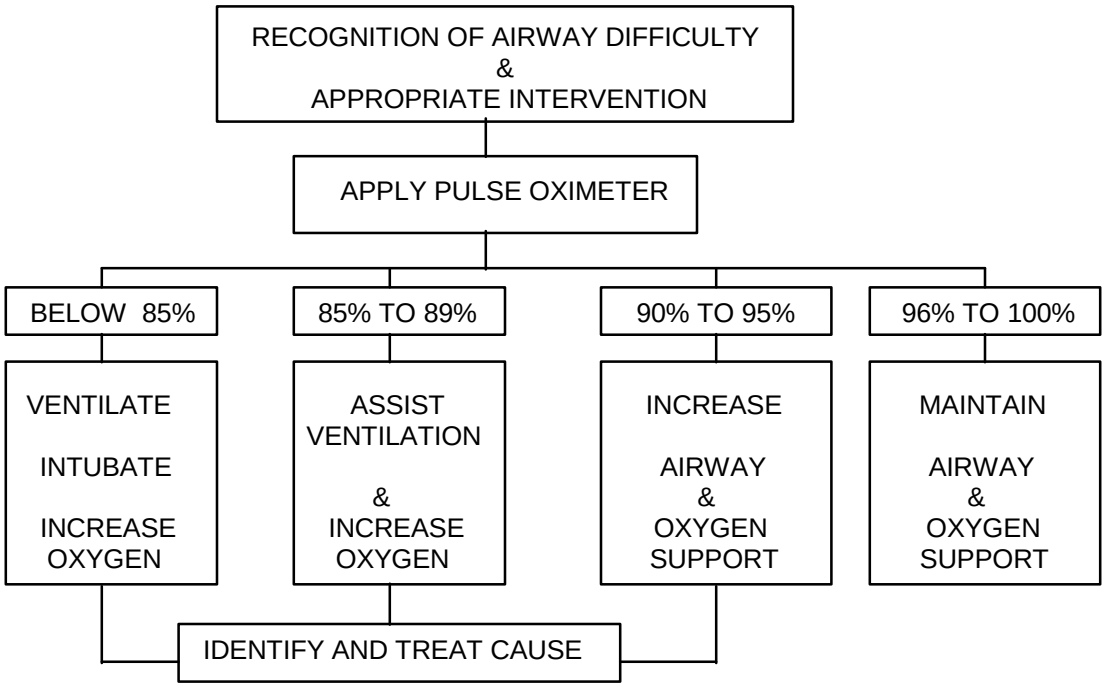
E. Apply sensor to patient and obtain reading.

Interpretation of Reading:

100% to 96%	Ideal Range - Maintain oxygen and airway support methods being used
95% to 90%	Mild to Moderate Hypoxemia - Check airway and increase oxygen support until ideal range is achieved
89% to 85%	Severe Hypoxemia - Aggressive airway and oxygen support is essential Look for and treat cause: i.e. COPD, metabolic imbalance, peripheral vascular shutdown
Below 85%	BE PREPARED TO INTUBATE AND/OR ASSIST VENTILATION



CONSIDERATIONS

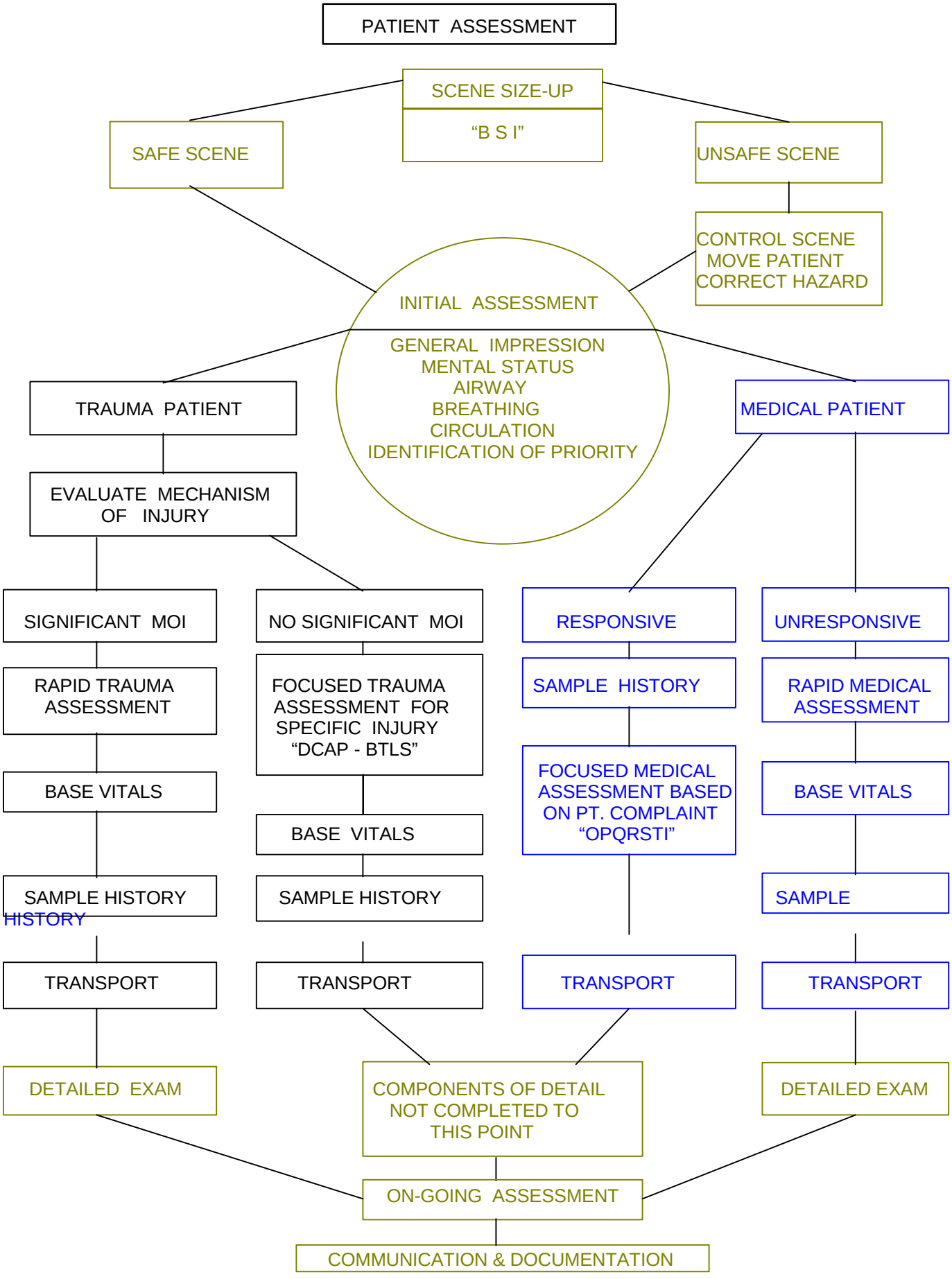
A. Hypovolemic, hypothermic, and peripheral vascular disease patients may not be suitable candidates for pulse oximetry due to peripheral shutdown

B. Be aware that there may be a 30 to 60 second delay between changes in $\%SpO_2$ conditions and pulse oximetry readings

C. A pulse must be detected by the oximeter to determine the $\%SpO_2$

D. Pulse oximetry is not indicated in carbon monoxide poisoning

E. COPD patients will normally have a low $\%SpO_2$ and should not be treated in accordance with this guideline


PATIENT ASSESSMENT
SCENE SIZE-UP
"B S I"
SAFE SCENE
UNSAFE SCENE
CONTROL SCENE
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MEDICATION APPENDIX

PURPOSE

This section will discuss the medications and their pharmacology used in the State of Ohio State of Ohio Regional Physician Advisory Board EMS Guidelines and Procedures Manual.

MEDICATION LIST

Adenosine (Adenocard)
Aspirin
Atropine Sulfate
Bretylium Tosylate (Bretylol)
Calcium Chloride
Compazine
25% Dextrose (D25)
50% Dextrose (D50)
Diazepam (Valium)
Diphenhydramine HCL (Benadryl)
Dopamine (Intropin)
Epinephrine (Adrenalin)
Furosemide (Lasix)
Glucagon
Lidocaine (Xylocaine) 2%
Midazolam (Versed)
Morphine Sulfate
Naloxone (Narcan)
Nitroglycerin
Nitrous Oxide
Oxygen (O2)
Phenergan
Proventil/Ventolin (Albuterol)
Sodium Bicarbonate
Tetracaine (Pontocaine, Ophthalmic)
Verapamil (Isoptin, Calan)

PHARMACOLOGY REVIEW

I. ACTIONS OF DRUGS

A. Local Effects

B. Systemic Effects

II. EFFECTS DEPENDS UPON

A. Age of Patient

B. Condition of Patient

C. Dosage

D. Route of Administration

III. ROUTE OF ADMINISTRATION

A. Intravenous (IV)

* Most Rapidly Effective
* Most Dangerous
* Give SLOWLY Through an Established IV Line

B. Intramuscular (IM)

* Takes Longer to Act
* Longer Duration of Action
* Deltoid or Gluteus Maximus Site
* Absorption VERY Dependent on Blood Flow

C. Subcutaneous (SQ)

* Slower and More Prolonged Absorption
* Under Skin of Upper Arms, Thigh, Abdomen

D. Inhalation

* Bronchodilators
* Steroids

E. Endotracheal

* Epinephrine, Atropine, Lidocaine, Narcan
* Dilute Usual IV Dose with 10cc of Sterile Water

F. Sublingual (SL)

* Rapid Absorption

G. Oral

* Ipecac
* Charcoal

H. Rectal

* Rapid but Unpredictable Absorption

I. Intracardiac

* Dangerous
* No Advantage Over IV or Endotracheal Routes
* Dilute Usual IV Dose with 10cc of Sterile Water

IV. RATES OF ABSORPTION

A. "Directly Related to Route of Administration"

* IV -- Fastest
* IM
* SQ
* Oral -- Slowest

V. ELIMINATION

A. Many Methods

B. Usually Metabolized by the Liver

C. Eliminated by the Kidneys, Lungs, Skin

VI. TERMS

A. Indications - Conditions Drugs Used For

B. Contraindications - Conditions Drugs Not Used For

C. Depressants - Lessens / Decreases Activity

D. Stimulant - Increases Activity

E. Physiologic Action - Action From Normal Body Amounts of Drug

F. Therapeutic Action - Beneficial Action Expected

G. Untoward Reaction - Harmful Side Effect

H. Irritation - Damage to Tissue

I. Antagonism - Opposition Between Effects of Drugs

J. Cumulative Action - Increased Action After Several Doses

K. Tolerance - Decreased Effects After Repeated Doses

L. Synergism - Combined Effects Greater Than Sum of Parts

M. Potentiation - Enhancement of One Drug by Another

N. Habituation - Drug Necessary for Feeling of "Well Being"

O. Idiosyncrasy - Unexpected, Abnormal Response to a Drug

P. Hypersensitivity - Exaggerated Response, Allergy

VII. AUTONOMIC NERVOUS SYSTEM

Controls Automatic or Involuntary Actions

A. Parasympathetic - Controls Vegetative Functions

B. Sympathetic - "Flight or Fight"

VIII. PARASYMPATHETIC NERVOUS SYSTEM

A. Mediated by vagus nerve

B. Acetylcholine is transmitter (cholinergic)

C. Atropine is Acetylcholine Blocker

IX. SYMPATHETIC NERVOUS SYSTEM

A. Mediated by Nerves from Sympathetic Chain

B. Norepinephrine is Transmitter (Adrenergic)

C. Epinephrine is Released from Adrenals

X. SYMPATHETIC RECEPTORS

A. Alpha (a)

B. Beta (b)

XI. COMMON SYMPATHETIC AGENTS

A. Isoproterenol (Isuprel) - pure BETA

B. Epinephrine (Adrenalin) - predominately BETA

C. Dobutamine (Dobutrex) - predominately BETA, slight ALPHA

D. Norepinephrine (Levophed) - predominately ALPHA

E. Dopamine (Intropin) - BETA at low dose: ALPHA at high dose

F. Metaraminol (Aramine) - predominately ALPHA

G. Phenylephrine (Neo-Synephrine) - pure ALPHA

XII. SYMPATHETIC BLOCKERS

A. Propranolol (Inderal) - BETA BLOCKER

XIII. DRUG ADMINISTRATION

Appropriate:

1. Indication
2. Order
3. Dose
4. Observation
5. Dilution
6. Route
7. Rate

ADENOSINE (ADENOCARD)

THERAPEUTIC EFFECTS: Adenosine slows tachycardias associated with the AV node via modulation of the autonomic nervous system without causing negative inotropic effects. It acts directly on sinus pacemaker cells and vagal nerve terminals to decrease chronotropic and dromotropic activity. Adenosine is the drug of choice for paroxysmal supraventricular tachycardia (PSVT) and can be used diagnostically for stable, wide-complex tachycardias of unknown type after two doses of lidocaine.

INDICATIONS: Conversion of PSVT to sinus rhythm

CONTRAINDICATIONS:
Second or third degree AV block, or sick-sinus syndrome
Atrial flutter
Atrial fibrillation
Ventricular tachycardia
Hypersensitivity to adenosine

SIDE EFFECTS:

Facial flushing	Chest pain
Lightheadedness	Hypotension
Paresthesia	Shortness of breath
Headache	Nausea
Diaphoresis	Metallic taste
Palpitations	

HOW SUPPLIED: 6mg/2ml and 12mg/4ml vials or prefilled syringes

ADULT DOSAGE:

Initial Dose: 6mg rapid IVP (over 1-3 sec.)immediately followed with a 20cc saline flush

Repeat Dose: If no response is observed after 1-2 min., administer 12mg rapid IVP (over 1-3 sec.) immediately followed with a 20 cc saline flush

PEDIATRIC DOSAGE:

Initial Dose: 0.1mg/kg rapid IVP followed with a 10cc saline flush

Repeat Dose: If no response is observed after 1-2 min., administer 0.2mg/kg rapid IVP followed with a 10cc saline flush

ASPIRIN

THERAPEUTIC EFFECTS:	Aspirin exhibits analgesic, anti-inflammatory and antipyretic activity. Due to aspirin's ability to inhibit platelet aggregation and cause vasodilation, there is a decreased likelihood of thrombosis.
INDICATIONS:	Sudden onset of cardiac related chest pain Patient must fit thrombolytic profile: * 30 or older * Systolic < 180 / Diastolic < 110 * Persistent chest pain 15 minutes or longer * Lack of stroke, bleeding, CNS problems, trauma * No pregnancy
CONTRAINDICATIONS:	Aspirin hypersensitivity Active or history of GI lesions Impaired renal function
SIDE EFFECTS:	GI bleeds Mucosal lesions Bronchial spasm in some asthma patients
HOW SUPPLIED:	325mg coated tablets
ADMINISTRATION:	Orally
ADULT DOSAGE:	160-325mg upon onset of cardiac signs and symptoms

ATROPINE SULFATE

THERAPEUTIC EFFECTS: By blocking parasympathetic (vagal) action on the heart, atropine increases the rate of discharge by the sinus node, enhances conduction through the AV junction, and accelerates the heart rate, thereby improving cardiac output. In addition, by speeding up a slow heart to a normal rate, atropine reduces the chances of ectopic activity in the ventricles and thus of ventricular fibrillation.

Atropine is most effective in reversing bradycardia due to increased parasympathetic tone or to morphine; it is less effective in treating bradycardias due to actual damage to the AV or SA node.

INDICATIONS: SINUS BRADYCARDIA <u>when accompanied by hypotension</u>

SECOND and THIRD DEGREE HEART BLOCK when accompanied by bradycardia

In some cases of ASYSTOLE to remove any type of heart block

As an antidote in ORGANOPHOSPHATE POISONING (Mega doses)

CONTRAINDICATIONS: Atrial flutter or atrial fibrillation where there is a rapid ventricular response

Glaucoma - narrow angle

Use with extreme caution in myocardial infarction

SIDE EFFECTS: The patient should be warned that they may experience some of the following side effects and that these side effects are part of the drug's usual and expected actions:

* Blurred vision, headache, pupillary dilatation
* Dry mouth, thirst
* Flushing of the skin

HOW SUPPLIED: Prefilled syringes containing 1mg in 10ml

ADMINISTRATION: In the field, atropine is usually given <u>intravenously</u> for bradycardia

For organophosphate poisoning, a combination of intravenous and <u>intramuscular</u> administration is commonly used

In resuscitation from cardiac arrest, if an intravenous route cannot be established, atropine may be given through the <u>endotracheal</u> tube

ATROPINE SULFATE (cont)

ADULT DOSAGE:

In bradycardia: 0.5mg IV, repeated at 5-minute intervals until the desired heart rate is achieved

The total dose should not, however, exceed 2.0mg. (Except in organophosphates)

Doses smaller than 0.5mg, or a dose given too slowly, may slow rather than speed up the heart rate

Excessive doses may precipitate ventricular tachycardia or fibrillation

* For asystole, 1mg IV, repeated in 5 minutes if asystole persists.

* For organophosphate poisoning: 2mg IM and 1mg IV.

The IV dose may be repeated every 5 to 10 minutes as needed until a decrease in secretions is observed

Endotracheal Dosage: 1.0-2.0mg diluted in 10ml NS

PEDIATRIC DOSAGE:

In bradycardia: 0.02mg/kg; may be repeated one time

Minimum dose - 0.1mg

Maximum dose - 0.5mg in child/1.0mg in adolescent

Endotracheal Dosage: 0.02mg/kg diluted in 10ml NS

BRETYLIUM TOSYLATE (BRETYLOL)

THERAPEUTIC EFFECTS: Raises the threshold of heart muscle for ventricular fibrillation and, on occasion, converts fibrillation to an effective rhythm without electric countershock.

Also increases the force of cardiac contractions

INDICATIONS: VENTRICULAR FIBRILLATION that has not been successfully converted with countershock and lidocaine or that recurs despite lidocaine treatment

VENTRICULAR TACHYCARDIA that has been unresponsive to first-line therapy (i.e., lidocaine and/or countershock)

CONTRAINDICATIONS: Use with extreme caution for arrhythmias due to digitalis toxicity

Known aortic stenosis

SIDE EFFECTS: Hypotension (by beta blocking action); patients should be kept supine after receiving bretylium to minimize this effect

Nausea and vomiting, when the drug is given rapidly IV

HOW SUPPLIED: 10ml ampules containing 500mg, (50mg/ml)

ADMINISTRATION: Bretylium tosylate is given intravenously for life-threatening dysrhythmias

ADULT DOSAGE: *For refractory ventricular fibrillation:
Give 5mg/kg as a bolus IV followed by electric defibrillation

If ventricular fibrillation persists, the dose may be increased to 10mg/kg and repeated at 15 to 30 minute intervals

Do not exceed a maximum total dose of 30mg/kg

*For unstable ventricular tachycardia:
5mg/kg given slowly over 8-10 min. if maximum Lidocaine dose (3mg/kg) is achieved without conversion

CALCIUM CHLORIDE

THERAPEUTIC EFFECTS: Reverses overdose with magnesium sulfate or calcium channel blockers (such as verapamil).

Previously, calcium was used in resuscitation because it was believed to stimulate the heart to beat in asystole and to strengthen cardiac contractions in electromechanical dissociation.

However, careful recent studies have failed to show any benefit from using calcium in cardiac arrest, and indeed the effects of calcium may be harmful in that situation.

INDICATIONS: As an antidote to magnesium sulfate and verapamil toxicity.

When hyperkalemia or hypocalcemia is present(eg, after multiple blood transfusions)

CONTRAINDICATIONS: Should be given with extreme caution, and in reduced dosage, to persons taking **digitalis**.

Should not be given in the same infusion with **sodium bicarbonate**, since calcium chloride will combine with sodium bicarbonate to form an insoluble precipitate (calcium carbonate).

SIDE EFFECTS: When given to a patient who has been taking digitalis or when given too rapidly, calcium can cause sudden death from ventricular fibrillation.

Given in appropriate circumstances, calcium preparations have no significant side effects.

HOW SUPPLIED: Calcium chloride: 10 ml of a 10% solution in prefilled syringes (1 gram)

ADMINISTRATION: Calcium preparations are given as a **slow intravenous injection**.

DOSAGE: For verapamil toxicity:

Calcium Chloride, **10 ml** of a **10%** solution **slowly IV.**

For Cardiac Arrest:

Calcium Chloride, 5ml (500mg) **slow IVP.**

COMPAZINE

THERAPEUTIC EFFECT: Mechanism of action not fully understood. Compazine depresses the RAS, including the parts of the brain involved with wakefulness and emesis.

Compazine may be effective in control of some psychotic disorders by blocking the postsynaptic dopamine receptors in the brain. This effect may also control some non-psychotic anxiety but is not the drug of choice.

INDICATIONS: Control of severe nausea and vomiting

Management of manifestations of psychotic disorders

Short-term treatment of non-psychotic anxiety

CONTRAINDICATIONS: Coma or severe CNS depression
Hypersensitivity to phenothiazines
Patient has consumed large amounts of depressants (alcohol, barbiturates, narcotics)
Children under 2 years of age or 20 pounds in weight
Antiemetics SHOULD NOT be used in children with vomiting of unknown etiology.

SIDE EFFECTS:
* Drowsiness
* Vertigo
* Blurred Vision
* Headache
* Skin Reaction
* Seizure
* Hypotension

HOW SUPPLIED: Two milliliter syringes containing 5mg/ml

ADMINISTRATION: Given by intravenous bolus or deep intramuscular injection into the upper outer quadrant of the buttocks

ADULT DOSAGE: For severe nausea and vomiting:

2.5 to 10mg slow IV push, not to exceed 5mg per minute

5 to 10mg IM, injected deeply into the upper outer quadrant of the buttocks

PEDIATRIC DOSAGE: 0.06mg/lb given by deep IM injection

25% DEXTROSE (D25)

THERAPEUTIC EFFECTS:	Restores circulating blood sugar level to normal in states of hypoglycemia. Acts transiently as an osmotic diuretic.
INDICATIONS:	When blood sugar reading is below 70 with Glucometer: to treat coma caused by HYPOGLYCEMIA; to treat COMA OF UNKNOWN CAUSE; to treat STATUS EPILEPTICUS OF UNCERTAIN CAUSE; and some cases of REFRACTORY CARDIAC ARREST
CONTRAINDICATIONS:	Intracranial hemorrhage
SIDE EFFECTS:	Will cause tissue necrosis if it infiltrates; should therefore be given only through a good, rapidly flowing IV line
HOW SUPPLIED:	Prefilled syringes and vials containing 10ml of 25% dextrose (= 2.5g of dextrose)
ADMINISTRATION:	Given intravenously, through a free-flowing intravenous line, preferably in a large vein. If possible, draw blood for serum glucose determinations before administering the dextrose.
PEDIATRIC DOSAGE:	2ml/kg in children under 50 pounds Newborn dose: 1ml/kg

50% DEXTROSE (D50)

THERAPEUTIC EFFECTS:	Restores circulating blood sugar level to normal in states of hypoglycemia. Acts transiently as an osmotic diuretic.
INDICATIONS:	When blood sugar reading is below 70 with Glucometer: to treat coma caused by HYPOGLYCEMIA; to treat COMA OF UNKNOWN CAUSE; to treat STATUS EPILEPTICUS OF UNCERTAIN CAUSE; and some cases of REFRACTORY CARDIAC ARREST
CONTRAINDICATIONS:	Intracranial hemorrhage
SIDE EFFECTS:	May precipitate severe neurologic symptoms in alcoholics For this reason, when given to a known alcoholic, should be accompanied by thiamine, 50mg IV and 50mg IM, which will prevent this neurologic syndrome Will cause tissue necrosis if it infiltrates; should therefore be given only through a good, rapidly flowing IV line
HOW SUPPLIED:	Prefilled syringes and vials containing 50ml off 50% dextrose (= 25g of dextrose)
ADMINISTRATION:	Given intravenously, through a free-flowing intravenous line, preferably in a large vein If possible, draw blood for serum glucose determinations before administering the dextrose
ADULT DOSAGE:	50ml of 50% dextrose (25g) as a bolus IV
PEDIATRIC DOSAGE:	1ml/kg in children over 50 pounds

DIAZEPAM (VALIUM)

THERAPEUTIC EFFECTS:	Through its depressant action on the central nervous system, can terminate some seizures. Also has a calming effect in anxiety.
INDICATIONS:	To treat STATUS EPILEPTICUS Given as a sedative prior to CARDIOVERSION in conscious patients
CONTRAINDICATIONS:	Patients with allergies to benzodiazepines Should not be given to patients who have taken alcohol or other sedative drugs Should not be given to patients with respiratory depression from any source Should not be given to patients with hypotension
SIDE EFFECTS:	Possible hypotension Confusion, stupor In some patients, especially the elderly, the very ill, and those with pulmonary disease, may cause respiratory arrest and/or cardiac arrest.
HOW SUPPLIED:	In prefilled syringes and ampules of 2ml and in vials of 10ml, in a concentration of 5mg/ml
ADMINISTRATION:	Given intravenously in slow titrated doses or intramuscularly in severe anxiety Before administering the drug, check and record the patient's vital signs
ADULT DOSAGE:	For Status Epilepticus: Give 5mg (1.0ml) SLOWLY IV Wait a few minutes, and recheck the BP; if it has fallen, do not give any more of the drug. If it is stable, and the desired therapeutic effect has not been achieved, give another 2.5mg (0.5ml) IV. Then recheck the BP. Continue until the seizures have stopped or the BP drops, but do not exceed a total dose of 10mg in the field. For severe anxiety that must, for some reason, be treated in the field: Give intramuscularly: 2 to 5mg IM
PEDIATRIC DOSAGE:	0.2mg/kg slow IVP (over 3 min.); maximum dose 5mg Rectally: 0.5mg/kg with endo-ject catheter to a maximum of 10mg

DIPHENHYDRAMINE HCI (BENADRYL)

THERAPEUTIC EFFECTS: Blocks histamine effects in allergic reactions

Sedative

Reverses untoward effects of some phenothiazine tranquilizers.
Inhibits motion sickness (antiemetic)

INDICATIONS: As an adjunct to epinephrine in the treatment of ANAPHYLACTIC SHOCK and SEVERE ALLERGIC REACTIONS

To treat EXTRAPYRAMIDAL REACTIONS (Parkinson-like movement disorders) caused by phenothiazines

CONTRAINDICATIONS: Asthma

Narrow angle (acute) glaucoma

Prostate enlargement

Ulcer disease with symptoms of obstruction

Pregnancy

SIDE EFFECTS: Resemble those of atropine:

Drowsiness, confusion
Blurring of vision
Dry mouth
Wheezing; thickening of bronchial secretions

HOW SUPPLIED: In vials of 10 or 30ml, containing 10mg/ml
In vials of 10ml containing 50mg/ml
In ampules of 1ml containing 50mg/ml
In prefilled syringes containing 50mg in 1ml

ADMINISTRATION: For most purposes, diphenhydramine can be by deep intramuscular injection **or IVP**

ADULT DOSAGE: 10-50mg

PEDIATRIC DOSAGE: 1mg/kg with no hypotension IM or IV

DOPAMINE (INTROPIN)

THERAPEUTIC EFFECTS: Beta sympathetic drug-hence causes an increase in the force and rate of cardiac contractions as well as dilatation of renal and mesenteric arteries.

This latter effect promotes urine flow, and for this reason, dopamine is sometimes preferred over norepinephrine (which constricts renal arteries) in shock.

Dopamine causes less increase in oxygen consumption by the myocardium than does Isoproterenol.

At low doses, the beta effects of dopamine predominate; at high doses, dopamine has alpha effects as well and thus will cause vasoconstriction.

INDICATIONS: To increase cardiac output in CARDIOGENIC SHOCK while maintaining good renal perfusion

CONTRAINDICATIONS: Should not be used as first-line therapy in hypotension caused by hypovolemia (e.g., hemorrhagic shock), where volume replacement should precede the use of vasopressors

Pheochromacytoma (a tumor that produces epinephrine and/or related substances)

Should not be given in the presence of uncorrected tachyarrhythmias or ventricular fibrillation

Do not mix with bicarbonate since dopamine may be inactivated by alkaline solutions

SIDE EFFECTS: Ectopic beats, palpitations, tachycardia
Nausea, vomiting
Dyspnea, angina
Headache

HOW SUPPLIED: 400mg in 250ml D5W Pre-Mix

ADMINISTRATION: Given by titrated intravenous infusion (microdrip infusion set)

ADULT DOSAGE: START the infusion at a rate of 5mcg/kg/min (e.g., 140-350ug/min for a 70kg man, or roughly 0.25ml/min of the above dilution)

TITRATE the infusion according to the state of consciousness, blood pressure, and urine flow

EPINEPHRINE (ADRENALIN)

THERAPEUTIC EFFECTS: In cardiac arrest, may restore electric activity in asystole; increases myocardial contractility; and decreases the threshold for defibrillation--all through its actions as a beta sympathetic agent.

In addition, the alpha effects of epinephrine, causing vasoconstriction, elevate the perfusion pressure and may thus improve coronary blood flow during external cardiac compressions.

In anaphylaxis, acts as a bronchodilator (beta effect) and helps maintain blood pressure (alpha effect).

INDICATIONS: In CARDIAC ARREST, to restore electric activity in asystole or to enhance defibrillation potential in ventricular fibrillation; also to elevate systemic vascular resistance and thereby improve perfusion pressure during resuscitation.

To treat the life-threatening symptoms of ANAPHYLAXIS

To treat acute attacks of ASTHMA

CONTRAINDICATIONS: Must be used with caution in patients with angina, hypertension**,** or hyperthyroidism

THERE ARE NO CONTRAINDICATIONS TO THE USE OF EPINEPHRINE IN THE SITUATION OF CARDIAC ARREST OR ANAPHYLACTIC SHOCK

SIDE EFFECTS: In a conscious patient, may cause palpitations, from tachycardia or ectopic beats, and elevations of blood pressure (which may not be desirable if the patient is already hypertensive)

The asthmatic with preexisting heart disease may experience dysrhythmias if treated with epinephrine

HOW SUPPLIED: Prefilled syringes containing 1mg in 10ml (1:10,000 solution)

Ampules containing 1mg in 1ml (1:1,000 solution)

Multi-dose vial: 30mg in 30ml (1:1,000 solution)

ADMINISTRATION: In cardiac arrest, epinephrine is given intravenously in an escalating dose every 3 minutes

EPINEPHRINE (ADRENALIN) (Continued)

If an IV route cannot be established quickly, the drug may be instilled in the tracheo-bronchial tree via catheter through an endotracheal tube

For anaphylactic reactions, epinephrine is given subcutaneously

ADULT DOSAGE:

In cardiac arrest situations:

Initial Dose: 1.0mg (10ml of 1:10,000 solution)

Second Dose: 1.0mg (10ml of 1:10,000) or 3mg(3ml of 1:1,000)

Third and subsequent dose: 5mg (5ml of 1:1,000)

Endotracheal dose: 2mg (1:1,000) diluted with 10ml normal saline given via catheter during ventilation

In anaphylactic reactions:

Mild reactions: 0.3mg subcutaneously, (0.3ml of a 1:1,000 solution) (Do not, however, inject fingers or toes)

Another 0.3ml is given SQ on another extremity

Severe reactions, with shock: 0.5mg slow IV. (5ml of a 1:10,000 solution)

For mild to moderate asthmatic attacks: 0.3 to 0.5ml of a 1:1,000 solution, Sub Q

PEDIATRIC DOSAGE:

Bradycardia: 0.01mg/kg 1:10,000 every 3 minutes

Cardiac Arrest:

Initial Dose: 0.01mg/kg 1: 10,000 IVP or IOP

Second & Subsequent Dose: 0.1mg/kg 1:1000 IVP or IOP

Endotracheal: 0.1mg/kg 1:1,000 diluted with 2ml of NS

Newborn Cardiac Arrest:: 0.02mg/kg 1:10,000 every 5 min. By IV, IO

Allergic Reaction/Asthma: 0.01mg/kg 1:1,000 Sub Q Max 0.3mg. No response and IV in place, 0.1mg/kg 1:10,000 IVP

FUROSEMIDE (LASIX)

THERAPEUTIC EFFECTS:	Potent diuretic, causing the excretion of large volumes of urine within 5 to 30 minutes of administration, thus useful in ridding the body of excess fluid in conditions such as congestive heart failure (CHF). Not used often in the field when the distance to the hospital is short. However, furosemide may be useful in long range transports of patients in marked heart failure (especially catheterized patients) where there is a need to begin definitive therapy before the patient arrives at the hospital.
INDICATIONS:	To reverse fluid overload associated with CONGESTIVE HEART FAILURE and PULMONARY EDEMA
CONTRAINDICATIONS:	Should not be given to pregnant women Should not be given to patients with hypokalemia (low potassium) Hypokalemia may be suspected in a patient who has been on chronic diuretic therapy or whose EKG shows prominent P waves, diminished T waves, and the presence of U waves
SIDE EFFECTS:	Immediate side effects may include nausea and vomiting, potassium depletion (with attendant cardiac dysrhythmias), and dehydration
HOW SUPPLIED:	Pre-filled syringes of 10ml in a concentration of 10mg/ml
ADMINISTRATION:	In the field, furosemide is given intravenously. If at all possible, the patient should have a urinary catheter in place
ADULT DOSAGE:	40mg SLOWLY IV (injected over 1-2 min) If a response is not obtained, a second dose of 60 to 80mg may be given, not sooner than 2 hours after the first dose

GLUCAGON

THERAPEUTIC EFFECTS:	Accelerates the breakdown of glycogen to glucose in the liver, causing an increase in blood glucose level. Glucagon also relaxes the smooth muscle of the GI tract Glucagon is helpful, in hypoglycemia only if the liver glycogen is available. Because glucagon is of little or no help in states of starvation, adrenal insufficiency, or chronic hypoglycemia, glucose should be considered for the treatment of hypoglycemia.
INDICATIONS:	For the treatment of hypoglycemia when IV Dextrose is not available In anaphylaxis, if the patient is on beta blocking medication, hypertensive, has known coronary artery disease and/or is pregnant
CONTRAINDICATIONS:	Glucagon is contraindicated in patients with known hypersensitivity to it or in patients with pheochromocytoma
SIDE EFFECTS:	Glucagon is relatively free of adverse reactions except for occasional nausea and vomiting which may also occur with hypoglycemia Generalized allergic reactions including urticaria, respiratory distress and hypotension, have been reported in patients who receive glucagon by injection
HOW SUPPLIED:	Vials of 1mg glucagon with 1ml of diluting solution
ADMINISTRATION:	For adults and for children weighing more than 20kg, administration may be by subcutaneous intramuscular or intravenous injection Glucagon must be reconstituted with dilution solution provided and used immediately. If dose is higher than 2mg, reconstitute with sterile water for injection and use immediately Glucagon is compatible with dextrose solutions, but precipitates may form in solutions of sodium chloride, potassium chloride or calcium chloride
ADULT DOSAGE:	In hypoglycemia, 0.5 to 1.0mg IV, SC or IM injection. Response is usually seen in 5 to 20 minutes. If response is delayed, dose may be repeated 1 to 2 times
PEDIATRIC DOSAGE:	In hypoglycemia for children weighing more than 20kg, 0.5 to 1.0mg IV, SC or IM injection. Response is usually seen in 5 to 20 minutes. If response is delayed, dose may be repeated 1 to 2 times

LIDOCAINE (XYLOCAINE) 2%

THERAPEUTIC EFFECTS:	Suppresses ventricular ectopic activity by decreasing the excitability of heart muscle and the cardiac conduction system.
INDICATIONS:	Lidocaine is the drug of first choice: To SUPPRESS PREMATURE VENTRICULAR CONTRACTIONS (PVC's) To PREVENT VENTRICULAR FIBRILLATION in acute myocardial infarction To PREVENT RECURRENCE OF VENTRICULAR FIBRILLATION after electric conversion To treat VENTRICULAR TACHYCARDIA
CONTRAINDICATIONS:	Known history of allergy to lidocaine or local anesthetics (e.g., Novocaine) Second or third degree heart block Sinus bradycardia or sinus arrest Idioventricular rhythm
SIDE EFFECTS:	By decreasing the force of cardiac contractions as well as decreasing peripheral resistance, may cause a fall in cardiac output and blood pressure May cause numbness, drowsiness, or confusion when given in high doses, especially to the elderly or to patients in heart failure, may cause seizures
HOW SUPPLIED:	Ampules and prefilled syringes containing 100mg in 5ml (20 mg/ml) for bolus injection
ADMINISTRATION:	Given by intravenous bolus Reduce the dosage (both bolus and infusion) by half for patients in congestive heart failure or shock and for patients over 70 years old If an intravenous route cannot be established, lidocaine may be given via catheter through an endotracheal tube
ADULT DOSAGE:	1.5mg/kg IV push, followed by 50mg bolus every 20 minutes
PEDIATRIC DOSAGE:	V-Fib: 1mg/kg IVP, IOP or ET

MIDAZOLAM (VERSED)

THERAPEUTIC EFFECTS: Versed is a short acting benzodiazepine CNS depressant. Onset of sedative effects after IM administration is 15 minutes with peak sedation occurring 30 - 60 minutes following injection.

INDICATIONS: Versed is indicated intramuscularly for preoperative sedation and to impair memory of perioperative events

Intravenously, Versed is used as an agent for conscious sedation prior to short diagnostic therapeutic or endoscopic procedures

Versed is also used IV for induction of general anesthesia before administration of other anesthetic agents

Versed has also been shown to be effective intramuscularly for control of seizure activity

CONTRAINDICATIONS: In patients with known hypersensitivity to the drug

SIDE EFFECTS: Fluctuation in vital signs were the most frequently seen findings following administration of Versed and include:

* Decrease tidal volume and respiratory rate
* Apnea
* Variations in BP and pulse rate

HOW SUPPLIED: 2ml disposable syringes containing 5mg per ml

ADMINISTRATION: Versed should only be administered IM or IV

Because serious and life threatening cardiorespiratory adverse events have been reported, provision for monitoring, detection and correction of these reactions must be made for every patient to whom Versed injection is administered regardless of age or health status

ADULT DOSAGE: For persistent seizure activity, IV or IM injection of 5mg initially and titrate to patient's condition up to 10mg maximum

PEDIATRIC DOSAGE: For persistent seizure activity, IV or IM injection of 0.2mg/kg

MORPHINE SULFATE

THERAPEUTIC EFFECTS: Decreases pulmonary edema by pooling blood in the peripheral circulation and thereby reducing venous return to the heart.

Helps as well to allay the anxiety associated with pulmonary edema.

INDICATIONS: To treat PULMONARY EDEMA associated with CONGESTIVE HEART FAILURE

To RELIEVE PAIN in myocardial infarction and other, selected conditions

CONTRAINDICATIONS: Marked hypotension**.**

Respiratory depression, except that caused by pulmonary edema, where the drug may be used if ventilatory support is provided.

SIDE EFFECTS: Hypotension (most likely in volume depleted patients).

Increased vagal tone, leading to bradycardia.
(This effect can be reversed with atropine.)

Respiratory depression.
(This effect can be reversed with naloxone.)

Nausea and vomiting.

HOW SUPPLIED: Prefilled (tubex) syringes containing 10mg.

ADMINISTRATION: Given by titrated intravenous injection.

If hypotension occurs, keep the patient flat, and do not give more of the drug.

Watch for respiratory depression.

ADULT DOSAGE: 2 to 5mg by IV push every 5 to 30 minutes until the desired therapeutic effect is achieved. Do not exceed 15mg in the field.

NALOXONE (NARCAN)

THERAPEUTIC EFFECTS: Specific antidote for narcotic agents.

Reverses the actions of all narcotic drugs including heroin, morphine, methadone, codeine, Demerol, Dilaudid, Darvon, paregoric, and Percodan.

Naloxone is thus effective in counteracting the effects of overdose from any of these agents.

Naloxone will reverse stupor, coma, respiratory depression, etc. when these are due to narcotic overdose.

INDICATIONS: To treat known NARCOTIC OVERDOSE or coma suspected to be due to narcotic overdose.

CONTRAINDICATIONS: None

SIDE EFFECTS: Too rapid administration may precipitate projectile vomiting and ventricular dysrhythmias.

Administration to people who are physically dependent on narcotics may cause an acute withdrawal syndrome.

For this reason, naloxone should be given very slowly, using improvement of respiratory status as an end point.

In general, the duration of action of naloxone is shorter than that of the narcotics it is used to counteract.

Thus, the patient who has been successfully roused with naloxone may fall back into stupor or coma as the naloxone wears off.

These patients must therefore be watched closely, and the dose of naloxone should be repeated as necessary.

Has been reported to cause pulmonary edema and sudden death in rare cases.

HOW SUPPLIED: 2mg in 2ml prefilled syringe.

NALOXONE (NARCAN) (Continued)

ADMINISTRATION: In the field, given slowly by slow intravenous injection.

As soon as there is improvement in the respirations, stop giving the drug.

It is preferable that the patient NOT wake up fully in the field, as these patients may be violent when brought abruptly out of coma.
USE RESPIRATIONS AS A GUIDE.

If there is no response to two doses, suspect overdose with another, non-narcotic drug.

ADULT DOSAGE: Initial dose: 2mg Administer this solution VERY SLOWLY IV while monitoring the rate and depth of the patient's respirations.

If there is no response to the full dose of naloxone, it may be repeated in 5 minutes in the same fashion.

PEDIATRIC DOSAGE: 0.1mg/kg Newborn dose: (narcotic dependent with decreased respiration)

0.1mg/kg every 3 minutes until respiration is improved.

NITROGLYCERIN

THERAPEUTIC EFFECTS: The primary pharmacologic effect of nitroglycerin and related drugs is to relax smooth muscle, and the effects of nitroglycerin on the cardiovascular system are chiefly due to relaxation of vascular smooth muscle (hence vasodilatation).

Nitroglycerin provides relief of pain in angina, probably by dilating coronary arteries and thereby increasing blood flow through them as well as by decreasing myocardial oxygen demand.

Through its vasodilatation action on peripheral vessels, nitroglycerin promotes pooling of the blood in the systemic circulation and decreases the resistance against which the heart has to pump (the afterload); these effects may be useful in treating congestive heart failure.

INDICATIONS: To relieve the pain of ANGINA.

To treat selected cases of PULMONARY EDEMA due to LEFT HEART FAILURE

CONTRAINDICATIONS: Use with caution in myocardial infarction.

Increased intracranial pressure**.**

SIDE EFFECTS: Transient, throbbing headache.

Hypotension

Dizziness, weakness

HOW SUPPLIED: Many forms, including ointment, spray, tablets, sustained release capsules.

For use in the field, tablets of 0.4mg strength are preferred.

ADMINISTRATION: Given sublingually (under tongue).

The patient should be semisitting or recumbent.

Monitor blood pressure and be prepared for hypotension.

ADULT DOSAGE: One 0.4mg tablet or spray under the tongue.

May repeat once every 5 minutes as long as B/P stays normal.

NITROUS OXIDE

THERAPEUTIC EFFECTS: Provides rapid, easily reversible relief of pain.

INDICATIONS: Relief of pain from:

Acute myocardial infarction.
Musculoskeletal trauma.
Burns.
Other conditions (e.g., kidney stones, labor).

CONTRAINDICATIONS: Any altered state of consciousness**,** e.g., head injury (masks the neurologic signs one needs to monitor).

Chronic obstructive pulmonary disease.

Acute pulmonary edema (these patients need 100% oxygen).

Known pneumothorax or chest injury where pneumothorax may be present (N_2O collects in dead air spaces and may thus expand a pneumothorax).

Abdominal distention or abdominal trauma where bowel sounds are absent.

Major facial injury.

Shock.

SIDE EFFECTS: Light-headedness, drowsiness.

Occasional nausea and vomiting.

Ambulance crew may experience giddiness if the vehicle is not properly vented.

HOW SUPPLIED: In the United States, nitrous oxide for field use is supplied as Nitronox, a set containing an oxygen cylinder and a nitrous oxide cylinder joined by a valve that regulates flow to provide a 50:50 mixture of the two gasses. The mixture is piped to a demand valve apparatus.

ADMINISTRATION: Nitrous oxide is self-administered by inhalation.

The patient is instructed to hold the mask to their face, to form a tight seal around the nose and mouth, and to breathe normally. As the patient gets drowsy, the mask will fall away from their face.

THE PATIENT MUST CONTROL THE DEMAND VALVE THEMSELVES.

The paramedic should not hold the face mask in place for the patient.

OXYGEN (02)

THERAPEUTIC EFFECTS:	Reverses the deleterious effects of hypoxemia on the brain, heart, and other vital organs.
INDICATIONS:	Any condition in which global or local hypoxemia may be present: CARDIAC or RESPIRATORY ARREST (given with artificial ventilation). DYSPNEA or RESPIRATORY DISTRESS from any cause. CHEST PAIN. SHOCK. COMA from any cause. CHEST TRAUMA. NEAR-DROWNING. PULMONARY EDEMA. TOXIC INHALATIONS (smoke, chemicals, carbon monoxide). ACUTE ASTHMATIC ATTACK. ACUTE DECOMPENSATION OF COPD. STROKE, HEAD INJURY. REPEATED SEIZURES. Any patient in CRITICAL CONDITION.
CONTRAINDICATIONS:	None. May depress respirations in rare patients with chronic obstructive pulmonary disease. This is <u>not</u> a contraindication to its use, but simply means that such patients must be watched closely and assisted to breathe if the respiratory rate declines.
SIDE EFFECTS:	None when given for short periods to adults. (less than 24 hr.)
HOW SUPPLIED:	As a compressed gas in cylinders of varying sizes.
ADMINISTRATION:	Administered by inhalation from a dosage mask, nasal cannula, endotracheal tube, etc. A patent airway and adequate ventilation must be ensured.
ADULT DOSAGE:	Depends on the condition being treated. For cardiac arrest and other critical conditions, 100% oxygen should be given as soon as possible.

PHENERGAN

THERAPEUTIC EFFECTS: Blocks the cholinergic receptors in the vomiting center that are believed to mediate the nausea and vomiting caused by gastric irritation.

Phenergan depresses the RAS, including the parts of the brain involved with wakefulness.

INDICATIONS: Treatment and prevention of motion sickness; prevention and control of nausea and vomiting associated with anesthesia and surgery.

CONTRAINDICATIONS:
Coma or severe CNS depression
Hypersensitivity to antihistamines or phenothiazines
Patient has consumed large amounts of depressants (alcohol, barbiturates, narcotics)
Children whose signs and symptoms may suggest Reye's Syndrome or other hepatic diseases.
Antiemetics SHOULD NOT be used in children with vomiting of unknown etiology.

SIDE EFFECTS:
* Drowsiness
* Blurred Vision
* Urticaria
* Hypotension
* Vertigo
* Headache
* Dry Mouth

HOW SUPPLIED: One milliliter syringes containing 25mg/ml.

ADMINISTRATION: The preferred parenteral route of administration for Phenergan is by deep intramuscular injection.

The proper intravenous administration of this product is well tolerated but use of this route is not without some hazard. Inadvertent intra-arterial injection can result in gangrene of the affected extremity.

Subcutaneous injection is contraindicated as it may result in tissue necrosis.

ADULT DOSAGE: For severe nausea and vomiting:

12.5 to 25mg slow IV push or deep IM injection

PEDIATRIC DOSAGE: 0.5mg/lb given by slow IV push or deep IM injection

CHILDREN 12 YEARS OLD OR YOUNGER ONLY.

PROVENTIL / VENTOLIN (ALBUTEROL)

THERAPEUTIC EFFECTS:	Beta-2 stimulator, dilates smooth muscle, bronchodilator
INDICATIONS:	Shortness of breath caused by bronchoconstriction
CONTRAINDICATIONS:	* Allergy to drug * Excessive prior use of beta stimulants * Shortness of breath not from broncho- constriction
SIDE EFFECTS:	* Nervousness * Weakness * Tremor * Increased heart rate
HOW SUPPLIED:	Unit dose 2.5mg vials (3ml)
ADMINISTRATION:	By inhalation through a breathing aerosol device.
ADULT DOSAGE:	2.5mg in N/S via aerosol device with oxygen at 8 liter per minute.
PEDIATRIC DOSAGE:	2.5mg (3ml) in aerosol device at 8L at 02 per minute

SODIUM BICARBONATE

THERAPEUTIC EFFECTS: By neutralizing excess acid, helps return the blood towards a physiologic pH, in which normal metabolic processes and sympathomimetic agents (such as epinephrine) work more effectively.

INDICATIONS: To treat METABOLIC ACIDOSIS, as in:

SHOCK and other low-output states(after resuscitation from cardiac arrest).

To treat HYPERKALEMIA (high serum potassium).

To promote the excretion of some types of BARBITURATES taken in OVERDOSE.

CONTRAINDICATIONS: Conditions in which the patient cannot tolerate a salt load, such as congestive heart failure.

SIDE EFFECTS: Because each mEq of bicarbonate comes along with a mEq of sodium, sodium bicarbonate has the same effect as any other salt-containing infusion, i.e., it increases the vascular volume.

Three 50ml syringes of sodium bicarbonate (1 mEq/ml) contain approximately the same amount of salt as 1 liter of normal saline.

Patients in borderline heart failure cannot tolerate salt loads of this magnitude.

SIDE EFFECTS: Administration of sodium bicarbonate lowers serum potassium.

In some cases, this is the desired effect, as when bicarbonate is used to treat hyperkalemia.

However, in cardiac patients, if the potassium falls too low, the heart becomes irritable, and dysrhythmias may occur.

This is especially likely in patients taking diuretics.

Sodium bicarbonate administration transiently raises the arterial carbon dioxide level, and thus its administration must be accompanied by controlled hyperventilation to blow off this excess CO_2. (e.g., with bag-valve-mask)

SODIUM BICARBONATE (Continued)

HOW SUPPLIED: Vials and prefilled syringes of 50ml, containing 1 mEq/ml.

ADMINISTRATION: Given by intravenous bolus injection.

ADULT DOSAGE: For cardiac arrest:

If used at all, 1 mEq/kg after the first minutes of CPR. 10

Acidosis should thereafter be prevented by hyperventilation.

Do not give bicarbonate in the same syringe with epinephrine or calcium.

For other conditions: As ordered by physician.

PEDIATRIC DOSAGE: Cardiac Arrest:

1 mEq/kg diluted with 1ml/kg NS

Newborn: 0.5mEq/kg diluted with .5ml/kg NS

TETRACAINE
(PONTOCAINE, OPHTHALMIC)

THERAPEUTIC EFFECTS: Provides local anesthesia to eyes.

Provides relief from eye pain so that an appropriate eye exam and treatment can be completed.

INDICATIONS: Irritation and/or pain of the eyes when there is a non-penetrating injury.

CONTRAINDICATIONS: Penetrating or open eye injury.
Allergy or hypersensitivity to Tetracaine.

SIDE EFFECTS: Burning sensation in eyes
Redness
Tearing

HOW SUPPLIED: Ophthalmic drops in dropper bottle

ADMINISTRATION DOSAGE: 1-2 drops in affected eye every 5-10 minutes as needed for pain control. Don't touch dropper tip to eye, lid or finger to keep bottle sterile.

VERAPAMIL (Isoptin, Calan)

THERAPEUTIC EFFECTS:	Antagonizes the effects of calcium ion, thereby slowing SA node discharge and delaying conduction through the AV junction.
INDICATIONS:	For the treatment of SUPRAVENTRICULAR TACHYCARDIAS. To decrease the ventricular rate in some cases of ATRIAL FLUTTER and ATRIAL FIBRILLATION. May be useful in ameliorating the effects of cerebral ischemia
CONTRAINDICATIONS:	**Cardiogenic shock** or **heart failure.** Sinus node disease ("**sick sinus** syndrome"). **AV block.** **Hypotension** not due to tachy-arrhythmia. Patient taking a beta-blocking drug, such as **propranolol**. Use with caution in patients taking digitalis.
SIDE EFFECTS:	May cause hypotension, bradycardia, AV block, or cardiac arrest.
HOW SUPPLIED:	Ampules of 10 mg in 2 ml (5 mg/ml).
ADMINISTRATION:	Given by **intravenous injection** over 1 to 2 minutes.
DOSAGE:	**0.1 mg/kg** (usual adult dose, then, is 5-10 mg); may be repeated in 30 minutes.