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APGAR Scoring

APGAR scoring is to be completed 1 minute after childbirth and reassessed after 5 minutes. A common initial score can be 8-9 with a core of 8-10 when reassessed. Oxygenation and/or resuscitative measures may need to take place for initial APGAR scores >7 or a score >8 on the reassessment.

APGAR	0	1	2
Appearance	Cyanosis or Pale	Pink Body with cyanotic	Entire body is pink
Pulse	Absent	Below 100	Above 100
Grimace	No Response	Crying with some motion	Crying with vigorous
Activity	Limp	Some flexion of extremities	Active with good
Respiration	Absent	Slow and/or irregular	Normal and/or Crying

Needle Chest Decompression

This procedure may be done upon standing order for those with severe signs and symptoms presenting with an altered LOC. **PHYSICIAN ORDER** must be obtained for those patients who are alert presenting with signs and symptoms of a tension pneumothorax.

Signs and Symptoms of Tension Pneumothorax:

- 1 *Mild to severe respiratory distress*
- 2 *Restlessness and/or anxiety*
- 4 *Diminished to absent lung sounds to effected side*
- 5 *JVD (Late Sign)*
- 6 *Tracheal Deviation (Late Sign)*

Equipment Needed for Needle Chest Decompression:

- 1 PPE Supplies (Gloves, mask, eye protection)
- 2 Sterile gloves
- 3 Betadine and Alcohol preps
- 4 2" 14ga IV catheter
- 5 Occlusive Dressing

Procedure for needle chest decompression:

- 1 After assessment, select appropriate effected side
- 2 Locate appropriate site at the 2nd/3rd intercostal space on the midclavicular line **-OR-** 4th/5th intercostal space on the midaxillary line.
- 4 Prep area with Betadine, cleaning in a large circle from inside out followed by alcohol.
- 5 Cut the largest/longest finger of a sterile glove and set aside trying to keep it as sterile as possible
- 6 Using a 2" long 14ga IV needle, carefully run it through the inside of the glove finger from step 5 puncturing the end of the inside of the glove and run all the way through finger until flush against hub.
- 7 Puncture skin at the selected site "scraping" across the top of the 3rd or 5th rib (depending on using anterior or lateral chest) until you feel/hear a "pop" followed by a swish of air.
- 8 Remove needle leaving the catheter in place with finger of glove
- 9 Secure catheter using a occlusive dressing around catheter being careful not to occlude the glove finger which will act as a one-way flapper valve
- 10 Continuously monitor lung sounds after procedure.

Troubleshooting after reassessment:

If lung sounds become diminished or pt begins to show signs of a tension pneumothorax after procedure:

- 1 Assess flapper valve and open/vent if needed
- 2 Assess occlusive dressing
- 3 Attach syringe and gently pull back. This may dislodge an occluding blood clot
- 4 If steps above are unsuccessful, contact physician

Childbirth (Normal Delivery)

If signs of imminent delivery are present at time of initial assessment it is strongly recommended that you prepare to assist delivery while on scene.

Signs of imminent delivery are as follows:

- 1 *Crowning/bulging at vaginal opening with contractions*
- 2 *Contractions less than 2 minutes apart which last 30-60 seconds*
- 4 *Protrusion of anus*

Equipment needed:

- 1 PPE/BSI supplies
 - A) Gloves
 - B) Gowns
 - C) Eye Protection
 - D) Mask
- 2 OB/GYN Kit containing:
 - A) Sterile sheets
 - B) Bulb Syringe
 - C) Umbilical Cord Clamps
 - D) Sterile Scissors
- 3 Towels
- 4 Blankets
- 5 Dressings (surgipads)

Procedure for assisting normal childbirth:

- 1 Place mother (preferably on EMS cot) at end of furniture/cot with padding such as a pillow under hips
- 2 Using the OB kit, place sterile sheets around area (cover legs and mother's abdomen)
- 3 When crowning becomes present, spread mothers legs to expose vagina and have assistant or direct mother to bring her knees as far back to chest as possible.
- 4 If amniotic sac is present, puncture/tear open with gloved finger
- 5 *If instead of crowning there is limb or cord presentation: See "Childbirth (Complicated Delivery)" Procedure*
- 6 Throughout process, instruct mother to push when the feeling to push occurs
- 7 Apply gentle back pressure on baby's head to avoid "explosive" delivery
- 8 As the head is delivered, assess for presence of a nuchal cord using fingers. If cord is wrapped around head attempt to gently unwrap. If unable to unwrap cord, place umbilical clamps approx. 2" apart and cut once pulsating stops.
- 9 Once the head is completely exposed, suction the mouth followed by the nose. Baby will likely not be crying at this time.
- 10 As baby continues to be delivered, he/she will likely begin to naturally rotate to his/her right side.

****Continued on next page****

Childbirth (Normal Delivery) - Continued

Procedure for assisting normal childbirth (Continued):

- 11 Gently guide baby downward to clear the top shoulder
- 12 Gently guide baby upward to clear the bottom shoulder
- 13 Baby will easily deliver after the shoulders are delivered and will likely begin to breath/cry at this point.
- 14 Carefully handle baby as baby will be very slick
- 15 Advise dispatch of time of delivery
- 16 begin drying baby and wrap baby to keep warm
- 17 Place umbilical clamps approx. 8-10" from baby and approx. 2" apart. Wait for cord to stop pulsating and cut between clamps. Cutting the cord may be done by father if present and wanting to do so.
- 18 Perform APGAR assessment within one minute and treat as needed. If pt is stable and/or has APGAR >7 you should hand wrapped newborn to mother.
- 19 Assess mother for excessive bleeding and treat if needed.
- 20 Initiate transport. Delivery of placenta may take 15-25 minutes and transport should not be delayed for delivery of placenta.
- 21 Begin to perform fundal massage by placing firm hand against base of pelvis and massage lower abdominal area until uterus shrinks from size of a basketball to about the size of a grapefruit.
- 22 Delivery of placenta will occur naturally and should be saved in basin or biohazard bag and transported with mother.

Things to reassess for and/or be aware of:

- 1 Watch for developing signs/symptoms of shock on mother
- 2
If contractions continue after delivery of baby, be prepared for additional deliveries (twins)
- 3 Continuously monitor newborn for deteriorating APGAR scores
- 4 Keep baby warm (may need to run heater even in summer time)

Childbirth (Complicated Delivery)

Breech Birth/Limb Presentation:

- 1 If hand, arm or single leg presentation
 - A) Transport immediately. Baby cannot be delivered in the field. Patient requires emergency C-Section.
 - B) Place mother on her knees and elbows on cot with buttocks elevated

- 2 Buttock or BOTH lower extremity Presentation:
 - A) Position mother with buttocks at edge of furniture or EMS cot
 - B) Have mother hold her legs with knees towards chest and/or have assistant help with this.
 - C) Allow infant to deliver with contractions while supporting baby's body. Avoid pulling on baby.
 - D) Assess for nuchal cord and gently unwrap if needed. If cord is too tight, place two umbilical clamps approx. 2" apart and cut when pulsating stops.
 - E) As head passes the pubis, apply gentle upward traction until the mouth appears over the perineum
 - F)
If head does not deliver and baby begins to breathe spontaneously while its face is pressed against the vaginal wall, place gloved hand in the vagina with palm toward infant's face. Form a "V" with index and middle fingers on either side of baby's nose and push vaginal wall away from face to allow air to pass.
 - G) Continue above until baby delivers on its own or until arrival at hospital.
 - H) Once delivered, begin to dry and warm baby.
 - I) If not done already, place umbilical cords approx. 8-10" from body about 2" apart and cut cord once pulsating stops. Father may cut cord if present and willing.
 - J) Perform APGAR at 1 and 5 minutes after delivery
 - K) Assess and treat mother for trauma/shock if present due to breech delivery potentially causing a great amount of trauma for mother

Prolapsed Cord

- 1 Transport immediately. Baby cannot be delivered in the field. Patient requires emergency C-Section.
- 2 Place fingers into vagina to relieve pressure off of the umbilical cord. Continue to do so until pt arrives at hospital and told to stop by physician.
- 3 Place mother on her knees and elbows on cot with buttocks elevated

Pre-Eclampsia/Eclampsia

- 1 Begin transport ASAP and monitor pt enroute
- 2 Treat seizures per seizure protocol
- 3 Transport should be rapid, however, the ride should be smooth and quiet. The use of lights and sirens should likely be avoided.

Cincinnati Stroke Scale

Assessment Scale:

- 1 *Assess for facial droop with patient smiling*
- 2 *Assess for arm drift and/or grip strength*
- 3 *Assess speech by having pt repeat back to you, "You can't teach an old dog new tricks."*

Other Signs/Symptoms and other things to be aware of:

- 1 Severe Headache - Assess for vision disturbances or photosensitivity
- 2 Blood Sugar - Some symptoms of hypo/hyperglycemia may mimic signs of stroke
- 3 Lateral Gaze - If unresponsive pt's may present with a lateral gaze "looking" at bleed.
- 4 Onset - Try to obtain the time when symptoms started. If unknown ask when pt was last seen in a normal state.

Transport:

- 1 Contact Physician ASAP and consult about transportation. It should be considered to transport positive or inconclusive stroke scale patients to Hutchinson or a Stroke Center Hospital in Wichita. This will be by physician choice/preference.
- 2 Transport should be rapid as this is a time-sensitive matter.

Field Triage Decision Scheme: The National Trauma Triage Protocol

1	Measure Vital Signs and Level of Consciousness		
	Glasgow Coma Score < 14 Systolic Blood Pressure < 90 Respiratory Rate < 10 or >29 (< 20 in infants < 1y/o)	YES	Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.
	NO		
2	Assess Anatomy of Injury		
	*Penetrating injuries to the head, neck, torso or extremities proximal to the elbow and/or knee. *Flail Chest *Two or more proximal long-bone fractures *Crushed, degloved or mangled extremity *Amputation proximal to wrist and ankle *Pelvic fractures *Open or depressed skull fractures *Paralysis	YES	Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.
	NO		
3	Assess MOI/evidence of high-energy impact		
	Falls Adults: > 20' (One story equals 10') Children: > 10' or 2-3 times the height of child High-Risk Auto Crash Intrusion > 12" of occupant site Intrusion > 18" at any site Ejection (Partial or complete) from vehicle Death in same passenger compartment Vehicle telemetry data consistent with high risk of injury Auto vs. Pedestrian/Bicyclist Thrown, Run Over or with significant (> 20mph) impact. Motorcycle crash > 20mph	YES	Transport to closest appropriate trauma center which, depending on the trauma system, need not be the highest level trauma center.
	NO		
4	Assess special patient or system considerations		
	Age older than 55 years old Pediatrics should be triaged preferentially to pediatric-capable trauma centers Anticoagulation and/or bleeding disorders Burns without trauma - transport to burn center Burns with trauma - transport to trauma center Time Sensitive Extremity Injury End-Stage renal disease requiring dialysis Pregnancy > 20 weeks EMS Provider Judgment	YES	Contact medical control and consider transport to a trauma center or a specific resource hospital
	NO		Transport according to protocol

Obtained from CDC Field Triage

Glasgow Coma Score

Adult Glasgow:

<u>Eyes</u>		<u>Verbal</u>		<u>Motor</u>	
Spontaneous	4	Oriented	5	Obeys Commands	6
To Loud Voice	3	Confused/Disoriented	4	Localizes Pain	5
To Pain	2	Inappropriate words	3	Withdraws from Pain	4
None	1	inappropriate sounds	2	Decorticate Posturing	3
		None	1	Decerebrate Posturing	2
				None	1

Eyes + Verbal + Motor = GCS

Pediatric Glasgow:

<u>Eyes</u>		<u>Verbal</u>		<u>Motor</u>	
Spontaneous	4	Coos/Babbles	5	Follows Command	6
To Speech	3	Irritable Cry	4	Localizes Pain	5
To Pain	2	Cries to Pain	3	Withdraws to Pain	4
No Response	1	Moans to Pain	2	Decorticate Posturing	3
		None	1	Decerebrate Posturing	2
				None	1

Eyes + Verbal + Motor = GCS

Intranasal Versed Dosing Chart via MAD

Indications:

- 1 Seizure activity as outlined by "Seizure" protocol
- 2 Sedation for purpose of electrical therapy as outlined by "Electrical Therapy" protocol.

Patient Age (In Years)	Weight (in KG)	Amount of Versed to be drawn up, given a 5mg/ml concentration
Neonate	3	0.12ml / 0.6mg
< 1 year	6	0.24ml / 1.2mg
1 year old	10	0.40ml / 2.0mg
2	14	0.56ml / 2.8mg
3	16	0.64ml / 3.2mg
4	18	0.72ml / 3.6mg
5	20	0.80ml / 4.0mg
6	22	0.88ml / 4.4mg
7	24	0.96ml / 4.8mg
8	26	1.04ml / 5.2mg
9	28	1.12ml / 5.6mg
10	30	1.20ml / 6.0mg
11	32	1.28ml / 6.4mg
12	34	1.36ml / 6.8mg
Small Teenager	40	1.60ml / 8.0mg
Adult or full-grown teenager	50 or more	2.00ml / 10mg

***Note: BASE PEDIATRIC DOSEAGES FOR OVERWEIGHT PATIENTS ON THEIR IDEAL BODY WEIGHT VS ACTUAL WEIGHT.**

****Note: DOSAGE MUST BE INDIVIDUALIZED AND TITRATED TO DESIRED EFFECT SHOWN BY SLURRED SPEECH. INDIVIDUALIZED RESPONSE MAY VARY WITH AGE, PHYSICAL STATUS AND CONCOMINANT MEDICATION, BUT MAY ALSO VARY INDEPENDENT OF THESE FACTORS**

Intraosseous Access using EZ-IO

1 Locate Desired Landmarks

A) Distal Tibial Access

- 1 Find the Medial Malleolus (Ankle Bone)
- 2 Slide 1 finger width proximal to the medial malleolus along flat aspect of the medial distal tibia.

B) Proximal Tibial Access

- 1 Find the patella (knee cap)
- 2 Find the tibial tuberosity just superior to the patella
- 3 Slide 1 finger width medial from tibial tuberosity

C) Proximal Humeral Access

- 1 Begin by placing pt into a supine position with arm at side resting on cot or ground with hand over umbilicus. This will adduct humerus.
- 2 Palpate and identify the mid-shaft humerus and continue palpating toward the proximal aspect of humeral head
- 3 As you near the shoulder you will note a protrusion. This is the base of the greater tubercle insertion site.
- 4 With opposite hand, consider "pinching" the anterior and inferior aspects of the humeral head while confirming the identification of the greater tubercle. This will ensure that you have identified the midline of the humerus itself.

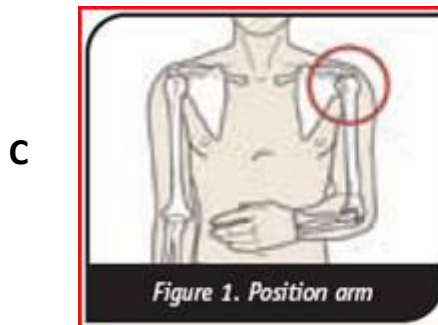
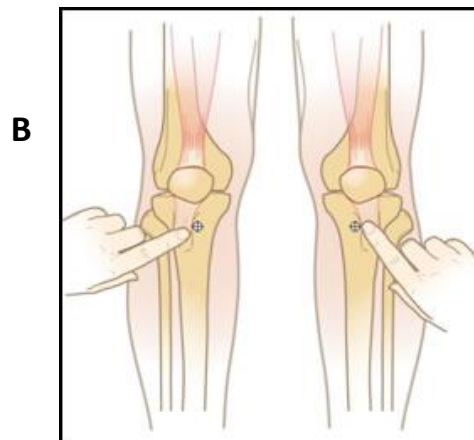
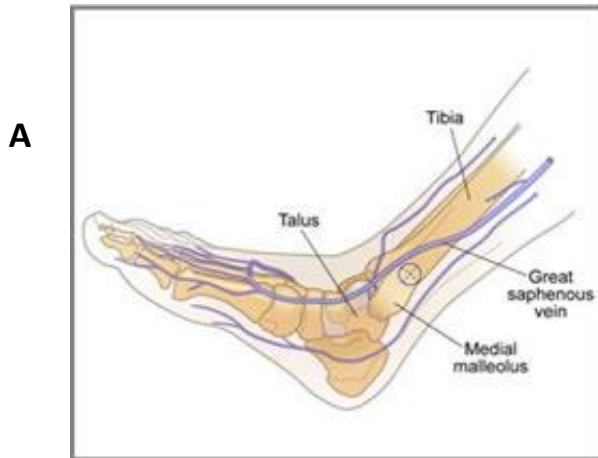


Figure 1. Position arm



Figure 2. Identify Greater Tubercle



Figure 3. Positively identify insertion site

Intraosseous Access using EZ-IO (Continued)

2 Cleanse Site

- A) Using betadine, scrub in a circular motion from inside out
- B) Swipe off the betadine with alcohol prep pad

3 Select Appropriate Size Needle

- A) 15mm is for patients weighing 3-39KG
- B) 25mm is for patients weighing 40KG and greater
- C) 45mm is for patients weighing in excess of 40KG that have excessive tissue

4 Insert EZ-IO Intraosseous Needle

- A) Stabilize extremity and grip firmly
- B) Attached to drill: Drill needle into insertion site until you "Feel" needle enter bone. (NOTE: plastic flange may not be against leg, this is OK)
- C) Remove drill and stylet from needle
- D) Attach a flushed J-Loop and slightly aspirate to confirm placement
- E) If pt has an LOC of Painful or greater consider 20-50mg of 2% Lidocain via IO slow push, This will numb the site for fluid administration. Otherwise infusion will be painful.
- F) Flush the IO with at least an additional 5-10cc Normal Saline
- G) Place Normal Saline bag in pressure bag and infuse as needed.
- H) Dress and stabilize IO needle
- I) Monitor insertion site for any additional pain or signs of infiltration

5 Indications for use:

- A) Anytime when vascular access is needed but difficult to obtain in emergent, urgent or medically necessary cases. This is at the discretion of the Paramedic, AEMT on duty and/or at the direction of physician.

6 Contraindications for use

- A) Suspected/possible fracture of extremity
- B) Excessive tissue and/or absence of anatomical landmarks
- C) Previous, significant orthopedic procedure at the site (IO in past 24 hours of same site, prosthetic limb/joint)
- D) Infection and/or burns at site of insertion

Intravenous/Intraosseous Infusion Drug Rates

Dopamine (Pre-mixed 400mg/250cc)					
Dose	2mcg	5mcg	10mcg	15mcg	20mcg
2.5 Kg			1	1.4	2
5 Kg		1	2	3	4
10 Kg		2	4	6	8
20 Kg	1.5	4	8	11	15
30 Kg	2	6	11	17	23
40 Kg	3	8	15	23	30
50 Kg	4	9	19	28	38
60 Kg	5	11	23	34	45
70 Kg	5	13	26	39	53
80 Kg	6	15	30	45	60
90 Kg	7	17	34	51	68
100 Kg	8	19	38	56	75

Dobutamine (pre-mixed 250mg/250cc)					
Dose	2mcg	5mcg	10mcg	15mcg	20mcg
2.5 Kg			1.5	2	3
5 Kg		1.5	3	5	6
10 Kg	1	3	6	9	12
20 Kg	2	6	12	18	24
30 Kg	4	9	18	27	36
40 Kg	5	12	24	36	48
50 Kg	6	15	30	45	60
60 Kg	7	18	36	54	72
70 Kg	8	21	42	63	84
80 Kg	10	24	48	72	96
90 Kg	11	27	54	81	108
100 Kg	12	30	60	90	120

Lidocaine (Pre-mixed 1gm/250cc)				
Dose	1mg/min	2mg/min	3mg/min	4mg/min
60gtt Set	15	30	45	60

Amiodarone (Maintenance Infusion)
Dose: 0.75mg/Min for ROSC
Mix 900mg/500cc
Run at 25gtt/min using 60gtt set

King Airway Insertion

1 Indications for use

- A) Use in a unconscious patient with an absent gag reflex who requires assistance in maintaining an airway for purpose of ventilations. Oral intubation is still currently the gold standard, but this may be used in place of intubation if pt is of large size and will be a suspected difficult intubation deemed by paramedic, at any other time the paramedic or a physician deems necessary, or at times when airway assistance is needed and there is no paramedic on scene.

2 Certification Scope of Practice

(Who can insert a King Airway as defined by KSBEMS)

- A) Paramedic
- B) AEMT
- C) EMT-I
- D) EMT

3 Contraindications of use

- A) Patients with a present gag reflex
- B) Patients under 4' tall
- C) Suspected esophageal disease such as esophageal varices or cancer
- D) Ingestion of a caustic substance

4 Insertion Instruction

- A) Select appropriate size tube according to chart below
- B) Test cuffs with indicated volume of air according to chart
- C) Ensure cuffs are fully deflated
- D) Insert tube while holding tongue until the distal end of the colored BVM adapter rests at teeth
- E) Inflate cuffs with indicated amount of air until resistance is met
- F) Ventilate patient and confirm tube placement
- G) Secure tube
- H) Continue to ventilate patient. Reassess tube placement periodically and after major patient movement/manipulation.

King Airway Size Selection and Volume Determination			
<i>Size</i>	<i>Patient Criteria</i>	<i>Connector Color</i>	<i>Inflation Volume</i>
3	4-5 Feet Tall	Yellow	40-55 CC Air
4	5-6 Feet Tall	Red	50-70 CC Air
5	Greater than 6 Feet Tall	Purple	60-80 CC Air

Spinal Immobilization

Indications:

- 1 For general indications, refer to the immobilization protocol

Protocol Definitions: *(Obtained directly from PHTLS 7th Edition(2011))*

- 1 Concerning Mechanism of Injury:
 - A Any mechanism that produced a violent impact to the head, neck, torso, or pelvis (Example: assault, entrapment in structural collapse, etc...)
 - B Incidents producing sudden acceleration, deceleration, or lateral bending forces to the neck or torso. (Example: Moderate - to high - speed MVC, Pedestrian struck, involvement in an explosion, etc...)
 - C Any fall, especially in elderly persons
 - D Ejection or fall from any motorized or otherwise-powered transportation device (Example: scooters, skateboards, bicycles, motor vehicles, motorcycles, or recreational vehicles)
 - E Victim of shallow-water diving incident
- 2 Distracting Injury
 - A Any injury that may have the potential to impair the patients ability to appreciate other injuries. Examples of distracting injuries include: A) Long bone fractures; B) Visceral injury requiring surgical consultation; C) Large lacerations, degloving injury, or crush injuries; D) Large burns; or E) Any other injury producing acute functional impairment.
- 3 Inability to communicate
 - A Any patient who, for reasons not specified above, cannot clearly communicate so as to actively participate in their assessment. (Examples: Speech or hearing impaired, those who only speak a foreign language, and small children.)

Procedure for Long Spine Board (LSB):

- 1 Hold and maintain manual c-spine
- 2 Assess neurovascular status
- 3 Apply appropriate sized C-Collar
- 4 Place pt on LSB by log roll or other means available while maintaining spinal
- 5 Secure torso and legs to the LSB
- 6 Secure head to LSB
- 7 Re-assess neurovascular status

Procedure for Kendrick Extrication Device (KED):

- 1 Hold and maintain manual c-spine
- 2 Assess neurovascular status
- 3 Apply appropriate sized C-Collar
- 4 Ready the KED
- 5 Lean patient forward while maintaining manual c-spine
- 6 Place KED behind pt and move pt back while maintaining manual c-spine
- 7 Secure torso portion of KED
- 8 Secure groin straps
- 9 Secure head to KED
- 10 Re-assess neurovascular status