

## Pre-Hospital Approach

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2011 Edition

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## Scenario

- On arrival, found a 74 YO male presenting:
- Unresponsive (able to accept an OPA with no problem)
- Large laceration in the occipital area – large amount of blood on the floor.

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## Scenario

- Family member (daughter who witnessed) states:
  - He suddenly had a seizure, then fell back at a concrete ledge (where the washing machines are mounted) and became unconscious
  - Only medical history is intranasal carcinoma for which he is being treated with radiation; latest treatment was the morning of the call.
  - Denies medication and allergies

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## Scenario

- Treatment:
  - OPA, BVM with O2 at approximately 20 breaths per minute.
    - Excellent chest rise with no resistance and no evidence of air in the belly.
    - Made a decision not to intubate
      - Had other priorities to deal with
      - Was a difficult tube (very anterior; had to be a trauma intubation due to MOI)
      - The manual ventilation with BVM was working well.
  - Full immobilization

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## Scenario

- V/S:
  - HR: 155 (but during transport went down to 140s and remained there) and regular/strong
  - Monitor looked like SVT/Sinus Tach)
  - BP: 170/100 → 160/90 during transport.
- We thought about shocking for SVT – but were very concerned about killing off brains auto-regulation/compensation if we drop rate and perhaps BP – making an assumption that we were dealing with a progressively swelling brain from either the trauma or the precipitating event OR BOTH.

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## Scenario

- Decided not to treat heart rate and it took care of itself.
- Put in 2 20ga IVs – saline lock.
- Administered 25 grams D50% - no changes.
- Patient went into a grand-mal seizure just before transport and during transport and both times were successfully treated with 5mg Valium slowly.

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### Scenario

- Transported patient to NYU (one doctor with an attitude said we should have transported to Bellevue. After I told him the sequence of events as was told to a witness (who repeated it for this doctor in the ER, she backed down.
- **In NYU, they spent more than 10 minutes intubating the patient – having to call “Respiratory” for assistance.**

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### Scenario

**➔ What’s the point of telling you about this complicated scenario?**

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### Patient Assessment

- You have to get it right EVERY TIME!
- You have to be consistent!
- Otherwise, you end up treating the wrong problem, or a problem that is not a problem **and overlooking a serious problem that requires urgent treatment!**
- **Practice makes you better – it is unlikely that you will ever be perfect.**

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## Dispatch Information

- Mentally review your first treatment steps -- assuming that the dispatcher is correct.

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## Scene Survey

- Safety for rescuer
- Route for egress for patient and rescuers

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## Calculate

- You are treating a 220 lb. male who was converted from Vfib on the second shock. You take his BP and you get 70/40 with a faint pulse of 30.
  - What drug will you use to raise his BP?
  - What other drug might also work?
- You decide to follow protocols and give this patient Dopamine at 10mcg/kg/min. You have a vial of 400 mg of Dopamine that you will mix into 250ml Normal Saline
- **What is the drip rate if you are using a micro-drip set?**

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## Dopamine

- A very interesting drug
- Completely different effects at different dose ranges
  - At 1-5 mcg/kg/min: Vasodilates kidney, mesenteric and brain arteries
  - At 5-10mcg/kg/min: Is a beta adrenergic agonist (beta-1 primarily) as a positive chronotrope, inotrope and dromotrope
  - At > 10mcg/kg/min primarily acts as an alpha agonist causing peripheral vasoconstriction
- Less of a positive chronotrope than Epi

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## Mechanism of injury

- **Trauma call**
  - Speed of vehicle
  - Restraints worn?
  - Did the airbag inflate?
  - Was the patient moved?
  - Type of penetrating injury
    - Knife size?
    - Caliber of bullet
    - Male or female attacker)
  - **Did shooting victim know he's about to be shot?**

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## Mechanism of illness

- **Medical call**
  - O2 in house?
  - Condition of meds in the home
    - Age of meds, date of last refill vs. number of tablets remaining
  - Dust/fumes in asthmatic house?
  - Quality of ventilation in home
  - Smoker (estimate # cigs / day)
  - Alcohol/drug abuse evidence?

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## General

- Approximate weight/build
- Apparent state of health
- Get an idea of their baseline
- Is this call for an acute or chronic condition?

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## General

- State of hygiene/length of time in such condition
- How “unshaven”?
- AMS X Several days?
- Dehydration risk in certain weather
  - Dehydration in the MI patient
- Stench of urine/feces?

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## Assess Responsiveness/Airway

- Unconscious? (Tap & shout)
- Treat with:
- Head tilt (non-traumatic)/Jaw Thrust (traumatic or unknown)
- OPA/NPA
- **Get pt into “Left Lateral Recumbent” position (unless possible spinal trauma)**

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## OPA Contraindications

- Conscious patient
- Gag reflex present
- Active seizures (clenched teeth)
- **Be aware of vagal nerve stimulation**
  - be prepared to remove as patient awakens
  - Example of a patient that you EXPECT to wake up?
  - Alternative to OPA?

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## Breathing

- Is Patient breathing?
  - No? Ventilate
  - Yes? Volume adequate?
    - No? Ventilate
    - Yes? Free flow device

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## The BVM

- **If in doubt – BAG**
- BVM helps “evaluate” lung compliance – you can feel it
- Airway obstruction
- Relief of APE post medication administration

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## Bellows

- Evaluate quality of bellows action
  - Chest structure
  - **Sucking chest wounds**
  - Flail chest

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## Look for signs of hypoxia!

- Many are a result of sympathetic NS response
  - Restlessness
  - Agitated/combatative → Unresponsive
  - **Tachycardia/sweating/cool**
  - Exaggerated chest motion
  - Tracheal tugging (larynx lowers upon inspiration)
  - Inspiratory retractions (sucks in chest: suprasternal, supraclavicular, Intercostal)
  - Tripod position (inspect elbows!)
  - Flared nostrils
  - Open mouth
  - Pursed lips
  - **Cyanosis**

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## Calculate

- You have an 80 YO 132 lb. female in APE. After providing O2 via CPAP, 2 sprays of Nitro-SL, medical control orders you to give 0.5mg/kg of Furosemide. You have a vial of the drug with a concentration of 10mg/ml.
- What is the volume of drug you will administer?
- **Questions:**
  - How quickly will you administer it?
  - What is a possible S/E of rapid administration?
  - In a patient with normal kidney function, when can you expect the diuretic action begin?
  - What other beneficial effect does this drug have? When can you expect this effect to begin?

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## Cyanosis

- **A LATE SIGN – DO NOT RELY ON IT!**
- Note that a slow GI bleeder may be hypoxic yet not cyanotic since
- They may not lose enough oxygenated hemoglobin to cause cyanosis.
- **One must have at least 5 grams of deoxygenated hemoglobin per 100 cc blood to cause cyanosis**
- **Normal oxygenation is 15 grams per 100cc blood**

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## CO2 Narcosis

- CO2 is a potent poison
  - And acts like a narcotic (sorry, Narcan will not work!)
- Vasodilation
- Sleepy
  - **Yawning is the danger signal**
- Passiveness/fatigue

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## Scenario

- You are treating a 24 YO asthmatic (whose only history is asthma) who presents with severe SOB and V/S as follows:
  - P: 130 regular
  - R: 42 and severely labored
  - BP: 140/86
- Unsuccessfully treated himself with his Albuterol MDI – 5 times
- **What is the most important treatment for this patient?**

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## Calculate!

- You are treating the asthmatic in this scenario and you decide that it would be beneficial to treat him with 0.3mg Epi 1:1000 IM.
- How many ml of Epi will you give this patient?

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## Circulation

- **Pulse present?**
  - Yes?
    - Pulse adequate? (rate/quality)
      - Yes? Monitor
      - No? Correct the situation (e.g. treat arrhythmias)
  - No?
    - Treat for cardiac arrest
      - CPR
      - Defibrillation?
      - ET Tube/Alternate airway
      - ACLS drugs

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## Adequate pulse – Signs

- ~~Capillary refill for children < 6 years old~~
- “Good” skin condition
- Presence of peripheral pulses

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### Systolic BP estimates

- Radial present? > 80
- Femoral present? > 70
- Carotid present? > 60
- Note: These estimates are in question currently, but it's the best we have.

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### Treat inadequate perfusion

- ~~Compress lower body (MAST)~~
- Compress wound (bleeder)
- Consider most probable causes and then
- Fluids PRN
- Arrhythmia treatment PRN
- → When might you consider using MAST?

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### Disability check

- **Neurological exam**
- LOC (Alert/Aware, Oriented)
- Orientation
  - Person, Place, Time, Event
  - **Usually lost in reverse order**
    - Event, Time, Place, Person)
  - If lost in person, place and time order – suspect psychosis
- PMS in four limbs
- Pupil check
  - Most important for trauma patient

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## Glasgow Coma Scale (GCS)

- More accurate means of evaluating neurological response
- AVPU “on steroids”
- Three components
  - Eye opening
  - Verbal Response
  - Motor Response
- Eye opening + Verbal response + Motor response
- Varies from 3 to 15

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## GCS – Eye Opening (4)

- 4: Spontaneous
- 3: Voice stimulation
- 2: Pain Stimulation
- 1: None

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## GCS – Verbal Response (5)

- 5: Oriented
- 4: Confused
- 3: Inappropriate words
- 2: Incomprehensible (mumbling)
- 1: None

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## GCS – Motor Response (6)

- 6: Obeys commands
- 5: Localizes pain
- 4: Withdraws from pain
- 3: Decorticated (flexion, praying position)
- 2: Deceribrated (extension)
- 1: None

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## GCS Example #1

- You are treating a patient in cardiac arrest, you would report the patients Glasgow Coma Scale as?

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## GCS Example #2

- You are treating a 42 YO male who was thrown from a car that hit a tree. He was not wearing seat belts and there were no air bags. He is “unresponsive”.
- His eyes are open
- He mumbles continuously
- When you do a sternal rub he goes into a decorticate posture
- **What is this patients GCS?**

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## “E”

- Expose
  - Not more than needed
    - Modesty
    - Loss of heat in critically ill patient
      - Especially in shock
- Explain!
  - You have a sick/**SCARED** patient
- Elicit Chief Complaint

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## Formal vital signs

- Pulse (rate, quality, rhythm)
- Respirations (rate, pattern, effort)
- **BP**
- Skin color/temp/moisture
- Hemoglobin saturation
- Mental status

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