## CALS 2014 Update

## Video Guide -Science, literature, trends and consensus

Steps to access video:

1. Log in to [calsprogram.org](file:///C:\Users\vonba040\AppData\Roaming\Microsoft\Word\calsprogram.org), using your own username and password (if you forgot your information you can contact Becky at [bvonbank@calsprogram.org](mailto:bvonbank@calsprogram.org))
2. Click on Instructor Welcome, highlighted in red on the left side of page.
3. On instructor page scroll down to bottom of the page, watch video onsite (1:06mins).
4. CALS recommendations or changes are highlighted in red.
5. Apneic Oxygenation during RSI:
   * 1. During RSI pre oxygen phase apply 4 L nasal cannula in addition to 100% oxygen with mask or BVM for 3-5 minutes. After paralytic increase nasal cannula to15 L.
     2. Prolongs period before desaturation
6. Newborn oxygenation:
   * 1. Target oxygenation saturation in the newly born: 1min 60 -65; 2 min 65-70; 3 min 70-75; 4 min75 – 80; 5 min 80 -85; 10 min 85 -95
     2. Start positive pressure ventilation for initial resuscitation with room air, If HR is <100 bpm, or if newborn is apneic or grasping begin PPV for the first after 90 secs, heart rate less <60 consider blended or 100% oxygen and begin CPR
     3. Remember to apply pulse oximeter to right wrist for the pre ductal reading, apply probe to infant first and then plug cord into monitor, this reduces the delay time for the machine to find oxygen saturations and produce reading on the monitor.
7. Hypertonic Saline recommendation:
8. Current regimens include 3, 5, 7.5, and 23 percent concentrations, recommended doses vary based on hospital developed protocols and vary greatly. It is a reasonable option, some studies show positive short-term outcomes. May be superior to mannitol.
9. No specific recommendations at this time, Consult with receiving trauma hospital and give as directed using the receiving hospitals dosage regimen and recommendations.
10. Steroids are no longer recommended for spinal cord injuries
11. Diabetic Ketoacidosis for pediatrics:
    * 1. Give fluids at 10cc/kg for signs of shock in the DKA patinet, *old recommendation* was to give judiciously. Concern is for cerebral edema in the DKA patient.
      2. Start insulin gtt at 0.1u/kg/hr, **DON’T** administer insulin bolus
12. Use of Atropine for pediatrics in RSI:
    * 1. Limited use: give to all infants < 1 years old or when using succinylcholine in all children < 5 years old
13. Rocuronium 1mg/kg is a good alternative to succinylcholine in pediatrics.
    * 1. Safer paralytic choice in children that are diagnosed or have a suspected neuromuscular disorder.

VIII. IM midazolam for status epileptic is an acceptable alternative when no IV/IO access is

available

1. A suitable substitute to painful arterial blood gases punctures are venous blood gases, pulse oximeter and End tidal CO2.
2. pH: .02 - .04 lower than arterial.
3. pCO2: 3 – 8 mm/hg higher than arterial
4. HCO3: 1 – 2 meq higher than arterial
5. Etomidate can be used in sepsis – initially there was a concern for using etomidate in the sepsis patient, the concern was related to the possible suppress in the cortisol levels. Current studies are limited to support not using etomidate.
6. CALS teaches opiates for analgesia but now often used routinely for post intubation management (“analgo-sedation”). It is thought that just the pain of intubation is uncomfortable. Using opiates in the intubated patient provides a more effective sedative effect.
7. Sellicks maneuver may be acceptable when applied correctly. It is not required to perform sellicks in CALS but if a student choses to perform maneuverer, do not discourage. Trends have moved away from doing sellicks. Literature states, when properly applied can be effective to occluding the esophagus, decreasing the risk of aspiration.
8. Removing patients from the spinal board.
9. Skin break down after prolonged spinal immobilization and the concern for reimbursement after hospital acquired pressure ulcers
10. Some facilities have developed a 20 minute time frame, but no evidence supports this specific time limit. CALS does not support a specific time frame
11. Consider using the back raft; the study for evaluating the effectiveness of the back raft was small but positive, the item is cheap $12- 15.
12. Pelvic Fractures, compression reduces pelvic volume, tamponades bleeding and stabilized fracture.
13. CALS recommends to wrap all pelvic fractures
14. Observe alignment of the patella, avoid over reducing.

iii. Use judicial force for an acetabulum fractures, to much force may cause the femoral head to lodge in to the acetabulum space

1. Tetanus recommendations based on CDC
2. Children < 7 years old DTap
3. Ages 7-18 get Tdap ( adult form)
4. > 18 years of age Tdap,
5. Tdap is only given once in a life time after the age of 7, additional doses should be Td.
6. Pregnancy is not a contraindication to Tdap, ACIP recommends Tdap in every pregnancy between 27 – 36 weeks
7. Hypertet – burns, frostbite, crush or high risk contaminated wounds
8. Adult Sepsis
9. CALS focus is for early recognition, basic intervention, fluid resuscitation
10. Early recognition Rule of 100 – Pulse rate > 100, Temperature > 100, and Blood pressure < 100
11. Fluid resuscitation 30cc/kg, assess patient frequently consider giving 500cc bolus increments, assess IVC for fluid status
12. Lactate acid, blood cultures, and antibotics
13. No recommendations for pressors to be given peripherally or central IV line, primary complication of concern is extravasation
14. IVC - Inferior Vena Cava assessment for fluid status
15. Inspiratory IVC diameter correlates with CVP better than index
16. Inspiratory collapse of 50% correlates with CVP < 8
17. CALS is not teaching specifics for evaluating the IVC for fluid status, confirm using other assessments
18. Neonatal airway
19. Positive pressure ventilation for HR < 100, apnea or inadequate respirations
20. Preterm newborns benefit for PEEP, BMV with PEEP device provides inconsistent PEEP, consider CPAP for labored breathing and central cyanosis
21. NEO tee shows no advantages in oxygen deliver to increase the SpO2/HR at a 2-5 minute interval and was removed from the CALS curriculum
22. Broselow tape in Pediatrics
23. Average error was 2.6kg, 50% were underestimation in the green, correlation studies > .80
24. Broselow was superior to other methods for estimating within 10% of real weight
25. Best guess formula

1-11 years (age in months + 9)/2

1-4 years 2x (age + 5)

4-14 years 4x age

1. Universal in most rural area, CALS will continue to use the Broselow tape it is universal and familiar
2. STEMI, Arrest, Post resuscitation
3. AHA 2010 Defibrillate at the machine’s highest default
4. CALS start with 200J or the machine’s default setting on start up for 1st shock, then MAX energy levels for subsequent shocks
5. 950 patient study done on cooling patient, 50% long term survival, compared temperatures of 33°C - 36°C all with the same neurological outcomes
6. Implications for CALS: cooling past 34°C (94°F) probably not necessary
7. After drop in core vs external rewarming
8. Do not spend much time on the After drop concept in the station
9. Core will continue to cool even after removal of the source, must directly rewarm the core to stop cooling process.
10. Temperatures below 86°F - 88°F require internal rewarming
11. Do not delay transport to rewarm
12. Arterial – venous rewarming requires a blood pressure and special tubing to perform, content was removed from curriculum
13. TXA –Tranexamic Acid has a black box label contradictions for use in non traumatic Subarachnoid Hemorrhage , this was based only on one study.