County of San Diego

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October 4, 2021

2021 PROTOCOL REVISIONS AND CLARIFICATIONS

In response to inquiries and input from the San Diego County EMS community, County EMS is providing protocol revisions and clarifications. The protocol revisions will be effective October 18, 2021. This memo will specify:

- Clarifications for EMS protocols P-117, S-123, S-126,and S-163 and
- Revisions for EMS protocols S-101 and S-133/S-166.

Please replace previously dated protocols S-101 and S-133/S-166 with these current revisions in all reference or training materials.

EMS PROTOCOL CLARIFICATIONS

1. P-117 ALS PEDIATRIC DRUG CHART

Question: *Wouldn't giving 3 doses of amiodarone for pediatric patients >36 kg on the Pediatric Drug Chart exceed the maximum adult dose?*

Clarification: Yes, do not exceed the total adult dose for amiodarone (450 mg). Follow the Pediatric Drug Chart for weight-based dosing for pediatric patients. Protocol Clarification 4 in this memo provides further context.

2. S-123 ALTERED NEUROLOGIC FUNCTION (NON-TRAUMATIC)

Question: *For the treatment of status epilepticus (generalized, ongoing, and recurrent seizures without lucid interval), if an IV is in place, can the medication be administered IV instead of IM?*

Clarification: Intramuscular midazolam administration to treat status epilepticus is the current evidence-based recommendation (see this BSPC EBM lecture for more information). The IM route should be used even if an IV has been established. Additionally, the National Association of State EMS Officials (NASEMSO) National Model EMS Clinical Guidelines support using the IM and IN routes for seizure treatment.

3. S-126 CHEST PAIN OF SUSPECTED CARDIAC ORIGIN

Question: *Can Aspirin be given if chest pain is resolved prior to EMS arrival?*

Clarification: Aspirin may be given SO if pain/discomfort of suspected cardiac origin resolves prior to paramedic assessment, as well as with active chest discomfort presenting during assessment.

4. S-163 PEDIATRIC TREATMENT PROTOCOLS CPR / ARRHYTHMIAS

Question: *In persistent pediatric VF/pulseless VT, why are there 3 amiodarone doses in the protocol?*

Clarification: AHA guidelines for amiodarone in PALS recommend a 5 mg/kg bolus during cardiac arrest. This dose may be administered a total of 3 times for refractory VF/pulseless VT. This is in contrast to the adult ACLS guidelines where the 300 mg loading dose differs from the subsequent 150 mg dose.

EMS PROTOCOL REVISIONS (effective October 18, 2021)

1. S-101 GLOSSARY OF TERMS

***Unstable* - Change to the pediatric age definition.**

- Replaced "≥14 years" with "**≥15 years (known or apparent age)**"
- Replaced "<14 years" with "**≤ 14 years (known or apparent age)**"

This revision maintains consistency across the EMS treatment protocols defining pediatric patients as being under 15 years.

2. S-133 OBSTETRICAL EMERGENCIES/NEWBORN DELIVERIES and **S-166 PEDIATRIC PROTOCOL NEWBORN DELIVERIES** (mirrored protocols)

a. Changed **"without"** to **"with"** in the following protocol:[1]

Newborn HR ≥100 ~~*without*~~ **with respiratory distress or central cyanosis**
- Blow-by O_2

b. Deleted "~~after BVM on high-flow O2 for 30 sec~~" in the following protocol:[2]

Newborn HR <60 ~~after BVM on high-flow O2 for 30 sec~~

[1] Blow-by O_2 should be given to newborns with respiratory distress or central cyanosis. If no improvement, follow the next steps in the protocol for **Newborn HR <100, poor respiratory effort or persistent central cyanosis**. It is not necessary to give blow-by O_2 to healthy newborns in no distress.
[2] Immediate resuscitative measures should be initiated for newborns with a HR <60. Do not wait for 30 seconds of BVM.

c. For newborns with HR <60**,** changed **"Check pulse q2 min"** to **"Check pulse q1 min"**

d. Deleted "~~If HR remains <60 after 90 sec of ventilation, increase to BVM 100% and continue compressions~~."

e. Replaced **"Push-dose epinephrine"** with **"Epinephrine per drug chart IV/IO SO, MR q3-5 min SO"** as per the Neonatal Resuscitation Program

For questions related to documents in the EMS System Policy and Procedure Manual, please contact Cheryl Pacheco, RN, by email at Cheryl.Pacheco@sdcounty.ca.gov.

Thank you for everything you do each day in the provision of quality prehospital evidence-based care.

Sincerely,

Kristi Koenig

Kristi L. Koenig, MD, FACEP, FIFEM, FAEMS, Medical Director
San Diego County EMS Office
Public Safety Group – San Diego County Fire

Attachments:
S-101 Glossary of Terms
S-133 Obstetrical Emergencies/Newborn Deliveries
S-166 Pediatric Protocol Newborn Deliveries

COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number **S-101**
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SUBJECT: **TREATMENT PROTOCOL GLOSSARY OF TERMS**

Date **10/18/2021**

BE FAST - Prehospital Stroke Scale in assessment of possible TIA or stroke patients

B = **B**alance: Unsteadiness, ataxia
E = **E**yes: Blurred/double or loss of vision, asymmetric pupils
F = **F**ace: Unilateral face droop
A = **A**rms and/or legs: Unilateral weakness exhibited by a drift or drop, numbness/tingling
S = **S**peech: Slurred, inability to find words, absent
T = **T**ime: Accurate Last Known Well time

Brief, Resolved, Unexplained Event (BRUE): An episode involving an infant younger than 12 months where an observer reports a sudden, brief, yet resolved episode of one or more of the following:

1) Absent, decreased, or irregular breathing
2) Color change (cyanosis or pallor)
3) Marked change in muscle tone (hypertonia or hypotonia)
4) Altered level of responsiveness

Definitive Therapy: Immediate or anticipated immediate need for administration of a fluid bolus or medications.

End-Tidal CO_2 ($EtCO_2$) (quantitative capnography): Quantitative capnometer to continuously monitor end-tidal CO_2 is mandatory for use in the intubated patient. See Skills List (S-104) for exceptions.

LEADSD: Acronym for the steps to be performed in the assessment and documentation of endotracheal intubation attempts:

1. **L**ung Sounds
2. **E**nd-Tidal CO_2 Detection Device
3. **A**bsence of Abdominal Sounds
4. **D**epth
5. **S**ize
6. **D**ocumentation

Nebulizer: O_2-powered delivery system for administration of normal saline or medications.

Opioid: Any derivative, natural or synthetic, of opium, morphine or any substance that has effects on opioid receptors (e.g., analgesia, somnolence, respiratory depression).

Opioid-Dependent Pain Management Patient: An individual who is taking prescribed opioids for chronic pain management, particularly those with opioid infusion devices.

Opioid Overdose (Symptomatic): Decreased level of consciousness and/or respiratory depression (e.g., respiratory rate of <12 or $EtCO_2$ ≥ 40 mmHg).

Pediatric Patient: Children known or appearing to be 14 years or younger.
A pediatric trauma patient is determined by age, regardless of weight.

Neonate: From birth to 30 days.
Infant: One month to one year.

Perilaryngeal Airway Adjunct (PAA) Options

1. **Esophageal-Tracheal Airway Device (ETAD):** The "Combitube" is the only such airway approved for prehospital use in San Diego County.
2. **Laryngeal-Tracheal (LT) airway:** The "King Airway" is the only such airway approved for prehospital use in San Diego County.

Unstable
A patient who meets the following criteria:

1. ≥15 years (known or apparent age)
   SBP <90 mmHg and exhibiting any of the following signs/symptoms of inadequate perfusion, e.g.,
   - Altered mental status (decreased LOC, confusion, agitation)
   - Pallor
   - Diaphoresis
   - Significant chest pain of suspected cardiac origin
   - Severe dyspnea

2. ≤14 years (known or apparent age)
   Exhibiting any of the following signs/symptoms of inadequate perfusion, e.g.,
   - Altered mental status (decreased LOC, confusion, agitation)
   - Pallor, mottling, or cyanosis
   - Diaphoresis
   - Difference in peripheral vs. central pulses
   - Delayed capillary refill
   - Hypotension by age
     - <1 month: SBP <60 mmHg
     - 1 month – 1 year: SBP <70 mmHg
     - 1 year – 10 years: SBP <70mm Hg + (2x age in years)
     - ≥10 years: SBP <90 mmHg

COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number **S-133**
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SUBJECT: **TREATMENT PROTOCOL**
OBSTETRICAL EMERGENCIES/NEWBORN DELIVERIES

Date **10/18/2021**

<table>
<tr><th colspan="2">PREDELIVERY</th></tr>
<tr><th>BLS</th><th>ALS</th></tr>
<tr><td>
• Ensure patent airway
• O_2 saturation PRN
• O_2 and/or ventilate PRN
• If no time for transport and delivery is imminent (crowning and pushing), proceed with delivery
• If no delivery, transport on left side
• Keep mother warm

Third-trimester bleeding
• Transport immediately to facility with obstetrical services per BH direction

Eclampsia (seizures)
• Protect airway
• Protect from injury
</td><td>
• Monitor/EKG
• IV SO
• Capnography SO PRN

Direct to labor/delivery area BHO if ≥20 weeks gestation

Eclampsia (seizures)
• Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.
</td></tr>
<tr><th colspan="2">DELIVERY</th></tr>
<tr><th colspan="2">BLS and ALS</th></tr>
<tr><td colspan="2">
Routine delivery
• If placenta delivered, massage fundus. Do not wait on scene.
• Wait 60 sec after delivery, then clamp and cut cord between clamps
• Document name of person cutting cord, time cut, and delivery location (address)
• Place identification bands on mother and newborn(s)
• Complete Out of Hospital Birth Report Form (S-166A) and provide to parent

Difficult deliveries
• High-flow O_2
• Keep mother warm

Nuchal cord (cord wrapped around neck)
• Slip cord over the head and off neck
• Clamp and cut cord, if wrapped too tightly

Prolapsed cord
• Place mother with her hips elevated on pillows
• Insert a gloved hand into vagina and gently push presenting part off cord
</td></tr>
</table>

- Transport immediately while retaining this position. Do not remove hand until relieved by hospital personnel.
- Cover exposed cord with saline-soaked gauze

Shoulder dystocia
- Hyperflex mother's knees to her chest

Breech birth (arm or single foot visible)
- Rapid transport

Frank breech or double footling and imminent delivery with long transport
- Allow newborn to deliver to the waist without active assistance (support only)
- When legs and buttocks are delivered, assist head out keeping body parallel to the ground. If head does not deliver within 1-2 min, insert gloved hand into the vagina to create airway for newborn.
- Transport immediately if head undelivered

Eclampsia (seizures)
- Protect airway, and protect from injury
- **ALS:** Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

MOTHER POST-DELIVERY

BLS	ALS
Post-partum hemorrhage • Massage fundus vigorously • Baby to breast • High-flow O_2 • Keep mother warm **Eclampsia (seizures)** • Protect airway • Protect from injury	**Post-partum hemorrhage** • Monitor/EKG • Capnography **Post-partum hemorrhage with SBP <90 mmHg** • 500 mL fluid bolus IV/IO PRN SO, MR x2 q10 min SO **Eclampsia (seizures)** • Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

NEONATAL POST-DELIVERY

BLS and ALS

Warm, dry, and stimulate newborn
- Wrap newborn in warm, dry blanket. Keep head warm.
- Assess breathing, tone, and HR. Palpate HR via umbilical cord.
- If placing pulse oximeter, use newborn's right hand
- APGAR at 1 and 5 min (do not delay resuscitation to obtain score)
- Confirm identification bands placed on mother and newborns(s)
- Bring mother and newborn(s) to same hospital

- Complete Out of Hospital Birth Report Form (S-166A) and provide to parent

Full-term newborn with good tone and breathing

- Keep newborn warm
- Ensure patent airway
- If excessive secretions, suction mouth then nose with bulb syringe
- O_2 saturation on newborn's right hand PRN
- Baby to breast
- Ongoing assessment q30 sec

Newborn HR ≥100 with respiratory distress or central cyanosis

- Blow-by O_2

Newborn HR <100, poor respiratory effort or persistent central cyanosis

- Ventilate with BVM on room air
- Monitor/EKG
- Recheck pulse q30 sec
- For persistently poor respiratory rate/effort, or cyanosis despite correct BVM technique, add high-flow O_2 15 L/min to BVM
- **Stop BVM when patient breathing well and HR ≥100**
- **ALS**: IV/IO SO (do not delay transport)
- **ALS**: NG tube PRN SO

Newborn HR <60

- Continue BVM with high-flow O_2
- Chest compressions at rate of 120/min
- 3:1 compression to ventilation ratio
- Check pulse q1 min
- Stop compressions when HR ≥60
- **ALS:** Epinephrine per drug chart IV/IO SO, MR q3-5 min SO
- **ALS:** Fluid bolus per drug chart IV/IO SO, MR x 1 in 10 min SO

Premature and/or low birth weight newborn

- If amniotic sac intact, remove neonate from sac after delivery
- Place neonate in plastic bag up to axilla to minimize heat loss
- Transport immediately
- CPR need **not** be initiated if there are no signs of life **and** gestational age <24 weeks

COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
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Number **S-166**
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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
NEWBORN DELIVERIES

Date **10/18/2021**

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