

Operations Subcommittee

of the Emergency Medical Care Committee



Meeting Agenda:
9 A.M., Thursday February 1st, 2024
Location: SLOEMSA Conference Room
2995 McMillan Ave, STE #178, San Luis Obispo

Members

Jay Wells, *Sheriff's Department, CHAIR*
 Tim Nurge, *Ambulance Providers*
 Scotty Jalbert, *Office of Emergency Services*
 Jessica Blaylock, *Med-Com*
 Adam Forrest, M.D., *Hospitals*
 Chief Steve Lieberman, *Fire Service*
 Kris Strommen, *Ambulance Providers*
 Rob Jenkins, *Fire Service*
 Lisa Epps, *Air Ambulance Providers*
 Aaron Hartney, *Air Ambulance Providers*
 Gerry Perez, *CHP*
 Deputy Chief Sammy Fox, *Fire Service*
Vacant, Law Enforcement
 Chief Casey Bryson, *Fire Service*
 Chief Dan McCrain, *Fire Service*
 Roger Colombo, *Field Provider-Paramedic*

Staff

STAFF LIAISON, Ryan Rosander, *EMS Coordinator*
 Vince Pierucci, *EMS Division Director*
 Bill Mulkerin, M.D., *Medical Director*
 Rachel Oakley, *EMS Coordinator*
 Vacant, *EMS Coordinator*
 Alyssa Vardas, *Administrative Assistant*

AGENDA	ITEM	LEAD
Call to Order	Introductions Public Comment	Jay Wells
Summary Notes	Review of Summary Notes October 5 th , 2023	
Discussion	Ketamine	Ryan Rosander
Adjourn	Declaration of Future Agenda Items -Roundtable Next Meeting Date: April 4 th , 2024, 9:00 A.M. Location: SLOEMSA Conference Room 2995 McMillan Ave, STE #178, San Luis Obispo	Jay Wells

DRAFT

Operations Subcommittee of the Emergency Medical Care Committee



Meeting Minutes

Thursday, October 5, 2023

SLO EMSA Conference Room – 2995 McMillan Ave, Suite 178, San Luis Obispo

Members		Staff	
<input type="checkbox"/>	CHAIR Jay Wells, Sheriff's Department	<input checked="" type="checkbox"/>	Vince Pierucci., EMS Division Director
<input type="checkbox"/>	Tim Benes, Ambulance Providers	<input checked="" type="checkbox"/>	Bill Mulkerin, MD, Medical Director
<input checked="" type="checkbox"/>	Scotty Jalbert, OES	<input checked="" type="checkbox"/>	Rachel Oakley, EMS Coordinator
<input checked="" type="checkbox"/>	Rob Jenkins, Fire Service	<input checked="" type="checkbox"/>	David Goss, EMS Coordinator
<input type="checkbox"/>	Adam Forrest, MD, Hospitals	<input checked="" type="checkbox"/>	Ryan Rosander, EMS Coordinator
<input checked="" type="checkbox"/>	Chief Steve Lieberman, Fire Service	<input checked="" type="checkbox"/>	Sara Schwall, EMS Administrative Assistant
<input checked="" type="checkbox"/>	Kris Strommen, Ambulance Providers		
<input type="checkbox"/>	Lisa Epps, Air Ambulance Providers		
<input checked="" type="checkbox"/>	Chief Casey Bryson, Fire Service		
<input type="checkbox"/>	Gerry Perez, CHP		
<input checked="" type="checkbox"/>	Chief Sammy Fox, Fire Service		
<input checked="" type="checkbox"/>	Roger Colombo, Field Provider, Paramedics		
<input type="checkbox"/>	Aften Porras, Med-Com		
<input type="checkbox"/>	Aaron Hartney, Air Ambulance Providers		
<input checked="" type="checkbox"/>	Chief Casey Bryson, Fire Service		
<input type="checkbox"/>	Vacant, Law Enforcement		

AGENDA ITEM / DISCUSSION	ACTION / FOLLOW-UP
CALL TO ORDER—9:01 am	
Introductions	
Public Comment – None	
APPROVAL OF MINUTES – D. McCrain motioned, R. Jenkins 2nd. Approved.	
DISCUSSION ITEMS	
Policy 343: Field Training Officer (FTO) Revision <ul style="list-style-type: none"> - Reason for creating multiple roles gives opportunities to a broader group of people. - Addition to FTO Liaison role: person can be an agency administrator. - Addition of Paramedic Skills Evaluator: stated in policy 342. Does not have to be an FTO, but some recommended for approval by SLO EMSA. - FTO Renewal Amendment: if applicant is unable to meet requirements, a written explanation will be submitted to SLO EMSA for review. - Further amendments: <ul style="list-style-type: none"> o Change requirements to minimum of one accredittee/intern in two-year cycle. o EMSA will open FTO application process January 1st or when need exists. o Removal of leave of absence requirements o Failure of application process may result in revocation of FTO status which is vested in the SLO EMSA Medical Director. 	R. Rosander
Discussion R. Jenkins suggests adding the ability of the provider agency to revoke FTO status to section H. S. Lieberman asks if one person can hold more than one of these roles. This was answered, yes. R. Colombo asks for a definition of “agency administrator.” V. Pierucci says the language can be changed to say “designee” instead of “FTO II or agency administrator.” K. Strommen asks if training is supplied by Cuesta College. V. Pierucci responds that the FTO liaison group will develop a training course. R. Rosander says that current FTOs will be grandfathered with discretion of the provider agency.	Motion to approve: R. Jenkins 2 nd : D. McCrain Approved



COUNTY OF SAN LUIS OBISPO HEALTH AGENCY

PUBLIC HEALTH DEPARTMENT

Penny Borenstein, MD, MPH *Health Officer/Public Health Director*

MEETING DATE	February 1 st , 2024
STAFF CONTACT	Ryan Rosander, EMS Coordinator 805.788.2513 rrosander@co.slo.ca.us
SUBJECT	Addition of Ketamine
SUMMARY	<p>In the effort to expand our current toolbox of pain medications for our county's patients, efforts were made to investigate and develop a LOSOP for Ketamine in San Luis Obispo County. Due to the emergence of COVID-19, these efforts were paused. With the State of California in the recently adding Ketamine to ALS basic scope of practice, SLOEMSA is wanting to renew efforts to add Ketamine to SLOEMSA's protocols and formulary.</p> <p>Ketamine has successfully passed in Clinical Advisory Committee. Following recommendation in Operations, Ketamine would be sent to EMCC for review and adoption. Potential implementation date would be July 1st, 2024 with training occurring during the 2024 SLOEMSA Update Class.</p>
REVIEWED BY	Vince Pierucci, Dr. William Mulkerin, SLOEMSA Staff
RECOMMENDED ACTION(S)	Recommended Ketamine for adoption by CAC and move to Operations Agenda
ATTACHMENT(S)	CAC PowerPoint Presentation, Ketamine Formulary

Emergency Medical Services

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www.slocounty.ca.gov/ems



Operations Subcommittee

FEBRUARY 1ST, 2024

SLOEMSA Addition of Ketamine

- ▶ Interested in adding Ketamine to SLOEMSA protocols. This would affect the following protocols:
 - ▶ Protocol #603: Pain Management
 - ▶ Policy #205 Attachment A: EMS Equipment and Supply List
- ▶ Formulary Addition
 - ▶ Ketamine Formulary



Ketamine

- ▶ Non-Opioid Analgesic
- ▶ Would be indicated for moderate to severe pain due to:
 - ▶ Multisystem trauma with head, thoracic, or abdominal injuries
 - ▶ Pain with the presence of hypotension (SBP \leq 90), or impaired respirations.
 - ▶ Significant extremity trauma, dislocations, or burns refractory to fentanyl or when fentanyl is contraindicated.
 - ▶ Pain management substitute for patients with an opioid tolerance.
- ▶ Would be contraindicated for:
 - ▶ Conditions where an increase in BP would be hazardous
 - ▶ Hypersensitivity
 - ▶ Known Hx of Schizophrenia
 - ▶ Acute Coronary Syndrome

Ketamine Hydrochloride (Ketalar®)

Classification:	Nonopioid Analgesic (sub-dissociative doses)
Actions:	In sub-dissociative doses, provides analgesia by non-competitively blocking NMDA receptors to reduce glutamate release and by binding to sigma-opioid receptors.
Indications:	Moderate to Severe pain due to: <ol style="list-style-type: none">1. Multisystem trauma with head, thoracic, or abdominal injuries.2. Pain with the presence of hypotension (SBP $<$90 mmHg), or impaired respirations.3. Significant extremity trauma, dislocations, or burns:<ol style="list-style-type: none">a. Refractory to fentanylb. When fentanyl is contraindicated (see notes)4. Pain management <u>substitute</u> for patients with an opioid tolerance.
Contraindications:	<ol style="list-style-type: none">1. Conditions in which an increase in blood pressure would be hazardous (see notes)2. Hypersensitivity3. Known history of schizophrenia4. Acute Coronary Syndrome
Precautions:	<ol style="list-style-type: none">1. History of severe <u>Coronary Artery Disease</u>

Ketamine Dosage and Adverse Effects

Administration:

ADULT DOSE

Pain Management

1. 0.3 mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose.

PEDIATRIC DOSE

*****Ketamine usage is not allowed for pediatric patients (<34kg)*****

Adverse Effects:

>10%

Cardiovascular: Tachycardia, hypertension, increase in cardiac output

Neurological: Dizziness, Tonic-Clonic Movement (non-seizure)

1-10%

Cardiovascular: Bradycardia, hypotension

Neurologic: Dysphoria, partial dissociation, nystagmus

<1%

Anaphylaxis, arrhythmia, hypersalivation, hypertonia, laryngospasm*, respiratory depression/apnea, dysuria

Why?

- ▶ Ketamine is utilized by 53% of LEMSAs across the State of California. Multiple other counties across the State are looking to add Ketamine following adoption into basic scope.
- ▶ A non-opioid pain medication is needed in the County of San Luis Obispo. Additionally, this is a way to expand what ALS providers can use outside of fentanyl for pain control.
- ▶ Pain medication alternative to fentanyl is needed for patients experiencing multisystem trauma or pain in the presence of hypotension.

LEMSA	Ketamine Usage
Alameda	x
Central California	
Coastal Valleys	x
Contra Costa	x
El Dorado	x
Imperial	
Inland	x
Kern	x
Los Angeles	
Marin	
Merced	x
Monterrey	x
Mountain Valley	x
Napa	
North Coast	x
NorCal	x
Orange	
Riverside	x
Sacramento	x
San Benito	
San Diego	x
San Francisco	
San Joaquin	
San Luis Obispo	
San Mateo	
Santa Barbara	x
Santa Clara	
Santa Cruz	
Sierra Sac	x
Solano	
Stanislaus	x
Tuolumne	
Ventura	
Yolo	x

Ketamine Minimum Stock and Pricing

▶ Ketamine is available in two different sizes from BoundTree:

- ▶ 200mg Vial
- ▶ 500mg Vial

▶ Unit Cost:

- ▶ Available at \$143.13 for a box of 10 vials. Each vial costs \$14.31
- ▶ Transport: \$28.62 per unit
- ▶ First Responder: \$14.31 per unit

▶ Has an expiration range of 2 years.

▶ Policy #205 Attachment A includes addition of Ketamine. 100ml Saline bag count has stayed the same since the alteration for Amiodarone.

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
MEDICATIONS						
Activated charcoal	50 gm bottle (aqueous solution)	1	1	0	0	0
Adenosine	6 mg/2 mL	5	3	3	3	0
Albuterol unit dose	2.5 mg/3 mL solution	4	2	2	2	0
Amiodarone	150mg in 3ml (50mg/ml concentration)	6	4	3	3	0
Aspirin	81 mg nonenteric coated chewable	1 bottle	1 bottle	4 tablets	4 tablets	1 bottle
Atropine	1 mg/10 mL	2	2	2	2	0
Atropine	8 mg multi-dose vial	1	1	0	0	0
Calcium Chloride 10%	1 gm/10 mL	1	1	0	0	0
Dextrose 10%	25 gm/250 mL bag	2	2	1	1	0
*Dextrose 50%	25 gm/50 mL	2	2	1	0	0
Diphenhydramine	50 mg/1 mL	2	2	2	2	0
Epinephrine	1:1,000 1 mg/1 mL	4	2	2	2	0
†Epinephrine Auto-Injector	Pediatric and Adult	0	0	0	0	†1 each
Epinephrine	1:10,000 1 mg/10 mL (10 mL preload)	8	6	3	6	0
Fentanyl	100 mcg/2 mL	2	2	2	2	0
Glucagon	1 mg/1 mL	1	1	0	0	0
Glucose gel	15 gm	2 tubes	2 tubes	2 tubes	2 tubes	2 tubes
Lidocaine 2%	100 mg/ 5 mL	2	1	1	1	0
Ketamine	100 mg/ 1mL	2	1	1	1	0
Midazolam	5 mg/1 mL	2	1	1	1	0
0.9% Normal Saline	1,000 mL bag (or equivalent total volume)	6	4	2	4	0
100 mL Saline Delivery Equipment	0.9% NS 100 mL bag	4	2	1	1	0
0.9% Normal Saline	10 mL Vials/Flush	5	5	2	2	0

▶ **Amiodarone changes are also highlighted to show full updates to policy.

Ketamine Formulary

County of San Luis Obispo Public Health Department
Division: Emergency Medical Services Agency

Ketamine (Ketalar®)
Effective Date: xx/xx/xxxx

Ketamine Hydrochloride (Ketalar®)

Classification:	Nonopioid Analgesic (sub-dissociative doses)
Actions:	In sub-dissociative doses, provides analgesia by non-competitively blocking NMDA receptors to reduce glutamate release and by binding to sigma-opioid receptors.
Indications:	Moderate to Severe pain due to: <ol style="list-style-type: none">1. Multisystem trauma with head, thoracic, or abdominal injuries.2. Pain with the presence of hypotension (SBP <90 mmHg), or impaired respirations.3. Significant extremity trauma, dislocations, or burns:<ol style="list-style-type: none">a. Refractory to fentanylb. When fentanyl is contraindicated (see notes)4. Pain management <u>substitute</u> for patients with an opioid tolerance.
Contraindications:	<ol style="list-style-type: none">1. Conditions in which an increase in blood pressure would be hazardous (see notes)2. Hypersensitivity3. Known history of schizophrenia4. Acute Coronary Syndrome
Precautions:	<ol style="list-style-type: none">1. History of severe <u>Coronary Artery Disease</u>
Adverse Effects:	>10% Cardiovascular: Tachycardia, hypertension, increase in cardiac output Neurological: Dizziness, Tonic-Clonic Movement (non-seizure) 1-10% Cardiovascular: Bradycardia, hypotension Neurologic: Dysphoria, partial dissociation, nystagmus <1% Anaphylaxis, arrhythmia, hypersalivation, hypertonia, laryngospasm*, respiratory depression/apnea, dysuria
Administration:	ADULT DOSE Pain Management <ol style="list-style-type: none">1. 0.3 mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose.

MIDAZOLAM (Versed®)

Page 2 of 2

PEDIATRIC DOSE

*****Ketamine usage is not allowed for pediatric patients (<34kg)*****

Onset:	IV onset 30-60 seconds, peak in less than 5 minutes.
Duration:	Distribution half-life: 15 minutes Duration of analgesia: 20-45 minutes
Notes:	<ul style="list-style-type: none">- Risk of adverse neurological events is decreased with sub-dissociative doses and SLOW rate of administration.- Mix adult dose of ketamine in 100ml bags of normal saline.- Ketamine may cause a slight increase in blood pressure and shall be avoided in hypertensive emergencies, dissecting aneurysms, hypertensive heart failure, and acute coronary syndrome.- Ketamine should be considered as first line analgesic agent when fentanyl is contraindicated due to hypotension, pathology or injury inhibiting respiration, evidence of hypovolemic/hemorrhagic shock, or multisystem trauma with high potential for internal hemorrhage.- Ketamine may be considered as preferable to fentanyl for patients that may have opioid tolerance due to habituation or addiction, and in patients where fentanyl use has other significant precautions.- Ketamine is a potent anesthetic and dissociative agent in higher doses and is associated with higher <u>incident</u> of significant adverse effects. This is NOT an approved use for prehospital care in the County of San Luis Obispo.

Protocol #603: Pain Management

County of San Luis Obispo Public Health Department Protocol #603
 Division: Emergency Medical Services Agency Effective Date: xx/xx/xxxx

PAIN MANAGEMENT	
ADULT	PEDIATRIC (<34 kg)
BLS	
<ul style="list-style-type: none"> • Universal Protocol #601 • Pulse Oximetry <ul style="list-style-type: none"> ◦ O₂ administration per Airway Management Protocol #602 • Medical (non-cardiac) <ul style="list-style-type: none"> ◦ Position of comfort ◦ Nothing by mouth • Cardiac chest pain – Chest Pain/Acute Coronary Syndrome Protocol #640 • Trauma – General Trauma Protocol #660 <ul style="list-style-type: none"> ◦ Splint, ice, elevate as indicated 	<ul style="list-style-type: none"> • Universal Protocol #601 • All causes of pain - consider age/situation appropriate distraction techniques. <ul style="list-style-type: none"> ◦ Video Viewing ◦ Calm environment ◦ Caregiver support • Medical <ul style="list-style-type: none"> ◦ Position of comfort ◦ Nothing by mouth • Otherwise, same as adult
ALS Standing Orders	
<p style="text-align: center;">MODERATE or SEVERE PAIN</p> <p>Acute Pain – SBP ≥ 90 mmHg, unimpaired respirations, GCS normal for baseline:</p> <ul style="list-style-type: none"> • Fentanyl 50-100 mcg SLOW IV (over 1 min.), may repeat after 5 min. if needed (not to exceed 200 mcg total) • Ketamine 0.3mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose. <p style="text-align: center;">IF DIFFICULTY OBTAINING IV</p> <ul style="list-style-type: none"> • Fentanyl 50-100 mcg IM/IN (use 1 mcg/kg as guideline), may repeat after 15 min. if needed (not to exceed 200 mcg total) <p>Acute Pain – SBP < 90mmHg, multisystem trauma with head/thoracic/abdominal injuries, significant extremity trauma refractory to contraindicated to fentanyl:</p> <ul style="list-style-type: none"> • Ketamine 0.3mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose. 	<p style="text-align: center;">MODERATE or SEVERE PAIN</p> <p>(Use age-appropriate indicators)</p> <p>Acute Pain – BP > age-based min., unimpaired respirations, GCS normal for age:</p> <ul style="list-style-type: none"> • Fentanyl 1.5 mcg/kg IN (split between nares) • Fentanyl 1 mcg/kg 1M • (IN and 1M routes) may repeat after 15 min. if needed (not to exceed 4 doses) <p style="text-align: center;">IF IV ALREADY ESTABLISHED</p> <ul style="list-style-type: none"> • Fentanyl 1 mcg/kg SLOW IV (over 1 min), may repeat after 5 min. if needed (not to exceed 4 doses)
Base Hospital Orders Only	
<ul style="list-style-type: none"> • Fentanyl administration with <ul style="list-style-type: none"> ◦ ALOC ◦ SBP < 90 mmHg ◦ Chronic pain • Additional doses of Fentanyl • As needed 	<ul style="list-style-type: none"> • Same as adult • As needed.

County of San Luis Obispo Public Health Department Protocol #603
 Division: Emergency Medical Services Agency Effective Date: xx/xx/xxxx

Notes
<ul style="list-style-type: none"> • Consider doses of Fentanyl 25 mcg for initial dose in elderly (>65 y/o) and for maintenance doses • Request orders, as appropriate, for obviously painful conditions not covered by standing orders. • Use clinical judgement if a patient has difficulty using pain scale, or their reported pain is inconsistent with clinical impression. <ul style="list-style-type: none"> ◦ Consider using FACES scale in adults with barriers to communication (below) • Non-pharmacologic interventions should be provided concurrently or prior to medication administration. • Do not withhold appropriate pain medication due to short transport times. • Strongly consider initiating pain management on scene if movement is expected to be painful for patient (unless unstable condition requires rapid transport). • Risk of adverse neurological events with Ketamine use is decreased with sub-dissociative doses and SLOW rate of administration. • Ketamine may cause a slight increase in blood pressure and shall be avoided in hypertensive emergencies, dissecting aneurysms, hypertensive heart failure, and acute coronary syndrome. • Ketamine is a potent anesthetic and dissociative agent in higher doses and is associated with higher incidents of significant adverse effects. This is NOT an approved use for prehospital care in the County of San Luis Obispo. • Ketamine may be considered as preferable to fentanyl for patients that may have opioid tolerance due to habituation or addiction, and in patients where fentanyl use has other significant precautions. • Ketamine should be considered as first line analgesic agent when fentanyl is contraindicated due to hypotension, pathology, or injury inhibiting respiration, evidence of hypovolemic/hemorrhagic shock, or multisystem trauma with high potential for internal hemorrhage. • Ketamine administration to pediatric patients is NOT approved for use in the County of San Luis Obispo.

Protocol #205 Attachment A: EMS Equipment & Supply List

County of San Luis Obispo Public Health Department
 Division: Emergency Medical Services Agency
EMS Equipment and Supply List *DRAFT*
 Policy 205 Attachment A
 Effective Date: xx/xx/xxxx

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
MEDICATIONS						
Activated charcoal	50 gm bottle (aqueous solution)	1	1	0	0	0
Adenosine	6 mg/2 mL	5	3	3	3	0
Albuterol unit dose	2.5 mg/3 mL solution	4	2	2	2	0
Amiodarone	150mg in 3ml (50mg/ml concentration)	6	4	3	3	0
Aspirin	81 mg nonenteric coated chewable	1 bottle	1 bottle	4 tablets	4 tablets	1 bottle
Atropine	1 mg/10 mL	2	2	2	2	0
Atropine	8 mg multi-dose vial	1	1	0	0	0
Calcium Chloride 10%	1 gm/10 mL	1	1	0	0	0
Dextrose 10%	25 gm/250 mL bag	2	2	1	1	0
*Dextrose 50%	25 gm/50 mL	2	2	1	0	0
Diphenhydramine	50 mg/1 mL	2	2	2	2	0
Epinephrine	1:1,000 1 mg/1 mL	4	2	2	2	0
†Epinephrine Auto-Injector	Pediatric and Adult	0	0	0	0	†1 each
Epinephrine	1:10,000 1 mg/10 mL (10 mL preload)	8	6	3	6	0
Fentanyl	100 mcg/2 mL	2	2	2	2	0
Glucagon	1 mg/1 mL	1	1	0	0	0
Glucose gel	15 gm	2 tubes	2 tubes	2 tubes	2 tubes	2 tubes
Lidocaine 2%	100 mg/ 5 mL	2	1	1	1	0
Ketamine	100 mg/ 1mL	2	1	1	1	0
Midazolam	5 mg/1 mL	2	1	1	1	0
Naloxone	2 mg (vial or pre-load)	2	2	2	2	0
†Naloxone IN Kit	‡2 mg pre-load and Atomizer	0	0	0	0	†2
Nitroglycerine	SL tablets or spray	2	1	1	1	0
Nitro Paste 2%	1 gm single dose packet	3	3	0	0	0
Ondansetron	4 mg /2 mL injectable	3	3	0	0	0
	4 mg dissolvable tablets	3	3	1	1	0
Sodium Bicarbonate	50 mEq/50 mL	2	2	0	0	0
Tranexamic Acid (TXA)	100 mg/1 mL 10 mL vial	2	1	0	1	0
Variations in the concentration of medications being stocked, due to medication supply shortages, must be approved by Medical Director						
†Elective skills equipment required for participating agencies						
Alternate Medications to be Stocked ONLY with Medical Director Approval						
Other pre-packaged single dose intranasal naloxone delivery devices that may be used with Medical Director Approval		0	0	0	0	†2
Diazepam (alternate to be stocked by order of Med Dir ONLY)	10 mg	2	1	1	1	0
Morphine (alternate to be stocked by order of Med Dir ONLY)	10 mg	3	2	2	2	0
Lidocaine 2% (alternate to be stocked during Amiodarone shortage by order of Med Dir ONLY)	100mg / 5ml	6	4	3	3	0

County of San Luis Obispo Public Health Department
 Division: Emergency Medical Services Agency
EMS Equipment and Supply List *DRAFT*
 Policy 205 Attachment A
 Effective Date: xx/xx/xxxx

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
IV SOLUTIONS/EQUIPMENT						
0.9% Normal Saline	1,000 mL bag (or equivalent total volume)	6	4	2	4	0
100 mL Saline Delivery Equipment	0.9% NS 100 mL bag	4	2	1	1	0
0.9% Normal Saline	10 mL Vials/Flush	5	5	2	2	0
IV Tubing	60gtt/mL	4	2	0	0	0
IV Tubing	10-20gtt/mL	6	3	2	2	0
IV Catheters	Sizes 14, 16, 18, 20, 22, 24 gauge	2 each	2 each	2 each	2 each	0
Syringes	Assorted - 1mL, 3mL, 6mL-20mL	2 each	2 each	1 each	1 each	0
Needles Assorted	- ½", 1", 1 ½" - 18-30 gauge	2 each	2 each	2 each	2 each	0
Intraosseous (IO) single needle device	(FDA approved) adult and pediatric	1 each	1 each	1 each	1 each	0
Tourniquets (for IV start)		2	2	2	2	0
Saline locks		4	2	2	2	0
Luer-Lock adaptors	(Not required but recommended for use with STEMI patients)	2	2	0	0	0
Alcohol and betadine swabs		10 each	10 each	10 each	10 each	†10 each
TRAUMA						
Bandages and bandaging supplies:						
Band-aids	Assorted	10	10	5	5	10
Sterile bandage compresses or equivalent	4"x4"	12	10	10	10	10
Trauma dressing	10"x30" or larger universal dressing	2	2	2	2	2
Roller gauze	3" or 4"	12 rolls	8 rolls	2 rolls	2 rolls	8 rolls
Cloth adhesive tape	1, 2, or 3"	1 roll	1 roll	1 roll	1 roll	1 roll
Triangular bandages with safety pins		4	2	1	1	2
Tourniquet	See approved list for commercial devices	2	2	1	1	2
Vaseline gauze	3"x8", or 5"x9"	2	2	1	1	2
Tongue blade or bite stick		2	2	2	2	2
Burn Sheets (sterile or clean) –	may be disposable or linen (with date of sterilization indicated)	2	2	0	2	2
Cervical collars	Stiff. Sizes to fit all patients over one year old	1each	1 each	1 each	1 each	1 each
Cold packs		2	2	2	2	2
Irrigation equipment and supplies:						
Saline, sterile	250mL	4	2	1	2	2
Long spine board and light weight head immobilizer blocks	(or equivalent immobilization device)	2	1	0	0	1
Straps to secure patient to boards		2 sets	1 set	0	0	1 set



Questions/Discussion

Ketamine Hydrochloride (Ketalar®)

- Classification:** Nonopioid Analgesic (sub-dissociative doses)
- Actions:** In sub-dissociative doses, provides analgesia by non-competitively blocking NMDA receptors to reduce glutamate release and by binding to sigma-opioid receptors.
- Indications:** **Moderate to Severe pain due to:**
1. Multisystem trauma with head, thoracic, or abdominal injuries.
 2. Pain with the presence of hypotension (SBP <90 mmHg), or impaired respirations.
 3. Significant extremity trauma, dislocations, or burns:
 - a. Refractory to fentanyl
 - b. When fentanyl is contraindicated (see notes)
 4. Pain management substitute for patients with an opioid tolerance.
- Contraindications:**
1. Conditions in which an increase in blood pressure would be hazardous (see notes)
 2. Hypersensitivity
 3. Known history of schizophrenia
 4. Acute Coronary Syndrome
- Precautions:**
1. History of severe Coronary Artery Disease
- Adverse Effects:**
- >10%
Cardiovascular: Tachycardia, hypertension, increase in cardiac output
Neurological: Dizziness, Tonic-Clonic Movement (non-seizure)
- 1-10%
Cardiovascular: Bradycardia, hypotension
Neurologic: Dysphoria, partial dissociation, nystagmus
- <1%
Anaphylaxis, arrhythmia, hypersalivation, hypertonia, laryngospasm*, respiratory depression/apnea, dysuria
- Administration:** **ADULT DOSE**
Pain Management
1. 0.3 mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose.

PEDIATRIC DOSE*****Ketamine usage is not allowed for pediatric patients (<34kg)*****

Onset: IV onset 30-60 seconds, peak in less than 5 minutes.

Duration: Distribution half-life: 15 minutes
Duration of analgesia: 20-45 minutes

Notes:

- Risk of adverse neurological events is decreased with sub-dissociative doses and SLOW rate of administration.
- Mix adult dose of ketamine in 100ml bags of normal saline.
- Ketamine may cause a slight increase in blood pressure and shall be avoided in hypertensive emergencies, dissecting aneurysms, hypertensive heart failure, and acute coronary syndrome.
- Ketamine should be considered as first line analgesic agent when fentanyl is contraindicated due to hypotension, pathology or injury inhibiting respiration, evidence of hypovolemic/hemorrhagic shock, or multisystem trauma with high potential for internal hemorrhage.
- Ketamine may be considered as preferable to fentanyl for patients that may have opioid tolerance due to habituation or addiction, and in patients where fentanyl use has other significant precautions.
- Ketamine is a potent anesthetic and dissociative agent in higher doses and is associated with higher incident of significant adverse effects. This is **NOT** an approved use for prehospital care in the County of San Luis Obispo.

PAIN MANAGEMENT	
ADULT	PEDIATRIC (<34 kg)
BLS	
<ul style="list-style-type: none"> • Universal Protocol #601 • Pulse Oximetry <ul style="list-style-type: none"> ○ O₂ administration per Airway Management Protocol #602 • Medical (non-cardiac) <ul style="list-style-type: none"> ○ Position of comfort ○ Nothing by mouth • Cardiac chest pain – Chest Pain/Acute Coronary Syndrome Protocol #640 • Trauma – General Trauma Protocol #660 <ul style="list-style-type: none"> ○ Splint, ice, elevate as indicated 	<ul style="list-style-type: none"> • Universal Protocol #601 • All causes of pain - consider age/situation appropriate distraction techniques. <ul style="list-style-type: none"> ○ Video Viewing ○ Calm environment ○ Caregiver support • Medical <ul style="list-style-type: none"> ○ Position of comfort ○ Nothing by mouth • Otherwise, same as adult
ALS Standing Orders	
<p style="text-align: center;">MODERATE or SEVERE PAIN</p> <p>Acute Pain – SBP ≥ 90 mmHg, unimpaired respirations, GCS normal for baseline:</p> <ul style="list-style-type: none"> • Fentanyl 50-100 mcg SLOW IV (over 1 min.), may repeat after 5 min. if needed (not to exceed 200 mcg total) • Ketamine 0.3mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose. <p style="text-align: center;">IF DIFFICULTY OBTAINING IV</p> <ul style="list-style-type: none"> • Fentanyl 50-100 mcg IM/IN (use 1 mcg/kg as guideline), may repeat after 15 min. if needed (not to exceed 200 mcg total) <p>Acute Pain – SBP < 90mmHg, multisystem trauma with head/thoracic/abdominal injuries, significant extremity trauma refractory to contraindicated to fentanyl:</p> <ul style="list-style-type: none"> • Ketamine 0.3mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose. 	<p style="text-align: center;">MODERATE or SEVERE PAIN</p> <p style="text-align: center;">(Use age-appropriate indicators)</p> <p>Acute Pain – BP > age-based min., unimpaired respirations, GCS normal for age:</p> <ul style="list-style-type: none"> • Fentanyl 1.5 mcg/kg IN (split between nares) • Fentanyl 1 mcg/kg 1M • (IN and 1M routes) may repeat after 15 min. if needed (not to exceed 4 doses) <p style="text-align: center;">IF IV ALREADY ESTABLISHED</p> <ul style="list-style-type: none"> • Fentanyl 1 mcg/kg SLOW IV (over 1 min), may repeat after 5 min. if needed (not to exceed 4 doses)
Base Hospital Orders Only	
<ul style="list-style-type: none"> • Fentanyl administration with <ul style="list-style-type: none"> ○ ALOC ○ SBP < 90 mmHg ○ Chronic pain • Additional doses of Fentanyl • As needed 	<ul style="list-style-type: none"> • Same as adult • As needed.

Notes

- Consider doses of Fentanyl 25 mcg for initial dose in elderly (>65 y/o) and for maintenance doses
- Request orders, as appropriate, for obviously painful conditions not covered by standing orders.
- Use clinical judgement if a patient has difficulty using pain scale, or their reported pain is inconsistent with clinical impression.
 - Consider using FACES scale in adults with barriers to communication (below)
- Non-pharmacologic interventions should be provided concurrently or prior to medication administration.
- Do not withhold appropriate pain medication due to short transport times.
- Strongly consider initiating pain management on scene if movement is expected to be painful for patient (unless unstable condition requires rapid transport).
- Risk of adverse neurological events with Ketamine use is decreased with sub-dissociative doses and SLOW rate of administration.
- Ketamine may cause a slight increase in blood pressure and shall be avoided in hypertensive emergencies, dissecting aneurysms, hypertensive heart failure, and acute coronary syndrome.
- Ketamine is a potent anesthetic and dissociative agent in higher doses and is associated with higher incidents of significant adverse effects. This is **NOT** an approved use for prehospital care in the County of San Luis Obispo.
- Ketamine may be considered as preferable to fentanyl for patients that may have opioid tolerance due to habituation or addiction, and in patients where fentanyl use has other significant precautions.
- Ketamine should be considered as first line analgesic agent when fentanyl is contraindicated due to hypotension, pathology, or injury inhibiting respiration, evidence of hypovolemic/hemorrhagic shock, or multisystem trauma with high potential for internal hemorrhage.
- Ketamine administration to pediatric patients is **NOT** approved for use in the County of San Luis Obispo.

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
MEDICATIONS						
Activated charcoal	50 gm bottle (aqueous solution)	1	1	0	0	0
Adenosine	6 mg/2 mL	5	3	3	3	0
Albuterol unit dose	2.5 mg/3 mL solution	4	2	2	2	0
Amiodarone	150mg in 3ml (50mg/ml concentration)	6	4	3	3	0
Aspirin	81 mg nonenteric coated chewable	1 bottle	1 bottle	4 tablets	4 tablets	1 bottle
Atropine	1 mg/10 mL	2	2	2	2	0
Atropine	8 mg multi-dose vial	1	1	0	0	0
Calcium Chloride 10%	1 gm/10 mL	1	1	0	0	0
Dextrose 10%	25 gm/250 mL bag	2	2	1	1	0
*Dextrose 50%	25 gm/50 mL	2	2	1	0	0
Diphenhydramine	50 mg/1 mL	2	2	2	2	0
Epinephrine	1:1,000 1 mg/1 mL	4	2	2	2	0
†Epinephrine Auto-Injector	Pediatric and Adult	0	0	0	0	†1 each
Epinephrine	1:10,000 1 mg/10 mL (10 mL preload)	8	6	3	6	0
Fentanyl	100 mcg/2 mL	2	2	2	2	0
Glucagon	1 mg/1 mL	1	1	0	0	0
Glucose gel	15 gm	2 tubes	2 tubes	2 tubes	2 tubes	2 tubes
Lidocaine 2%	100 mg/ 5 mL	2	1	1	1	0
Ketamine	100 mg/ 1mL	2	1	1	1	0
Midazolam	5 mg/1 mL	2	1	1	1	0
Naloxone	2 mg (vial or pre-load)	2	2	2	2	0
†Naloxone IN Kit	§2 mg pre-load and Atomizer	0	0	0	0	†2
Nitroglycerine	SL tablets or spray	2	1	1	1	0
Nitro Paste 2%	1 gm single dose packet	3	3	0	0	0
Ondansetron	4 mg /2 mL injectable	3	3	0	0	0
	4 mg dissolvable tablets	3	3	1	1	0
Sodium Bicarbonate	50 mEq/50 mL	2	2	0	0	0
Tranexamic Acid (TXA)	100 mg/1 mL 10 mL vial	2	1	0	1	0
Variations in the concentration of medications being stocked, due to medication supply shortages, must be approved by Medical Director						
†Elective skills equipment required for participating agencies						
Alternate Medications to be Stocked ONLY with Medical Director Approval						
§Other pre-packaged single dose intranasal naloxone delivery devices that may be used with Medical Director Approval		0	0	0	0	†2
Diazepam (alternate to be stocked by order of Med Dir ONLY)	10 mg	2	1	1	1	0
Morphine (alternate to be stocked by order of Med Dir ONLY)	10 mg	3	2	2	2	0
Lidocaine 2% (alternate to be stocked during Amiodarone shortage by order of Med Dir ONLY)	100mg / 5ml	6	4	3	3	0

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
IV SOLUTIONS/EQUIPMENT						
0.9% Normal Saline	1,000 mL bag (or equivalent total volume)	6	4	2	4	0
100 mL Saline Delivery Equipment	0.9% NS 100 mL bag	4	2	1	1	0
0.9% Normal Saline	10 mL Vials/Flush	5	5	2	2	0
IV Tubing	60gtt/mL	4	2	0	0	0
IV Tubing	10-20gtt/mL	6	3	2	2	0
IV Catheters	Sizes 14, 16, 18, 20, 22, 24 gauge	2 each	2 each	2 each	2 each	0
Syringes	Assorted - 1mL, 3mL, 6mL-20mL	2 each	2 each	1 each	1 each	0
Needles Assorted	- ½", 1", 1 ½" - 18-30 gauge	2 each	2 each	2 each	2 each	0
Intraosseous (IO) single needle device	(FDA approved) adult and pediatric	1 each	1 each	1 each	1 each	0
Tourniquets (for IV start)		2	2	2	2	0
Saline locks		4	2	2	2	0
Luer-Lock adaptors	(Not required but recommended for use with STEMI patients)	2	2	0	0	0
Alcohol and betadine swabs		10 each	10 each	10 each	10 each	†10 each
TRAUMA						
Bandages and bandaging supplies:						
Band-aids	Assorted	10	10	5	5	10
Sterile bandage compresses or equivalent	4"x4"	12	10	10	10	10
Trauma dressing	10"x30" or larger universal dressing	2	2	2	2	2
Roller gauze	3" or 4"	12 rolls	8 rolls	2 rolls	2 rolls	8 rolls
Cloth adhesive tape	1, 2, or 3"	1 roll	1 roll	1 roll	1 roll	1 roll
Triangular bandages with safety pins		4	2	1	1	2
Tourniquet	See approved list for commercial devices	2	2	1	1	2
Vaseline gauze	3"x8", or 5"x9"	2	2	1	1	2
Tongue blade or bite stick		2	2	2	2	2
Burn Sheets (sterile or clean) –	may be disposable or linen (with date of sterilization indicated)	2	2	0	2	2
Cervical collars	Stiff: Sizes to fit all patients over one year old	1each	1 each	1 each	1 each	1 each
Cold packs		2	2	2	2	2
Irrigation equipment and supplies:						
Saline, sterile	250mL	4	2	1	2	2
Long spine board and light weight head immobilizer blocks	(or equivalent immobilization device)	2	1	0	0	1
Straps to secure patient to boards		2 sets	1 set	0	0	1 set

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
TRAUMA CONT.						
Splints, traction	Adult and pediatric (or a single device suitable for both)	1 each	1 each	0	0	1 each
Splints, cardboard or equivalent	arm and leg splint	2 each	2 each	1 each	2 each	2 each
K.E.D. or equivalent		1	1	0	0	0
Pediatric spinal immobilization board	(or equivalent immobilization device)	1	1	0	0	0
Sheet or commercial pelvic binder		1	1	0	0	1
Infection Control						
Meet the minimum requirement per crew member as stated in the California Code of Regulations Title 8 (All Providers)						
Transportation Equipment						
Collapsible gurney cot with adjustable contour feature		1	0	0	0	0
Stair chair or equivalent device		1	0	0	0	0
Sheets, pillow, pillow case, towels, blankets (cloth or disposable)		2	0	0	0	0
Scoop stretcher with straps		1	0	0	0	0
Flat vinyl/canvas stretchers with		1	0	0	0	0
MISCELLANEOUS						
Blood pressure cuffs (portable):	Adult	1	1	1	1	1
	Large adult or thigh	1	1	0	0	1
	Pediatric	1	1	0	1	1
Obstetrical kit - sterile, prepackaged		1	1	0	0	1
Restraints - non-constricting wrist and ankle		1 set each	1 set each	0	0	1 set each
Stethoscope		1	1	1	1	1
Trash bags/receptacles		2	2	1	1	2
Blanket	Disposable	1 each	1 each	1 each	1 each	1 each
Bandage scissors (heavy duty)		1	1	1	1	1
Emesis basins or emesis bags with containers		2	2	1	1	2
Water, potable		1 liter	1 liter	0	1 liter	1 liter
Maps, entire county		1	1	0	0	1
Penlight		1	1	1	1	1
Triage tags		20	20	20	20	20
Bed pan		1	0	0	0	0
Urinal		1	0	0	0	0
†Glucometer	with ≥10 test strips, lancets, and other appropriate supplies	1	1	1	1	†1
Puncture proof sharps container	small	2	2	1	1	†1

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MISCELLANEOUS CONT.						
Thermometer		1	1	0	0	0
Automatic External Defibrillator	With AED pads	* For EMT-D Provider Agencies (1)				
AIRWAY						
Endotracheal tubes:	sizes-3.0, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0	1 each	1 each	1 each	1 each	0
Laryngoscope handles, with extra batteries		2	2	1	1	0
Laryngoscope blades:	Miller # 0, 1, 2, 3, 4 Macintosh # 1, 2, 3, 4	1 each	1 each	1 each	1 each	0
i-Gel Supraglottic Airways	Size 3 and Size 5	1 each	1 each	1 each	1 each	0
i-Gel Supraglottic Airways	Size 4	2 each	2 each	1 each	1 each	0
Magill forceps (pediatric and adult)		1 each	1 each	1 each	1 each	0
Adult stylets		2 each	1 each	1 each	1 each	0
10-20 mL syringe, sterile lubricant		2 each	1 each	1 each	1 each	0
Needle Cricothyrotomy kit with:	10 or 12 ga needle, 10-20 mL syringe, alcohol and betadine wipes and oxygen supply adapter	1	1	1	1	0
	Or other FDA approved percutaneous cricothyrotomy kit	1	1	1	1	0
Capnography Device	Qualitative or Quantitative	1	1	1	1	0
Hand held nebulizer for inhalation therapy		2	2	1	1	0
Medrafter or equivalent		1	1	0	0	0
Portable, battery powered, cardiac monitor-defibrillator with 12-lead ECG capability with the ability to perform computerized ECG readings and provide hard copy ECG tracings, with:		1	1	1	AED w.manal defib and w/EKG	0
	Patient ECG cable	1	1	1	0	0
	ECG recording chart paper	1	1	1	0	0
	Adult ECG electrodes	4 sets	4 sets	2 sets	2 sets	0
	Defibrillation pads or equivalent - Adult and Pediatric	1 set each	1 set each	1 set each	1 set each	0
	Conductive defibrillation pads, or tubes of conductive gel	4	4	2	2	0
		2	2	1	1	0
IV catheter for pleural decompression	10 gauge/3 inch	2	2	1	1	0
Asherman chest seal or equivalent open wound dressing		1	1	1	1	1
Pulse oximeter		1	1	1	1	1
†Continuous Positive Airway Pressure (CPAP) Ventilator	portable/adjustable pressure settings, FDA Approved with an oxygen supply	1	1	0	0	†1
Nasopharyngeal airways (soft rubber)	Medium and Large adult sizes	2 each	2 each	1 each	1 each	2 each

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
AIRWAY CONT.						
Lubricant, water-soluble jelly (K-Y)		2	2	2	2	2
Oropharyngeal airways	(sizes 5.5 – 12 or equivalent)	2 each	1 each	1 each	1 each	1 each
Adult non-rebreather masks		2	2	1	1	2
Pediatric/infant non-rebreather mask		2	2	1	1	2
Adult nasal cannula		4	2	1	1	2
Oxygen Cylinders	D or E size cylinder with regulator capable of delivering 2-15 LPM	1	1	1	1	1
	M, H, or K cylinder with wall outlet(s) and constant flow regulator(s)	1	0	0	0	0
Oxygen reserve:						
	D or E cylinders	1	1	0	0	1
Face masks for resuscitation (clear)		2	1	1	1	1
Bag-valve mask with O2 reservoir and supply tubing						
	Adult	1	1	1	1	1
	Pediatric	1	1	1	1	1
	Infant	1	1	1	0	1
Suction equipment and supplies:						
Rigid pharyngeal tonsil tip		2	2	0	0	2
Spare suction tubing		1	1	0	0	1
Suction apparatus (portable)		1	1	1	1	1
Suction catheters	at least 2 sizes suitable for adult and pediatric endotracheal suctioning	2 each	1 each	1 each	1 each	1 each