## Clinical Advisory Subcommittee of the Emergency Medical Care Committee

Meeting Agenda 10:15 A.M. Thursday, October 19th, 2023 Location: SLOEMSA Conference Room

2995 McMillan Ave, Ste 178 San Luis Obispo, CA 93401

### Members

CHAIR: Dr. Stefan Teitge, *County Medical Society* Dr. Heidi Hutchinson, *ED Physician Tenet* Dr. Kyle Kelson, *ED Physician Tenet* Dr. Lucas Karaelias, *ED Physician Dignity* Diane Burkey, *MICNs* Rob Jenkins, *Fire Service Paramedics* Nate Otter, *Ambulance Paramedics* Paul Quinlan, *Fire Service EMTs* Lisa Epps, *Air Ambulance* Jeffrey Hagins, *Air Ambulance* Arneil Rodriguez, *Ambulance EMTs* Casey Hidle, *Lead Field Training Officer* Tim Benes, *Medical Director Appointee* 

#### Staff

STAFF LIAISON: David Goss, *EMS Coordinator* Vince Pierucci, *EMS Division Director* Dr. William Mulkerin, *Medical Director* Ryan Rosander, *EMS Coordinator* Rachel Oakley, *EMS Coordinator* Sara Schwall, *EMS Admin Assistant III* 

AGENDA	ITEM	LEAD	
Call to Order	Introductions		
	Public Comment		
Summary Notes	Review of Summary Notes August 17th	Dr. Teitge	
Discussion	<ul> <li>Introduction of Ketamine:</li> <li>Ketamine Formulary</li> <li>Revised Protocol #603: Pain Management</li> </ul>	David	
Adjourn	<ul> <li>Declaration of Future Agenda Items</li> <li>Roundtable on Future Agenda Items</li> <li>Next meeting date – Thursday December 21<sup>st</sup>, 2023</li> <li>1015 hrs – EMSA Conference Room 2995 McMillan Ave. Suite 178 San Luis Obispo, CA 93401</li> </ul>	Dr. Teitge	



## Clinical Advisory Subcommittee of the Emergency Medical Care Committee

### Meeting Minutes 10:15 A.M., Thursday August 17, 2023 SLO EMSA Conference Room 2995 McMillan Ave., Ste. 178, San Luis Obispo

### Members

- CHAIR: Dr. Stefan Teitge, County Medical Society, ED Physician Dignity
- Dr. Heidi Hutchinson, ED Physician Tenet
- □ Dr. Kyle Kelson, ED Physician Tenet
- Dr. Lucas Karaelias, ED Physician Dignity
- $\Box$  Lisa Epps Air Ambulance
- □ Jeffrey Hagins Air Ambulance
- ⊠ Rob Jenkins, *Fire Service Paramedics*
- $\boxtimes$  Nate Otter, Ambulance Paramedics
- □ Arneil Rodriguez, Ambulance EMTs
- ⊠ Casey Hidle, Lead Field Training Officer
- ⊠ Diane Burkey RN, MICNs
- ⊠ Tim Benes, Medical Director Appointee
- □ Paul Quinlan, *Fire Service EMTs*

### Staff

- STAFF LIAISON: David Goss, EMS Coordinator
- □ Vince Pierucci, EMS Division Director
- ⊠ William Mulkerin, MD, Medical Director
- □ Ryan Rosander, EMS Coordinator
- Rachel Oakley, EMS Coordinator
- Sara Schwall, EMS Admin Assistant III

AGENDA	ITEM	LEAD
Call to Order 1018	Introductions	
	Public Comment – No public comment	Dr. Teitge
Summary Notes	No Additions – R. Jenkins motions, S. Teitge 2nds, Finalized	
Discussion	<ul> <li>Introduction of Amiodarone</li> <li>Effects policies 641 and 643</li> <li>Amiodarone is a class III antiarrhythmic and is a preferred medication is advanced cardiac life support.</li> <li>The dosage is fixes instead of weight based.</li> <li>Lidocaine may be used as a backup if amiodarone is out of stock.</li> </ul> Discussion <ul> <li>Discussed need for options for opioid dependent patients.</li> <li>R. Jenkins suggests adding base contact into procedure.</li> <li>N. Otter suggests macro drip portion for calculating 10 and 15 drop tubing.</li> </ul> Motion to approve addition of Amiodarone with amendments. <ul> <li>R. Jenkins motions.</li> <li>H. Hutchinson 2nds.</li> <li>All present in favor</li> </ul> Future Agenda Items: Dual sequential defibrillation vs. vector change; pain control (i.e. Ketamine, Tylenol); elective scope policy (Narcan, CPAP, blood glucose)	David Goss



Adjourned – 1048 <b>Next meeting date –</b> Thursday, October 19 <sup>th</sup> , 2023, 1015 a.m. SLO EMSA Conference Room	Dr. Teitge
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MEETING DATE	October 19 <sup>th</sup> , 2023
STAFF CONTACT	David Goss, EMS Coordinator
	805.788.2514 dgoss@co.slo.ca.us
SUBJECT	Addition of Amiodarone
SUMMARY	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 process of adding Ketamine to ALS basic scope of practice, SLOEMSA is wanting to renew efforts to add Ketamine to SLOEMSA's protocols and formulary. Following adoption, Ketamine would be sent to the Operations Subcommittee for review and subsequently to EMCC for Adoption. Potential implementation date would be July 1 <sup>st</sup> , 2024 with training occurring during the 2024 SLOEMSA Update Class.
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

# Clinical Advisory Subcommittee OCTOBER 19<sup>TH</sup>, 2023

# **SLOEMSA** Addition of Ketamine

- Interested in adding Ketamine to SLOEMSA protocols. This would affect the following protocols:
  - Protocol #603: Pain Management
- 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  $(SBP \le 90)$ , or impaired respirations.
  - Significant extremity trauma, dislocations, or burns refractory to fentanyl or when fentanyl is contraindicated.
  - Pain management for patients addicted to opioids (with base hospital order
- Would be contraindicated for:
  - Conditions where an increase in BP would be hazardous
  - ► Hypersensitivity
  - Known Hx of Schizophrenia
  - Acute Coronary Syndrome

### Ketamine Hydrochloride (Ketalar®)

Nonopioid Analgesic (sub-dissociative doses)

In sub-dissociative doses, provides analgesia by non-competitively blocking NMDA receptors to reduce glutamate release and by binding to sigma-opioid receptors.

### Moderate to Severe pain due to:

- 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 <u>substitute</u> for patients addicted to narcotics (with base hospital order).

Contraindications:

Precautions:

Classification:

Actions:

Indications:

Conditions in which an increase in blood pressure would be hazardous (see notes)

ypersensitivity

- nown history of schizophrenia
- cute Coronary Syndrome

1. History of severe Coronary Artery Disease

# Ketamine Dosage and Adverse Effects

## ADULT DOSE

## Pain Management

 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 (<34<u>kg)\*</u>\*\*

## Adverse Effects:

Administration:

Cardiovascular: Tachycardia, hypertension, increase in cardiac output Neurological: Dizziness, Tonic-Clonic Movement (non-seizure)

## 1-10%

>10%

Cardiovascular: Bradycardia, hypotension Neurologic: Dysphoria, partial dissociation, nystagmus

## <1%

Anaphylaxis, arrhythmia, hypersalication, hypertonia, laryngospasm\*, respiratory depression/apnea, dysuria

# Why5

- 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 are able to 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 Formulary

County of San Luis	Obispo Public Health Department	Ketamine ( <u>Ketalar</u> ®)
Division: Emergenc	y Medical Services Agency	Effective Date: xx/xx/xxxx
	Ketamine Hydrochloride (Ketalar®)	
Classification:	Nonopioid Analgesic (sub-dissociative doses)	
Actions:	In sub-dissociative doses, provides analgesia by NMDA receptors to reduce glutamate release an receptors.	
Indications:	Moderate to Severe pain due to:	
	1. Multisystem trauma with head, thoracic, or a	bdominal injuries.
	2. Pain with the presence of hypotension (SBP respirations.	<90 mmHg), or impaired
	3. Significant extremity trauma, dislocations, or	burns:
	a. Refractory to fentanyl	
	b. When fentanyl is contraindicated (se	e notes)
	<ol> <li>Pain management substitute for patients add hospital order).</li> </ol>	licted to narcotics (with base
Contraindications:		
-	<ol> <li>Conditions in which an increases in blood pre- notes)</li> <li>Hypersensitivity</li> <li>Known history of schizophrenia</li> <li>Acute Coronary Syndrome</li> </ol>	sure would be hazardous (see
Precautions:	1. History of severe Coronary Artery Disease	2
Adverse Effects:	<ul> <li>&gt;10%</li> <li>Cardiovascular: Tachycardia, hypertension, inc.</li> <li>Neurological: Dizziness, Tonic-Clonic Movemer</li> <li>1-10%</li> <li>Cardiovascular: Bradycardia, hypotension</li> <li>Neurologic: Dysphoria, partial dissociation, nyst</li> </ul>	nt (non-seizure)
	<1% Anaphylaxis, arrhythmia, <u>hypersalication</u> , hyper depression/apnea, dysuria	tonia, laryngospasm*, respiratory
Administration:	ADULT DOSE Pain Management 1. 0.3 mg/kg (max of 30mg) in 100ml Normal S	aline, administer over 10 minutes

one time dose.

## PEDIATRIC DOSE 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.

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MIDAZOLAM (Versed®)

## Protocol #603: Pain Management

County of San Luis Obispo Public Health Dep Division: Emergency Medical Services Agence		
	/	
PAIN MAN	IAGEMENT	
ADULT	PEDIATRIC ( <u>&lt;</u> 34 kg)	
-	LS	
<ul> <li>Universal Protocol #601</li> </ul>	Universal Protocol #601	
Pulse Oximetry	All causes of pain - consider age/situation	
<ul> <li>O<sub>2</sub> administration per Airway</li> </ul>	appropriate distraction techniques	
Management Protocol #602	o Video Viewing	
Medical (non-cardiac)	o Calm environment	
<ul> <li>Position of comfort</li> </ul>	<ul> <li>Caregiver support</li> </ul>	
<ul> <li>Nothing by mouth</li> </ul>	Medical	
Cardiac chest pain – Chest Pain/Acute	<ul> <li>Position of comfort</li> </ul>	
Coronary Syndrome Protocol #640	• Nothing by mouth	
Trauma – General Trauma Protocol #660	Otherwise, same as adult	
<ul> <li>Splint, ice, elevate as indicated</li> </ul>		
ALS Standing Orders		
MODERATE or SEVERE PAIN	MODERATE or SEVERE PAIN	
Acute Pain – SBP≥90 mmHg, unimpaired	(use <u>age appropriate</u> indicators)	
respirations, GCS normal for baseline:	Acute Pain – BP > age-based min., unimpaired respirations, GCS normal for age:	
<ul> <li>Fentanyl 50-100 mcg SLOW IV (over 1 min.),</li> </ul>	respirations, see normal for age.	
may repeat after 5 min. if needed (not to	Fentanyl 1.5 mcg/kg IN (split between nares	
exceed 200 mcg total)	<ul> <li>Fentanyl 1 mcg/kg 1M</li> </ul>	
IF DIFFICULTY OBTAINING IV	<ul> <li>(IN and 1M routes) may repeat after 15 min</li> </ul>	
	if needed (not to exceed 4 doses)	
<ul> <li>Fentanyl 50-100 mcg IM/IN (use 1 mcg/kg as</li> </ul>		
guideline), may repeat after 15 min. if	IF IV ALREADY ESTABLISHED	
needed (not to exceed 200 mcg total)	<ul> <li>Fentanyl 1 mcg/kg SLOW IV (over 1 min), ma repeat after 5 min. if needed (not to exceed</li> </ul>	
Acute Pain – SBP < 90mmHg, multisystem trauma	doses)	
with head/thoracic/abdominal injuries,		
significant extremity trauma refractory to		
contraindicated to fentanyl:		
<ul> <li>Ketamine 0.3mg/kg (max of 30mg) in 100ml</li> </ul>		
Normal Saline, administer over 10 minutes		
one time dose.		
Base Hospita	l Il Orders Only	
Fentanyl administration with	Same as adult	
o ALOC	As needed	
o SBP ≥ 90 mmHg		
o Chronic pain		
<ul> <li>Additional doses of Fentanyl</li> </ul>		
Ketamine administration for patients with an		
opioid tolerance or for patients where		
fentanyl use has significant precautions.		

As needed

County of San Luis Obispo Public Health Department

Division: Emergency Medical Services Agency

Protocol #603 Effective Date: 03/01/2022

#### 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 <u>orders</u>
   Use clinical judgement if patient has difficulty using pain scale, or their reported pain is inconsistent with clinical <u>impression</u>

   Consider using FACES scale in adults with barriers to communication (below)

   Non-pharmacologic interventions should be provided concurrently or prior to medication <u>administration</u>
   Do not withhold appropriate pain medication due to short transport <u>times</u>
   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 <u>NOT</u> 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 <u>NOT</u> approved for use in the County of San Luis Obispo.

# Questions/Discussion

### Ketamine Hydrochloride (Ketalar®)

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	<ol> <li>Pain management substitute for patients addicted to narcotics (with base hospital order).</li> </ol>	
Contraindications:	<ol> <li>Conditions in which an increase in blood pressure would be hazardous (see notes)</li> <li>Hypersensitivity</li> <li>Known history of schizophrenia</li> <li>Acute Coronary Syndrome</li> </ol>	
Precautions:	1. History of severe Coronary Artery Disease	
Adverse Effects:	verse 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

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**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:

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  - Ketamine is a potent anesthetic and dissociative agent in higher doses and is associated with higher incident of significant adverse effects. This is <u>NOT</u> an approved use for prehospital care in the County of San Luis Obispo.

PAIN MANAGEMENT		
ADULT PEDIATRIC (<34 kg)		
В	LS	
<ul> <li>Universal Protocol #601</li> <li>Pulse Oximetry         <ul> <li>O2 administration per Airway Management Protocol #602</li> </ul> </li> <li>Medical (non-cardiac)         <ul> <li>Position of comfort</li> <li>Nothing by mouth</li> </ul> </li> <li>Cardiac chest pain – Chest Pain/Acute Coronary Syndrome Protocol #640</li> <li>Trauma – General Trauma Protocol #660         <ul> <li>Splint, ice, elevate as indicated</li> </ul> </li> </ul>	<ul> <li>Universal Protocol #601</li> <li>All causes of pain - consider age/situation appropriate distraction techniques.         <ul> <li>Video Viewing</li> <li>Calm environment</li> <li>Caregiver support</li> </ul> </li> <li>Medical         <ul> <li>Position of comfort</li> <li>Nothing by mouth</li> </ul> </li> <li>Otherwise, same as adult</li> <li>MODERATE or SEVERE PAIN</li> </ul>	
Acute Pain – SBP $\geq$ 90 mmHg, unimpaired	(Use age-appropriate indicators)	
<ul> <li>respirations, GCS normal for baseline:</li> <li>Fentanyl 50-100 mcg SLOW IV (over 1 min.), may repeat after 5 min. if needed (not to exceed 200 mcg total)</li> <li>IF DIFFICULTY OBTAINING IV</li> <li>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)</li> <li>Acute Pain – SBP &lt; 90mmHg, multisystem trauma with head/thoracic/abdominal injuries, significant extremity trauma refractory to contraindicated to fentanyl:</li> <li>Ketamine 0.3mg/kg (max of 30mg) in 100ml Normal Saline, administer over 10 minutes one time dose.</li> </ul>	<ul> <li>Acute Pain – BP &gt; age-based min., unimpaired respirations, GCS normal for age:</li> <li>Fentanyl 1.5 mcg/kg IN (split between nares)</li> <li>Fentanyl 1 mcg/kg 1M</li> <li>(IN and 1M routes) may repeat after 15 min. if needed (not to exceed 4 doses)</li> <li>IF IV ALREADY ESTABLISHED</li> <li>Fentanyl 1 mcg/kg SLOW IV (over 1 min), may repeat after 5 min. if needed (not to exceed 4 doses)</li> </ul>	
Base Hospita	l Orders Only	
<ul> <li>Fentanyl administration with         <ul> <li>ALOC</li> <li>SBP &lt; 90 mmHg</li> <li>Chronic pain</li> </ul> </li> <li>Additional doses of Fentanyl</li> <li>Ketamine administration for patients with an opioid tolerance or for patients where fentanyl use has significant precautions.</li> <li>As needed</li> </ul>	<ul> <li>Same as adult</li> <li>As needed.</li> </ul>	

#### 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.
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- 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.
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- Ketamine administration to pediatric patients is **NOT** approved for use in the County of San Luis Obispo.