Ketamine versus Midazolam Prehospital Agitation Protocol - EMS Data Form
Medication Block: Midazolam

**SCREENING CRITERIA**

AMSS ≥ 2 and chemical sedation required?  
Yes  No

**Exclusion Criteria**

Will the patient be transported to a facility other than HCMC?  
Yes  No
Is the patient suspected or confirmed to be less than 18 years of age?  
Yes  No
Is the patient suspected or confirmed to be pregnant?  
Yes  No
Was the study drug administered intravenously?  
Yes  No

**Initial AMSS Score (circle one):**  
2  3  4

If AMSS = 2 or 3  →  5 mg intramuscular

If AMSS = 4  →  15 mg intramuscular

**START STOPWATCH AT ADMINISTRATION!**

Initial drug dose given: ___________mg  
Time initial drug given (24-hour clock): ___ ___ : ___ ___

Time of Arrival at ED (24 hour clock): ___ ___ : ___ ___

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>AMSS</th>
<th>ETCO2</th>
<th>O2 Sat</th>
<th>HR</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Medication</td>
<td>/</td>
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<tr>
<td>0 minutes (time of medication)</td>
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<td>+5 minutes</td>
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**AMS Scale**

<table>
<thead>
<tr>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not respond to physical stimuli</td>
<td>Responds only to physical stimuli</td>
<td>Lethargic response to name</td>
<td>Responds readily to name</td>
<td>Anxious, restless agitated</td>
<td>Agitated, verbally combative</td>
<td>Very agitated, physically combative</td>
<td>Physically violent, out of control</td>
<td></td>
</tr>
</tbody>
</table>

Time elapsed (stopwatch time) until adequate sedation (defined AMSS < 1) (MM:SS): _____ _____ : _____ _____

→ or check here if adequate sedation never achieved prehospital  

**Additional medications needed?**  
Yes  No  →  If “Yes,” drug, dose, time: ______________________

**Were any prehospital personnel injured?**  
Yes  No  →  If “Yes,” did they seek treatment?  
Yes  No

**Who was injured?** (circle)  
Fire  Police  EMS

Place Patient Label Here
Ketamine vs. Midazolam Study
ED Data Collection Form
PI: Jon Cole, M.D.

ENROLLMENT

☐ I certify that an information sheet has been provided to the patient. (RV Initials: ___ ___)
☐ I certify that a screening number has been assigned to the patient. (RV Initials: _________)
☐ EMS and the RV have exchanged stopwatches at study handoff. (RV Initials: _________)

REDCap Screening Log Number: ___ ___ ___

STUDY DRUG (circle one):

KETAMINE MIDAZOLAM

DOSE GIVEN: __________MG

PRIMARY OUTCOME

Time to adequate sedation (AMSS < 1) (MM:SS) ___ ___ : ___ ___
(please make sure this is in stopwatch time, not real time)

CLINICAL DATA

Temperature: _______ °C

Weight: ___________ kg
(As measured in ED, not EMS estimate)

Physical Restraints ever placed? Yes No

If yes, most number of limbs restrained: 2-point 3-point 4-point

Patient endotracheally intubated? Yes No
(Does NOT include King Airway) (plastic tube into lungs to breathe for patient)

If so, ED stopwatch time of intubation: ___ ___ : ___ ___

Intubating attending: ____________________________

AMSS DATA

<table>
<thead>
<tr>
<th>On Arrival (t0)</th>
<th>+ 15 m</th>
<th>+ 30 m</th>
<th>+ 45 m</th>
<th>+ 60 m</th>
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</table>

AMS Scale – Reference

-4 Does not respond to physical stimuli
-3 Responds only to physical stimuli
-2 Lethargic response to name
-1 Responds readily to name
0 Anxious, restless agitated
1 Agitated, verbally combative
2 Very agitated, physically combative
3 Physically violent, out of control
4 Physically violent, out of control
**Additional Sedatives Given**

Check one administered medication per row and indicate dose/route/time

**DO NOT INCLUDE INITIAL STUDY DRUG, DO INCLUDE ADDITIONAL PREHOSPITAL MEDS**

**MUST CONFIRM ALL MEDICATIONS DURING OR AFTER STUDY**

<table>
<thead>
<tr>
<th></th>
<th>Real Time (24hr, HH:MM)</th>
<th>Stopwatch Time (MM:SS)</th>
<th>Haloperidol (Haldol)</th>
<th>Lorazepam (Ativan)</th>
<th>Olanzapine (Zyprexa)</th>
<th>Midazolam (Versed)</th>
<th>Ketamine</th>
<th>DOSE &amp; ROUTE (IM, IV, PO)</th>
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<tbody>
<tr>
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</table>
ONE HOUR POST ARRIVAL PMP QUESTIONS

Physician Name: ________________________________  Time of Assessment (24-hr): ____ ___ : ____ ___

AIRWAY/RESPIRATORY DEPRESSION

Please check whether or not all adverse respiratory events occurred in this patient:

Yes ☐ No ☐: Hypoxia (Oxygen Saturation < 92%)

Yes ☐ No ☐: Apnea (Absent EtCO2 for > 6 seconds)

Yes ☐ No ☐: Aspiration (Clinically apparent aspiration after vomiting, by physician report)

Yes ☐ No ☐: Complete Upper Airway Obstruction (Absent EtCO2 waveform > 6 seconds)

Yes ☐ No ☐: Oral Airway (Placement of an oral airway device)

Yes ☐ No ☐: Nasal Airway (Placement of nasal trumpet or oral airway device)

Yes ☐ No ☐: Bag-Valve Mask (utilization of BVM for respiratory depression by MD or RN)

Yes ☐ No ☐: Supplemental O2 - Nasal Cannula (Placement of supplemental oxygen by NC for saturation < 92%)

Yes ☐ No ☐: Supplemental O2 - Facemask (Placement of supplemental oxygen by facemask for saturation < 92%)

Yes ☐ No ☐: Jaw thrust / Airway Reposition (Manipulation of jaw by provider to relieve obstructed airway)

Yes ☐ No ☐: Stimulus for Respiration

Yes ☐ No ☐: Intubation (Placement of endotracheal tube in the Stab room)

➤ If the patient was intubated, what was the indication?

☐ Apnea
☐ Hypoxia
☐ Aspiration/Vomiting
☐ Seizures
☐ Traumatic Injuries
☐ Refractory agitation

☐ To protect the airway (if so, specify exactly why airway protection is needed, for example, to facilitate a procedure such as LP or a diagnostic test such as a head CT, hemodynamic instability, or a specific clinical reason the airway is unprotected)

Reasoning:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
CLINICAL OUTCOMES

(Check whether or not each event occurred, then fill in additional data if applicable.)

<table>
<thead>
<tr>
<th>Event</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hypersalivation</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Emergence Reaction</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Tachydysrhythmia</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Laryngospasm</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hypotension (SBP&lt;90)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bradycardia (HR &lt; 60)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Drug/Alcohol Use:**

**Alcohol use:** Breath alcohol content: ________  Blood alcohol content: ________

*If neither were obtained, please breathalyze patient.*

**Drug use:** Is the patient known to use recreational drugs?  Yes or No

<table>
<thead>
<tr>
<th>Drug</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meth/amphetamine</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>THC</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Cocaine</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Synthetic Hallucinogens (e.g. 25I-NBOMe)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Synthetic Cannabinoids (e.g. K2, Spice)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Cathinones (e.g. “bath salts”)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>PCP</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Opioids</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

*Other:* ________________
TIME OF ED DISCHARGE / ADMIT - PMP QUESTIONS

**Only fill out this form if discharge/admission occurs at least 2 hours from arrival**

Physician Name: ____________________________________   Time of Assessment (24-hr): ___ ___ : ___ ___

AIRWAY/RESPIRATORY DEPRESSION

Please check whether or not all adverse respiratory events occurred in this patient since the one hour evaluation:

Yes ☐ No ☐:  **Hypoxia** *(Oxygen Saturation < 92%)*

Yes ☐ No ☐:  **Apnea** *(Absent EtCO2 for > 6 seconds)*

Yes ☐ No ☐:  **Aspiration** *(Clinically apparent aspiration after vomiting, by physician report)*

Yes ☐ No ☐:  **Complete Upper Airway Obstruction** *(Absent EtCO2 waveform > 6 seconds)*

Yes ☐ No ☐:  **Oral Airway** *(Placement of an oral airway device)*

Yes ☐ No ☐:  **Nasal Airway** *(Placement of nasal trumpet or oral airway device)*

Yes ☐ No ☐:  **Bag-Valve Mask** *(utilization of BVM for respiratory depression by MD or RN)*

Yes ☐ No ☐:  **Supplemental O2 - Nasal Cannula** *(Placement of supplemental oxygen by NC for saturation < 92%)*

Yes ☐ No ☐:  **Supplemental O2 - Facemask** *(Placement of supplemental oxygen by facemask for saturation < 92%)*

Yes ☐ No ☐:  **Jaw thrust / Airway Reposition** *(Manipulation of jaw by provider to relieve obstructed airway)*

Yes ☐ No ☐:  **Stimulus for Respiration**

Yes ☐ No ☐:  **Intubation** *(Placement of endotracheal tube in the Stab room)*

⇒ If the patient was intubated, what was the indication?

☐ Apnea
☐ Hypoxia
☐ Aspiration/Vomiting
☐ Seizures
☐ Traumatic Injuries
☐ Refractory agitation

☐ To protect the airway (if so, specify exactly why airway protection is needed, for example, to facilitate a procedure such as LP or a diagnostic test such as a head CT, hemodynamic instability, or a specific clinical reason the airway is unprotected)

Reasoning:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
CLINICAL OUTCOMES

(Check whether or not each event occurred, then fill in additional data if applicable.)

Yes ☐ No ☐: Patient amnestic to pre-hospital events?
*If unknown, please query patient directly.*

Yes ☐ No ☐: Vomiting
*The involuntary, forceful expulsion of stomach contents.*

If so, Number of Episodes: ______

Yes ☐ No ☐: Hypersalivation
*An excessive amount of saliva in the mouth, defined clinically by the treating physician.*

Treated? Y / N with: ______________
Dose: ______________

Yes ☐ No ☐: Tachydysrhythmia
*Any dysrhythmia experienced by the patient with a heart rate greater than 100 beats/minute, excluding benign events such as premature ventricular contractions or sinus tachycardia.*

Treated? Y / N with: ______________
Dose: ______________

Yes ☐ No ☐: Laryngospasm
*Partial or complete airway obstruction caused by a brief spasm of the vocal cords, characterized clinically (though not exclusively) by stridor, by physician report*

Treated? Y / N with: ______________
Dose: ______________

Yes ☐ No ☐: Hypotension (SBP<90)

Treated? Y / N with: ______________
Dose: ______________

Yes ☐ No ☐: Bradycardia (HR < 60)

Treated? Y / N with: ______________
Dose: ______________

Drug/Alcohol Use:

**Alcohol use:** Breath alcohol content: __________ Blood alcohol content: __________
*If neither were obtained, please breathalyze patient.*

**Drug use:** Is the patient known to use recreational drugs? Yes or No If so, mark all that apply below:

☐ Meth/amphetamine
☐ Synthetic Hallucinogens (e.g. 25I-NBOMe)
☐ PCP
☐ THC
☐ Synthetic Cannabinoids (e.g. K2, Spice)
☐ Opioids
☐ Cocaine
☐ Other:

__________________
Chart Review (for ED Coordinators)

Demographics

Age: ______________

Sex (circle one): Male Female

Race (check all that apply):
- ☐ Caucasian
- ☐ Black American
- ☐ American Indian
- ☐ Hispanic
- ☐ Asian
- ☐ African (e.g. Somali)
- ☐ Mixed Race
- ☐ Uncertain
- ☐ Other: __________

Medical History

Psychiatric Comorbidities listed in Epic (circle): or ⇒ None
- Schizophrenia
- Psychosis
- Mania
- Bipolar Disorder
- Depression
- Anxiety
- Schizoaffective Disorder
- Other ________________

Chemical Dependency History listed in Epic (circle): or ⇒ None
- Chemical Dependency (of any substance): Alcohol abuse
- Stimulant abuse (meth, cocaine, etc): Opioid abuse

IF Stimulants: which drugs?
1. _______________________
2. _______________________
3. _______________________

ED Disposition (circle one):
- Discharged to Home
- Discharged to Detox
- Discharged Acute Psychiatric Services
- Admit to hospital (non ICU)
- Admit to ICU
- Jail / Prison
- Death
ED Time of Stay (dates in YYYY/MM/DD)

ED Date / Time Roomed:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____

ED Discharge Order Placed:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(or Time of death)

OR

Date/Time Pt Admitted:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(Use Care Timeline)

Length of Mechanical Ventilation (hours)

Date/Time Intubated  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(+1 min after paralytic)

Date/Time Extubated:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(Use Respiratory Flowsheet)

ICU Length of Stay (days)

Date/Time Roomed in ICU:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(Use Care Timeline)

“ “ ICU d/c Order Placed:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(Use Care Timeline)

Hospital Length of stay if admitted (days)

ED Date/Time Roomed:  (see above)

Date/Time Pt Left Hospital:  ___ ___ ___ ___ / ___ ___ / ___ ___  ____ ____ : ____ ____
(Use Care Timeline)

Survived to hospital discharge?  Yes       No

Clinical Impressions

ED Discharge Clinical Impression:

1. ______________________________________________
2. ______________________________________________
3. ______________________________________________
4. ______________________________________________

Hospital Discharge Clinical Impressions (from discharge summary):

1. ______________________________________________
2. ______________________________________________
3. ______________________________________________
4. ______________________________________________
5. ______________________________________________
6. ______________________________________________
Lab and Imaging Results

QTc (EKG) ___________ms

Lactate ___________mmol/L

pH ___________ venous or arterial (circle one)

pCO₂ ___________mmHg venous or arterial (circle one)

pO₂ ___________mmHg venous or arterial (circle one)

Sodium ___________mEq/L

Potassium ___________mEq/L

Chloride ___________mEq/L

CO₂ ___________mEq/L

Anion gap ___________

Creatinine ___________mg/dL

Breath alcohol ___________mg/dL

Serum alcohol ___________mg/dL

CK ___________IU/L

Urine drug screen obtained?: Yes No

[be sure to check the “Chart Review” Tab and look for urine drug screens during either the ED encounter or APS encounter immediately following the ED encounter.]

If Yes:

Any immunoassays positive? Yes No

If so, which one(s)?
1. ____________________________________________________________________
2. ____________________________________________________________________
3. ____________________________________________________________________

Chromatography positive? Yes No

(Free text Mass Spec results)

If so, for what?
1. ____________________________________________________________________
2. ____________________________________________________________________
3. ____________________________________________________________________

Was a Head CT obtained? Yes No

If yes, were there any acute intracranial pathologies? Yes No

If positive, describe findings: ____________________________________________________________________