



The Role of Ketamine in Acute Sedation of Adult Mental Health Patients for RFDS Transfer Policy

1. Guiding Principles

This document seeks to clarify and standardise the use of Ketamine for the acute sedation of the agitated patient. It is to be used only by experienced practitioners who are familiar with the specific properties of Ketamine i.e. indications, contra-indications, side-effects and who are able to manage potential complications.

Please refer to:

[The Acutely Agitated Patient in a Remote Location - Assessment and Management Guidelines – a consensus statement by Australian aeromedical retrieval services.](#)

and associated WACHS policy, form and flowchart:

WACHS [Sedation for Mental Health Patients Awaiting Aeromedical Transfer MR12A WACHS Sedation Assessment Tool](#)

WACHS [Sedation Process for Mental Health Patients Flowchart](#)

At all times, the aggressive patient who presents with an agitated delirium **must trigger** a thorough assessment, examination as well as appropriate investigations to actively exclude organic disease.

2. Policy

2.1 Background

The acute management of Mental Health patients requiring inpatient care and transport to dedicated psychiatric services remains a challenging problem in remote areas.

The use of the standardised WACHS [Sedation for Mental Health Patients Awaiting Aeromedical Transfer](#) has benefits for routine management of patients with agitation requiring acute sedation.

There are occasions however where the WACHS [Sedation for Mental Health Patients Awaiting Aeromedical Transfer](#) is inadequate or does not allow for rapid and safe control of a patient's behaviour to ensure the safety of staff and the patient.

In recent years the role of Ketamine in the acute sedation of Mental Health patients has been researched in small case series¹ it appears to be efficacious and safe.

2.2 Indications

The indications to use Ketamine as a sedation agent for acutely agitated mental health or highly agitated patients in the Emergency Department are:

1. As a 'rapid tranquilisation agent' preferably intramuscularly to gain safe and rapid control of the situation facilitating resuscitation (if required) assessment and risk stratification of the acutely unwell patient with possible excited delirium]
2. As a form of procedural sedation where the 'procedure' is the safe transfer of a patient by road or aircraft to a definitive Mental Health Care facility. This is to be done in conjunction with either a FACEM via ETS or RFDS and the accepting hospital clinician at hub or tertiary site
3. As a third line agent after discussion with experienced specialist in critical care i.e. visiting FACEM or via ETS, RFDS or ICU specialist, or the anaesthetic team when the patient has not responded to conventional agents such as Benzodiazepines and antipsychotics

2.3 Rationale

- The goal of sedation for transport should be to minimise the total duration of sedation and use ketamine as an agent to facilitate the safe movement of the patient.
- Ketamine in this setting is used in lieu of formal anaesthesia and intubation/ventilation.
- Hence Ketamine should be initiated in conjunction with specialist advice from FACEM via ETS or RFDS or the anaesthetic team and accepting clinician at hub or tertiary centre.
- It is **not** appropriate to provide deep sedation for prolonged periods without a clear plan for transfer.

2.4 Administration

This policy applies to **Adult** patients only (see definition below). In all other circumstances advice must be sought from an appropriate medical authority e.g. consultant anaesthetist, emergency medicine specialist and/or psychiatrist.

Ideally Ketamine should be delivered intravenously. However, in the acute situation it may be necessary to use the intramuscular (IM) route. The use of IM Ketamine results in a less predictable sedative response.

The establishment of intravenous access x 2 and other monitoring is to immediately follow the use of IM Ketamine.

It is often necessary to insert an indwelling catheter in order to facilitate longer-term transfer.

2.5 Dosage

Ketamine IV: 1.0 – 1.5 mg/kg administered as a slow IV bolus (over 1-2 minutes) to avoid transient apnoea with an option to repeat once after five (5) minutes.

Ketamine IM: 4 mg/kg (max 200mg) – preference to establish IV access after dosing.

Ketamine infusion

Only to be used after discussion with a specialist in critical care i.e. either FACEM via ETS and/or RFDS and/ or ICU, or the anaesthetic team and the accepting clinician at hub/tertiary site in the context of imminent retrieval.

- Start at 1 mg/kg/hr².
- Titrate to achieve sedation level 2 – moderate = frequently drowsy (rousable to voice) on the [MR12A WACHS Sedation Assessment Tool](#) (See [Appendix B](#)).
- Over-sedation: discontinue infusion until patient is responding to voice and then recommence at a lower dose (e.g. half the previous dose).

Pre-Sedation Considerations

- Prior to the initiation of any sedation there should be consideration given to the patient’s comorbidities, risk of airway compromise and physiological reserve.

RFDS, Part 1 Clinical Guideline²:

	Anaesthetic Risk		
Mental Health Safety Risk	Low Risk Thin, fit fasted, know easy airway	Medium Risk ASA II or III, unfasted or unknown airway	High Risk ASA 1V, old, sick, obese, OSA, COPD, difficult airway etc.
Low Risk Flat affect, low suicide risk, thought disordered with insight	Low risk verbal reassurance, safe disposition plan	Safe disposition plan No physical restraint parenteral drugs with oral monotherapy	Try to avoid pharmacotherapy. Reassure and orientate Enlist family and carers
Medium Risk Intoxicated, disinhibited, no insight, unpredictable	If sedation required, aim for minimal dose SAT 0 to -1	Aim for sedation SAT 0 titrate monotherapy have airway git ready	Aim for SAT 0 to +1 using short-acting agents Airway ready for RSI
High Risk Known forensic history, weapons, agitated, aggression	Consider rapid 'takedown' if unsafe Be ready for advanced airway management	Sedation to occur in fully monitored area with all airway equipment and monitoring, RSI ready	Difficult scenario – Ketamine may be best option with plan to RSI if required. Physical restraints if safe

Ideally, a pre-sedation assessment should be made by a doctor with anaesthesia, critical care or emergency medicine experience. If such experience is unavailable immediate assistance from a specialist experienced in critical care i.e. FACEM via ETS, RFDS, or Anaesthetist needs to be sought.

- Although Ketamine is considered 'airway protective' it is only to be used in areas where airway equipment and staff are available for potential intubation if required.
- Ketamine is a useful agent for managing patients with potentially difficult airways, respiratory disease and unstable haemodynamic states.
- Ketamine does cause an increase in heart rate and blood pressure – and is to be used with caution in patients with cerebrovascular or ischemic heart disease.
- A rapid IV bolus dose of ketamine can cause transient apnoea of variable duration especially if other sedative agents have been used prior or in addition to the initiation of Ketamine.
- There is a potential for emergence phenomena such as hallucinations, paranoia and agitation and it is recommended that patients be nursed in a quiet area. The use of benzodiazepine agents to ameliorate these phenomena is to be considered where appropriate.

2.6 Staffing and Monitoring

Ketamine is only to be administered by medical staff capable of managing potential complications and side-effects under the guidance of a senior clinician with critical care experience and in an appropriate clinical environment where the patient can have appropriate monitoring applied as soon as it is practical. Monitoring should be the same as per any procedural sedation.

Minimum monitoring requirements for any sedation includes:

- pulse oximetry
- nasal capnography / end-tidal CO₂ monitoring
- non-invasive BP
- 3-lead ECG
- continuous 1:1 nursing.

2.7 Logistical Considerations

Patients suffering behavioural disturbance requiring acute sedation with agents such as ketamine, midazolam or other potent antipsychotic medications will usually require subsequent transfer to a designated Mental Health Care facility.

The use of ketamine or other deep sedation agents should be a trigger for clinicians to make prompt arrangement with RFDS or ground transport services to move a patient to a centre that can provide ongoing sedation or a secure facility.

The bulk of the iatrogenic morbidity resulting from the sedation of acutely agitated Mental Health patients occurs in the time between initiation of sedation and arrival at a definitive care unit.

In order to reduce this morbidity effort should be concentrated on:

- minimising the time that deep sedation is required
- escalating the urgency of transfer request to ensure timely transfer
- ensuring continuous and rigorous monitoring standards
- having the correct equipment and staff to manage deterioration immediately available.

In some instances patients may be managed with the existing WACHS [Sedation for Mental Health Patients Awaiting Aeromedical Transfer](#) after initial control is achieved using agents such as Ketamine.

The decision to de-escalate sedation, delay transfer and manage patients less intensively may be appropriate. This needs to be done on a case-by-case basis in conjunction with local resources, police and psychiatric advice.

3. Definitions

Adult	
ASA	
ETS	Emergency Telehealth Service
FACEM	Fellowship of the Australasian College of Emergency Medicine
HDU	High Dependence Unit
ICU	Intensive Care Unit
OSA	Obstructive Sleep Apnoea
COPD	Chronic Obstructive Pulmonary Disease
RFDS	Royal Flying Doctor Service
RSI	Rapid Sequent Intubation
SAT	Sedation Assessment Tool MR12A WACHS Sedation Assessment Tool

4. Roles and Responsibilities

The **Regional Medical Director** is responsible for oversight of the implementation and use of this policy.

All staff are required to work within policies and guidelines to make sure that WACHS is a safe, equitable and positive place to be.

5. Compliance

Failure to comply with this policy may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the [Employment Policy Framework](#) issued pursuant to section 26 of the [Health Services Act 2016](#) (HSA) and is binding on all WACHS staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

6. Evaluation

Monitoring of compliance with this document is to be carried out by the Regional Director of Medical Services, every 12 months using the following means / tools:

- occasions of service / case review
- relevant clinical incidents reported through Datix CIMS
- relevant complaints / compliments reported through Datix CFM.

7. Standards

[National Safety and Quality Healthcare Standards](#) (Second edition 2017):

5.13, 4.4, 4.13

8. References

Cong, M Le; Gynther, B.; Hunter, E.; Schuller, P. (2011) [Emergency Medicine Journal](#) "Ketamine Sedation for Patients with Acute Agitation and Psychiatric Illness Requiring Aeromedical Retrieval" published online May 12, 2011; doi: 10.1136/emj.2010.107946

MedSTAR Lyell McEwin Hospital, South Australia, Parsch, C.; Emmerton, W.; [Ketamine use in the retrieval of psychiatric patients](#) PowerPoint Presentation

Royal Flying Doctor Service, Western Operations; Clinical Manual, Part 1 Clinical Guidelines; 7.2 Ketamine for management of acutely agitated patients; Version 7.1 2015

Royal Flying Doctor Service, Cairns, Qld; Cong, M Le; (2010) [Psychiatric aeromedical retrieval – towards best practice](#) PowerPoint Presentation

Balaratnasingam, S (2014) [Australasian Psychiatry](#) "A new clinical guideline to improve sedation safety in patient transferred under the Mental Health Act from remote parts of Western Australia" Vol 22(6) 564–568

9. Related Forms

[MR12A WACHS Sedation Assessment Tool](#)

10. Related Policy Documents

WACHS [Sedation for Mental Health Patients Awaiting Aeromedical Transfer](#)

11. Appendices

Appendix A – [MR12A WACHS Sedation Assessment Tool](#)

Appendix B – [Flowchart Ketamine Protocol for Agitated Patients](#)

12. Policy Framework

[Mental Health Policy Framework](#)

**This document can be made available in alternative formats
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Appendix A

MR12A WACHS Sedation Assessment Tool *

Rousability Score

- 0 = None Alert Awake
 - 1 = Mild Occasionally drowsy
 - 2 = Moderate = Frequently drowsy (rousable to voice)
 - 3 = Difficult to rouse (rousable to pain / stimulus)
 - 4 = Unconscious / unrousable
-

Procedure for SAT Assessment

1. Patients need to be scored **at a minimum** every hour. Document the exact time of observation
2. **Place a "•" in the area the patient is scoring / an "X" if the patient is asleep / an "S" if sedated**
3. Document interventions by letter at the appropriate time and record actual intervention on page 2.
4. Patients do not have to exhibit all the behaviours applicable to a particular score
5. Initial for each action / intervention (both RN and companion).

Appendix B

Flowchart Ketamine Protocol for Agitated Patients

