



This Patient Group Direction (PGD) must only be used by Critical Care Paramedics (CCPs) who have been named and authorised by their organisation to practice under it. The most recent and in-date final signed version of the PGD must be used.

Patient Group Direction

for the administration of

KETAMINE

by Critical Care Paramedics for

Procedural sedation

in South East Coast Ambulance Service NHS Foundation Trust

Date Issued:	██████████
Issued By:	██████████
PGD Reference:	PGD-CCP002
Review Date:	██████████
Expiry Date:	██████████

Upon issue of this version of the PGD, all previous versions must be removed from use. No supply or administration may be made under the terms of this PGD after the expiry date above.



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

Change history

Version number	Change details	Date
0.01		23/05/2017
0.02		23/05/2017
0.03		06/06/2017
0.04		07/07/2017
1.00		21/07/2017
1.01		15/03/2019
2.00		09/07/2019
2.01		20/02/2020
2.02		28/02/2020
2.03		10/03/2020
3.00		21/04/2020
3.01		01/05/2020
3.02		09/09/2020
3.03		14/01/2021
3.04		18/02/2021
3.05		19/02/2021
3.06		23/02/2021
4.00		05/05/2021
4.01		21/07/2023
4.02		25/07/2023
5.00		02/08/2023
5.01		09/03/2026
5.02		10/04/2026
6.00		13/05/2026

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

PGD development

Job title and organisation	Name	Date
Lead HCP	[REDACTED]	14/02/2020
Lead Doctor	[REDACTED]	
Lead Pharmacist	[REDACTED]	
Other HCPs involved in development/ review	[REDACTED]	09/09/2020

PGD Authorisation

Organisational Authorisation	[REDACTED] [REDACTED] [REDACTED] [REDACTED]
Senior Pharmacist	[REDACTED] [REDACTED] [REDACTED] [REDACTED]
Senior Representative of Profession Using this PGD	[REDACTED] [REDACTED] [REDACTED] [REDACTED]
Senior Doctor	[REDACTED] [REDACTED] [REDACTED] [REDACTED]

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

Training and competency of Critical Care Paramedics

	Requirements of registered Paramedics working under the PGD
Qualifications and professional registration	Professional registration with HCPC as a Paramedic. And Current contract of employment with SECAmb and Authorised to practice as a Critical Care Paramedic (CCP).
Initial training	CCPs must have undertaken appropriate training and demonstrated the competencies in the clinical application of this medicine, including clinical assessment, knowledge of the indicated conditions, knowledge of the applied pharmacology. CCPs must be competent to recognise and treat unintended but expected side effects including loss of airway reflexes, respiratory depression and anaphylaxis.
Competency assessment	The CCP must meet the requirements of the prevailing level of education required for PGD use at this level of practice. This CCP must have awareness of the Trust's SOPs for medicine management and PGD use. The CCP must complete the Trust PGD e-learning. The CCP must take and pass the relevant PGD exam (Parapass quiz) before authority to use this PGD is granted.
Ongoing training and competency	Maintain ongoing competence and currency in line with the Critical Care Clinical Currency Procedure. All ongoing regular training requirements (e.g. statutory and mandatory training) as required by the Trust for this role must be completed. The clinician is responsible for keeping him/herself aware of any changes to the recommendations for the medicine listed. It is the responsibility of the individual to keep up to date with continued professional development and to work within the limitations of their own individual scope of practice. Ensure compliance to Trust policies and process relating to medicines.

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

Clinical Condition

Clinical condition or situation	Life or limb threatening conditions that require sedation for emergency care. Provision of humanitarian care in order to facilitate necessary clinical interventions. Management of the undifferentiated cerebrally agitated patient (not including acute behavioural disturbance).
Inclusion criteria	Patients who require analgesia and sedation to facilitate a life or limb saving intervention. Or Patients who require analgesia and sedation to facilitate clinical interventions, e.g. packaging, splinting, extrication. Or Patients who are unmanageable due to agitation after suffering undifferentiated illness/injury. Or Signs of resuscitation induced consciousness or awareness in cardiac arrest. In patients under 12 years of age, consideration should be given to discussing the case with the senior on call clinician. Another trained pre-hospital care provider competent in airway management must be present at the scene.
Exclusion criteria	• Known allergy to ketamine or any of the excipients (sodium chloride, benzethonium chloride, water for injections) • Patients who remain trapped where safe airway management and monitoring cannot be maintained • Patients who cannot be positioned for airway management for procedural sedation • Where minimum standards of vital sign monitoring (SpO₂, NIBP, ECG, EtCO₂) is not available. • Agitation secondary to acute behavioural disturbance/excited delirium • Pre-eclampsia • Eclampsia
Cautions (including any relevant action to be taken)	In the following patients' groups consider lower or less frequent doses and slower administration: • Increased risk of hypertension and tachycardia in patients with hyperthyroidism or receiving thyroid replacement.

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

	- Increased risk of laryngospasm in patients with respiratory tract infection. - In patients with liver disease, a prolonged duration of action may be seen. - Increased myocardial oxygen consumption may exacerbate hypovolaemia and dehydration, and known cardiac disease, including mild to moderate hypertension and tachyarrhythmias. - Known barbiturate or narcotic consumption. - Chronic alcoholics or acute alcohol intoxication. - Epilepsy – use with caution if history of seizures or uncontrolled epilepsy. Use with caution in the following patient groups: - Acute porphyria - Intracranial mass lesions - Hydrocephalus - Severe cerebrovascular disease - Known history of psychosis or hallucinations - Frail, elderly and young children
Pregnancy and breast feeding	In situations where sedation is required and alternative options are unsuitable or inadequate, the clinical benefit to the mother outweighs any potential theoretical risk to the foetus. Ketamine crosses the placenta and theoretical risks to the foetus cannot be completely excluded. Some neonates exposed to ketamine at maternal intravenous doses ≥ 1.5 mg/kg during delivery have experienced respiratory depression and low Apgar scores requiring newborn resuscitation. There have also been marked increases in maternal blood pressure and uterine tone have been observed at intravenous doses greater than 2 mg/kg.
Arrangements for referral for medical advice	Patients who receive ketamine should be conveyed to the nearest appropriate hospital or handed over to an enhanced care team who are able to manage a patient who has had ketamine administered. Some patients may be suitable for handover to a paramedic, in line with the Ketamine Handover document. The receiving clinical team must be verbally informed, and the patient record should clearly show: - The time of administration. - The dose administered. - Whether the patient had capacity to provide informed consent.
Action to be taken if patient excluded	Consider other analgesic agents. Consider seeking senior advice to discuss options.

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE

10mg per mL injection

KET

POM
CD2

Action to be taken if patient declines treatment	Ensure the patient understands the information and rationale for the proposed administration and is therefore able to make an informed choice. Offer other analgesic agents if appropriate. It is likely in the context of life or limb-threatening conditions that require sedation for emergency care the patient may not be able to make an informed choice. Therefore, the CCP should act in the best interests of the patient at all times.
---	---

Details of medication

Name, form and strength of medicine	Ketamine 10mg/mL solution for injection																																					
Legal category	POM CD Schedule 2																																					
Route/method of administration	Intravenous injection Intraosseous injection																																					
Dose and frequency	Estimate the patient's weight. (In patients under 12 years of age, refer to JRCALC 'page for age', or the dosing table below) Initial bolus dose of 0.5mg/kg IV or IO; in shocked, frail or elderly patients or in patients where caution exists, consider starting at 0.25mg/kg Followed by repeated boluses of 0.5mg/kg as required, titrated to effect, allowing time for the drug to have effect (0.25mg/kg in the shocked, frail or elderly patient). In patients under 12 years of age, consideration should be given to discussing the case with the senior on call clinician. <table><tr><th>Age</th><th>Weight</th><th>Initial Bolus Dose 0.5mg/kg</th><th>Volume (not diluted)</th><th rowspan="8">Reassess: may repeat by titrated aliquots to achieve and maintain desired effect.</th></tr><tr><td>Birth</td><td>3.5kg</td><td>1.5mg</td><td>0.15mL</td></tr><tr><td>3mths</td><td>6kg</td><td>3mg</td><td>0.3mL</td></tr><tr><td>6mths</td><td>8kg</td><td>4mg</td><td>0.4mL</td></tr><tr><td>12mths</td><td>10kg</td><td>5mg</td><td>0.5mL</td></tr><tr><td>18mths</td><td>11kg</td><td>5.5mg</td><td>0.55mL</td></tr><tr><td>2yrs</td><td>12kg</td><td>6mg</td><td>0.6mL</td></tr><tr><td>3yrs</td><td>14kg</td><td>7mg</td><td>0.7mL</td></tr><tr><td>4yrs</td><td>16kg</td><td>8mg</td><td>0.8mL</td></tr></table>	Age	Weight	Initial Bolus Dose 0.5mg/kg	Volume (not diluted)	Reassess: may repeat by titrated aliquots to achieve and maintain desired effect.	Birth	3.5kg	1.5mg	0.15mL	3mths	6kg	3mg	0.3mL	6mths	8kg	4mg	0.4mL	12mths	10kg	5mg	0.5mL	18mths	11kg	5.5mg	0.55mL	2yrs	12kg	6mg	0.6mL	3yrs	14kg	7mg	0.7mL	4yrs	16kg	8mg	0.8mL
Age	Weight	Initial Bolus Dose 0.5mg/kg	Volume (not diluted)	Reassess: may repeat by titrated aliquots to achieve and maintain desired effect.																																		
Birth	3.5kg	1.5mg	0.15mL																																			
3mths	6kg	3mg	0.3mL																																			
6mths	8kg	4mg	0.4mL																																			
12mths	10kg	5mg	0.5mL																																			
18mths	11kg	5.5mg	0.55mL																																			
2yrs	12kg	6mg	0.6mL																																			
3yrs	14kg	7mg	0.7mL																																			
4yrs	16kg	8mg	0.8mL																																			

Reference Number: PGD-CCP002

Review date: 01/12/2028

Valid from: 01/06/2026

Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

	5yrs	19kg	9mg	0.9mL		
	6yrs	22kg	11mg	1.1mL		
	7-8yrs	25kg	12.5mg	1.25mL		
	9-10yrs	30kg	15mg	1.5mL		
	11yrs	35kg	17.5mg	1.75mL		
	40kg – 49kg		20mg	2mL		
	50kg – 59kg		25mg	2.5mL		
	60kg - 69kg		30mg	3mL		
	70kg – 79kg		35mg	3.5mL		
	80kg – 89kg		40mg	4mL		
	90kg -99kg		45mg	4.5mL		
	100kg+		50mg	5mL		
Titration to effect						
When administering intravenous conscious sedation, the initial drug dose should be determined by careful pre-assessment of the patient and any relevant history, and this dose must have taken full effect before any additional dose is given.						
Subsequent doses, if necessary, should be carefully titrated to achieve the desired effect. Safe sedation demands knowledge of each drug's time of onset, peak effect and duration of action. In principle, titrating a drug(s) to optimal effect is critical to safely achieving a recognised sedation endpoint, thereby avoiding inadvertent over-sedation or general anaesthesia.						
Time between doses reflect:						
• Onset: approx.30–60 seconds • Peak effect: approx. 1–2 minutes • Duration of dissociative sedation: approx.5–10 minutes • Recovery time: usually 10–20 minutes depending on dose and patient factors						
After successful completion the intervention consider multimodal analgesia as appropriate.						
Quantity to be administered and/or supplied	All patients					
	200mg/20mL should be drawn into labelled 20mL syringe (10mg/mL)					
	A syringe cap should then be fitted.					

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

	For doses below 20mg (2mL volume), the appropriate volume of 10mg/mL solution should be drawn/decanted into a 1mL or 2mL syringe to facilitate safe administration of smaller volumes.
Maximum or minimum treatment period	Administer over 30-60 seconds.
Administration details	Ketamine should be double checked to ensure the medication being drawn up is ketamine 10mg/mL and is in date. Administer over 30 to 60 seconds to reduce risk of side effects. After administration, flush with 0.9% sodium chloride. All patients must be fully monitored including EtCO₂, SpO₂, ECG and BP. If monitoring is not possible prior to administration, then it should be performed as soon as practicable afterwards. Resuscitation equipment should always be available and accompany the patient. As a minimum this must include a suction device, BVM, airway adjuncts.
Adverse effects	Common side effects (more than 1 in 100 but less than 1 in 10) • Emergence reaction: (e.g. hallucinations, abnormal dreams, nightmares, confusion, agitation, abnormal behaviour) • Nystagmus • Hypertonia • Tonic-clonic movements • Diplopia • Increased blood pressure • Increased heart rate • Increased respiratory rate • Nausea and vomiting (up to 10% incidence) • Erythema • Morbilliform rash (up to 10% incidence) • Hypersalivation Uncommon (more than 1 in 1000 but less than 1 in 100) • Anorexia • Anxiety • Bradycardia • Arrhythmia • Hypotension • Respiratory depression • Laryngospasm • Injection site pain or rash

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

	Rare (more than 1 in 10,000 but less than 1 in 1000) • Anaphylaxis • Delirium, flashback, dysphoria, insomnia, disorientation • Obstructive airway disorder • Apnoea • Cystitis / haemorrhagic cystitis Unknown frequency • Raised intraocular pressure
Record to be kept	• Record that valid, informed consent was given by the patient. • In cases where the patient lacks mental capacity, a record of how mental capacity was assessed and how the administration of this medicine was in the best interest of the patient. • CAD incident number. • Patient's name, address, date of birth • Contact details of GP (if registered) • Diagnosis or working diagnosis • Dose given and route given by • Patient weight • Time of administration • Advice given to patient • Signature and name of staff who administered medication • Details of any adverse reactions and action taken
Indicate any off-label use (if relevant)	Ketamine is licensed as an anaesthetic agent. Its use for procedural sedation may fall outside the terms of the marketing authorisation; however, this use is supported by national guidance and published evidence and is considered clinically appropriate when administered by trained clinicians with appropriate monitoring. <i>Use in children may fall outside the product licence depending on the specific preparation used. Where used outside the marketing authorisation, a documented risk–benefit assessment has been undertaken.</i>

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

Patient information

Written information to accompany the patient	The patient record must show: • The name and strength of the medicine administered. • The dose administered. • The time of administration. • The effect (intended or unintended) of medications administered The patient record must demonstrate that informed patient consent has been gained. If the patient lacks mental capacity a record of how the administration of the medicine is in the best interest of the patient. In cases where the patient has mental capacity: • Consent had been gained for IV access and to administer medication. • The patient must be informed why treatment is required and what the intended effects of the medication are • Potential side-effects of the medication must be explained
Follow-up advice to be given to patient or carer	Patients who received ketamine should be conveyed to the nearest appropriate hospital or handed over to an enhanced care team able to manage a patient with ketamine as an analgesia. The receiving clinical team must be verbally informed and the patient record should clearly show: • The name and strength of the medicine administered. • The dose administered. • The time of administration. • Whether patient had capacity to provide informed consent.

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029



Patient Group Direction for Critical Care Paramedics

KETAMINE 10mg per mL injection	KET	POM CD2
--	-----	------------

Appendices

Appendix A Key references

1. **Pfizer Limited.** *Ketalar 10 mg/ml Injection: Summary of Product Characteristics.* electronic Medicines Compendium (emc). Accessed 9 March 2026.
2. **NICE.** *Ketamine.* British National Formulary (BNF). Accessed 9 March 2026.
3. **NICE.** *Patient group directions.* Medicines practice guideline [MPG2]. London: National Institute for Health and Care Excellence; published 2 August 2013, last updated 27 March 2017. Accessed 9 March 2026.
4. **Specialist Pharmacy Service.** *Introduction to PGDs.* Published 12 February 2024; last updated 25 November 2025. Accessed 9 March 2026.
5. **Specialist Pharmacy Service.** *How to develop a Patient Group Direction.* Published 9 June 2022; last updated 3 June 2025. Accessed 9 March 2026.
6. **JRCALC.** *JRCALC Clinical Guidelines.* Current guideline platform and 2025 updates. Joint Royal Colleges Ambulance Liaison Committee. Accessed 9 March 2026.
7. **Royal College of Emergency Medicine.** *Procedural Sedation in the Emergency Department.* London: RCEM; current online guidance document. Accessed 9 March 2026.
8. **Royal College of Emergency Medicine.** *Pharmacological Agents for Procedural Sedation and Analgesia in the Emergency Department.* London: RCEM; revised 2021. Accessed 9 March 2026.
9. **Royal College of Emergency Medicine.** *Ketamine Procedural Sedation for Children in the Emergency Department.* London: RCEM; February 2020. Accessed 9 March 2026.
10. **European Resuscitation Council.** *ERC Guidelines 2025.* European Resuscitation Council; 2025. Accessed 9 March 2026.
11. **Bredmose PP, Lockey DJ, Grier G, Watts B, Davies G.** Pre-hospital use of ketamine for analgesia and procedural sedation. *Emergency Medicine Journal.* 2009;26(1):62–64.
12. **Mental Capacity Act 2005.** UK legislation. Accessed 9 March 2026.
13. **Department of Health / Ministry of Justice.** *Mental Capacity Act Code of Practice.* Accessed 9 March 2026.
14. **Department of Health and Social Care.** *Making decisions: a guide for people who work in health and social care.* Updated 23 June 2025. Accessed 9 March 2026. <https://www.lawsociety.org.uk/Support-services/documents/Deprivation-of-liberty---chapter-4---hospital-setting/>

Reference Number: PGD-CCP002	Review date: 01/12/2028
Valid from: 01/06/2026	Expiry date: 31/05/2029