[HOSPITAL / HEALTH AUTHORITY NAME]

PROCEDURAL SEDATION, ANALGESIA, AND RECOVERY PATHWAY

Protocol 50: Patient Selection, Pre-sedation Assessment, Fasting Considerations, Staffing, Monitoring, Medication Safety, Adverse-event Rescue, Recovery, and Discharge

DRAFT FOR EMERGENCY MEDICINE, ANAESTHESIA, CRITICAL CARE, PAEDIATRICS, ORTHOPAEDICS, SURGERY, NURSING, PHARMACY, RESPIRATORY THERAPY, AMBULANCE / TRANSFER SERVICES, AND CLINICAL GOVERNANCE

STATUS: This is a draft clinical-governance document. It must be adapted to local staffing, credentialing, medicines and concentrations, paediatric capability, airway-rescue resources, monitoring, fasting policy, recovery area, discharge instructions, legal requirements, and referral / transfer capacity before approval.

SEDATION SAFETY RULE: Sedation is a continuum. The team must be able to rescue the patient from a deeper level than intended. Do not begin unless a dedicated sedation clinician, trained nurse, proceduralist, oxygen, suction, waveform capnography, airway equipment, reversal / resuscitation medicines, and a recovery plan are immediately available.

Document control	Details
Document owner	Emergency Department / Medical Services Directorate / Anaesthesia / Paediatrics / Nursing Services / Pharmacy / Clinical Governance
Clinical leads	Emergency Medicine; Anaesthesia; Critical Care; Paediatrics; Orthopaedics / Surgery; Pharmacy; Nursing; Respiratory Therapy; Ambulance / Transfer Services
Applies to	Children older than the locally approved minimum age, adolescents and adults receiving minimal, moderate, deep or dissociative sedation for urgent diagnostic or therapeutic procedures in the Emergency Department.
Exclusions	Neonatal sedation; sedation solely for behavioural control; routine analgesia without sedation; intubated patients; general anaesthesia outside an approved anaesthesia pathway; elective theatre sedation.
Interfaces	Protocols 1-8; Protocol 29 Poisoning; Protocol 34 Limb Injury; Protocol 37 Eye / ENT / Dental Emergencies; Protocol 40 Paediatric Assessment; Protocol 42 Behavioural Emergency; Protocol 48 Emergency Airway; Protocol 51 Capacity and Refusal.
Version / status	Draft 1.0 for local multidisciplinary validation
Approval date / review	Approval: _____ Review: _____ Earlier review after serious adverse event, medication / equipment change, or guideline update.
Supersedes	New protocol / local sedation policies to be reconciled before approval.

1. Purpose

To provide a standardized emergency-department pathway for selecting appropriate patients and procedures; integrating analgesia and non-pharmacological support; performing a complete pre-sedation risk assessment; applying safe staffing, monitoring and medicine practices; recognizing and rescuing sedation-related complications; and ensuring structured recovery, discharge, admission, transfer, documentation and quality review.

2. Scope

- Applies from the decision to perform procedural sedation through consent, preparation, procedure, recovery, discharge or admission / transfer.
- Includes painful and non-painful urgent procedures such as fracture or dislocation reduction, wound care, foreign-body removal, cardioversion, abscess drainage, imaging, and other procedures approved by local governance.
- Does not replace local anaesthesia, nerve blocks, topical analgesia, distraction, positioning, splinting, oral / intranasal analgesia or other less invasive options. Use the least restrictive and least physiologically disruptive technique that will achieve humane and effective care.
- Rapid tranquillisation for acute behavioural disturbance follows Protocol 42 and must not be relabelled as procedural sedation.
- Exact medicine doses, concentrations, repeat intervals, maximum cumulative doses, contraindications and reversal instructions must be maintained in a separately controlled pharmacy-approved sedation order set.

3. Core policy statements

1. Procedural sedation is a planned clinical intervention with defined indication, target depth, rescue plan, recovery endpoint and accountable team.

2. Treat pain with analgesia. Sedation does not replace local anaesthesia, regional techniques or adequate post-procedure pain control.

3. Sedation depth can change rapidly. Every clinician administering sedation must be able to recognize and rescue airway obstruction, apnoea, laryngospasm, hypoventilation, hypotension and unintended general anaesthesia.

4. For parenteral moderate, deep or dissociative sedation, one clinician is solely responsible for sedation and monitoring, a second clinician performs the procedure, and a trained nurse supports and records. Monitoring equipment does not replace skilled staff.

5. Continuous waveform capnography, pulse oximetry, ECG and intermittent blood pressure are the default for parenteral moderate, deep and dissociative sedation and continue through recovery until step-down criteria are met.

6. Do not delay an urgent ED procedure solely to satisfy elective fasting intervals. Record last oral intake and perform an individualized aspiration-risk assessment. Defer or seek anaesthesia support when the procedure is non-urgent and risk is unacceptable.

7. Use a standardized pre-sedation assessment, checklist, time-out and time-based record. Document all medicines, including prehospital opioids, sedatives, alcohol and recreational substances.

8. Titrate one agent or a rational combination in small increments to clinical effect. Allow adequate onset time before redosing and reduce doses for frailty, older age, cardiorespiratory disease, shock, co-administered depressants and impaired clearance.

9. Reversal agents do not substitute for airway support. After naloxone or flumazenil, continue prolonged observation for re-sedation and do not discharge before the locally approved minimum interval.

10. Recovery requires the same vigilance as the procedure. A dedicated trained clinician or nurse remains responsible until airway, ventilation, circulation, consciousness and function return to an acceptable baseline.

11. No patient leaves without documented discharge criteria, responsible supervision where required, written instructions, analgesia and follow-up, and advice about delayed deterioration.

12. All significant adverse events, unplanned airway interventions, reversal-agent use, failed procedures, unplanned admission and transfer delays are reviewed through the sedation governance programme.

4. Definitions and clinical framework

Term	Operational meaning
Minimal sedation	Normal response to verbal command; airway, ventilation and cardiovascular function are unaffected, although coordination and cognition may be impaired.
Moderate sedation	Purposeful response to verbal or light tactile stimulation; airway intervention is not usually required; spontaneous ventilation and cardiovascular function are usually maintained.
Deep sedation	Not easily aroused but responds purposefully after repeated or painful stimulation; airway support may be required and spontaneous ventilation may be inadequate.
Dissociative sedation	Ketamine-induced trance-like state with profound analgesia and amnesia, usually retaining spontaneous breathing and protective reflexes, but laryngospasm, apnoea and other complications remain possible.
General anaesthesia	Unarousable even with painful stimulus, with frequent loss of airway reflexes and need for ventilatory support; outside routine ED procedural sedation unless delivered through an approved anaesthesia pathway.
Sedationist	Credentialed clinician responsible only for sedation strategy, medication administration or direction, physiological monitoring, rescue and recovery handover during the procedure.
Proceduralist	Clinician performing the diagnostic or therapeutic procedure and not simultaneously responsible for parenteral moderate / deep / dissociative sedation.
Recovery	Period from the last sedative dose until the patient meets documented step-down and discharge / admission criteria without ongoing sedation-related support.
Adverse event	Any unexpected airway, respiratory, cardiovascular, neurological or behavioural event, reversal-agent use, procedure interruption, unplanned admission, intubation or other rescue intervention.

5. Roles and accountability

Role	Minimum responsibility
Sedation lead	Own local policy, credentialing, paediatric standards, approved medicines, audit, adverse-event review, simulation and interface with anaesthesia / critical care.
Senior decision maker	Confirm indication, urgency, suitability, staffing, location, fasting / aspiration risk, escalation plan and whether anaesthesia / paediatric support is required.
Sedationist	Complete assessment, select target depth / agent, lead briefing, administer / direct medicines, continuously assess airway and ventilation, manage complications and authorize recovery step-down.
Proceduralist	Confirm procedure, consent, equipment and technical readiness; provide local / regional analgesia; stop immediately if asked by the sedationist; document outcome and complications.
Sedation nurse / monitor	Prepare equipment and medicines, verify doses, record observations at required intervals, assist airway rescue, maintain recovery observation and apply discharge checklist.
Airway rescue clinician	Immediately available according to patient risk and local standard; capable of advanced airway management, neuromuscular blockade and post-intubation care.
Pharmacy	Maintain standardized concentrations, labelling, controlled-drug governance, approved dose / reversal charts and medication-event review.
Recovery clinician / nurse	Receive structured handover, continue monitoring, recognize re-sedation or delayed events, document recovery and escalate failure to meet criteria.

6. Required readiness

Resource	Required local standard
Location	Designated resuscitation / procedure room with space for full access to patient, lighting, trolley capable of positioning, immediate help call and no competing unsafe workload.
Monitoring	Continuous waveform capnography, pulse oximetry and ECG; non-invasive BP; respiratory rate; sedation / responsiveness score; clock or event timer; paediatric age-appropriate equipment.
Oxygen / ventilation	High-flow oxygen, nasal cannula, non-rebreather, self-inflating bag with reservoir and PEEP capability, masks, oral / nasal airways, suction and backup oxygen supply.

Resource	Required local standard
Advanced airway	Supraglottic airways, laryngoscopy / videolaryngoscopy, tracheal tubes, bougie / stylet, difficult-airway and emergency front-of-neck access equipment consistent with Protocol 48.
Circulation	IV / IO equipment, fluids, defibrillator / pacing, ECG, vasopressors and age / weight-appropriate resuscitation medicines.
Sedation medicines	Approved sedatives, analgesics, local anaesthetic, antiemetic where indicated, naloxone and flumazenil; standardized concentrations and labels; separate syringes unless an approved combination is used.
Recovery	Monitored area with trained staff, oxygen, suction, airway equipment, written criteria, responsible adult / transport process and ability to prolong observation or admit.
Documentation	Pre-sedation assessment, consent, checklist, medicine record, five-minute observation chart, adverse-event record, recovery / discharge criteria and patient information leaflet.

7. Candidate selection, risk stratification and escalation

Finding / risk	Action
ASA I-II, stable physiology, suitable procedure, predictable brief sedation	May proceed with credentialed ED team, approved agent, full monitoring and rescue readiness.
ASA III, significant OSA, obesity, frailty, pregnancy, active respiratory disease, severe reflux, difficult airway, multiple depressants, renal / hepatic impairment	Senior individualized decision; dose reduction and enhanced plan; discuss anaesthesia / critical care or paediatrics when risk exceeds local competence.
ASA IV-V, shock, ongoing hypoxaemia, severe acidosis, unstable arrhythmia, raised intracranial pressure, impending airway compromise	Not routine ED sedation. Stabilize and use anaesthesia / critical-care pathway; if life-saving procedure cannot wait, treat as a high-risk airway / resuscitation event.
Expected difficult mask ventilation or intubation, upper-airway pathology, severe trismus, facial / neck trauma	Seek anaesthesia / ENT support; consider alternative technique or operating-theatre environment. Do not sedate until rescue strategy and equipment are explicit.
Non-urgent procedure with unacceptable aspiration risk or inadequate staffing / monitoring	Defer, use an alternative technique, or move to a more appropriate setting.
Child below local minimum age, developmental complexity, significant congenital / respiratory / cardiac disease, or previous sedation complication	Senior paediatric and anaesthesia input according to local policy. Adult dosing and adult rescue assumptions must never be used.
Uncooperative patient without valid consent or emergency authority	Assess capacity, best interests and legal basis under Protocol 51. Sedation must not be used merely for convenience or coercion.

8. Pre-sedation assessment

Domain	Minimum assessment and documentation
Procedure and target	Indication, urgency, expected pain / duration / immobility, target depth, alternative approaches, proceduralist and likely need for repeated manipulation.
History	Previous anaesthesia / sedation problems, difficult airway, OSA / snoring, reflux / aspiration, allergies, comorbidities, pregnancy, medications, anticoagulants and recent illness.
Substances and prior medicines	Opioids, benzodiazepines, antihistamines, alcohol, cannabis and other drugs; include prehospital and ED doses with time and cumulative total.
Airway	Mouth opening, dentition, facial / neck anatomy, mobility, obesity, trauma, swelling, secretions, stridor, baseline voice and ability to lie supine.
Physiology	Weight in kilograms, baseline consciousness, pulse, BP, RR, SpO2, temperature when relevant, pain score, glucose if indicated and cardiorespiratory examination.
ASA / risk	Assign physical-status class and identify physiological or anatomical reasons why rescue may be difficult.
Fasting / aspiration	Time and type of last oral intake; vomiting, obstruction, GI bleeding, pregnancy, reflux, obesity, reduced consciousness and planned airway manipulation.
Consent / communication	Capacity, consent / assent, interpreter need, parent / guardian, expected amnesia, common adverse effects, alternatives, possible failure, conversion to anaesthesia and discharge restrictions.
Plan	Agent, route, initial and repeat dose, maximum, analgesia / local anaesthetic, oxygen strategy, positioning, rescue plan, recovery destination and disposition contingency.

9. Fasting and aspiration-risk decision

- Record the last oral intake for every patient; fasting is one factor in a broader risk assessment, not a binary permission test.
- Do not delay urgent or emergency ED procedural sedation solely because elective fasting intervals have not been met. Balance the urgency and harm of delay against patient factors, intended depth, agent, positioning and procedure.
- For elective or safely deferrable procedures, follow the locally approved fasting standard and consider anaesthesia referral for high-risk patients.
- Risk-reduction options include head-up or lateral positioning where compatible with the procedure, immediate suction, minimal effective depth, avoiding unnecessary opioid / sedative combinations, maintaining spontaneous ventilation, and choosing a setting with advanced airway support.
- Active vomiting, bowel obstruction, major upper GI bleeding, severe depressed consciousness, an unprotected airway or likely need for airway manipulation should trigger senior anaesthesia / airway planning rather than routine sedation.

FASTING RULE: “Not fasted” is not by itself a reason to deny urgent humane care; “fasted” is not proof that sedation is safe. Document the individualized decision and rescue plan.

10. Analgesia, anxiolysis and alternatives before sedation

Strategy	Practical use
Explanation and environment	Use clear stepwise explanation, privacy, calm staff, reduced noise, comfortable positioning and a visible plan. Avoid last-minute surprises.
Children and neurodivergent patients	Use caregiver presence when helpful, distraction, play / video, child-life techniques, topical anaesthetic, intranasal analgesia and developmentally appropriate language.
Local anaesthesia	Use topical, infiltration, field block, digital block, haematoma block or other approved technique. Respect maximum weight-based local-anaesthetic doses.
Regional analgesia	Use ultrasound-guided or landmark blocks only by trained clinicians with monitoring and local-anaesthetic systemic-toxicity rescue capability.
Systemic analgesia	Treat pain before sedation and allow onset. Reassess after opioids before adding sedatives; combined agents have synergistic respiratory effects.
Procedure modification	Splinting, traction, positioning, staged approach, smaller instruments, alternate imaging or specialist assistance may avoid deeper sedation.
No sedation	Proceed without sedation only when the patient agrees and analgesia / support are sufficient; never withhold humane pain relief to reduce workload.

11. Choosing the sedation strategy

Clinical need	Possible approach and cautions
Anxiolysis for minor brief procedure	Non-pharmacological support, local anaesthesia and minimal sedation. Ensure transport / supervision restrictions remain appropriate.
Painful procedure requiring immobility	Dissociative ketamine or titratable deep sedation may be appropriate; provide local / regional analgesia when useful and plan airway rescue.
Very brief procedure with need for rapid awakening	Short-acting titratable agent by a clinician credentialed for deep sedation; expect apnoea / hypotension and prepare before dosing.
Cardioversion	Provide analgesia / amnesia using approved brief deep-sedation pathway, full monitoring and immediate airway / cardiovascular rescue.
Haemodynamic compromise	Correct reversible shock first. Avoid routine deep sedation; seek anaesthesia / critical care. All sedatives can precipitate collapse in physiologically fragile patients.
Significant respiratory disease / OSA	Use the least respiratory-depressant strategy, optimize respiratory status, consider ketamine or regional techniques, and ensure prolonged monitored recovery.
Need for prolonged procedure or repeated deep doses	Consider theatre / anaesthesia rather than stretching an ED sedation beyond local competence and recovery capacity.
Failed or inadequate sedation	Stop, reassess pain, diagnosis, drug onset and procedure; do not rapidly stack doses. Escalate technique, specialist support or setting.

12. Monitoring, oxygen and the time-based record

Phase	Required standard
Baseline	Document identity, weight, ASA, airway, fasting / aspiration assessment, pain and sedation score, pulse, BP, RR, SpO2, ECG rhythm and relevant examination.
Before first dose	Apply monitors, verify waveform capnography, confirm IV access when required, test suction / bag-mask ventilation, set alarms, preoxygenate when indicated and complete time-out.
During sedation	Continuous direct observation, pulse oximetry, waveform capnography and ECG; BP, respiratory rate, responsiveness / sedation depth and pain at least every 5 minutes and after each dose or intervention.
Oxygen	Use supplemental oxygen according to risk and local policy; do not allow normal SpO2 on oxygen to obscure hypoventilation. Capnography and direct observation remain essential.
Procedure end	Record last painful stimulus, last sedative / analgesic dose, procedural success, airway / circulatory interventions and transition to recovery.
Recovery	Continue the same monitoring and staffing until awake / baseline and no longer requiring sedation-related oxygen or support; then step down only by documented criteria.
Documentation	Record drug, concentration, dose, route, time, prescriber / administrator, physiological response, ETCO2 waveform / value, adverse events and interventions in real time.

13. Medication safety and common agents

MEDICATION CONTROL: The table below describes common roles and risks. The approved local medicine chart is the prescribing authority and must state weight bands, concentrations, initial / repeat doses, maximum cumulative doses, onset, contraindications and reversal. Reduce doses and extend intervals in frail or physiologically compromised patients.

Agent / technique	Role, key risks and safeguards
Ketamine	Dissociative sedation with analgesia and amnesia; IV and IM routes. Expect nystagmus, salivation, vomiting, hypertension / tachycardia and emergence phenomena. Rare apnoea or laryngospasm requires immediate rescue. Give IV slowly and avoid rapid dose stacking.
Propofol	Rapid-onset, short-duration hypnosis / amnesia without analgesia. Predictable respiratory depression, apnoea and hypotension; use only with deep-sedation credentialing, full airway readiness and separate analgesia when procedure is painful.
Midazolam	Anxiolysis, sedation and amnesia; slow, variable effect and prolonged recovery, especially in older, obese, renal / hepatic or co-medicated patients. Respiratory depression is potentiated by opioids.

Agent / technique	Role, key risks and safeguards
Fentanyl / opioid	Analgesia; titrate before sedative and allow onset. Can cause respiratory depression, bradycardia, nausea and chest-wall rigidity with rapid / excessive administration. Use lower doses when combined with sedatives.
Nitrous oxide / oxygen	Rapid anxiolysis and analgesia for selected cooperative patients using approved scavenging and delivery equipment. Avoid where trapped gas expansion, inability to hold mask, severe respiratory compromise or local contraindications apply.
Ketamine-propofol combination	May be used only under an approved local technique by clinicians trained in both agents. Do not assume the combination eliminates respiratory or cardiovascular adverse effects.
Local / regional anaesthetic	Reduces sedation requirement and improves post-procedure pain. Calculate total dose from all sources and maintain a local-anaesthetic systemic-toxicity pathway with lipid emulsion access.
Antiemetic	Not mandatory for every sedation; consider based on agent, history and procedure. It does not replace positioning, suction and aspiration preparedness.

14. Illustrative dose framework — validate locally before use

Agent	Illustrative emergency-department starting framework	Critical cautions
Adult propofol IV	Common RCEM framework: 0.5-1 mg/kg initial in suitable adults, or 10-20 mg slow increments in older / frail patients; repeat small doses after peak effect.	No analgesia; apnoea and hypotension are expected risks. Reduce substantially in shock, frailty or co-medication.
Adult ketamine IV / IM	Common RCEM framework: IV 1 mg/kg over 30-60 seconds, then 0.25-0.5 mg/kg after 5-10 minutes if needed; IM 4-5 mg/kg with a smaller repeat after 5-10 minutes.	Use a locally approved maximum. Avoid rapid IV push. Prepare for vomiting, laryngospasm and emergence reaction.
Adult midazolam IV	Common RCEM framework: 1-2 mg slowly, with cautious 1-2 mg increments only after adequate onset; much smaller doses in older / frail patients.	Prolonged / delayed respiratory depression, especially with opioids or alcohol. Do not chase effect rapidly.
Adult fentanyl IV with sedative	Common RCEM framework: up to 0.5 microgram/kg per titrated dose when combined with another sedative, allowing time for effect.	Synergistic respiratory depression. Avoid rapid bolus; track all prior opioid doses.
Paediatric ketamine IV	Common RCEM framework for children above the approved age: 1 mg/kg over 30-60 seconds; 0.5 mg/kg after 5-10 minutes if required.	Paediatric credentialing, weight in kg, age-specific equipment and full laryngospasm rescue are mandatory.
Paediatric ketamine IM	Common RCEM framework: 4-5 mg/kg; some approved pathways use lower initial doses. Repeat only under the local chart after full reassessment.	Longer and less titratable recovery; ensure safe restraint-free administration and prolonged observation where needed.
Paediatric propofol / benzodiazepine	Only under the locally approved paediatric deep-sedation pathway with age limits, specialist competence and exact pharmacy dosing.	Off-label use may apply; narrow safety margin and prolonged respiratory effects require dedicated paediatric governance.
Naloxone / flumazenil	Use the local titration chart to reverse clinically important opioid or benzodiazepine respiratory depression after immediate airway support.	Shorter duration than some agonists; re-sedation, withdrawal, seizures and loss of needed analgesia / anxiolysis are possible.

15. Pre-procedure briefing and time-out

☐ Identity, procedure, side / site, indication, urgency and consent confirmed.

☐ Weight in kilograms, ASA class, allergies, airway risk, fasting / aspiration risk and pregnancy status stated.

☐ Sedationist _____ proceduralist _____ nurse / monitor _____ airway backup _____.

☐ Target sedation depth and agent / route / dose / repeat interval / maximum stated aloud.

☐ Analgesia, local / regional anaesthetic and post-procedure pain plan confirmed.

☐ Oxygen, suction, waveform capnography, bag-mask ventilation, airway adjuncts, SAD, intubation and defibrillator checked.

☐ IV / IO plan, fluid / vasopressor and reversal medicines available.

☐ Plan for airway obstruction, apnoea, laryngospasm, vomiting, hypotension and failed procedure verbalized.

☐ Recovery location, responsible staff, discharge / admission contingency and transport plan confirmed.

☐ All team members empowered to call STOP; procedural stimulus stops immediately when the sedationist requests.

16. Conduct of sedation

1. Position and preoxygenate according to risk. Keep the face visible and maintain access to the airway whenever possible.
2. Administer analgesia and local / regional anaesthesia first when appropriate. Record time and allow expected onset.
3. Give the selected sedative slowly and titrate to the pre-stated target. Never delegate dosing to an uncredentialed person or use an unlabelled syringe.
4. After every dose, announce drug and dose, record it, assess responsiveness, ventilation waveform, respiratory rate, SpO2, BP and procedural conditions before redosing.
5. The sedationist watches the patient, not the procedure. A capnography change, loss of airway tone, apnoea or haemodynamic decline is treated immediately before the procedure continues.
6. When the procedure is complete, stop stimulation, announce the last dose and time, secure splints / dressings, reassess neurovascular status and begin formal recovery handover.

17. Adverse-event recognition and rescue

Problem	Immediate response
Airway obstruction / snoring	Stop drugs and procedure; call for help; reposition, jaw thrust / chin lift, suction, oral / nasal airway, oxygen and two-person bag-mask ventilation if inadequate.

Problem	Immediate response
Hypoventilation / apnoea	Stop stimulation and drugs; open airway; ventilate with 100% oxygen; use capnography response; consider naloxone / flumazenil only for the appropriate exposure after ventilation is established.
Laryngospasm	Remove stimulus; call airway help; suction, firm jaw thrust, 100% oxygen with CPAP / positive pressure; deepen or paralyse / intubate only by appropriately skilled clinicians when unresolved.
Bronchospasm	Oxygen, airway positioning, inhaled bronchodilator, treat anaphylaxis if suspected and escalate to ventilation / intubation if failing.
Hypotension / bradycardia	Stop sedatives, assess airway / ventilation and cause, position, IV fluid when appropriate, vasopressor / atropine according to resuscitation protocol and prepare for advanced support.
Vomiting / aspiration	Turn lateral or head-down when feasible, suction immediately, oxygenate, assess lungs and airway; intubate if unable to protect airway or oxygenate; observe / admit according to clinical course.
Emergence agitation / dysphoria	Reduce stimulation, provide calm reassurance and familiar caregiver where appropriate; correct pain, hypoxia, hypercarbia, urinary retention and other causes. Use additional sedative only for severe persistent symptoms under senior direction.
Anaphylaxis	Stop suspected agent; treat immediately with IM adrenaline and the anaphylaxis protocol; secure airway early if swelling progresses.
Local-anaesthetic systemic toxicity	Stop injection, call resuscitation / anaesthesia help, manage airway and seizures, follow the approved lipid-emulsion and modified arrest pathway.
Unintended general anaesthesia / failed ventilation	Declare event, follow Protocol 48, use SAD / intubation / eFONA pathway, and arrange critical-care admission and incident review.

RESCUE PRIORITY: Stop the procedure, call for help, open and suction the airway, oxygenate and ventilate. Do not wait for a reversal agent or a falling oxygen saturation when capnography or direct observation shows hypoventilation.

18. Recovery and step-down

- Provide a structured handover: patient / procedure, agents and cumulative doses, last dose, airway events, reversal agents, fluids, pain plan, procedural outcome and expected recovery.
- Continue direct observation, waveform capnography, pulse oximetry, ECG and BP at five-minute intervals until the patient is awake / near baseline and no longer requires sedation-related oxygen or airway support.
- After formal step-down, continue observation at locally approved intervals until discharge / admission criteria are met. Longer observation is required after IM drugs, long-acting agents, multiple depressants, significant OSA, adverse events or reversal agents.
- Children must return to their pre-sedation developmental level or as close as reasonably possible; airway patency, cardiovascular function and hydration must be satisfactory.
- Do not leave a deeply sedated or recently rescued patient with an untrained observer, in an unmonitored corridor, or during transport without appropriate monitoring and airway equipment.

19. Discharge, admission and transfer

Disposition	Minimum criteria
Discharge	Airway and cardiovascular function stable; vital signs at / near baseline; awake and appropriately responsive; protective reflexes intact; no supplemental oxygen requirement attributable to sedation; pain and nausea controlled; oral intake / hydration adequate where applicable; mobilization at baseline when relevant; responsible supervision and safe transport available.
After reversal agent	Observe for at least the locally approved period, commonly no less than 2 hours, and longer when the antagonist may wear off before the opioid / benzodiazepine. Admit if recurrent depression or uncertainty.
Paediatric discharge	Age-appropriate baseline responsiveness, stable airway / breathing / circulation, adequate hydration, caregiver understands car-seat / positioning risks and delayed re-sedation, and reliable adult supervision is available.
Admission / prolonged observation	Persistent oxygen need, abnormal vitals, repeated vomiting, aspiration concern, airway intervention, prolonged sedation, uncontrolled pain, failed procedure, significant comorbidity, no safe caregiver / transport, or clinician concern.
Transfer	Patient must meet transport-specific stability; provide monitoring, oxygen, suction, airway equipment, trained escort, complete medicine / adverse-event record and receiving-clinician acceptance.
Written advice	Provide procedure-specific follow-up, analgesia, wound / splint advice and sedation precautions. Avoid driving, alcohol, operating machinery, hazardous activity and important decisions for the locally specified period, commonly 24 hours after deep / dissociative sedation.

20. Documentation and handover

- Indication, alternatives, consent / assent, target depth, ASA class, airway and aspiration assessment, last oral intake, weight and baseline observations.
- Names and roles of sedationist, proceduralist, nurse / monitor and airway backup; location and checklist completion.
- Every medicine: generic name, concentration, dose, route, time, prescriber / administrator and cumulative amount, including prehospital treatment.
- Continuous monitoring used and five-minute observations; capnography waveform abnormalities; oxygen and positioning.
- Procedure outcome, neurovascular / clinical reassessment, complications, airway / circulatory interventions, reversal agents and response.

- Recovery handover, step-down time, discharge / admission criteria, responsible adult, written instructions, follow-up and incident report where indicated.

21. Special populations and scenarios

Population / scenario	Additional safeguards
Children	Age / development-specific preparation, weight-based medicines, caregiver participation, paediatric airway equipment, PALS / APLS competence and lower threshold for senior paediatric / anaesthesia involvement.
Older / frail adults	Use substantially smaller, slower doses; allow longer onset; anticipate hypotension, delirium and prolonged recovery; review baseline cognition, mobility, caregiver support and medication burden.
Pregnancy	Assess aspiration and aortocaval compression risk; use left uterine displacement when indicated; involve obstetrics / anaesthesia for significant gestation or instability; choose medicines by maternal benefit and fetal risk.
Obesity / OSA	Ramped position, airway adjuncts and positive-pressure rescue ready; cautious weight scalar and dose titration; prolonged recovery and no discharge while recurrent obstruction or oxygen need persists.
Renal / hepatic impairment	Reduce or avoid agents with prolonged active metabolites; extend dose intervals and recovery observation; anticipate drug interaction.
Alcohol / sedative / opioid exposure	Assume synergistic depression and uncertain dose-response. Treat intoxication / overdose first; avoid stacking medications and prepare for prolonged monitoring.
Cardiorespiratory instability	Optimize physiology and seek anaesthesia / critical care. The dose needed for unconsciousness may cause cardiovascular collapse; consider regional or local techniques.
Remote / island transfer	Do not sedate solely to facilitate transport unless medically necessary and the escort can provide full monitoring and airway rescue. Consider weather, travel time, oxygen and post-sedation observation capacity.

22. Quality indicators and audit

Indicator	Suggested measure
Assessment completion	Percentage with documented weight, ASA class, airway assessment, last oral intake, aspiration risk, consent and target depth.
Team and checklist	Percentage with named sedationist, proceduralist and nurse / monitor, completed time-out and airway rescue plan.
Monitoring	Percentage with continuous waveform capnography, pulse oximetry, ECG and BP / sedation observations at least every 5 minutes.
Medication safety	Percentage with concentration, dose, time and cumulative total recorded; dose or wrong-patient / wrong-route incidents.
Effectiveness	Procedure completion rate, repeat sedation, failed procedure and unplanned conversion to anaesthesia.
Adverse events	Airway repositioning, BVM ventilation, laryngospasm, hypotension, reversal-agent use, aspiration, intubation, cardiac arrest and unplanned admission.
Recovery	Time to recovery, prolonged recovery, observation after reversal agent and discharge-criteria completion.
Experience and equity	Patient / caregiver experience, pain relief, use of interpreters, reasonable adjustments and access across age / disability groups.
Governance	Six-monthly audit sample and 100% review of serious or sentinel events, with actions tracked to completion.

23. Training and implementation

- Credentialing must define permitted patient ages, ASA classes, target depths, agents, routes and procedures for each clinician group.
- Clinicians must demonstrate airway assessment, bag-mask ventilation, supraglottic airway use, recognition of capnography change, advanced life support and agent-specific rescue skills.
- Paediatric sedation requires documented paediatric assessment, dosing and rescue competence in addition to general sedation credentialing.
- Run at least six-monthly simulation for apnoea, laryngospasm, hypotension, vomiting / aspiration, local-anaesthetic toxicity, failed procedure and re-sedation after reversal.
- Provide standardized room setup, prefilled checklist, labelled drug trays, patient leaflets and rapid access to Protocol 48.
- Review credentialing and local medicine charts after formulary, equipment, staffing or national-guidance changes.

24. Local configuration before approval

☐ Named adult and paediatric sedation leads and 24/7 anaesthesia / critical-care / paediatric escalation contacts displayed.

☐ Credentialing matrix for minimal, moderate, deep and dissociative sedation, agents, patient ages and ASA classes approved.

☐ Minimum staffing and exception policy defined; parenteral moderate / deep / dissociative sedation requires separate sedationist, proceduralist and trained nurse.

☐ Designated sedation / recovery locations, equipment checklist and daily checking process approved.

☐ Waveform capnography available for every parenteral moderate, deep and dissociative sedation and monitored recovery.

☐ Pharmacy-approved adult / paediatric medicine and reversal charts with concentrations, dose limits and high-risk modifications approved.

☐ Fasting / aspiration-risk policy for urgent and non-urgent ED procedures approved with anaesthesia.
☐ Local age restrictions, paediatric specialist requirements and developmental-disability pathway approved.
☐ Recovery, reversal-agent observation, discharge advice, responsible-adult and transport standards approved.
☐ Adverse-event definitions, incident reporting, case review and six-monthly audit dashboard assigned to the sedation governance group.

25. Source guidance for local adaptation

Source	Key use in this protocol
Royal College of Emergency Medicine. Procedural Sedation in the Emergency Department. Best Practice Guideline, August 2022.	Governance, dedicated sedation staffing, environment, risk assessment, fasting considerations, capnography / monitoring, recovery, discharge criteria and common pharmacological frameworks.
American Academy of Pediatrics / American Academy of Pediatric Dentistry. Guidelines for Monitoring and Management of Pediatric Patients Before, During, and After Sedation, reaffirmed 2025.	Paediatric personnel, rescue capability, capnography, five-minute observations, recovery, discharge and high-risk-child safeguards.
American College of Emergency Physicians. Clinical Policy: Procedural Sedation and Analgesia in the Emergency Department.	Evidence on fasting, capnography, minimum personnel and commonly used ED agents; urgent sedation should not be delayed solely for fasting time.
American Society of Anesthesiologists. Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018; Preoperative Fasting modular update 2023.	Sedation continuum, rescue competence, monitoring, elective fasting and anaesthesia interface.
Royal College of Emergency Medicine. Ketamine Procedural Sedation for Children in Emergency Departments, 2020.	Paediatric ketamine selection, dosing framework, monitoring, laryngospasm preparedness and recovery.
Local formulary, controlled-drug policy, anaesthesia standards and national law.	Authorized medicines, concentrations, credentialing, consent, record retention, discharge restrictions and reporting requirements.

Annex A. One-page procedural-sedation workflow

Stage	Action
1. Need	Confirm procedure, urgency, alternatives, analgesia and target depth.
2. Assess	Weight, ASA, airway, physiology, comorbidity, substances / prior medicines, fasting and aspiration risk, consent.
3. Team	Sedationist + proceduralist + trained nurse; airway backup; safe ED workload and recovery capacity.
4. Prepare	Monitors including waveform capnography; oxygen, suction, BVM, SAD / intubation, IV / IO, emergency and reversal medicines.
5. Time-out	Identity, site, drug / dose / maximum, analgesia, rescue plans, recovery and disposition stated aloud.
6. Sedate	Titrate slowly; announce and record every dose; direct observation and five-minute observations.
7. Rescue	Stop procedure; airway manoeuvres, suction, oxygen, ventilation, haemodynamic support; reversal only after immediate support.
8. Recover	Same monitoring and staff until awake / baseline; structured handover and prolonged observation when indicated.
9. Dispose	Document criteria; written advice, responsible adult and follow-up; admit / transfer if recovery or safety criteria fail.
10. Learn	Report and review adverse events, unplanned airway intervention, reversal, failed procedure and admission.

Annex B. Pre-sedation checklist

☐ Patient _____ DOB _____ hospital number _____ weight _____ kg.
☐ Procedure / side / site _____ urgency _____ target depth _____.
☐ Consent / assent / emergency basis documented; interpreter / caregiver needs addressed.
☐ ASA _____ allergies _____ pregnancy status _____.
☐ Airway / OSA / difficult airway / reflux / vomiting / respiratory illness assessed.
☐ Last solids _____ last clear fluid _____ aspiration decision and mitigation documented.
☐ Prior opioids / sedatives / alcohol / drugs and cumulative doses reviewed.
☐ Sedationist _____ proceduralist _____ nurse _____ airway backup _____.
☐ Agent / concentration / initial dose / repeat / maximum verified against local chart.
☐ Analgesia / local anaesthesia / post-procedure pain plan complete.
☐ Capnography, SpO2, ECG, BP, oxygen, suction, BVM, airway adjuncts, SAD, intubation and defibrillator checked.
☐ Naloxone / flumazenil / vasopressor / anaphylaxis / local-anaesthetic-toxicity rescue available as indicated.
☐ Recovery area and staff ready; discharge / admission / transfer contingency confirmed.

Annex C. Sedation and recovery record

Time	Drug / dose / route	Responsiveness	RR / ETCO2	SpO2 / O2	HR / rhythm	BP	Pain / procedure / intervention

Time	Drug / dose / route	Responsiveness	RR / ETCO2	SpO2 / O2	HR / rhythm	BP	Pain / procedure / intervention

Annex D. Sedation adverse-event rescue card

Trigger	First actions
Capnography change / hypoventilation	STOP drugs / procedure; stimulate; airway position / jaw thrust; suction; oxygen; BVM if inadequate.
Apnoea	Call help; 100% oxygen and BVM; airway adjunct / SAD; consider appropriate reversal after ventilation; intubate if unresolved.
Laryngospasm	Remove stimulus; suction; firm jaw thrust + CPAP / positive pressure; call airway expert; deepen / paralyse / intubate if persistent.
Hypotension / bradycardia	Stop sedative; oxygenate / ventilate; position; IV fluid if appropriate; vasopressor / atropine; identify shock / anaphylaxis.
Vomiting / aspiration	Lateral / head-down if feasible; suction; oxygen / ventilate; assess need for intubation and admission.
Unintended general anaesthesia	Declare; follow difficult-airway plan and Protocol 48; admit / critical-care review; incident report.
After any significant event	Continue monitored recovery, document timeline and interventions, senior review, communicate to patient / family and complete governance report.

Annex E. Recovery and discharge checklist

☐ Last sedative _____ at _____; last opioid _____ at _____; reversal agent _____ at _____.
☐ Airway patent; protective reflexes intact; no recurrent obstruction, apnoea or vomiting.
☐ RR _____ SpO2 _____ on room air / baseline oxygen; ETCO2 / waveform acceptable.
☐ Pulse _____ BP _____ temperature if indicated _____; stable at / near baseline.
☐ Awake, appropriately responsive and returned to pre-sedation developmental / cognitive baseline.
☐ Pain controlled; nausea minimal; hydration / oral fluids adequate where appropriate.
☐ Procedure result and neurovascular / clinical reassessment documented.
☐ Reversal-agent minimum observation completed at _____; no re-sedation.
☐ Responsible adult / caregiver _____ safe transport _____.
☐ Written sedation and procedure instructions, medicines, warning signs and follow-up provided.
☐ Discharge authorized by _____ at _____ / admission or transfer destination _____.

Annex F. Local sedation medicine chart — complete and approve separately

Item	Local approved standard / location
Adult ketamine IV / IM	_____
Paediatric ketamine IV / IM and age limits	_____
Adult propofol and frailty / shock modifications	_____
Paediatric propofol authorization / dose	_____
Midazolam adult / paediatric routes and maximum	_____
Fentanyl / opioid dosing with sedatives	_____
Nitrous oxide system / contraindications	_____
Naloxone titration and observation	_____
Flumazenil titration / contraindications / observation	_____
Local anaesthetic maxima / lipid-emulsion rescue	_____
Sedation lead / anaesthesia / paediatric contacts	_____