MENTAL HEALTH SERVICE PROCEDURE COVER SHEET

Health
South Eastern Sydney
Local Health District

NAME OF DOCUMENT	Emergency Sedation Procedure – Acute Inpatient Mental Health Units
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FORMER REFERENCE(S)	Emergency Sedation Policy – Acute Inpatient Psychiatric Units – 2020
EXECUTIVE SPONSOR or EXECUTIVE CLINICAL SPONSOR	Dr Nicholas Babidge Clinical Director and Chair Mental Health National Standard 4 Committee SESLHD Mental Health Service
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POSITION RESPONSIBLE FOR THE DOCUMENT	Policy and Document Development Officer SESLHD Mental Health Service SESLHD-MentalHealth-PoliciesandDocuments@health.nsw.gov.au
FUNCTIONAL GROUP(S)	Mental Health
KEY TERMS	Emergency Sedation, Acute Inpatient Psychiatry
SUMMARY	The procedure outlines the appropriate emergency sedation procedure and post-sedation monitoring for patients aged 16 and over admitted to inpatient mental health units. The procedure is in line with up-to-date evidence.

1. POLICY STATEMENT

SESLHD Mental Health Services promotes high quality, safe, evidence-based and cost effective medicine use across all SESLHD facilities. This includes ensuring consistent and safe practice in the planning, management and review of inpatients receiving emergency sedation in acute inpatient mental health units. This procedure supports NSW Ministry of Health Policy PD2020_004 Seclusion and Restraint in NSW Health Settings.

2. BACKGROUND

Acute behavioural disturbance in the inpatient setting can include aggressive or agitated patient behaviour resulting in risk of harm to themselves, other inpatients, visitors or clinical staff. This risk of harm can be reduced by a suite of measures, including enhanced engagement and de-escalation techniques. When these fail, appropriate prescribing and utilising alternative methods of administration where necessary can play an important role in reducing the acute behavioural disturbance, thus minimising risk and distress to the patient and others and safely terminating the behaviours of concern.

The purpose of this procedure is to ensure that the prescription and administration of medication to manage disturbed/violent behaviour is performed safely and effectively in line with agreed standards and guidelines. Patients and their carers should be involved and empowered in decisions around emergency sedation where possible.

3. RESPONSIBILITIES

3.1 Employees will:

Follow this procedure related to clinical activities.

3.2 Line Managers will:

Ensure that staff are familiar with this procedure, and it is circulated and implemented locally.

3.3 District Managers/ Service Managers will:

- Distribute this procedure within their relevant service.
- Ensure Line Managers and other staff are familiar with and adhere to this procedure.
- Ensure the relevant Appendix documents are printed and posted on all inpatient wards.

3.4 Medical staff will:

Familiarise themselves with and follow this procedure in relation to clinical activities

4. PROCEDURE

Staff will adhere to the following practices in order to minimise the requirement for the use of emergency sedation.

Emergency sedation should only be employed where necessary to manage clinical risks when the following steps have not been effective in managing disturbed and/or aggressive behaviour.

4.1. Preventive Strategies

- Ensure that the staff works as a therapeutic team using a positive and encouraging approach and a high level of patient engagement.
- Maintain staff emotional regulation and self-management and encourage good leadership.
- Ensure that patients are offered appropriate psychological therapies, physical activities, leisure pursuits, diversional activities, use of sensory equipment and support for communication difficulties.
- Recognise and manage triggers e.g. teasing, bullying, miscommunication, unwanted contact between patients, having leave refused, being in a very restricted environment and personal factors e.g. family disputes or financial difficulties.
- Recognise how each patient's mental ill-health might affect their behaviour (e.g. diagnosis, severity of illness, current symptoms and history of violence or aggression).
- Improve or optimise the physical environment (e.g. enhance the décor, simplify the ward layout and ensure easy access to outside spaces and privacy).

4.2. De-escalation Techniques

The goal of de-escalation is to identify reasons for distress and implement interventions that address the underlying cause. This involves:

- Recognising the early signs of agitation, irritation and aggression.
- Understanding the likely causes of aggression or violence, both generally and for each patient.
- Using techniques for distraction and calming, and ways to encourage relaxation.
- Recognising the importance of personal space.
- Responding to a patient's agitation in an appropriate, measured and reasonable way and avoiding provocation.

During de-escalation:

- One staff member should take the primary role in communicating.
- That staff member should assess the situation for safety, seek clarification with the patient and negotiate to resolve the situation in a non-confrontational manner.

- Use non-verbal techniques to assist in de-escalation (e.g. non-confrontational body posture and eye contact).
- Consider the use of a designated area or sensory modulation room to reduce emotional arousal or agitation (seclusion rooms should not routinely be used for this purpose).

4.3. Treatment Planning

4.3.1 PRN Orders

- Oral and intramuscular medication may be ordered by a medical officer as a 'PRN' order in advance of a patient requiring emergency sedation.
- The patient care plan should specify the circumstance under which 'PRN' orders should be given.
- Where a 'PRN' order is provided, appropriately trained nursing staff can administer the medication without concurrent authorisation.
- Telephone orders of 'PRN' medications for emergency sedation should be considered with caution. Face to face review by a medical officer is ideal, however for emergency sedation purposes a phone order can be considered if there is a need due to immediate risks posed.
- Ensure that the maximum daily dose and interval of PRN medications are specified and that they do not exceed the maximum recommended daily dose and interval for that medication.
- A full review of both existing regular and PRN medication orders must take place before prescribing PRN medications.
- If both regular and PRN orders for the same medication are charted, the prescriber must be mindful of the regular dose when setting a maximum PRN daily dose. The maximum PRN daily dose must be prescribed so that the total of PRN and daily medication does not exceed recommended daily dosing.
- **Note: Zuclopenthixol Acetate** should not be prescribed as a PRN medication. Each use must be individually authorised by a consultant psychiatrist.

4.3.2 Legal Requirements

- Emergency sedation via intramuscular injection (IMI) should only be used on patients detained involuntarily under the NSW Mental Health Act (2007) (MHA), except in emergency or exceptional circumstances where duty of care as per NSW Health Consent to Medical and Healthcare Treatment Manual.
- Following an emergency sedation incident, MHA status should be reviewed and if appropriate the patient's legal status should be reclassified.

4.4. Prescribing

4.4.1 General Guidelines

- The purpose of acute parenteral sedation is not to render the patient unconscious but to achieve a drowsy though rousable state.
- The regime of regular and PRN medications should be tailored to meet specific patient needs and reviewed regularly.
- The total prescribed dose of regular and PRN antipsychotic medication should not exceed maximum recommended doses.
- The lowest appropriate dose should be used to assess tolerance and to minimise the risks of over sedation, neuroleptic malignant syndrome and side effects.
- When possible, use of multiple agents within the same class should be avoided.
- Parenteral administration of Benzodiazepines should not occur within 2 hours of administration of IM Olanzapine.
- If agitation is anticipated or poorly managed, regular sedation with a benzodiazepine (e.g. Clonazepam 1-2mg, max 8mg/24hrs or Diazepam 2-20mg, max 80mg/24hrs) should be considered.
- It is good practice but not always possible to perform an ECG prior to administration of antipsychotic medication. If this is not possible, an ECG to check QTc should be performed as soon as is practicable after emergency sedation with antipsychotics.
- For 16-18 year olds admitted to adult inpatient mental health wards, reduce doses accordingly in consultation with a consultant psychiatrist.

4.4.2 Contraindications

- Previous adverse reaction associated with emergency sedation.
- Co-existing medical conditions e.g. cardiorespiratory compromise, hypoglycaemia, confusional states including intoxication by alcohol or other drugs and organic presentations, and pregnancy are relative contraindications where extreme caution should be exercised. Seek specialist advice.

4.4.3 Prescribing Guidelines

4.4.3.1 For Adult Patients (aged 16– 64). See Appendix A.

4.4.3.2 For Older Persons (65 and above). See Appendix B.

4.4.4 Intravenous Medications

The use of intravenous medication is **NOT** recommended. Considerations for its use must be made in consultation with the site Clinical Director and the rationale for its use must be documented.

4.4.5 Prescribing Outside Guidelines

- Prescribing of medication types and/or dosages outside these guidelines may be appropriate under exceptional circumstances.
- When prescribing outside the guidelines the rationale for medication and dosage choice must be determined by the responsible psychiatrist and comprehensively documented in the patient's file.

4.4.6 Notes on prescribing Zuclopenthixol Acetate "Clopixol Acuphase"

- Zuclopenthixol Acetate:
  - Should be prescribed with CAUTION in the medically compromised patient, in the elderly and older people with dementia.
  - Should be prescribed with CAUTION to patients who are neuroleptic naïve.
  - Should only be prescribed in consultation with a consultant psychiatrist
- Zuclopenthixol Acetate has a delayed peak onset of sedation, of up to 8 hours. At the time of prescribing, a plan should be made for regular medications due within the next 24 hours.
- Authorisation of additional PRN medication within 24 hours of administration of Zuclopenthixol Acetate should be made in conjunction with a consultant psychiatrist.

4.5. Administration of Intramuscular medication

- Prior to administration of intramuscular medication, the senior nurse of the shift will inform staff of their roles during the procedure to ensure clarity on the preparation of medication, preparation of the area and designated staff to remain with the patient.
- If the patient is resistant to the procedure then restraint procedures according to NSW Ministry of Health Policy Directive PD2020_004 - Seclusion and Restraint in NSW Health Settings should be applied.
- Precautions against biting and spitting should be taken when necessary, including use of Personal Protective Equipment (PPE) such as goggles or gloves.

4.6. Post Sedation Care and Monitoring

- An appropriately equipped emergency trolley should be in close proximity. This is to include an air-viva bag, oxygen and airway. Flumazenil (a benzodiazepine antagonist) should be available when benzodiazepine reversal is required.
- After parenteral (IM) sedation, respiratory rate, SpO2%, blood pressure, temperature, pulse and level of consciousness must be assessed by a registered nurse.
- Standard observations must be recorded on the relevant section of the Electronic Medical Record.

- Observations (excluding Zuclopenthixol Acetate – see next point) must be recorded *every 15 minutes for one hour then hourly until the inpatient is fully conscious and stable*.
- Patients who refuse to have their vital signs monitored or who remain too behaviourally disturbed to be approached should be observed for signs/symptoms of pyrexia, hypoxia, hypotension, over-sedation and general physical well-being.
- If the patient is asleep or unconscious, the continuous use of pulse oximetry to measure oxygen saturation is desirable.
- Due to delayed onset of action and prolonged action, additional monitoring is required after Zuclopenthixol Acetate. The minimum observations required are at the following intervals:
  - 15 mins after injection
  - 30 mins after injection
  - then hourly (commencing at 1 hour post injection) until 12 hours after injection
  - then every 6 hours for a further 36 hours
- Observations are to include an assessment of hydration which should be noted in the consumer's eMR.
- If staff are concerned for safety to adequately perform the above observations, this should be escalated to the NUM/NIC for further escalation if required.
- If any observations fall within the Clinical Review or Rapid Response Zones then local Clinical Emergency Response System (CERS) processes must be enacted.

4.7. Immediate Post-Incident Debrief

- Conduct an immediate post-incident debrief after the use of restrictive interventions when the risks of harm have been contained.
- This should be facilitated by staff, including a nurse and medical officer, to identify and address factors that contributed to the incident, any physical harm, ongoing risks and the emotional impact on patients, staff and witnesses.
- A formal post-incident review should be carried out and additional support sought where required.

5. DOCUMENTATION

- An episode of emergency sedation must be documented in the patient's progress notes.
- Record the medication administered, the indication, events preceding the sedation event including de-escalation/interventions applied, a record of observations, and whether sedation was used with seclusion and/or restraint.
- Record all relevant debriefing and an alternate care plan to decrease recurring disturbed behaviours.

- Each seclusion and restraint (both physical and mechanical) episode must be recorded in a dedicated register and should be completed by a Registered Nurse and signed by a medical officer.
- Use the IMS+ system as necessary.

6. AUDIT

Annual review of practice at each site.

7. REFERENCES

NSW Health

- GL2015_007 - NSW Health Guideline Management of Patients with Acute Severe Behavioural Disturbance in Emergency Departments
- GL2012_005 - NSW Health Guideline - Aggression, Seclusion & Restraint in Mental Health Facilities - Guideline Focussed Upon Older People
- PD2020_004 - Seclusion and Restraint in NSW Health Settings
- PD2020_018 - Recognition and management of patients who are deteriorating
- PD2022_032 - Medication Handling
- NSW Mental Health Act (2007)
- Consent to Medical and Healthcare Treatment Manual
- Protecting People and Property – NSW Health Policy and Standards for Security Risk Management in NSW Health Agencies, February 2022.
- Assessment and Management of People with Behavioural and Psychological Symptoms of Dementia (BPSD): A Handbook for NSW Health Clinicians

SESLHD

- SESLHDPR/697 - Management of the Deteriorating ADULT inpatient (excluding maternity)

Others

- Maudsley Prescribing Guidelines in Psychiatry
- National Institute for Health and Care Excellence (NICE) 'Violence and aggression: short-term management in mental health, health and community settings' guidelines
- MIMS
- Treatment Options for Acute Agitation in Psychiatric Patients: Theoretical and Empirical Evidence. Nicholas Zareifopoulos and George Panayiotakopoulos Cureus 2019 Nov; 11(11): e6152
- BAP / NAPICU rapid tranquilisation guidelines
- Therapeutic Goods Administration
- National Standards for Mental Health Service 2010

8. VERSION AND APPROVAL HISTORY

Date	Version No.	Author and approval notes
April 2007	1	Endorsed by AMH Executive.
September 2008	2	Procedure reviewed and revised.
April 2010	3	Pressure ulcer care added. Reviewed document endorsed by AMH Executive
March 2017	4v5	New draft, consulted with POWH: removed IV Sedation Prevention, included De-escalation, and flowchart is under development.
July 2017	4v6	Revised by Author and A/Chief Psychiatrist, SESLHD MHS: included Appendix A, Appendix B and Appendix C.
August 2017	4v7	Consulted by Lisa John, Pharmacist, POWH. Consulted pharmacy to included SAS Category A Form completion requirement.
September 2017	4v8	Reviewed by SESLHD Site Chief Psychiatrists and specialist staff. Revised prescribing guideline for Older Persons age group: updated to meet *Assessment and Management of People with Behavioural and Psychological Symptoms of Dementia (BPSD): A Handbook for NSW Health Clinician.*
October 2017	4v9	Endorsed by MHS Clinical Council. Amendment by A/Chief Psychiatrist; updated telephone order of 'PRN' medication under Section 4.3.1.
November 2017	4v10	Minor updates to the flowchart based on feedback from Dr Kamran Ahmed.
December 2017	4v10	Submitted to Executive Services for publication in November. Quality Use of Medicine Committee has advised to: conduct further consultation; consider and incorporate additional feedback from Lisa John and Professor Brian Draper.
January 2018	4v11	Reviewed by Dr Peter Young.
February 2018	4v12	Revised flowchart and considered feedback received.
April 2018	4v13	Amended by Dr Peter Young: Updated SAS Category A form to Category C form based on legislative change.
May 2018	4v13	Endorsed by District Quality Use of Medicines Committee and SESLHD Clinical and Quality Council
March 2019	5	Minor Review - removed IM lorazepam from the procedure. IM midazolam at half general adult dosage has been added for over 65s. Approved by Executive Sponsor, MH drug committee and clinical governance.
March 2019	5	Processed by Executive Services prior to submission to Quality Use of Medicines Committee for approval prior to publishing.
April 2019	5	Approved by Quality Use of Medicines Committee.
June 2020	6.0	Additional information added (included Appendix D) regarding Zuclopenthixol acetate IM to address an RCA Recommendation
July 2021	6.1	Additional statement added to Appendix C regarding observations for Zuclopenthixol acetate IM. Endorsed by SESLHD MHS Document Development and Control Committee Endorsed by SESLHD MHS Clinical Council
July 2020	6.2	Document not progressed to publication.

September 2020		Additional comments to Appendix D added Amendments to observational periods made and further consultation regarding delayed onset sedation
October 2020	6.3	Further review requested
November 2020	6.4	Additional feedback incorporated. Forwarded to sites for additional review and feedback. Progress to December DTC. December DTC not held.
January 2021	6.5	Minor amendments made based on nursing feedback for minimum observations post administration of Zuclopenthixol Acetate. Chair DTC confirmed changes were supported. Circulated to both DDCC and DTC for review and out-of-session endorsement.
February 2021	6.6	Incorporates further feedback from the DTC and DDCC. Out-of-session endorsement by DTC and DDCC. Out-of-session endorsement by SESLHD MHS Clinical Council
February 2021	6.6	Published by Executive Services.
August 2024	7.0	Reviewed by Working Group. Added Lorazepam IM, Droperidol IM. Adopted Mausley post sedation monitoring guidelines. Added a section on remedial action in case of adverse events. Added some important contraindications. Endorsed for publication DDCC and MH National Standard 4 Committee.
12 September 2024	7.0	Endorsed for publication MH Clinical Council. Document published.

APPENDIX A: Prescribing Guidelines: Adults Patients 16-64 years of age*

Note: To be read with Appendix C and Appendix D for additional information refer to Section 4.4 Prescribing.

Verbal de-escalation unsuccessful

- Each route of administration should include ONE Benzodiazepine/Antihistamine and ONE Antipsychotic
- Choice of agent is guided by clinical assessment including avoidance of polypharmacy
- Both routes of administration should use the same agent wherever possible

Oral Medication (1st line - to be offered and preferred if patient accepts)

Class	Drug	Dose	Max / 24h (PRN + regular)	Min Freq
Benzodiazepine	Lorazepam	1-2mg	6mg	2h
	or			
Antihistamine	Promethazine	25-50mg	150mg	2h
Antipsychotic	Promethazine + Haloperidol [1]	25-50mg 5-10mg	150mg 20mg	2h
	or			
	Quetiapine	50-100mg	800mg	2h
	or			
	Olanzapine	5-10mg	20mg	2h
	or			
	Risperidone	1-2mg	6mg	2h

Intramuscular Medication (2nd line - as indicated eg; oral medication refused or failed trial)

Benzodiazepine	Lorazepam[2]	1-2mg	6mg	2h
	or			
Antihistamine	Promethazine	25-50mg	150mg	2h
	or			
Benzodiazepine	Midazolam	2.5-7.5mg	15mg	2h
Antipsychotic	Promethazine + Haloperidol [1]	25-50mg 5-10mg	150mg 20mg	2h
	or			
	Olanzapine [3]	5-10mg	20mg	2h
	or			
	Droperidol[1]	5-10mg	20mg	4hr

Intermediate Acting Intramuscular Medication (3rd line when authorised by consultant psychiatrist)

		Dose	Max / 14d	Min Freq
Antipsychotic	Zuclopenthixol Acetate [4]	50-150mg	400mg (Max number of injections 4)	24h

Notes:

1	Haloperidol and Droperidol should be avoided if the patient is antipsychotic naïve, there is evidence of cardiovascular disease including a prolonged QT interval, or no ECG has been carried out. Consider co-prescription of PRN Benztropine 0.5-2mg PO/IMI for EPSE.
2	Lorazepam intramuscular should be stored at 2-8ºC and may require dilution prior to administration.
3	IM Benzodiazepine and IM Olanzapine must not be given within 2 hours of each other.
4	See *section 4.4.6 for* Zuclopenthixol Acetate prescribing guidance.
*	For 16-18 year olds, reduce doses accordingly in consultation with a consultant psychiatrist.

APPENDIX B: Prescribing Guidelines: Older Persons (65 years old and above)

Note: To be read with Appendix C and Appendix D for additional information refer to Section 4.4 Prescribing

Verbal de-escalation unsuccessful

- Each route of administration should include a single Benzodiazepine and Antipsychotic
- Choice of agent is guided by clinical assessment including avoidance of polypharmacy
- Both routes of administration should use the same agent wherever possible

Oral Medication (1st line - to be offered and preferred if patient accepts)

Class	Drug	Dose	Max / 24h	Min Freq
Benzodiazepine	Lorazepam	0.5-1mg	4mg	2h
Antipsychotic	Olanzapine	2.5-5mg	7.5mg	2h
	or			
	Risperidone	0.5-1mg	4mg	2h

Intramuscular Medication (2nd line - as indicated eg; oral medication refused or failed trial)

		Dose	Max / 24h	Min Freq
Benzodiazepine	Lorazepam[1]	0.5-1mg	4mg	2h
	or			
	Midazolam	2.5mg	5mg	**2h**
Antipsychotic	Olanzapine[2]	2.5mg	7.5mg	2h

Notes:

1	Lorazepam intramuscular should be stored at 2-8ºC and may require dilution prior to administration
2	IM Benzodiazepine and IM Olanzapine must not be given within 2 hours of each other.
*	Zuclopenthixol Acetate should be prescribed WITH CAUTION in patients over 65 or when otherwise medically compromised.

APPENDIX C: General Guidelines

PRESCRIBING GUIDELINES

- Parenteral sedation is not intended to render the patient unconscious but to achieve a drowsy though rousable state.
- The regime of regular and PRN medications should be tailored to meet specific patient needs and reviewed regularly.
- The total prescribed dose of regular and PRN antipsychotic medication should not exceed maximum recommended doses.
- The lowest appropriate dose should be used to assess tolerance and to minimise the risks of over sedation, neuroleptic malignant syndrome and side effects.
- When possible use of multiple agents within the same class should be avoided.
- Parenteral administration of Benzodiazepines should not occur within 2 hours of administration of IM Olanzapine.
- Consider PRN co-prescription of Benztropine 0.5-2mg PO/IMI with Haloperidol or Droperidol for extra-pyramidal side effects including dystonia
- If agitation is anticipated or poorly managed, regular sedation with a benzodiazepine (e.g. Clonazepam 1-2mg, max 8mg/24hrs or Diazepam 2-20mg, max 80mg/24hrs) should be considered.

CONTRAINDICATIONS

- See specific product information for a full list of contraindications, precautions and interactions.
- Previous severe adverse reaction associated with emergency sedation and/or hypersensitivity to any specific agent should preclude use.
- Benzodiazepines are contraindicated in patients with myasthenia gravis or acute narrow angle glaucoma
- Lorazepam is contraindicated in patients with sleep apnoea syndrome and severe hepatic insufficiency
- Midazolam is contraindicated in patients in shock or coma, or in acute alcoholic intoxication with depression of vital signs.
- Droperidol is contraindicated in severe central nervous system depression, coma, Parkinson's disease, phaeochromocytoma, breast feeding, QTc prolongation (female > 450 msec, male > 440 msec), known hypokalaemia / hypomagnesaemia / clinically significant bradycardia.
- Co-existing medical conditions e.g. cardiorespiratory compromise, hypoglycaemia, confusional states (including intoxication by alcohol or other drugs and organic presentations) and pregnancy are relative contraindications where extreme caution should be exercised. Seek specialist advice.
- Zuclopenthixol Acetate is contraindicated in circulatory collapse, coma, suspected or established subcortical brain damage, blood dyscrasias, phaeochromocytoma, leukopenia and/or previous agranulocytosis.
- Zuclopenthixol Acetate should be prescribed with CAUTION in the medically compromised patient, in the elderly or people with dementia and patients who are neuroleptic naïve.

POST SEDATION CARE AND MONITORING

- An appropriately equipped emergency trolley should be in close proximity. This is to include an air-viva bag, oxygen and airway. Flumazenil (a benzodiazepine antagonist) should be available when benzodiazepine reversal is required.
- After parenteral (IM) sedation, respiratory rate, SpO2% blood pressure, temperature, heart rate and level of consciousness must be assessed by a registered nurse.
- Standard observations must be recorded in the relevant section of the Electronic Medical Record.
- Observations must be recorded every 15 minutes for one hour then hourly until the inpatient is fully conscious and stable.
- Patients who refuse to have their vital signs monitored or who remain too behaviourally disturbed to be approached should be observed for signs/symptoms of pyrexia, hypoxia, hypotension, over-sedation and general physical well-being.
- If the patient is asleep or unconscious, the continuous use of pulse oximetry to measure oxygen saturation is desirable.
- After Zuclopenthixol Acetate, observations should be conducted 15 mins and 30 mins and 60 minutes after injection, then hourly until 12 hours after injection, then every 6 hours for a further 36 hours ie a minimum total of 48 hours after injection. Observations are to include an assessment of hydration.
- If any observations fall within the Clinical Review or Rapid Response zones then local CERS processes must be enacted.

REMEDIAL MEASURES

Problem	Action
Acute dystonia	Give Benztropine 0.5-2mg PO/IMI
Reduced respiratory rate (<10/min) or oxygen saturation (<90%)	Give oxygen, raise legs, ensure patient is not lying face down. Give flumazenil if benzodiazepine-induced respiratory depression suspected. If induced by any other sedative agent: transfer to a medical bed and ventilate mechanically.
Irregular or slow (<50/min) pulse	Refer to specialist medical care immediately.
Fall in blood pressure (>30mmHg orthostatic drop or < 50mmHg diastolic)	Have patient lie flat, tilt bed towards head. Monitor closely.
Increased temperature (risk of NMS and perhaps arrhythmia)	Check creatine kinase urgently.

APPENDIX D: Time to maximum effect/peak plasma levels

Name	Time to maximum effect/ peak plasma levels	Comments
Lorazepam PO	2 hours	Half life 12-16 hours
Diazepam PO	30-90 minutes	Biphasic plasma concentration time curve; initial distribution phase has half-life of up to 3 hours, prolonged terminal elimination phase half-life of 20 to 48 hours. Action is further prolonged by longer half-life of 2- 5 days of principle active metabolite. Half-life is prolonged in the elderly and in renal or liver disease. Contraindicated in severe liver impairment
Clonazepam PO	2-3 hours	With continuous therapy, accumulation occurs. Mean half-life 39 ± 8.3 hours
Oxazepam PO	2-3 hours	Half-life 4-15 hours
Promethazine PO tablet/liquid	2-3 hours	Half-lives of 5 to 14 hours have been reported. Antihistamine action has been reported to be between 4 and 12 hours.
Haloperidol PO tablet/liquid	2-6 hours	
Quetiapine PO tablet	1.5 hours*	*For immediate release formulation
Olanzapine PO tablet/wafer	5-8 hours	Clearance depends on age, gender, smoking status
Risperidone PO tablet/solution	1-2 hours	
Midazolam IM injection	45 minutes	Mean half-life 1.4 – 2.4 hours Dose adjustment may be required in combination with CYP3A4 inhibitors or inducers
Lorazepam IM injection	1-3 hours	Elimination half-life 12-16 hours

Name	Time to maximum effect/ peak plasma levels	Comments
Promethazine IM injection	Onset of antihistaminic properties occurs in approx. 20 minutes	Duration of sedative effects 2-8 hours
Haloperidol IM injection	20 minutes	
Droperidol IM Injection	3-10 minutes	Following IV or IM administration. Full effect may not be apparent for 30 minutes. Sedative/ tranquilising effect generally 2-4 hours.
Olanzapine IM injection	15-45 minutes	Maximum plasma concentration of IM Olanzapine is approximately 5 times higher than with oral Olanzapine. Total overall drug exposure is essentially equivalent
Zuclopenthixol Acetate IM injection	8 hours**	Sedation occurs in up to 2 hours but **note significant delay until peak onset of sedation Sedation generally reaches maximum effect after 8 hours. Maximum serum concentrations are usually reached 24 to 36 hours post-injection, then levels decline slowly. Serum levels fall to approximately one-third of the maximum by 3 days after injection. Effects may last for up to 72 hours.

Drawn from:

- MIMS
- FDA
- UK Summary of Product Characteristics
- Micromedex
- Taylor, David; Paton, Carol; Kapur, Shitij. (2018). The Maudsley Prescribing Guidelines, Thirteenth Edition. London: CRC Press.