Birmingham and Solihull NHS
Mental Health NHS Foundation Trust

Rapid Tranquillisation Policy

POLICY NO & CATEGORY	**C03**	**Clinical**
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RATIFYING COMMITTEE	**Clinical Governance Committee**	
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EXECUTIVE DIRECTOR	**Medical Director**	
POLICY LEAD	**Chief Pharmacist**	
POLICY AUTHOR *(if different from above)*	**Chief Pharmacist, supported by Reaside Pharmacy Manager,**	
FORMULATED VIA	**Pharmacological Therapies Committee**	

POLICY CONTEXT

All staff involved in prescribing or administering rapid tranquillisation, or monitoring service users to whom rapid tranquillisation has been administered must follow the procedures set out in this policy.

All staff involved in administering rapid tranquillisation, or monitoring service users to whom rapid tranquillisation has been administered, must receive ongoing competency training to a minimum of Immediate Life Support (ILS-Resuscitation Council (UK) (covers airway, cardiopulmonary resuscitation (CPR) and use of defibrillators). All staff involved in rapid tranquillisation must be trained in the use of physical health equipment.

POLICY REQUIREMENT (see section2)

This policy defines

- the instances when Rapid Tranquillisation should be used
- who is authorised to use it
- arrangements the Trust has in place to ensure that the necessary training and equipment is available to ensure its appropriate use

- the appropriate training that staff must undertake and the frequency
- the medicines that should normally be prescribed for rapid Tranquilisation
- the monitoring and follow up that should normally be undertaken before, during and after rapid tranquilisation

The policy ensures that Rapid Tranquillisation is used in line with national guidance, and to meet our legal obligations

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Clinical policy for the pharmacological management of disturbed or violent behaviour by psychiatric inpatients

1 Introduction

1.1.1 Background

There are a variety of approaches for managing a high risk of imminent violence, which should be considered in the first instance. These include, de-escalation, distraction techniques, consideration of placement, physical restraint and seclusion. All of these strategies should be considered in each case.

Sedative medication is one of several strategies commonly used in the management of severely disturbed behaviour in inpatient settings. The severity of the disturbed behaviour, the associated risk to the patient or to other people and the apparent imminence of that risk, often determines the strategies that are employed in a particular situation. Where the risk is assessed as both severe and imminent, consider rapid tranquillisation or seclusion as alternatives to prolonged manual restraint (longer than 10 minutes).

Rapid tranquillisation (RT) is a pharmacological strategy. RT is likely to be appropriate only when other approaches have been tried and failed to calm the service user. Even when RT is used, the other treatment strategies should continue to be used alongside RT as each is likely to augment the effect of the others. Particular caution is necessary if combining RT with seclusion and physical intervention (see section 3.4 & 3.5 below).

The guidelines for “Violence and aggression: short-term management in mental health, health and community settings” published by the National Institute for Health and Care Excellence (NICE), and the “Joint BAP/NAPICU evidence based consensus guidelines for the clinical management of acute disturbance: De-escalation and rapid tranquilisation” provide valuable further reading.

The BSMHFT Resuscitation Policy and the BSMHFT Prevention and Management of Violence Policy should be read in conjunction with this policy on RT.

1.1.2 **Rationale**

RT should be used as a management strategy to manage the immediate threat of violence and potential for harm to the service user and / or others. Treatment of the underlying disorder must proceed alongside RT but is distinct from RT.

1.2

1.2.1 **Definition**

Rapid tranquillisation is defined as;

The administration of medication given primarily to calm/lightly sedate the service user, often without consent and to urgently control behaviour disturbance thus reducing the risk to themselves, staff and others. This includes all medication administered whilst the patient is restrained to control behaviour. It especially includes the administration of intramuscular medication, combinations of medication and may include repeated doses of oral medication given within the same episode to control behaviour.

1.2.2 **Scope**

This policy applies to all staff who are able to prescribe, administer medication in relation to RT or participate in the post-RT monitoring of the patient.

1.3 Principles

Birmingham and Solihull Mental Health NHS Foundation Trust (BSMHFT) believes that all service users, carers and relatives should be treated with dignity and respect at every stage of their care and treatment.

2 Policy

All staff involved in prescribing or administering rapid tranquillisation, or monitoring service users to whom rapid tranquillisation has been administered must follow the procedures set out in this policy.

All staff involved in administering rapid tranquillisation, or monitoring service users to whom rapid tranquillisation has been administered, must receive on-going competency training to a minimum of Immediate Life Support (ILS-Resuscitation Council (UK) (covers airway,

cardiopulmonary resuscitation (CPR) and use of defibrillators). All staff involved in rapid tranquillisation must be trained in the use of physical health equipment.

2.1 Policy Framework

The following policies should be followed in conjunction with the RT policy

- Prevention and management of violence (R&S10)
- Medicines Code (C06)
- Seclusion policy (C09)
- Management of Untoward Incidents (R&S 02)
- Fundamental Training Policy (HR 35)
- Mental Health Act Policy (MHA 01)
- Therapeutic Observation (C05)
- Physical Health Assessment and management (C38)
- Mental Capacity Act (MHL14)
- Consent to Treatment (MHL10)
- Management of Deteriorating Patient and Resuscitation (C04)

The Mental Health Units (Use of Force) Act 2018 received Royal Assent on 1 November 2018. The Act requires that Mental Health Units must have a policy on the use of force. This Policy forms part of such a policy for BSMHFT. Once regulations set out the commencement date and the code of practice is published, this Act will be in force. On the commencement date of the 2018 Act, all provisions of his Policy should be read in conjunction and in compliance with provisions of the 2018 Act and code of practice.

3. Procedure

3.1 Principles of Prescribing

3.1.1 Before employing RT, other strategies for de-escalation should be used, following the prevention and management of violence policy (R&S10).

3.1.2 The need for RT requires careful clinical judgement. Violence among psychiatric inpatients is predicted by florid psychotic symptoms particularly disorganisation symptoms, mania, lack of insight, anger & hostility and drug or alcohol intoxication [2-4].

3.1.3 If the service user has not made any advance decisions or statements about the use of RT and their risk assessment concludes that a deescalation and RT management plan is necessary, the service user should be offered the opportunity and encouraged to complete one as soon as possible, as part of the care planning process.

3.1.4 Where appropriate, ensure that the service user understands the main side-effect profiles of the medications recommended for RT so that they can make an informed choice.

3.1.5 The guidance of the Mental Health Act Code of Practice must be followed. Any departure from the code of practice must be clearly recorded and justified in the electronic patient record as being in the service user's best interest. When appropriate, all oral and/or IM medication prescribed for RT must be included in relevant MHA consent to treatment paperwork.

3.1.6 A multidisciplinary team that includes a psychiatrist, a senior nurse and a specialist pharmacist in mental health should ideally develop and document an individualised pharmacological strategy for using regular and p.r.n. medication to calm and relax service users who are at risk of violence and aggression as soon as possible after admission to an inpatient psychiatric unit.

3.1.7 Before prescribing medication in anticipation of RT, the prescribing doctor must review the patients' clinical record with regard to his/her general medical history, vital physical health signs and physical examination.

3.1.8 When prescribing medication for use in RT, write the initial prescription either as a single dose or as a limited number of doses or add a time limit/review date to the prescription. Do not repeat until the effect of the initial dose(s) has been reviewed.

3.1.9 Drugs for RT, particularly in the context of physical intervention must be used with caution because of the following risks

- Loss of consciousness instead of tranquillisation
- Sedation with loss of alertness
- Loss of airway
- Cardiovascular and respiratory collapse
- Interaction with medicines already prescribed or illicit substances taken (can cause side effects such as akathisia, disinhibition)
- Possible damage to patient-staff relationship

3.1.10 RT is not a medical emergency and must never be administered unless it has been prescribed. RT must only be administered in accordance with the actual prescription. In addition, RT should only be administered where a doctor is available to attend an alert reasonably quickly. A doctor should be quickly available at all times to attend an alert by staff members when RT is implemented. NICE recommends that the doctor should aim to be at the scene within 30 minutes.

3.1.11 The summary of product characteristics for haloperidol recommends a baseline electrocardiogram (ECG). If an ECG is not available the prescriber should consider the risks and benefits of using this treatment and be able to justify their prescribing decision, because it may be considered an off-label use. Alternatives include IM lorazepam on its own, IM olanzapine or IM aripiprazole.

3.1.12 Medical support must be available in case of adverse reactions, oversedation or the need to administer flumazenil. Therefore if RT is to be attempted out of hours, the duty doctor must be contacted immediately. Where possible, should the need to employ RT be anticipated then the duty doctor must be alerted to the possibility so that he/she can be ready to attend should this be necessary.

3.1.13 Appendices 3,4,and 5 give further information on prescribing, administering and monitoring of RT in the elderly (Appendix 3), children and adolescents (Appendix 4) and in pregnancy or breastfeeding (Appendix 5)

3.2 What Medicines may be used for Rapid Tranquillisation?

3.2.1 Suitable medicines for RT need to have a rapid onset of action and a short duration of action. Frequent small doses are safer and can be as effective as single large doses. Caution needs to be taken to avoid the risk of accumulation. Any concurrent medication taken by the patient must also be considered when prescribing or administering medication for purposes of RT.

3.2.2 Benzodiazepines have important advantages over antipsychotics in terms of side effects and toxicity. There is also a specific antidote in the form of flumazenil injection.

3.2.3 It is important to remember that the sedative effects of antipsychotics may be seen after a single dose but the antipsychotic effects take some time to develop normally days or even weeks of continuous treatment.

3.2.4 It is common for combinations of benzodiazepines and antipsychotics to be used in patients where antipsychotics are considered necessary. This may be beneficial because it can reduce the dose of the antipsychotic that is required, the two classes of medicine have a synergistic action and that benzodiazepines may counteract the lowering of seizure threshold by antipsychotics[7]

3.2.5 **Pre-Rapid Tranquillisation (Pre-RT)**

Oral medication must be considered before IM medication. Oral lorazepam or oral quetiapine may be useful first choices before injectable medication. Where single doses are administered and this calms the patient, this may be termed ‘pre-RT’. Multiple oral doses for the same episode or combinations of oral medication should be managed as if RT

3.2.6 **Rapid Tranquillisation**

The first choice injectable medicine for RT is intramuscular (IM) lorazepam in an appropriate dose[1]. Consider IM promethazine as an alternative for those patients who cannot take IM lorazepam.

3.2.7 If there is a partial response to IM lorazepam, consider a further dose after at least one hour if needed.

3.2.8 **If there is no response to IM lorazepam, consider IM haloperidol combined with IM promethazine**. Extra-pyramidal side effects (EPSEs) are thought to occur less frequently when haloperidol is administered with promethazine due to its intrinsic anticholinergic properties. It is recommended that service users should have had an ECG prior to receiving IM haloperidol.

3.2.9 If there is a partial response to intramuscular haloperidol combined with intramuscular promethazine, consider a further dose of the combination after at least one hour if needed.

3.2.10 If there is no response to intramuscular haloperidol combined with intramuscular promethazine, consider intramuscular lorazepam if this hasn't been used already during this episode. If intramuscular lorazepam has already been used, arrange an urgent multidisciplinary team meeting to carry out a review and seek a second opinion if needed.

3.2.11 Doses may need to be reduced in low weight adult patients, for example, patients in eating disorder services.

3.2.12 Benzodiazepines should be used with caution in those with compromised respiratory function. Where they are used then intensive monitoring of respiratory function is necessary and arrangements made for rapid medical attendance to administer flumazenil must be made.

Table 1 – Preparations used in RT in BSMHFT, their properties and side effects

Route	Usual dose for RT	Max dose	Pharmacokinetics	Major side effects	Notes
Benzodiazepines					
Lorazepam					
oral	1 to 2mg oral or IM	4mg / 24 hours (Consultant	Peak 2 hours t½ 12 hours	Respiratory depression Disinhibition	• Benzodiazepines have a wide therapeutic index & respiratory

IM	Use lower doses e.g. 1mg in low weight adult patients	Psychiatrists may authorise up to 8mg / 24hours) Low weight adult patients, max dose is 2mg in 24 hours	Peak 60-90 minutes t½ 12 hours **% patients tranquil or asleep after 4mg IM lorazepam: 81% at 30 mins 90% at 1 hour**		depression is readily reversed with the specific antagonist Flumazenil • I.M. lorazepam should not be given within 1 hour of I.M. Olanzapine • Disinhibition is more likely to occur in those with organic brain disease, including learning disabilities, the under 18s and the over 65s, and perhaps those with impulse control problems • The pharmacokinetics of Lorazepam is similar whether given orally or parenterally, therefore the only reason to give Lorazepam parenterally is if the patient refuses oral.
Antihistamines					
Promethazine					
Oral IM	25 to 50mg Prolonged • sedation Peak 2 to 3 Use lower e.g. adult 25mg in low respiratory weight adult hours **%**	100mg / or oral or Seizures Low weight patients max dose 50mg in 24 **patients**	Onset 20-30 IM 24hours hours Cardio- is t½ 7 to15 depression **tranquil or asleep after IM haloperidol + IM promethazine: 95% at 30 mins 87-99% at 1 hour**	minutes • doses hours patients **5-10mg** **25-50mg**	Limited evidence for efficacy but may be of use in patients who are Benzodiazepine tolerant . Evidence of effectiveness of IM in combination with haloperidol with reduced risk of EPSE with haloperidol. There is no evidence of its efficacy or safety in combination with antipsychotics other than haloperidol.
Short acting antipsychotics					
Quetiapine					
Oral	100-200mg	750mg / 24hours schizophrenia 800mg / 24hours bipolar disorder	Peak 1.5 hours t½ 6 to 7 hours	Hypotension	• Limited clinical experience or trial data

Haloperidol					
Oral	5mg to 10mg, dose repeated after 12 hours	20mg / 24hours	Peak 2 to 6 hours t½ 21 hours	EPSE Hypotension NMS Increased QT Arrhythmias Seizures Sudden death	• ECG monitoring recommended prior to use (see SPC for further details) • Ensure that IM procyclidine available in case of acute dystonia. • Incidence of acute dystonia reduced by co-administration of IM haloperidol with IM promethazine.
IM	5mg up to hourly	20mg / 24hours	Peak 20 to 40 minutes t½ 21 hours **% patients tranquil or asleep after 5-10mg IM haloperidol + 25-50mg IM promethazine: 95% at 30 mins 87-99% at 1 hour** **% patients tranquil or asleep after 5-**		

			10mg IM haloperidol alone: 76% at 40 mins 81% at 1 hour		
Olanzapine					
Oral	5mg to 10mg	20mg / 24hours	Peak 5 to 8 hours	Hypotension Bradycardia	• Not suitable for RT due to prolonged time to take effect • IM administration results in peak 5x higher than same oral dose • IM olanzapine not to be given within 1 hour of IM benzodiazepines.
IM	5 to 10mg can be repeated after 2 hours (Maximum 3 injections in 24 hours).	20mg / 24hours for maximum of 3 days	Peak 15 to 45 minutes t½ 30 hours **% patients tranquil or asleep after 10mg IM Olanzapine: 93% at 30 mins 94% at 1 hour**		
Aripiprazole					
IM	5.25 - 9.75mg can be repeated after 2 hours– (Maximum 3 injections in 24 hours)	30mg/24hours	Peak 1 hours t½ 75 hours	Restlessness Anxiety tremor Headache Nausea	• t½ rises to 146 hours in poor metabolisers of CYP2D6 • Limited evidence of clinical advantages over other IM antipsychotics.
Longer acting antipsychotics					
Zuclopenthixol acetate (Clopixol Acuphase®)					
IM	50mg – 150mg can be repeated after 2 or 3 days	Maximum four injections and maximum 400mg in two weeks	Onset 2 to 8 hours Peak 24 to 36 hours t½ 60 hours	EPSE Sudden death Cardiac arrest Arrhythmias	• Not appropriate for RT due to long onset and duration of action. NICE suggests that this drug maybe used under four explicit circumstances (see Prescribing Guideline for Clopixol Acuphase). • May be used as part of a medium term strategy. • Must not be used in those who are neuroleptic naive, who are struggling, who are sensitive to EPSE, or those with cardiac disease, hepatic or renal impairment or in pregnancy.

Note: It is recognised that clinicians may decide that the use of medication outside of the manufacturer's Summary of Product Characteristics (SPC) is occasionally justified, bearing in mind the overall risks. However, where the regulatory authorities or manufacturer issues a

specific warning that this may result in an increased risk of fatality, the medication should only be used strictly in accordance with the current marketing authorisation

The maximum doses given are guidelines only. In some cases they are above the recommended BNF maximum dose. They have been chosen after careful consideration of relevant literature and other guidelines. BNF maximum doses should not be exceeded without careful thought and, if necessary, advice

3.3 Zuclopenthixol Acetate

Zuclopenthixol acetate (Clopixol Acuphase®) is not an appropriate drug for use in RT. It can take up to 24 hours to exert its effect, which is too long when the context and need for RT is considered. Guidance on the use of zuclopenthixol acetate is now provided via a clinical (prescribing) guideline.

3.4 Rapid Tranquillisation and the use of substances, chemical sprays or Tasers

On occasions, the use of chemical sprays or Tasers may have been used to control behaviour, following the Serious Violent Incident Management with Police Support Policy. Use of RT to further calm the patient may be required. There is very limited evidence to guide the use of medication in these situations and physical monitoring of the service user will be even more important to avoid serious risk of harm. RT is potentially hazardous and the risk of adverse events is higher if the patient has taken illicit drugs or alcohol. The guidance of the Mental Health Act Code of Practice should be followed. Any departure from that guidance must be clearly recorded and justified as being in the service user's best interest.

3.5 Rapid Tranquillisation and Seclusion

The use of RT when the patient is or is likely to be secluded must be carefully considered.

- The service user must be monitored by 'within eyesight' observation by staff trained in management of violence and RT. Where it is safe to do so, staff should enter the seclusion room to carry out post RT physical observations in line with the Seclusion Policy.
- The RT monitoring (Appendix 6) must be completed on the physical health obs app. If any of the observations cannot be carried out whilst the patient is in seclusion, this must also be recorded on the form. Visual observations should be

recorded where possible such as alertness, respiration. • Ensure compliance with BSMHFT Seclusion Policy

3.6 Medical Equipment

A Crash bag (including an automatic external defibrillator, a bag valve mask, oxygen, cannulas, fluids, airways, pulse oximeter, vital signs monitor, suction and first-line resuscitation medications) must be available within 3 minutes in clinical areas where RT may be used. This equipment along with other physical health equipment must be maintained and checked daily. (In accordance with the Trust Physical health and Resuscitation policies)

3.7 Monitoring before, during and after rapid tranquillisation

3.7.1 ***Before RT***

RT must not be carried out without an assessment of the physical health of the service user. ***Before*** prescribing medication for RT, the prescribing doctor must

- Review the patients' clinical record with regard to his/her general medical history & where possible undertake as much of the physical examination as possible.
- Carry out a physical health assessment of the service user, including a check for recent ECG, U&E's, & urine drug screen results, a previous history of severe EPSEs, previous response to RT or other methods of managing imminent violence. In particular the presence of delirium or intoxication should always be considered before RT is commenced.
- Review current prescribed medication and recently administered medication, taking note of administrations of PRN prescriptions.

3.7.2 ***During*** *RT*

- The responsibility for ensuring that monitoring occurs is that of the professional in charge of the ward at the time of the episode. Close monitoring by nursing staff is necessary to ensure prompt recognition of the development of serious complications.
- The intensity and frequency of monitoring will be determined by the intensity of the medicines administered according to the following table

Table 2: Scheme for post RT Monitoring

Level of Risk	Criteria	Physical Monitoring schedule	Psychiatric Observations
Low	Pre-RT (one oral dose only)	Respiratory rate, pulse and blood pressure, oxygen	Each hour for at least two hours
		saturation, new confusion,, NEWS score & level of alertness hourly for at least two hours until stable	until stable
High	All patients with multiple oral treatments for the same episode, oral combinations or IM RT	Respiratory rate, pulse and blood pressure, oxygen saturation, new confusion, NEWS score & level of alertness every 15 minutes for at least two hours until stable	Every 15 minutes for at least two hours until stable

Where an individual's overall presentation or individual vital signs give rise to significant concern or the NEWS score suggests serious concerns, the health professional in charge of the incident should consider calling emergency services, the duty doctor and if necessary emergency procedures. Where this is escalated, the individual should be kept in continuous site of at least one health professional at all times.

Table 3 – Suggested scheme for psychiatric monitoring after administration of medication

Use the following table to monitor mental state in patients undergoing RT

1. Alertness	
A Alert	Eyes open with normal verbal response.
V Voice	Eyes closed but will open eyes on command, and with normal verbal response.

P Pain	Eyes closed, responds to painful stimuli (nail bed depression – finger or toe nail).
U Unresponsive	Does not respond to **ANY** of the above. Completely unconscious

- Some observations may be difficult if a patient remains agitated or aggressive. Problems in this regard should be clearly documented and discussed with the prescriber or the clinical team. However, observation of the service users mental state, alertness and respiration, the possibility of pyrexia or any warning signs of physical deterioration must be carried out and documented.
- Where there is concern for a service user's physical health, the duty doctor must be contacted as soon as practicable. Where necessary, call 999 and summon emergency assistance.
- The physical health obs app must be changed to RT. Information recorded on the incident form should also include

  The medication prescribed/administered

  Mental Health Act status

  All physical monitoring undertaken

  Reasons for any physical monitoring not able to be carried out

3.7.3 ***After*** RT

- Full physical examination, NEWS score and mental health assessment must be taken at the earliest opportunity**.**

3.8 Management of Side Effects and Complications

Complication	Symptoms/signs	Management
Acute dystonia	Severe painful muscular stiffness	Procyclidine 5 to10mg IM stat
Hypotension	Fall in blood pressure (orthostatic or 50mmHg diastolic)	Lie patient flat and raise legs Monitor closely
Neuroleptic Malignant Syndrome (NMS)	Increased temperature, fluctuating blood pressure, muscular rigidity, confusion/altered consciousness	Withhold antipsychotics Monitor closely Arrange transfer to acute Hospital

Arrhythmias	Slow(50/minute) or irregular pulse	Monitor closely and liaise with general medical team immediately
Respiratory depression	Reduced respiration rate and reducing consciousness	Give oxygen, raise legs. If necessary ventilate mechanically If respiratory rate drops below 10/minute in a patient who has received benzodiazepines give **flumazenil 200micrograms IV** over 15 seconds If consciousness is not resumed within 60 seconds give 100micrograms over 10 seconds Repeat at 60 second intervals
Complication	**Symptoms/signs**	**Management**
		Maximum dose 1mg (1000microgms) in 24 hours Continue to monitor after respiratory rate returns to normal. Flumazenil has a short duration of action so further doses may be required Patients may become agitated or anxious on waking.

NB If a 'Medical emergency' occurs then action should be taken as per Trust Resuscitation Policy, RT can only occur in areas which hold equipment in list 1.

3.9 Guidance on the administration of flumazenil

3.9.1 Flumazenil is indicated after the administration of oral or parenteral benzodiazepines if the respiration rate falls below 10 breaths per minute.

3.9.2 Flumazenil is contraindicated in patients with epilepsy receiving long term benzodiazepines for control of epilepsy

3.9.3 The initial dose of flumazenil is 200 micrograms IV given over 15 seconds, which should be administered by a doctor.

3.9.4 If consciousness is not achieved after 60 seconds, administer a further 100 micrograms IV over 10 seconds.

3.9.5 The maximum dose of flumazenil is 1000 micrograms over 24 hours (i.e.one loading dose and eight further doses)

3.9.6 Side effects of flumazenil include an increase in agitation, anxiety or fear, which will become apparent on wakening and may lead to further violent behaviour. There is a risk of seizures in regular benzodiazepine users.

3.10 Post-incident review after rapid tranquillisation

3.10.1 After RT, a full physical examination and mental health assessment must be taken at the earliest opportunity.

3.10.2 All service users must be offered the opportunity to discuss their experiences following RT and must be provided with a clear explanation of the decision to use RT. They must be also given an opportunity to write their account of their experience in their clinical record and state what their preferred option would be in future. In doing so, service users should be given the opportunity to be supported by an independent mental health advocacy support worker. If the patient is still unwell following the experience they must be offered an opportunity to discuss it at a later date.

3.10.3 Offer the service user the opportunity to develop or amend their advance statement in relation to RT.

3.10.4 There must be a complete review of the treatment plan by a doctor from the team, which would include reviewing the cause of the violence or aggression, the diagnosis and the ongoing management of the patients underlying condition including a review of continuing pharmacological treatment. AVERTS advisers can help with the review of treatment, especially looking at the causes of violence or aggression and the management.

3.10.5 Incidents involving RT must be reported on Eclipse in accordance with BSMHFT Management of Serious Untoward/Untoward Incident policies.

3.10.6 It is recommended that a post-incident review takes place in the clinical area as soon after the incident as possible, but in any event within 72 hours of the incident occurring.

The post-incident review should address what happened during the incident, any trigger factors, each person's role in the incident, how they felt during the incident, how they feel at the time of the review, how they may feel in the near future, and what can be done to address their concerns.

If possible, a person not directly involved in the incident should lead the review. In the post incident review

- Ascertain the level of clinical effectiveness achieved by the intervention.
- Review the pharmacological treatment strategy including regular and p.r.n medication, amending accordingly.

The multidisciplinary team must be satisfied that the intervention was clinically effective and did not cause any serious adverse effects before prescribing further doses for administration to the service user.

3.11 Training

All staff involved in the administration of RT and monitoring of service users to whom RT has been administered must be up to date in the following 4 components of training:

a. **Immediate Life Support** (ILS – resuscitation council (UK) covering airway, cardio pulmonary resuscitation (CPR), use of defibrillators and use of pulse oximeters)

b. **Approaches to Violence through Effective Recognition and Training for Staff** (AVERTS).

c. **Medical Equipment**

All staff involved in administering RT, or monitoring services users to whom parenteral RT has been administered, must receive training in the use of pulse oximetry, vital signs monitoring and the use of Automated External Defibrillators (In addition to existing training provision for current Resuscitation Equipment). This training will be undertaken in conjunction with the training provided for all other items of medical equipment that are included in resuscitation equipment. (Crash Bag) This training will be provided within the Immediate Life Support Training (Resuscitation Council UK)

d. **Medicines Management for Rapid Tranquilisation**

All staff involved in prescribing and/or administering RT or monitoring services users to whom RT has been administered, must receive on-going competency training in RT including

- The properties of benzodiazepines, their antagonist (flumazenil), antipsychotics, antimuscarinics and antihistamines
- Associated risks with medication groups above, including cardiorespiratory effects of the acute administration of the drugs - particularly when the service user is highly aroused and/or may have been misusing drugs - dehydration and possible physical illness.
- The need to titrate doses to effect.

This is required annually and is provided as part of ILS training as well as by an e-learning module.

4. Roles and Responsibilities

4.1 The Executive Medical Director is the identified Trust lead for Safe Medicines Practice including RT. This is supported by the functions of

the Pharmacological Therapies Committee, the Chief Pharmacist and the Assistant Medical Director (Pharmacological Therapies).

4.2 The responsibilities of the various practitioners associated with the prescribing, ordering, dispensing, storing, administering and disposal of medicines are as follows:

Chief Pharmacist	Responsible for developing the RT policy and for a system of monitoring the use of RT.
Clinical Directors	Responsible for ensuring that all staff involved in the prescribing, administration or monitoring of medicines used in RT can demonstrate competence.

Medical Staff	Responsible for prescribing appropriate medicines for RT for patients. All prescribers must comply with the legal framework for medicines, the Medicines Code and the Mental Health Act when performing these duties Responsible for organising an appropriate physical examination prior to prescribing medicines for RT including the arrangement or ordering of laboratory tests, ECGs or other appropriate investigations. When required to do so, medical staff should attend an RT episode as soon as possible Responsible for any medical examinations during RT and for the administration of IV flumazenil, should it be indicated.
Ward Managers	Ward managers of wards where RT may take place must ensure that staff are competent in the administering and monitoring of medicines used in RT.
Professional in Charge of a Ward	Must take immediate charge for an episode where RT is administered Holds overall responsibility for ensuring the post RT monitoring is carried out. Responsible for calling for medical assistance and for calling for emergency support from the police or ambulance service if necessary.

Nursing Staff	Nursing staff (including qualified nurses and nursing associates) are responsible for administering oral and where necessary IM medication in accordance with prescriptions for such medication, taking account of policies and procedures within the Medicines Code and the Mental Health Act policy. Responsible for the physical monitoring required during an episode of RT and for recording observations on the RT Monitoring Form or the physical health obs app. Responsible for de-briefing service users after an episode of RT and for recording any preferences or advanced decisions.
All staff	All staff who attend an episode of RT are responsible for employing non-pharmacological
	techniques where competent to do so such as deescalation.

5. Development and Consultation

Consultation summary		
Date policy issued for consultation		March 2019
Number of versions produced for consultation		One
Committees or meetings where this policy was formally discussed		
Pharmacological Therapies Committee		March 2019 May 2019 June 2019
Digital Ward Group		April 2019
Matrons Meeting		May 2019
Nursing Advisory Council		May 2019
Where else presented	**Summary of feedback**	**Actions / Response**
Policy Development Management Group	Minor comments	Policy updated in line with comments
Various Professional Staff	Minor comments, amendments and suggestions	Majority accepted and incorporated

6. Reference List

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7 Bibliography

None

8 Glossary

Rapid tranquillisation: The administration of medication given primarily to calm/lightly sedate the service user, often without consent and to urgently control behaviour disturbance thus reducing the risk to themselves, staff and others. This includes all medication administered whilst the patient is restrained to control behaviour. It especially includes the administration of intramuscular medication, combinations of medication and may include repeated doses of oral medication given within the same episode to control behaviour.

ECG: a test that can be used to check the heart's rhythm and electrical activity

EPSE: Extra-pyramidal side effects that include:

- Akinesia - finding it hard to start a movement
- Akathisia - finding it hard to keep still, and with 'an inner feeling of restlessness'
- Dyskinesia – unusual movements or twitches (usually of the face) that may keep on repeating themselves
- Oculogyric crisis – unusual eye movements, most commonly with the eyes turning upwards
- Parkinsonism – some of the symptoms look like someone with Parkinson's disease e.g. tremor or stiffness.

BAP: British Association for Psychopharmacology

NAPICU: National Association of Psychiatric Intensive Care Units

Taser: A gun that fires two small barbed darts intended to puncture the skin and remain attached to the target. The darts are connected to the main unit by thin insulated copper wire and deliver electric current to disrupt voluntary control of muscles, causing "neuromuscular incapacitation."

9 Audit & Assurance

The policy will be monitored according to the table below

Element to be monitored	Lead	Tool	Frequency	Reporting Arrangements	Acting on Recommendations and Lead(S)	Change in Practice and Lessons to be shared
Annual audit of rapid tranquilisation presented to PTC covering standards of prescribing and physical monitoring	Chief Pharmacist	Audit Report	Annually	Audit Report to PTC	As directed by PTC	
Compliance with rapid tranquillisation training	Learning & Development	As per Risk Management fundamental Training policy	As per Risk Management fundamental Training policy	As per Risk Management fundamental Training policy	As per Risk Management fundamental Training policy	

Staff competence	Clinical Directors	Competency assessment	Annually	Audit reports to local Integrated Quality Committee and Trust CGC	As agreed by local IQC and trust CGC	

Appendix 1

Equality Analysis Screening Form

Title of Proposal	**Policy development and management Policy**		
Person Completing this proposal		Role or Title	Chief Pharmacist
Division	**Medical**	**Service Area**	**Pharmacy**
Date Started	**17.1.19**	**Date Completed**	**17.1.19**
Main purpose and aims of the proposal and how it fits in with the wider strategic aims and objectives of the organisation.			
This policy defines • the instances when Rapid Tranquillisation should be used • who is authorised to use it • arrangements the Trust has in place to ensure that the necessary training and equipment is available to ensure its appropriate use The policy ensures that Rapid Tranquillisation is used in line with national guidance, and to meet our legal obligations			
Who will benefit from the proposal?			
All clinical staff, patients receiving Rapid tranquilisation as well as the trust			
Impacts on different Personal Protected Characteristics – *Helpful Questions:*			

Does the proposal promote equality of opportunity: N/A **Eliminate discrimination?** N/A **Eliminate harassment?** N/A **Eliminate victimisation?** N/A	**Promote good community relations?** N/A **Promote positive attitudes towards disabled people?** N/A **Consider more favourable treatment of disabled people?** N/A **Promote involvement and consultation?** N/A **Protect and promote human rights?**

Please click in the relevant impact box or leave blank if you feel there is no particular impact.

Personal protected Characteristic	No/Minimum Impact	Negative Impact	Positive Impact	Please list details or evidence of why there might be a positive, negative or no impact on protected characteristics.
Age	**0**			
Including children and people over 65 Is it easy for someone of any age to find out about your service or access your proposal?				
Are you able to justify the legal or lawful reasons when your service excludes certain age groups				
Disability	**0**			
Including those with physical or sensory impairments, those with learning disabilities and those with mental health issues Do you currently monitor who has a disability so that you know how well your service is being used by people with a disability? Are you making reasonable adjustment to meet the needs of the staff, service users, carers and families?				
Gender	**0**			

This can include male and female or someone who has completed the gender reassignment process from one sex to another Do you have flexible working arrangements for either sex? Is it easier for either men or women to access your proposal?

Marriage or Civil Partnerships	**0**			
People who are in a Civil Partnerships must be treated equally to married couples on a wide range of legal matters Are the documents and information provided for yours service reflecting the appropriate terminology for marriage and civil partnerships?				
Pregnancy or Maternity	**0**			
This includes women having a baby and women just after they have had a baby Does your service accommodate the needs of expectant and post-natal mothers both as staff and service users? Can your service treat staff and patients with dignity and respect relation in to pregnancy and maternity?				
Race or Ethnicity	**0**			
Including Gypsy or Roma people, those of mixed heritage, asylum seekers and refugees What training does staff have to respond to the cultural needs of different ethnic groups? What arrangements are in place to communicate with people who do not have English as a first language?				
Religion or Belief	**0**			
Including humanists and non-believers Is there easy access to a prayer or quiet room to your service delivery area? When organising events – Do you take necessary steps to make sure that spiritual requirements are met?				

Sexual Orientation	**0**			
Including gay men, lesbians and bisexual people Does your service use visual images that could be people from any background or are the images mainly heterosexual couples? Does staff in your workplace feel comfortable about being 'out' or would office culture make them feel this might not be a good idea?				

Transgender or Gender Reassignment	**0**			
This will include people who are in the process of or in a care pathway changing from one gender to another Have you considered the possible needs of transgender staff and service users in the development of your proposal or service?				
Human Rights	**0**			
Affecting someone's right to Life, Dignity and Respect? Caring for other people or protecting them from danger? The detention of an individual inadvertently or placing someone in a humiliating situation or position?				
If a negative or disproportionate impact is identified in any of the key areas would this difference be illegal / unlawful? I.e. Would it be discriminatory under anti-discrimination legislation. (The Equality Act 2010, Human Rights Act 1998)				
	Yes	**No**		
What do you consider the level of negative impact to be?	**High Impact**	**Medium Impact**	**Low Impact**	**No Impact**
				0

If the impact could be discriminatory in law, please contact the **Equality and Diversity Lead** immediately to determine the next course of action. If the negative impact is high a Full Equality Analysis will be required. If you are unsure how to answer the above questions, or if you have assessed the impact as medium, please seek further guidance from the **Equality and Diversity Lead** before proceeding. If the proposal does not have a negative impact or the impact is considered low, reasonable or justifiable, then please complete the rest of the form below with any required redial actions, and forward to the **Equality and Diversity Lead.**
Action Planning:
How could you minimise or remove any negative impact identified even if this is of low significance?
N/A
How will any impact or planned actions be monitored and reviewed:
N/A
How will you promote equal opportunity and advance equality by sharing good practice to have a positive impact other people as a result of their personal protected characteristic.
Through mandating involvement of all in the development and reviewing of policies
Please save and keep one copy and then send a copy with a copy of the proposal to the Senior Equality and Diversity lead at hr.support@bsmhft.nhs.uk. The results will then be published on the Trust's website. Please ensure that any resulting actions are incorporated into Divisional or Service planning and monitored on a regular basis.

Appendix 2: Rapid Tranquillisation Treatment Algorithm

	Preferred option		
First dose	IM lorazepam	OR	IM promethazine (if benzodiazepine not suitable)
Second dose *(Minimum one hour after first dose)*	IM lorazepam	OR	IM promethazine (if benzodiazepine not suitable)
Third dose *(Minimum one hour after second dose)*	IM haloperidol + IM promethazine	OR	IM haloperidol + IM lorazepam
Third dose alternatives			IM Olanzapine
			IM Aripiprazole

Notes

IM Lorazepam

- Ensure Flumazenil available
- As effective as antipsychotic monotherapy and combination antipsychotic + benzodiazepine

IM promethazine

- an alternative for first and second dose RT e.g. history of paradoxical reaction to benzodiazepine

IM Haloperidol + IM Promethazine

- Recent ECG (within last 3 months) advised and ensure anticholinergic prescribed
- More rapidly effective than benzodiazepine monotherapy (Lorazepam) and combination antipsychotic + benzodiazepine

IM haloperidol + IM lorazepam

- Ensure Flumazenil available
- Some evidence of earlier sedation compared with monotherapy (benzodiazepine or antipsychotic)
- Recent ECG (within last 3 months) advised and ensure anticholinergic prescribed

IM Olanzapine

- Consider use if concerned about ECG/QTc No IM Lorazepam within 1hr
- Less benefit than IM haloperidol + IM promethazine

IM Aripiprazole

- Consider use if concerned about ECG/QTc
- Less calming/sedation than monotherapy with benzodiazepine or other antipsychotics
- Should not be combined with other antipsychotics because aripiprazole has a high affinity for dopamine D2 receptors, but with partial agonist activity. This reduces effectiveness of all other antipsychotics that act as an antagonist at D2 receptors

When dealing with acutely disturbed behaviour in older people nonpharmacological measures, such as de-escalation and distraction should always be attempted first. Remember that if passive restraint is required older people have a higher risk of skin damage.

Start with oral medication and remember that in older people lower doses and slower increases are recommended.

Antipsychotics should be used with caution in older people with dementia, especially those with a history of cerebrovascular disease and only after discussion with relatives. For older people exhibiting greater risk of violence and aggression, decisions regarding potential management strategies including RT should occur in advance of the likelihood of an alert, e.g. on admission.

Older patients will absorb medications more slowly and so there will be a slower onset of action, be sure to take this into consideration before repeating doses.

Older patients may also have an effectively larger volume of distribution which leads to a longer duration of action, this needs to be considered so as to avoid accumulation.

There is a higher incidence of adverse effects in older patients, in particular disinhibition is much more likely with benzodiazepines than in working age patients.

It is important to ensure that all physical monitoring is carried out as per policy so as to be sure to pick up any adverse effects.

Appendix 4: Rapid Tranquillisation for CAMHS inpatients

This guideline is based on the available evidence in the literature and takes account of the fact that many psychotropic drugs are not licensed for use in young people. Many medications used in children and adolescents, particularly in hospital settings are prescribed either “off label” (outside the condition of the licence) or on an unlicensed basis (medicines that have never been considered for a licence) - see Appendix 3 BSMHFT Medicines Code – use of unlicensed medicines.

CAMHS RT doses given below are within BNF limits (although possibly for indications other than RT) and doses higher than those recommended below should not be prescribed as RT in CAMHS patients unless this is done with the advice of a consultant child and adolescent psychiatrist. When planning to use RT, it is good practice to inform the child/adolescent and the person with parental responsibility. Always ensure prescribed RT is authorised by the relevant MHA consent to treatment paperwork

Children and adolescents especially those with diagnoses of learning disabilities and/or autistic spectrum disorder can be more sensitive to all side effects of medication. When using RT in children/adolescents it is not uncommon for patients to experience dystonias with antipsychotics and paradoxical excitation with benzodiazepines.

The most appropriate medications for use in RT in children and adolescents are haloperidol and lorazepam; sedating antihistamines may also have a role in specific cases.

Medication for RT – CAMHS doses

The weight and pubertal status of the young person needs to be considered in deciding dosages. At over age 12 years and over a weight of 40kg adult doses may be used. If the drug history is not available, use the lower end of the dose range. Consult the medical team for medication dosages for weights below 40kg.

It is unusual to use doses over that given in the BNF for young people as there is no body of evidence to support such usage. In all cases the minimum effective dose of medication should be used. BNF maximum doses should only be exceeded in extreme circumstances and with the advice of a consultant CAMHS psychiatrist.

Patient over age 12 years	**Oral dose**	**IM dose[1]**	**Maximum dose**

Lorazepam	0.5mg to 2mg	0.5mg to 2mg	Max 4mg/24 hours
Haloperidol	1mg to 5mg	2.5mg to 5mg	Max 20mg/24hrs PO & Max 12mg/24 hrs IM
Promethazine	25mg to 50mg	25mg to 50mg	Max 100mg /24hrs
Olanzapine	-	2.5mg to 10mg	Max 20mg/24hrs

Medication for management of side effects – CAMHS doses (aged over 12 years)

Medication	Notes	
Flumazenil IV bolus	Initial dose = 200micrograms IV given over 15 seconds If consciousness is not achieved after 60 seconds, administer a further 100 micrograms IV over 10 seconds. The maximum dose of flumazenil is 1000 micrograms over 24 hours (i.e. one loading dose and eight further doses).	Flumazenil should administered by a doctor. Question aetiology if no response to repeated doses Flumazenil can lower seizure threshold. If flumazenil is used the resulting seizures may require treatment with higher doses of benzodiazepines. Fatal status epilepticus has been reported in cases of mixed benzodiazepine and tricyclic antidepressant overdose where flumazenil has been used.
Procyclidine PO	2.5mg to 5mg	If oral haloperidol is used, consider administering oral procyclidine
Procyclidine IM or IV	5mg to 10mg	Repeat after 20 to 30mins if required Use IV if acute dystonia and medic present

1. Taylor D, Barnes T, Young A (2018) *Maudsley Prescribing Guidelines (13th Edition).* Wiley - Blackwell

Service users who are pregnant should be treated in accordance with the RT policy, with the following to be also applied.

Managing the care and treatment of a pregnant woman

- Care of a pregnant woman should always be managed in close collaboration with an obstetrician and the perinatal mental health team

- Women may be admitted to the Mother and Baby Unit at Barberry from 32 week gestation. Advice from the Perinatal Mental Health Service Inreach Outreach Team is available at any time during pregnancy; contact should be made during normal working hours on 01213012182

- Pregnant women should always be asked to bring her handheld antenatal record (often referred to as 'green notes' or `blue notes`) into hospital with her as this contains vital information about her pregnancy and obstetric health. These should be taken to any medical or maternity appointment.

What medicines may be used for Rapid Tranquillisation?

Treat a pregnant woman requiring RT according to the NICE clinical guidelines on the short-term management of disturbed/violent behaviour, but:

- When choosing an agent for RT, an antipsychotic or a benzodiazepine with a short half-life should be considered and prescribed at the minimum necessary dose. Risks to the mother and unborn child need to be considered, both risks of medication and risks of unmanaged violence and/or aggression.

- Intramuscular medication may be given in the gluteal muscle or lateral thigh

Rapid tranquilisation and physical intervention in pregnancy

Wherever possible staff should refrain from using AVERTS techniques in women who are known or suspected to be pregnant. If intervention is required staff should ensure that there are sufficiently trained staff and seek advice from the AVERTS department. This advice should be sought as soon as there in a known pregnancy on the unit and an individualised care plan for the management of the person documented on RiO.

In extreme cases, If seclusion is deemed necessary the seclusion policy should be implemented and advice from the perinatal service and AVERTS team sought. The mother should never be left alone and should be very closely supervised.

Monitoring guidelines in the general RT policy should be followed. **If there is a general medical emergency then the trust resuscitation procedure should be followed. For an obstetric emergency then call 999 for emergency assistance immediately.**

Telephone advice should be sought at the earliest possible opportunity from specialist obstetric or gynaecology professionals as follows:

- Under 16 weeks gestation advice should be sought from the gynaecology registrar at the local general hospital – they can be contacted via the hospital switchboard or A&E

- At 16 weeks gestation and over, advice should be sought from the maternity triage department that the woman is booked for delivery.

- The triaging clinician will make an assessment of the presenting concerns and offer advice, which may include further assessment / monitoring at the maternity department or with a community midwife on the ward where the woman is currently admitted.

- Staff should be prepared to provide as much information as possible in order for the triaging clinician to make an assessment. Some of this information will be available in the handheld antenatal records so if possible staff should have these to hand. This information is likely to include:

  - **Patient information**: Name; date of Birth; NHS number / maternity hospital number
  - **Staff and hospital information**: Staff member name and role; details of the responsible clinician; contact numbers for the ward
  - **Information about current pregnancy**: Gestation / stage of pregnancy; which hospital is the woman in to booked for pregnancy care
  - **Information about the rapid tranquilisation:** What medication(s) have been used, including dose and route of administration (for example if antipsychotic was used in late pregnancy a risk of neonatal EPSE should be considered; If a benzodiazepine is used, the risks of floppy baby syndrome should be considered; if there was restraint required what position(s) was the woman held in, how long for; what led to RT; is there any injury or were there any knocks to the abdomen; how is the woman presenting now, what are the ongoing plans to manage this situation

  - **Current state of physical and obstetric health**: Are foetal movements present; is there any vaginal loss i.e. bleeding or loss of amniotic fluid (presenting as a clear or slightly

yellowish liquid; is the woman reporting or does she appear to be experiencing contractions or any abdominal pain;
current & baseline vital observations i.e. blood pressure, pulse, temperature, urinalysis

- Staff may also be asked for information about the general care plan and other prescribed medication, capacity issues, information about previous pregnancies and deliveries and other antenatal information known so far.

- The allocated community midwife should be contacted. Contact details should be available in the antenatal notes. If details of allocated midwife are not available staff should request these from the hospital the woman is booked at for maternity care.

APPENDIX 6 - RAPID TRANQUILLISATION PHYSICAL HEALTH RECORDING FORM

Name			Date /Time		
Consultant		MHA status		Incident form no	
Ethnic Group		Ward			

List the medication given during the episode of rapid tranquillisation

Medication	Dose	Time	Route	Notes

Please note, this is NOT a prescription

if patient is detained under the Mental Health Act is this medication on the patient's consent to treatment or has section 62 paperwork been completed?

Physical Monitoring:

• **Alertness** • **Respiratory rate** • **Pulse** • **Blood pressure**	1. Pre-RT: Every hour for at least 2 hours or until stable 2. RT: Every 15 minutes for at least 2 hours or until stable Then continue to monitor alertness, mental state and behaviour. Restart physical observations if there are any concerns.
Temperature, Spo2, Fluid balance & electrolyte balance should be monitored as clinically indicated	
ECG monitoring is recommended when parenteral antipsychotics have been given in high doses	
If a patient is unconscious **continuous pulse oximetry** is recommended	

Time:	Alertness	Respiration rate / min	Pulse /min	Blood Pressure (BP)	O_2 saturation	Temperature	NEWS Score
Baseline:							

Codes:

A	Alert: Eyes open with normal verbal response.
V	Voice: Eyes closed but will open eyes on command, and with normal verbal response.
P	Pain: Eyes closed, responds to painful stimuli (nail bed depression – finger or toe nail).
U	Unresponsive: Does not respond to **ANY** of the above. Completely unconscious

A NEWS2 score should be calculated using the scoring system below. Intensive monitoring should continue for scores between 1 and 4. Call for further help immediately if total score ≥ 5 or increases by 2.

Chart 1: The NEWS scoring system

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

Chart 2: NEWS thresholds and triggers

NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

* Response by a clinician or team with competence in the assessment and treatment of acutely ill patients and in recognising when the escalation of care to a critical care team is appropriate.
**The response team must also include staff with critical care skills, including airway management.

De brief: Follow up discussion with service user:			
Date		Time	

Summary: (Main issues should be recorded in case notes including comments from service user)	
Staff Name:	

Appendix 7: Advice on the Preparation and Administration of Lorazepam Intramuscular (IM) Injection

- IM lorazepam must only be administered diluted 1:1 with sodium chloride 0.9% or water for injection.
- IM Lorazepam must not be mixed with any diluents other than sodium chloride 0.9% or water for injection.
- Lorazepam injection is available as 4mg in 1ml (Ativan®)
- The following shows the dilution volume required for doses of lorazepam injection :

Dose required	**Volume of 4mg in 1ml injection**	**Volume of diluent**
0.5mg	0.125ml	0.125ml
1mg	0.25ml	0.25ml
2mg	0.5ml	0.5ml
3mg	0.75ml	0.75ml
4mg	1ml	1ml

- Example:
  For a prescription of lorazepam 1mg IM

Draw up **0.25ml of lorazepam 4mg in 1ml** and **0.25ml of sodium chloride 0.9%** or **0.25ml water for injection Always remember to mix lorazepam 1:1 with diluent**

- If lorazepam IM is prescribed as part of rapid tranquillization ALWAYS follow the Rapid Tranquillization Policy, including patient monitoring parameters.
- Lorazepam injection MUST be stored in the FRIDGE.

Pharmacy Team
February 2011 (Updated June 2017)

Adapted from original document by Sussex Partnership Trust