

**POLICY AND GUIDANCE FOR SHORT-TERM MANAGEMENT
OF DISTURBED/VIOLENT BEHAVIOUR IN PSYCHIATRIC IN-
PATIENTS AND EMERGENCY DEPARTMENTS.**

**(WORKING AGE ADULT, SECURE & FORENSIC, SPECIALIST WOMENS
SERVICES & OLDER PEOPLES SERVICES).**

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Key Policy Issues

- When to consider using rapid tranquillisation and process to follow, including record keeping / monitoring
- Advance directives
- Specific risk issues

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1. Key Priorities¹

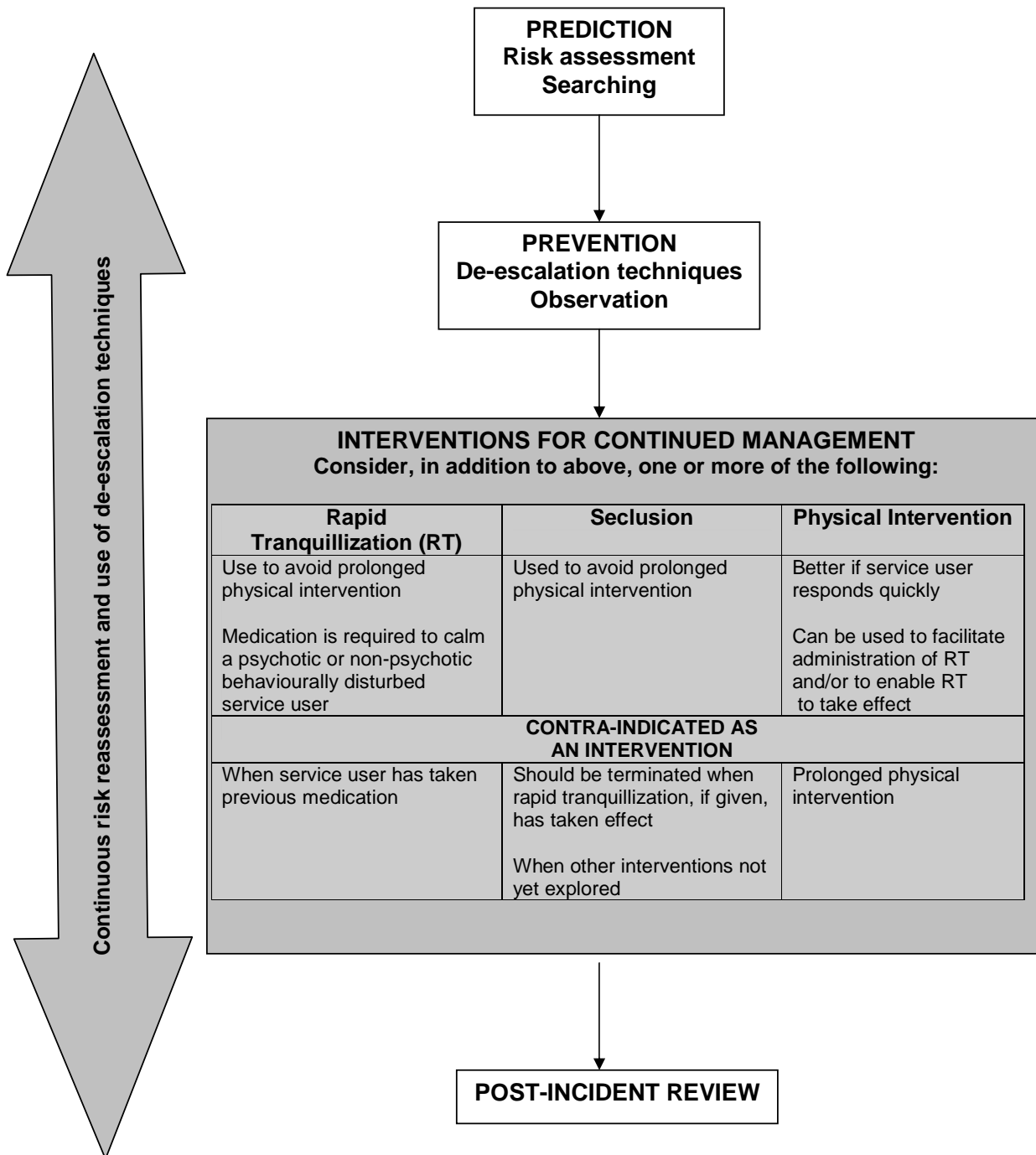
- 1.1 Rapid Tranquillization (RT) should only be considered once de-escalation and other strategies have failed to calm the patient. The intervention (along with physical intervention and seclusion) should be considered a management strategy and not be regarded as a primary treatment technique. When determining which intervention to employ, clinical need, the safety of service users and others and, where possible, any advance directives should be taken into account. The intervention selected must be a reasonable and proportionate response to the risk posed by the patient at that particular time.
- 1.2 The reasons for using RT (and any other intervention) must be explained to the patient at the earliest opportunity.
- 1.3 All staff involved in prescribing or administering rapid tranquillization, or monitoring patients to whom parenteral rapid tranquillization has been administered, must receive ongoing competency training to a Trust recognised standard which includes maintenance of airway, cardio-pulmonary resuscitation (CPR), the use of defibrillators, and the use of pulse oximeters.
- 1.4 All prescribers, and those staff who administer medicines for rapid tranquillization, should be familiar with and have received training which includes the following:
 - 1.4.1 The properties of benzodiazepines, the benzodiazepine antagonist flumazenil, antipsychotics, antimuscarinics and antihistamines.
 - 1.4.2 Associated risks, including cardio-respiratory effects of the acute administration of the drugs, particularly when the patient is highly aroused and may have been misusing drugs, is dehydrated, or is possibly physically ill.
 - 1.4.3 The need to titrate doses to effect.
- 1.5 A crash bag must be available within 3 minutes in all healthcare settings where rapid tranquillization might be used. Equipment available must include an automatic external defibrillator, a bag valve mask, oxygen and suction equipment. All equipment must be properly maintained and checked on a weekly basis and a record maintained.
- 1.6 All prescribers and staff involved in rapid tranquillization must be familiar with and have access to the Trust Resuscitation Policy.
- 1.7 All staff involved in an incident requiring the use of rapid tranquillization (or physical intervention) should be aware of the

potential for damage to the service user/professional relationship and ensure that everything possible is done to avoid its impact.

- 1.8 Any incident requiring rapid tranquillization (or physical intervention or seclusion) must be contemporaneously recorded. All appropriate staff should be trained to ensure that they are aware of how to correctly record any incident using the appropriate documentation.
- 1.9 A post-incident review should take place as soon as possible and at least within 72 hours of an incident ending. Wherever possible, a person not directly involved in the incident should lead the review. The review should address the following factors:
 - 1.8.1 What happened during the incident?
 - 1.8.2 Trigger factors.
 - 1.8.3 Each person's role in the incident.
 - 1.8.4 Their feelings at the time of the incident, at the review and how they may feel in the near future.
 - 1.8.5 What can be done to address their concerns?
- 1.10 Patients should be given the opportunity to document their own account of the intervention. This should be filed in their medical notes.
- 1.11 All staff involved in rapid tranquillization need to be aware of the legal framework that authorises this intervention. The intervention should be in line with the guidance contained within the current Mental Health Act code of practice, (and the Mental Health Capacity Act), and any departure from that guidance should be clearly recorded and justified as being in the best interests of the patient.

Algorithm 1

OVERVIEW ALGORITHM FOR THE SHORT-TERM MANAGEMENT OF DISTURBED / VIOLENT BEHAVIOUR¹



2. Target Audience

- Mental health care professionals and other staff who work in adult and older age adult's psychiatric in-patient settings and in emergency departments.
- Patients (>16 years of age).
- Families and carers.
- Managers and those responsible for service delivery.

This document does not cover

- Children and adolescents below the age of 16 years
- Adults with learning disabilities
- Patients with a primary diagnosis of substance abuse

3. Definitions

- 3.1 Advance directives (See Trust guidance on advance directives)
These are written instructions agreed between a patient and health professional before treatment begins, in which the patient specifies his or her preferred treatments and identifies the treatments he or she does not wish to receive. They guide health professionals in the event that the patient becomes unable to make decisions for him or herself.
- 3.2 Extrapyramidal side effects (EPSE)
Drug induced side-effects especially caused by antipsychotics. These include dystonia, akathisia, pseudoparkinsonism or dyskinesia. They can be acute or delayed.
- 3.3 Dystonia
Muscle spasm in any part of the body e.g. eyes rolling upwards (oculogyric crisis) or head and neck twisted to the side (torticollis). The patient may be unable to swallow or speak clearly. In extreme cases the back may arch or the jaw dislocate.
- 3.4 Pseudo-parkinsonism
Tremor and or/rigidity, bradykinesia (decreased facial expression, flat monotone voice, slow body movements), bradyphrenia (slowed thinking) and salivation. Pseudoparkinsonism can be mistaken for depression or the negative symptoms of schizophrenia.
- 3.5 Akathisia (restlessness)
A subjectively unpleasant state of inner restlessness where there is a strong desire or compulsion to move. Foot stamping when seated, constantly crossing/ uncrossing legs and/or constantly pacing up and down. Akathisia may be mistaken for psychotic agitation, leading to a cycle of increasing doses. It has also been linked with suicide and aggression towards others.

3.6 Dyskinesia

A group of involuntary movements that appear to be a fragmentation of the normal smoothly controlled limb and facial movements.

3.7 Reduced respiratory rate

Rate of below 10 breaths per minute, can be caused by benzodiazepines.

3.8 Neuroleptic Malignant Syndrome (NMS)

NMS is a rare but potentially fatal dose-dependent adverse effect of all antipsychotics. The incidence is reported as being 0.07% to 0.15%, but the death rates have been reported at 14% and 38% for oral and depot medication respectively. The signs and symptoms are fever and severe muscle rigidity, sweating, incontinence, altered consciousness, confusion, tachycardia, altered blood pressure, altered LFTs, leucocytosis and raised creatinine kinase

3.9 QTc prolongation

QTc is a measurement obtained from an ECG. If this is above normal limits (440ms for men and 470ms for women) it may predict a risk factor for the ventricular arrhythmia Torsade de Pointes, which is occasionally fatal (sudden cardiac death). Psychotropic agents have been associated with QTc prolongation, although there is controversy over the extent to which QTc prolongation is a risk factor. Above 500ms there is strong evidence for increased risk of arrhythmias. QTc prolongation may occur more frequently with high doses, intravenous administration and in predisposed patients. Check Maudsley guidelines ² for risk of QTc prolongation.

3.10 Disinhibition with benzodiazepines³

Disinhibition with benzodiazepines is an uncommon paradoxical reaction characterised by acute excitement and an altered mental state: increased anxiety, vivid dreams, hyperactivity, sexual disinhibition, hostility and rage. A history of aggression or impulsivity, neurological disorders, learning disability, age under 18 or over 65 are significant risk factors. Ingestion of alcohol can increase the severity of this reaction. The reaction is dose dependent with higher doses associated with a higher risk, particularly IV doses. Failure to recognise the reaction may result in the administration of higher doses of benzodiazepines thereby exacerbating the reaction. Antipsychotics drugs should be used to treat behavioural disturbances if disinhibition with benzodiazepines is suspected.

4. Mental Health Act

Patients detained under the Mental Health Act are subject to Consent to Treatment (MHA part 4). If they have been detained for more than 3

months, they will require consent under Section 58 (3) with a current form 38 or 39, or be treated under Section 62 - urgent treatment to prevent harm to self or others.

All information relevant to MHA status must be fully documented in the medical notes.

The patient's legal status should be reviewed whenever parenteral medication is considered. The enforced administration of medication by injection in an informal patient may necessitate use of the Mental Health Act.

5. Rapid Tranquillization and Seclusion

A combination of these 2 interventions is not absolutely contra-indicated providing that the following points are established:

- 5.1 If the patient is secluded, potential complications in response to rapid tranquillization are particularly serious and must be given full consideration.
- 5.2 The patient must be monitored by "within eyesight" observation.
- 5.3 Seclusion should be ended when rapid tranquillization has taken effect.

6. Medication

6.1 Treatment aims²

- To reduce suffering for the patient: psychological or physical (through self-harm or accidents).
- To reduce risk of harm to others by maintaining a safe environment.
- To do no harm (by prescribing safe regimes and monitoring physical health).

6.2 Prescribing

6.2.1 Only a Trust prescriber should prescribe medication for rapid tranquillization. The reason for prescribing rapid tranquillization should be documented in the medical notes, including the prescribing plan.

6.2.2 Prescribing of the medication should take into account any contra-indications, warning or precautions required⁴. For instance patients with co-existing medical illness (especially liver, renal or/and

cardiac impairment) and/or patients taking other prescribed medicines, alcohol or illicit drugs, should have drug and dose adjusted as necessary. Patients with a history of, or risk factors for, seizures should have antipsychotics prescribed cautiously, as antipsychotics lower seizure threshold.

- 6.2.3 Caution is required in patients who are pregnant or believed to be pregnant or if a patient is breast-feeding. Drug choice and dosage are dependent on potential benefit to the patient and potential risk to the foetus.
- 6.2.4 Full details of contra-indications, special warnings and precautions for all medicines can be found on www.medicines.org.uk

6.3 Choice of medication

- 6.3.1 If an advance directive has been completed this should be followed in the first instance. If for medical reasons an advance directive is not followed the doctor should fully record in the patient's notes. Patient preference for medication should also be considered at this stage.
- 6.3.2 It should be noted that antipsychotics in RT are not used for their antipsychotic action as onset of the antipsychotic effect can take up to six weeks.
- 6.3.3 Oral medication should be offered in the first instance as per the flow chart (algorithm 2 and 3).

6.4 High doses (see appendix 5)

In certain circumstances, current British National Formulary (BNF) doses and limits, and the manufacturers Summary of Product Characteristics (SPC), may be knowingly exceeded e.g. in the case of lorazepam. This decision should not be taken lightly or the risks underestimated, and a risk-benefit analysis should be recorded in the case notes and a rationale in the care plan. Where the risk-benefit is unclear, consideration should be given to seeking advice from clinicians who are not directly involved in the care of the patient.

If current BNF or SPC doses are exceeded it is particularly important to undertake frequent and intensive monitoring of a calmed patient. Particular attention must be given to regular checks of the airway, level of consciousness, pulse, blood pressure, respiratory effort, temperature and hydration.

7. Administration of medication

- 7.1 See Appendix 5 for drug specific details of administration.
- 7.2 Any medication administered and patient's response should be recorded in the nursing notes.
- 7.3 Drugs must not be mixed in the same syringe.
- 7.4 If the patient is struggling avoid IM injections, as there is a risk of hitting a vein and the drug being given IV.
- 7.5 Only a doctor can give IV administration.
- 7.6 Never give chlorpromazine IV or IM. IM is extremely painful and there is a high risk of severe hypotension with the IM and IV.
- 7.7 IM diazepam is to be avoided due to erratic and slow absorption.
- 7.8 Nursing and medical staff should always have a short feedback session following emergency restraint and RT.
- 7.9 Following RT the patient should be debriefed. This should be documented in the notes and they should be offered the opportunity to write their own account.¹ (also see section 1.10)

8. Monitoring

- 8.1 Where possible, baseline measurements of the following should be recorded before any parenteral drug administration:
 - Temperature
 - Pulse
 - Respiratory rate
 - Blood pressure

If these cannot be done, reasons should be clearly recorded in the patient notes as well as completing the appropriate monitoring form in Appendix 4.

- 8.2 Where possible, the measurements above should also be recorded every 5 – 10 minutes for 1 hour following the parenteral administration of any drug. Thereafter, they should be recorded at half hourly intervals until the patient is fully ambulatory. In addition, staff should closely monitor for signs of extra-pyramidal side effects in response to the administration of antipsychotic medication.

- 8.3 Where the patient is unconscious or asleep, the same monitoring should take place so far as is possible, and pulse-oximetry should also be used.
- 8.4 Where possible, and where facilities exist, ECG and haematological monitoring are strongly recommended when antipsychotics are administered, especially where high doses may be used. High stress levels, restraint, agitation, and hypokalaemia all place the patient at high risk of developing cardiac arrhythmias.

9. Medication Specific Risks

There are specific risks with different classes of medication and these risks may be compounded when medication is used in combination. Close monitoring of the patient is essential.

<u>Benzodiazepines</u>	Loss of consciousness, respiratory depression or arrest, cardiovascular collapse (particularly in patients already receiving clozapine).
<u>Antipsychotics</u>	Loss of consciousness, cardiovascular / respiratory complications and collapse, seizures, akathisia, dystonia, dyskinesia, neuroleptic malignant syndrome, excessive sedation.
<u>Antihistamines</u>	Excessive sedation, painful injection and additional antimuscarinic effects.

10. Discontinuation

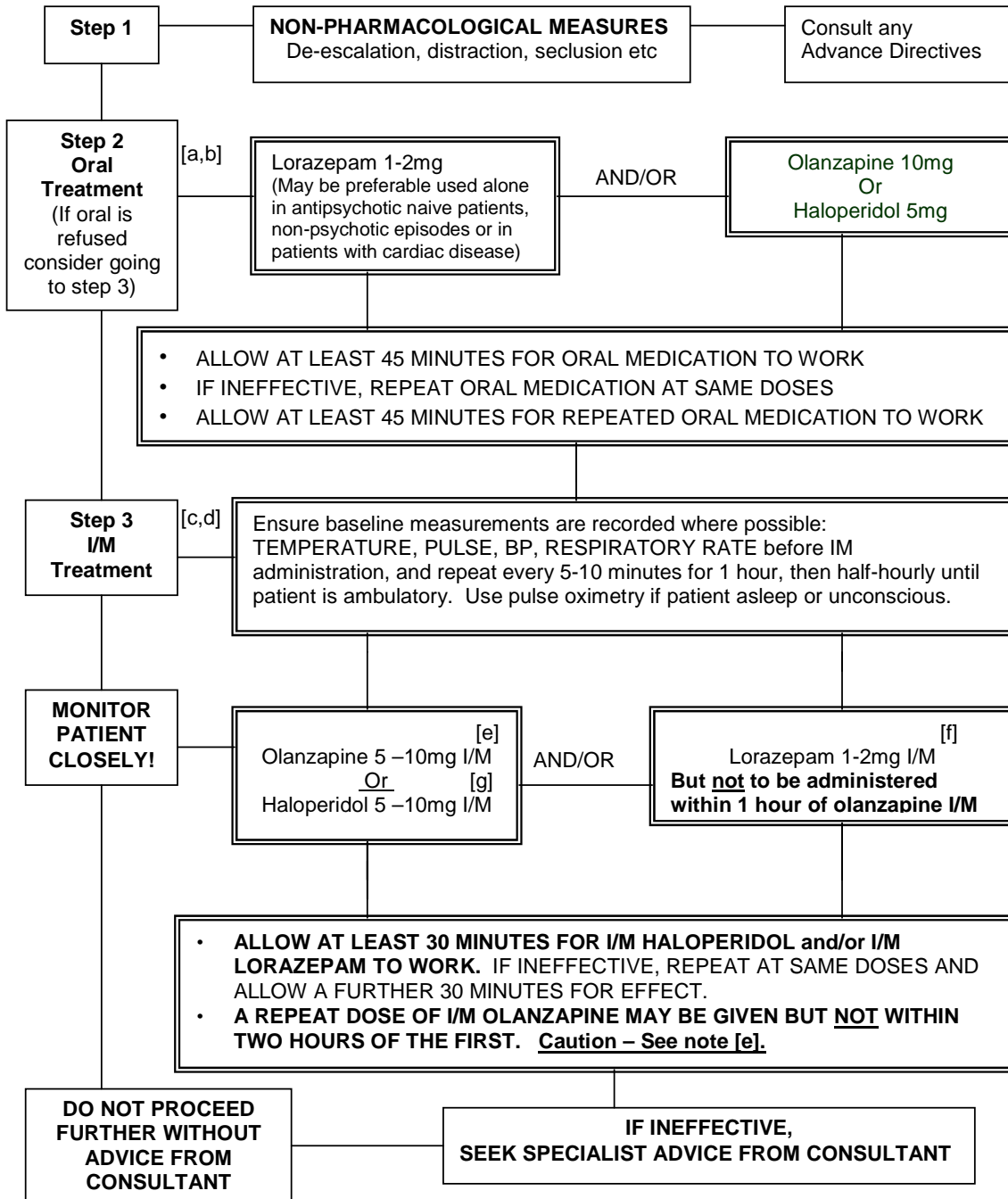
RT should be discontinued at the point of response. Thereafter, the patient must continue to be closely monitored, and future medication (both regular and as required) should be reviewed.

11. Advance Directives

Once a patient has received RT consideration should be given to drawing up an advance directive for future occasions.

Algorithm 2

**Rapid Tranquillization of the Acutely Disturbed / Violent Patient
- Working Age Adult -**



Notes:

- a. Choice depends on current treatment. If patient is established on antipsychotics, lorazepam may be used alone. If the patient uses 'street drugs' or already receives regular benzodiazepines, an antipsychotic may be used alone. For the majority of patients, best response will be with combination therapy.
- b. Ensure procyclidine injection is available. Antipsychotic may cause acute dystonic reaction.
- c. As in (a), either antipsychotic or benzodiazepine may be used alone, but best results are likely with combination therapy.
- d. Ensure flumazenil injection is available to reverse effects of lorazepam injection.
- e. The maximum dose of olanzapine is 20mg/24 hours by any (combined) route(s) – this should not be exceeded without obtaining specialist advice – and not more than 3 I/M doses may be given in any 24-hour period. **Intramuscular olanzapine and intramuscular lorazepam must not be administered within 1 hour of each other.**
- f. Lorazepam should be mixed 1:1 with water before injecting.
- g. The maximum dose of haloperidol is either 30mg orally or 18mg by intramuscular injection. Maximum doses will need to be adjusted if a combination of both routes are used. The bioavailable equivalence being approximately 10mg oral: 6mg intramuscular.

Notes:

- a. Choice depends on current treatment. If patient is established on antipsychotics, lorazepam may be used alone. If the patient uses 'street drugs' or already receives regular benzodiazepines, an antipsychotic may be used alone. For the majority of patients who are not antipsychotic naive, best response will be with combination therapy.
- b. Ensure procyclidine injection is available. Antipsychotic may cause acute dystonic reaction.
- c. As in (a), either antipsychotic or benzodiazepine may be used alone, but best results are likely with combination therapy in patients who are not antipsychotic naive.
- d. Ensure flumazenil injection is available to reverse effects of lorazepam injection.
- e. The maximum dose of olanzapine is 20mg/24 hours by any (combined) route(s) – this should not be exceeded without obtaining specialist advice – and not more than 3 I/M doses may be given in any 24-hour period. **Intramuscular olanzapine and intramuscular lorazepam must not be administered within 1 hour of each other.**
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12. Specialist Advice for Working Outside the Appropriate Algorithm

- 12.1 Advice must be sought from the consultant or appropriate specialist, at any stage of rapid tranquillization if any doubt exists regarding how best to proceed or if the algorithms (appendix 2 or 3) have been followed and there is no improvement.
- 12.2 Physical illness should be reinvestigated.
- 12.3 The following treatments are rarely used, have a minimal evidence base and are unlicensed. **They may only be prescribed by a consultant psychiatrist or appropriate specialist who has previous experience of their use.** Any decision to use these treatments must only be taken when more conventional treatments have failed and the reason for use must be fully documented in the patient's notes.
 - 12.3.1 Consider midazolam 5-10mg IM, or promethazine 50mg IM. Due to the risk of respiratory depression with IM midazolam, IV flumazenil needs to be available (see appendix 2). Promethazine may be useful in benzodiazepine-tolerant patients or when an increase in seizure threshold could be problematic, for instance in the case of ECT.
 - 12.3.2 Levomepromazine 12.5-50mg IM, highly sedative. Avoid in patients over 50 years due to significant hypotensive effects.
 - 12.3.3 Risperidone 1-2mg orally with or without lorazepam. Repeat at 45 minute intervals.
 - 12.3.4 Quetiapine 50-100mg orally may be considered as per use for acute mania
 - 12.3.5 Acuphase® (zuclopenthixol acetate) should not be used routinely in the RT setting (See appendix 3). It should only be used in situations where patients refuse oral medication and require frequent IM injections. However if Acuphase® is appropriate medication for a known patient and this is documented in the notes it may be included in rapid tranquillization under an advanced directive.
- 12.4 If prescribing two antipsychotics or over maximum doses (Appendix 5) an ECG should be carried out to exclude arrhythmias.
- 12.5 Emergency ECT may also be considered but only by an experienced specialist.

13. Intravenous Therapy.

- 13.1 The intravenous administration of benzodiazepines or haloperidol should not normally be used other than in very exceptional circumstances, which should be specified and recorded. This decision should only be taken by a consultant.
- 13.2 If immediate tranquillization is essential then intravenous administration may be considered necessary. If so, it is essential that attending staff have been appropriately trained to recognise symptoms of respiratory depression, acute dystonia and cardiovascular compromise.
- 13.3 If intravenous medication is used, the patient must never be left unattended. Intravenous administration must not take place without full access to support and resuscitation services. (See Trust Resuscitation Policy).

14. References

- 1) Violence – the short term management of disturbed/violent behaviour in psychiatric in-patient settings and emergency departments. National Institute for Clinical Excellence, February 2005.
- 2) Prescribing Guidelines 8th Edition, 2005-2006. The South London and Maudsley NHS Trust and Oxleas NHS Trust.
- 3) Paton C. (2002) benzodiazepines and disinhibition: a review. Psychiatric Bulletin; 26: 460-462.
- 4) Summary of Product Characteristics. www.medicines.org.uk (Association of the British Pharmaceutical Industry).

15. Other Trust Policies to be Cross-referenced

This protocol should be read and used in conjunction with the current Trust policy on:

Resuscitation, basic life support and anaphylaxis
ECT
Observation
Prevent and management of violence and aggression
Seclusion
Trust Induction
Compulsory Training
Medicines Code

Appendix 1 – Physical health monitoring and remedial measures

Rapid Tranquillization – monitoring

After any parenteral drug administration, monitor the following:

**Temperature
Pulse
Blood Pressure
Respiratory Rate**

Every 5 – 10 minutes, for one hour, then half-hourly until patient is ambulatory.

If the patient is asleep or **unconscious**, the use of pulse oximetry to continuously measure oxygen saturation is desirable. A nurse should remain with the patient until they are ambulatory again.

ECG and haematological monitoring are also strongly recommended when parenteral antipsychotics are given, especially when higher doses are used. Hypokalaemia, stress, and agitation place the patient at risk of cardiac arrhythmias.

Remedial measures in rapid tranquillization

<i>Problem</i>	<i>Remedial measures</i>
Acute dystonia (including oculogyric crises)	Give procyclidine 5 – 10mg IM
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 (see Appendix 2). If induced by any other sedative agent, ventilate mechanically .
Irregular or slow (<50/min) pulse	Refer to specialist medical care immediately.
Fall in blood pressure (>30mmHg orthostatic drop or <50mmHg diastolic)	Lie patient flat , tilt bed towards head. Monitor closely.
Increased temperature	Withhold antipsychotics (risk of NMS and perhaps arrhythmias). Check creatinine kinase urgently.

Appendix 2 – Guidelines for Use of Flumazenil

Guidelines for the use of flumazenil	
Indication for use	If respiratory rate falls below 10/minute after the administration of lorazepam, midazolam or diazepam.
Contra-indications	Patients with epilepsy who have been receiving long-term benzodiazepines.
Caution	Dose should be carefully titrated in hepatic impairment.
Dose and route of administration	<i>Initial 200mcg intravenously over 15 seconds - if required level of consciousness not achieved after 60 seconds then,</i> Subsequent dose: 100mcg over 10 seconds
Time before dose can be repeated	60 seconds
Maximum dose	1mg in 24 hours (one initial dose and eight subsequent doses).
Side effects	Patients may become agitated, anxious or fearful on awakening. Seizures may occur in regular benzodiazepine users.
Management	Side effects usually subside.
Monitoring	
• What to monitor?	Respiratory rate
• How often?	Continuously until respiratory rate returns to baseline level. Flumazenil has a short half life. Respiratory function may recover then deteriorate again.
Note: If respiratory rate does not return to normal or patient is not alert after initial doses assume sedation due to some other cause.	

Appendix 3 – Guidelines for the use of Clopixon Acuphase

Clopixon Acuphase (zuclopenthixol acetate) is not recommended for routine use in RT due to its long onset-time and duration of action. However, it can be considered as an option when it is recognised that the patient will be disturbed/violent over an extended time period and has a past history of a good / timely response. Some patients may want “Acuphase” included in advance directives.

Acuphase should be used only after an acutely psychotic patient has required repeated injections of short-acting antipsychotic drugs such as haloperidol or olanzapine, or sedative drugs such as lorazepam.

Acuphase should be given only when enough time has elapsed to assess the full response to previously injected drugs: allow 15 mins after IV injections; 60 mins after IM.

Acuphase should never be administered:

- In an attempt to “hasten” the antipsychotic effect of other antipsychotic therapy
- At the same time as other parenteral antipsychotics or benzodiazepines
- To a patient who is physically resistant (risk of intravasation and oil embolus)

Acuphase should never be used for the following:

- Patients who accept oral medication
- Patients who are neuroleptic naïve
- Patients who are sensitive to EPSE
- Patients who are unconscious
- Patients who are pregnant
- Patients with hepatic or renal impairment
- Patients with cardiac disease

Onset and duration of action

Sedative effects usually begin to be seen 2 hours after injection and peak after 12 hours. The effects may last for up to 72 hours. **Note: Acuphase should only be considered as an adjunct to rapid tranquillization since its onset of action is not rapid.**

Dose

Acuphase should be given in a dose of 50-150mg, up to a maximum of 400mg over a 2-week period. This maximum duration ensures that a treatment plan is put in place. It does not indicate that there are known harmful effects from more prolonged administration, although such use should be very exceptional. There is no such thing as a “course of Acuphase”. The patient should be assessed before each administration.

Injections should be spaced at least 24 hours apart.

Note: zuclopenthixol acetate has often been widely misused as a sort of “chemical straitjacket”. In reality it is a potentially toxic preparation with very little published information to support its use. It should be reserved for those few patients who have a prior history of good response.

Appendix 4.1 – Monitoring of IM Medication (including olanzapine) in Rapid Tranquillization in Working Aged Adults

This form should be used for all patients undergoing rapid tranquillization with IM medication. The scoring can only be undertaken by nursing staff that have been trained in using PANSS-EC.

General considerations:

- Maximum dose of IM haloperidol 18mg/24hours
- Maximum dose of IM lorazepam 30micrograms/kg/hour (approximately 6mg/24hours in women and 8mg/24hours in men)
- Maximum dose of olanzapine (combined routes) 20mg per 24 hours.
- Assuming no oral olanzapine, olanzapine I.M. injectable is usually given as 5mg, and 10mg doses.
- Repeat doses of the olanzapine IM can be given after 2 hours.
- **Maximum of 3 olanzapine injections per 24 hrs.**
- Maximum olanzapine course length, 3 consecutive days.
- **Not to be given by the I.V. or S.C. route.**
- Lorazepam IM must not be given within one hour of IM olanzapine.
- If baseline monitoring cannot take place the reason should be recorded clearly in the comments section.
- Use the pulse oximeter reading if the patient is asleep or unconscious.

Before considering initiating IM rapid tranquillization the patient must score a minimum of 20 on the PANSS-EC matrix and at least 5 on one dimension.

Patient's name:

Gender:

D.O.B:

Ward:

Date			
Time			
IM drug given			
Dose			

Date			
Time			
IM drug given			
Dose			

Appendix 4.2 Monitoring of IM Medication in Rapid Tranquillization in Adults 65 Years Old and Over

This form should be used for all patients undergoing rapid tranquillization with IM medication. The scoring can only be undertaken by nursing staff that have been trained in using PANSS-EC.

General considerations:

- Maximum dose of IM haloperidol 9mg/24hours
- Maximum dose of IM lorazepam 15micrograms/kg/hour (approximately 3mg/24hours in women and 4mg/24hours in men)
- Maximum dose of olanzapine (combined routes) 20mg per 24 hours.
- Assuming no oral olanzapine, olanzapine I.M. injectable is usually given as 2.5mg and 5mg doses.
- Repeat doses of the olanzapine IM can be given after 2 hours.
- **Maximum of 3 olanzapine injections per 24 hrs.**
- Maximum olanzapine course length, 3 consecutive days.
- **Not to be given by the I.V. or S.C. route.**
- If baseline monitoring cannot take place the reason should be recorded clearly in the comments section of the physical monitoring page.
- Use the pulse oximeter reading if the patient is asleep or unconscious.

Before considering initiating IM rapid tranquillization the patient must score a minimum of 20 on the PANSS-EC matrix and at least 5 on one dimension.

Patient's name: Gender: D.O.B: Ward:

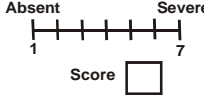
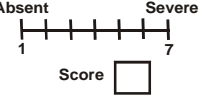
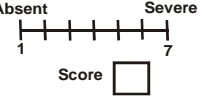
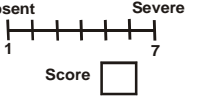
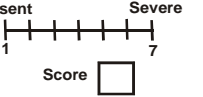
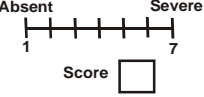


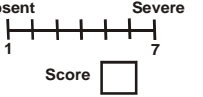
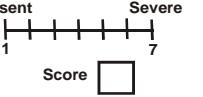
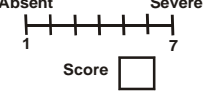



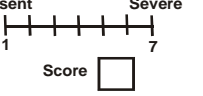
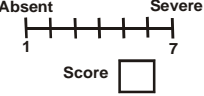

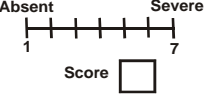
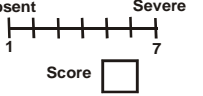
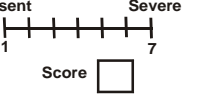





Date			
Time			
IM drug given			
Dose			

Date			
Time			
IM drug given			
Dose			

PANSSE-EC Scoring Matrix

When scoring use the visual scale first before rounding the score to the nearest whole number

Patient's name: DoB: Ward: Date: Time of first assessment:

Dimension → Time	Poor impulse Control	Tension	Hostility	Uncooperativeness	Excitement	Total Score
↓ Zero	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	<input type="text"/>
One Hour	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	<input type="text"/>
Four Hours	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	<input type="text"/>
..... Hours	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	<input type="text"/>
..... Hours	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	Absent  Severe Score <input type="text"/>	<input type="text"/>

Initial assessment completed by: (Signature) (Name in block letters)

Comments and Observations on the PANSS-EC Scoring Matrix

Zero		
One Hour		
Four Hours		
..... Hours		
..... Hours		

Team reflection and learning points

What learning points have been identified by the team?

Are there any actions that need following up? By whom and by when?

Completed by: (Signature) (Name in block letters)
Date.....

Appendix 5**Maximum BNF Doses in 24hours**

Drug	Route	Dose	Max. Dose /24hrs	Administration
Lorazepam	PO	2-4mg	4mg	Can be used sublingually
Lorazepam	IM	2-4mg	4mg or calculate using body weight; 30mcg/kg adult 15mcg/kg elderly	Must be diluted 1:1 with normal Saline or Water for Injection BP immediately before IM administration. Flumazenil <u>must</u> be available
Haloperidol	PO	5-10mg	30mg	A lower maximum dose would normally be used in the elderly
Haloperidol	IM	5-10mg	18mg (elderly - 9mg)	Bioavailability from the oral route is about 60% of that from the IM route, and readjustment of dose may be required.
Olanzapine	PO	10-15mg	20mg	The oral dispersible tablet should be placed on the tongue with plenty of water; it can be dissolved in water, coffee, milk, orange or apple juice.
Olanzapine	IM	10mg	20mg (3 injections)	Not to be given IV or subcutaneously.

Specialist advice

Diazepam	IV	10mg	30mg	IM should never be used as very erratic and slow absorption. Diazemuls must be used IV. Give as slow IV injection(5mg per minute). Produces very rapid response. Flumazenil <u>must</u> be available
Levomepromazine	PO	25-50mg	1g	Highly sedative, no QTc prolongation data, but probably prolongs.
Levomepromazine	IM	25-50mg	200mg	Highly sedative, no QTc prolongation data, but probably prolongs.
Midazolam	IM	5mg	7.5mg	IM injection. Flumazenil <u>must</u> be available
Promethazine	PO	25mg	60mg	Can be used in patients who are benzodiazepine tolerant. Slow onset of action but highly sedating.
Promethazine	IM	25-50mg	100mg	Deep IM injection. Can be used in patients who are benzodiazepine tolerant. Slow onset of action but highly sedating.
Quetiapine	PO	50-100mg	800mg	Potentially highly sedative
Risperidone	PO	1-2mg	16mg	The oral dispersible tablet should be placed on the tongue with plenty of water.
Zuclopenthixol acetate (Acuphase)	IM	50-150mg	See appendix 3	Not recommended for Rapid Tranquillization. (See appendix 3)

Appendix 6**Pharmacokinetics**

Drug	Route	Onset of Action*	Peak Concentration	Duration	Half Life
Lorazepam**	PO	20-30mins	2 hrs	6-8 hrs	12 hrs
Lorazepam	IM	< 20-30mins	1-3 hrs	6-8 hrs	12 hrs
Haloperidol	PO	>1 hr	2-6 hrs	NR	21 hrs
Haloperidol	IM	60-90 mins	20 mins	NR	21 hrs
Olanzapine***	PO	1 hour	6 hrs	NR	21-54 hrs
Olanzapine	IM	15-30mins	15-45mins	NR	21-54 hrs
Diazepam	IV	NR	8mins	15-30mins	20-54 hrs
Levomepromazine	PO	NR	2-3 hrs	NR	30 hrs
Levomepromazine	IM	NR	30-120mins	NR	30hrs
Midazolam	IM	15mins	45mins	2 hours	2-6 hrs
Promethazine	PO	NR	2-3 hrs	4-6 hrs	7-15 hrs
Promethazine	IM	1-2 hrs	NR	4-6 hrs	7-15 hrs
Quetiapine	PO	NR	NR	NR	7 hrs
Risperidone***	PO	NR	1 hr	NR	20-30 hrs
Zuclopenthixol acetate (Acuphase)	IM	1-8 hrs	24-48 hrs	48-72 hrs	20 hrs

NR = Not reported

* Onset of sedation

** In some cases sublingual lorazepam may result in a faster onset of action than orally administered lorazepam. Sublingual administration of lorazepam also compares favorably in time to onset with intramuscular injection.

*** Velotabs and Quicklets have no buccal absorption; therefore their onset of action is the same as the non-dispersible tablet.

Appendix 7 – Drugs known to prolong QT Interval - as of 1st August 2006

**This list includes drugs prescribed abroad, which patients may be admitted on.
Advice can be obtained from pharmacy on the active ingredient in overseas products.**

Cardiovascular drugs

Antiarrhythmic drugs

Amiodarone
Bretylium
Disopyramide
Procainamide
Quinidine
Sotalol

Vasodilator/anti-ischaemic drugs

Bepridil
Cilostazol (Pletal®)
Lipoflazine
Papaverine
Prenylamine

Psychiatric drugs

Antidepressants

Amitriptyline
Amoxapine
Citalopram
Clomipramine
Desipramine
Dosulepin hydrochloride
Doxepin
Imipramine
Lofepramine
Maprotiline
Nortriptyline
Trazodone
Trimipramine
Venlafaxine

Conventional antipsychotics

Chlorpromazine
Flupenthixol (high doses)
Fluphenazine
Haloperidol
Mesoridazine
Perphenazine
Pimozide
Sulpiride
Sultopride
Thioridazine
Trifluoperazine
Zuclopenthixol (higher doses)

Other psychiatric drugs

Lithium
Chloral hydrate
Methadone

Atypical antipsychotics

Amisulpride
Clozapine
Olanzapine – Only 1 case documented
Quetiapine
Risperidone
Sertindole
Ziprasidone
Zotepine

Antihistamines

Astemizole
Diphenhydramine
Fexofenadine Hydrochloride –
only 1 case documented

Hydroxyzine
Mizolastine (Mizollen®)
Terfenadine

Antimicrobial and antimalarial drugs

Macrolide antibiotics

Clarithromycin
Erythromycin
Telithromycin (Ketek®)

Imidazole antifungals

Fluconazole
Ketoconazole
Voriconazole (Vfend®)

Antimalarials

Artemether with Lumefantrine (Riamet®)
Chloroquine
Halofantrine
Mefloquine (Lariam®)
Quinine

Fluoroquinolone antibiotics

Ciprofloxacin
Grepafloxacin
Levofloxacin
Moxifloxacin
Nalidixic acid
Sparfloxacin

Other antimicrobials

Ampicilin
Co-Trimoxazole
Spiramycin
Pentamidine
Quinuprisin and dafopristin (Synercid®)
Spiramycin

Antiemetic

Dolasetron
Droperidol
Palonosetron (Aloxi®)

Prochlorperazine
Tropisatron

Miscellaneous drugs

Amantadine
Amsacrine
Apomorphine
Artemether
Biclutamide
Bupidine
Ciclosporin
Cisapride
Cocaine
Doxapram
Doxorubicin

Lofexidine
Lopamidoe
Lopinavie with ritonavir (Kaletra)
Nicardipine
Oxytocin
Sibutamine hydrochloride
Sodium sllibogluconate
Tamoxifen
Tizanidine
Terodiline
Vardenafil
Vasopressin