NHS
Greater Glasgow and Clyde

Mental Health Service
Prescribing Handbook

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NHS GGG&C Mental Health Service Prescribing Handbook

Contents

Introduction

The content of this booklet was compiled from an original publication prepared for use at Leverndale Hospital as part of the induction programme for trainee doctors. As such, it is designed to be an 'aide memoire' for those new to psychiatry.

The Booklet contains helpful information to support safe prescribing and the management of common situations that arise in Mental Health Care settings.

Dr Jacqui Anderson, Clinical Director, Prescribing Management Group (Mental Health). March 2015.

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Feedback Form.

To help us to develop and improve any future editions, please return comments and suggestions to:

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What did you like about the Handbook?

What did you not like about the Handbook?

Anything to be added?

What should be removed and or changed?

Pharmacy Information

Pharmacy Department	Opening times Mon - Fri	Contact numbers	Pharmacists
Dykebar Clinical Office	08:30 – 16:30	Office: 3144026	S. Burke
Gartnavel Royal	08:30 –16:30	Disp: 211(3)3663, 211(3)3666 Fax: 334 8956	E. Matheson M. Ling N. Lynch M. Johnstone
Leverndale	08 :00 –16:30	Disp: 211(4)6525, 211(4)6527 Fax: 810 4622	I. McCallum C. McDonough D. Lynch D. Light E. Wilson L. Mackie
Parkhead	08:30 –16:30	Disp: 211(2)8342, 211(2)8379 Fax: 554 2520 Clinical Office: (2)8350	M. Santoni
Stobhill	08:30 – 13:00 13:30 – 16:30	Clinical Office: 232(4)0644 Rowanbank (Forensic) 232(1)6423	A. Ahmad D. Hall H. Marshall L. Templeton
Learning Disabilities		Mobile 07768637439	C. Pacitti T. Gaughan

For Medicines Information contact MI Pharmacist Elaine Linderman 211 (4)6478 or your local Pharmacy Department.

A Medication Review service is available on request, although there may be a waiting list. A pharmacist will assess the request and if appropriate review the available case notes to determine (if possible) the outcomes of previously prescribed medications and may recommend further treatment options.

An emergency duty service is available outwith normal opening. Doctors on call or duty nurse page holder only may contact this service. Contact the on call pharmacist via switchboard. The emergency duty pharmacist will exercise their discretion in determining whether a supply is urgent or not.

NB: Passes and discharges are not emergency items

Medication Incident Reporting

A medication incident is an event involving medicines that has led to or could lead to unintended or unexpected harm, loss or damage.

Those incidents that did not lead to harm, as a result of chance or intervention, are referred to as a near-miss.

All medication incidents and near-misses should be reported, recorded and appropriately investigated within the Partnership. In Mental Health Services all incidents must be reported via the Datix system.

Prescription Writing

Discharge prescriptions must include;

- Patient name
- Date of birth & address
- Discharge date
- Consultant name and ward
- GP name
- Name, strength and dose of medication
- Number of doses required for “as required” medication (per 24 hours)
- Hospital/CHI number
- Details of follow-up arrangements

A copy of the patient’s inpatient prescription sheet should be sent to pharmacy with the discharge prescription as this supports safer dispensing practice.

Discharges for Controlled Drugs (CDs) must be written on a separate form.

CD prescriptions; Written as above but must include;

- Strength (e.g. Methadone oral solution 1mg/ml) Form (e.g. M.R. tablets for MST)
- Total quantity required in words and figures e.g. 20(twenty) tablets

Methadone is not supplied on discharge. Instead the GP or appropriate Addictions Service should be contacted and requested to organise a GP10 “daily dispensed” methadone prescription beginning the day following discharge, to be dispensed at a community pharmacy.

Inpatient Prescription Sheets

Refer to NHS GG&C Mental Health Service Prescription Sheet – Guide for use:

- Must state patient's full name,
- Date of birth
- Ward
- Consultant and CHI number.
- Must be legible, written in block capitals and in indelible ink (black ball point).
- Start and stop dates must be filled in.
- Print in full the APPROVED name and form of the medicine whenever possible. Exceptions include lithium, theophylline, phenytoin and some sustained release formulations where different brands are not bioequivalent,
  e.g. LITHIUM CARBONATE tablets (PRIADEL) and diltiazem preparations
- For "as required" medication, the dose, the frequency, the indication, and the maximum dose in 24 hours should be stated:
  e.g. LORAZEPAM 1mg as required for agitation 4-6 hourly, maximum 4mg in 24 hours.
- Only approved abbreviations will be used. The abbreviation"prn" must not be used.
- The word micrograms should always be written in full. Milligram is written as mg.
- Strength and type of inhaler should be stated,
  e.g. Budesonide 100 micrograms turbohaler.
- Any changes to dose including times of administration must be rewritten completely. Scoring out of previous doses/times and initialling is not allowed.
- Wherever possible keep to ONE KARDEX as this reduces the risk of errors. Kardexes should be rewritten when necessary. If rewriting a sheet, use the original date of prescribing, not the date of rewriting. Endorse rewritten kardex with date of rewriting at the top.
- A new medicines recording sheet must be started each time a new prescription sheet is used.
- Remember to sign each line, with signature in full (not initials).

Clozapine

Pre-Initiation: Baseline monitoring should be carried out as per local guidelines.

Initiation

Take an initial blood sample (send to local haematology lab) and enter the results (neutrophils, WBC, platelets) on the patient registration form before faxing to the Zaponex Treatment Access Service (ZTAS). Register the patient with ZTAS by faxing a completed patient registration form, signed by the consultant to ZTAS at 02073655843.

Once a GREEN result is obtained clozapine should be initiated within 7 days. If not a further local full blood count will be required.

The Clozapine Titration Schedule (available on the ward or via the local pharmacy) should be completed according to the Guidelines for Use. Alternatively, complete the kardex if not using the titration schedule. Titration Schedules are available on Staffnet.

Clozapine should be ordered from pharmacy using the approved local procedures.

After initial clozapine dose the patient should be closely observed in the first 6 hours. Record blood pressure, pulse and temperature at hourly intervals then continue monitoring on a daily basis thereafter during the dose titration. If the first dose is given at night, the frequency of post dose monitoring may be reduced.

Blood tests will then be due weekly (for at least 18 weeks). Pharmacy/ZTAS will inform ward or community team and consultant of any problems with the blood results. Local arrangements may be in place for bloods to be taken.

Continue titration until a regular dose is achieved after which it may be written as a regular prescription.

NB: If clozapine not taken for 48 hours or more, the dose requires to be re-titrated; contact pharmacy for further advice.

Plasma Clozapine Assay

There are instances when therapeutic drug monitoring of Clozapine may prove helpful in patient management, for example;

- To assess compliance
- Dose adjustment - trough plasma concentrations of 0.35mg/L are suggested to ensure a fair trial of the drug.
- Investigation of possible dose-related adverse effects.
- There is a risk of seizures at higher doses/plasma concentrations.
- To assess the impact of changes in smoking habit on clozapine dose requirement. (stopping smoking increases clozapine plasma levels and can decrease clozapine dose requirement by up to 50% in some patients)
- There is a charge for this service - currently £16.50+VAT.

Sample Details

At least 2ml is required, collected into a standard ZTAS blood sampling tube. Take the sample before a morning dose or in the morning after an evening dose (“trough” sample). Sampling less than 6 hours after a dose may make the results difficult to interpret.

Complete a plasma clozapine assay request form which can be obtained from pharmacy. Send with sample by post or scheduled courier to Magna Labs for analysis.

Please refer to Mental Health Service guidelines for further advice on clozapine therapeutic blood monitoring.

Antipsychotics: Chlorpromazine Equivalents

Drug Name	Dose Equivalent To 100mg Chlorpromazine	Max Dose
Chlorpromazine (oral)	100mg	1000mg
Flupentixol (oral)	2mg	18mg
Haloperidol (oral)	3mg	30mg
Sulpiride	200mg	2400mg
Trifluoperazine	5mg	No maximum: monitor above 45mg
Zuclopenthixol	25mg	150mg
Amisulpride	100mg	1200mg
Aripiprazole	Not Known	30mg
Clozapine	100mg	900mg
Olanzapine (oral)	Not Established	20mg
Paliperidone (oral)	Not Established	12mg
Quetiapine	Not Established	750mg Schizophrenia 800mg Mania
Risperidone (oral)	0.5mg-1mg	16mg
Flupentixol depot	10mg Weekly	400mg Weekly
Fluphenazine depot	5mg-10mg Weekly	100mg Fortnightly
Haloperidol depot	15mg Weekly	300mg every 4 Weeks
Pipotiazine depot	10mg Weekly	200mg every 4 Weeks
Zuclopenthixol depot	100mg Weekly	600mg Weekly
Olanzapine pamoate	Not Known	300mg Fortnightly
Paliperidone Long-Acting Injection	50mg per Month	150mg per Month
Risperidone consta	25mg fortnightly	50mg fortnightly

Dose equivalents taken from the Psychotropic Drug Directory 2014 where available.

Risperidone Long Acting Injection (Risperdal Consta)

Patient must be known to tolerate oral Risperidone prior to initiation. There is a three week lag time (i.e. no risperidone released) following first administration of the Consta. Ensure that adequate oral antipsychotic cover is in place during this time. If patient is changing from a typical depot to risperidone long-acting injection contact pharmacy for advice.

Paliperidone Palmitate Long Acting IM Injection (Xeplion)

Paliperidone is the active metabolite of risperidone. No oral supplementation is required following IM injection as there is no delay in the release of paliperidone. No test dose is required but tolerability to oral paliperidone or risperidone should be established before administering the LAI. Paliperidone LAI does not require cold storage. Maintenance dose is given at monthly intervals. For initiation and switching advice, see literature or contact pharmacy for advice.

Olanzapine Pamoate Long Acting IM Injection

Oral Olanzapine should be used to establish tolerability, response and dose requirements.

Post injection syndrome can occur within an hour of injection but is rarely seen after 3 hours. All patients should be monitored for 3 hours after administration.

NB: Non formulary IPTR3 form completion and approval required before commencement.

High-Dose Antipsychotic Monitoring

High-dose monitoring must be carried out if a patient is receiving more than 100% of the maximum daily dose of antipsychotic (monotherapy or polytherapy) as calculated from BNF maximum doses on previous page. Calculations should take into account “as required” antipsychotics. If using two or more antipsychotics add together the percentages.

“As required” antipsychotics are often given when a patient is acutely ill. Great care should be taken over this because it is often a time of high risk for several reasons. A complete formulation of the patient’s problems may not have been made, the history of recent drug ingestion (including illicit drugs) may not be known, there may be occult physical problems and the patient is likely to be in a state of high arousal. It should be remembered that antipsychotic effect evolves over days at minimum. It will often be safer and more helpful to give “as required” benzodiazepines especially if additional “as required” antipsychotics are likely to lead to a cumulative dose above the maximum advised daily dose. High-dose antipsychotic prescribing should be a carefully considered clinical strategy, not an inadvertent outcome of routinely prescribing “as required” antipsychotics.

Once it has been determined a patient is “high dose” the monitoring form should be obtained, completed and filed in notes. Monitoring required consists of ECG measurements (to assess QTc interval) and urea and electrolyte levels every 3 months. Blood pressure, pulse, temperature and hydration should also be monitored on a frequent basis.

See high dose antipsychotic therapy guideline for full information …
http://www.staffnet.ggc.scot.nhs.uk/Partnerships/MHP/Care%20Governance/Prescribing%20Management/Pages/Rx_Guidelines.aspx

Antipsychotics in Dementia

Antipsychotic medication is used to treat Behavioural and Psychological Symptoms of Dementia (BPSD). There have been several clinical trials and meta-analyses investigating the efficacy of this medication. Some trials showed only a modest benefit for individual medications where as many studies demonstrated no efficacy.[1] Antipsychotics may have some value in the treatment of the most severe behavioural symptoms, but this benefit must be weighed against the side effects of therapy.[2]

Additional risks of antipsychotics include venous thromboembolism and pneumonia.

From Summaries of Product Characteristics for atypical antipsychotics:
An approximately 3-fold increased risk of cerebrovascular adverse events has been seen in randomised placebo controlled trials in the dementia population with some atypical antipsychotics. The mechanism of this increased risk is not known. An increased risk cannot be excluded for other antipsychotics or other patient populations. Antipsychotics should be used with caution in patients with risk factors for stroke.

Cases of venous thromboembolism have been reported with antipsychotics. All possible risk factors for VTE should be identified before or during treatment with antipsychotics and preventative measures taken.

Dysphagia has been reported with antipsychotics, therefore caution is required in patients at risk of aspiration pneumonia.

Antipsychotics should only be used as a last resort in BPSD (Behavioural and Psychological Symptoms of Dementia) when non-pharmacological options have failed and there is a risk of harm to the patient or others.

Any potential causes of symptoms should be investigated e.g pain, infection, constipation, dehydration, other medication, or environmental factors, before initiating antipsychotic treatment.

Consider a **T**rial of medication, to **T**arget a specific symptom, over a specific **T**ime.

Risks and benefits should be assessed, preferably in consultation with the multidisciplinary team and the patient’s family. There is increased risk in certain people e.g. Dementia with Lewy Bodies and patients with cerebrovascular disease.

The decision to prescribe antipsychotics should be clearly documented and regularly reviewed.

Risperidone is the only antipsychotic licensed for use in BPSD. It is indicated for the short term treatment of persistent aggression (up to 6 weeks) in patients with moderate to severe Alzheimer's dementia.

Dose should be started low (e.g. Risperidone 0.25mg once or twice daily), titrated slowly and the need for continuing treatment should be reassessed regularly.

There is evidence that antipsychotics can be withdrawn successfully in patients who have stable symptoms and have been on an antipsychotic for more than 3 months. In a trial with care home patients, mortality was higher in patients continued on antipsychotics than in those where antipsychotics were withdrawn.[3]

References

1. Effects of Atypical Antipsychotics for Dementia. Am J Geriatric Psychiatry 14:3 March 2006, Sneider et al
2. A randomised, blinded, placebo-controlled trial in dementia patients continuing or stopping neuroleptics (the DART-AD trial). Ballard et al. PLoS Med. 2008 Apr 1;5(4):e76. doi: 10.1371/journal.pmed.0050076.
3. The dementia antipsychotic withdrawal trial (DART-AD): Long-term follow-up of a randomised placebo-controlled trial. Ballard et al. Lancet Neurology 2009;8:151-157)

Neuroleptic Malignant Syndrome (NMS)

This is a rare, potentially fatal, idiosyncratic reaction usually associated with the use of (high-potency) antipsychotics. It may also occur with the concomitant use of anti-emetic or sedative medications, with the co-administration of some antidepressants and sometimes upon withdrawal of anti-Parkinsonism drugs.[1] Two common theories predominate; one postulates central dopamine blockade resulting in hypothalamic derangement accounting for the neuromuscular and hyperthermic effects. The other focuses on disruption of inhibitory inputs to the sympathetic nervous system with the consequential sympathetic over-activity observed.[2] These theories do not fully explain the heterogeneity and sometimes unpredictable course of NMS symptoms and thus are not universally accepted; multiple pathways may be involved.[3]

Incidence is unknown; rates around 0.07%-2.2% have been reported.[4] Since the original description of NMS in 1960,[5] there is said to have been a downward trend in mortality from over 3 out of 4 patients dying, to an overall death rate of about 1 in 10 by the late eighties.[6,7] Where NMS is associated with severe complications such as renal failure, up to one in two patients may die.[3]

The syndrome develops over 1-3 days and may last up to 44 days[8] It is said to be preceded (often within 5 days) by a rapid absolute or relative increase in antipsychotic dose. Risk of occurrence has been said to persist for up to 20 days after discontinuation of the relevant drugs. The duration of the clinical syndrome is not considered to be always related to the duration of action of the drug itself; the depot form may result in a more protracted course of the illness.

Use of NMS scales has been described to grade severity of illness and in an attempt to rationalise management.[9] In practice, the diagnosis is essentially clinical-additional to a carefully elicited drug history and supported by the presence of relevant abnormal haematological findings.[10]

Signs and Symptoms:

- Fever / hyperthermia
- Hypertension / fluctuating blood pressure/Tachycardia
- Urinary incontinence / retention / obstruction
- Muscular rigidity (may be confined to head and neck)
- Confusion / agitation / fluctuating consciousness
- Raised creatine phosphokinase (CK)/Leukocytosis

The two main diagnostic symptoms are fever/hyperthermia and severe muscle rigidity. To make a definitive diagnosis two or more of the other symptoms should be present.

> ‘However, in patients receiving any antipsychotic, clinicians should carefully evaluate any features of NMS and should not prematurely exclude a diagnosis of NMS in cases where severe rigidity or hyperthermia is not initially apparent.’11

Take care to consider and exclude numerous other possible causes including CNS infections/abnormalities/drug use or withdrawal - prescribed or illicit drugs, various medical, auto-immune and environmental conditions including encephalitis and non-

convulsive status. Failure to recognise NMS or its misdiagnosis may both result in potentially serious consequences.12

There has been discussion in the literature around possible differences in presenting features between first and second generation antipsychotics; NMS secondary to clozapine appears to be the main exception and less likely to present with rigidity. It has also been noted that risperidone and aripiprazole related NMS may be less prone to present with hyperthermia as a prominent feature.13

NB Controversy remains around if NMS should be a categorical or dimensional entity. Due to overlap of many of the features of NMS with Serotonin Syndrome (and Catatonia) - it has also been suggested that NMS and SS may be part of the same spectrum.14

Senior Medical Review should be sought

Risk Factors

- Organic brain disease e.g. dementia
- Alcoholism
- Hyperthyroidism
- Parkinson's disease
- Agitation
- Dehydration
- History of catatonia
- High dose antipsychotic
- Recent or rapid dose changes
- Abrupt withdrawal of anticholinergics
- Use of restraint
- Prior episode of NMS
- Derangements of biochemical/haematological parameters
- Smoking cessation15

Treatment - Withdraw all antipsychotics, lithium and antidepressants immediately and initiate supportive measures:

- Correct dehydration and hyperthermia.
- Monitor temperature, pulse and blood pressure.
- Sedate with benzodiazepines (Lorazepam has been used 16,17) as necessary
- Measure WCC, U&E, LFT and creatine phosphokinase (CK).
- Treat acute symptoms: Dantrolene a muscle relaxant and/or Bromocriptine a dopaminergic agent may be required. In more severe cases, ECT may be effective where pharmacotherapy has failed to achieve a rapid response.[7,18]

If a diagnosis of Neuroleptic Malignant Syndrome is suspected, discuss with senior colleague and if clinically unwell, support and advice from local hospital physicians should be sought.

In case of a medical emergency, transfer patient to A/E

- Risk of recurrence of NMS is said to be around 30%
- Establish if any previous history of similar reaction
- Consider alternative medications
- Document clearly indications for antipsychotics
- Reduce risk factors
- Re-introduce antipsychotic after about two weeks; initially with small test dose

NB Reintroduction of antipsychotic medication should only be initiated by senior medical staff.

References

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2. Gurrera RJ Sympathoadrenal Hyperactivity and the Etiology of Neuroleptic Malignant Syndrome Am J Psych 1999; 156: 169-180
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Switching Between Antidepressants (1)

Recommended Washout Periods - numbers shown are in days

From / To	MAOIs		TCA	SSRIs			
	Hydrazines	**Tranylcypromine**	**Tricyclics**	**Citalopram/ Escitalopram**	**Fluoxetine**	**Sertraline**	**Paroxetine**
MAOIs Hydrazines	14	14	10-14	14	14	14	14
Tranylcypromine	14		14	14	14	14	14
Tricyclics	7 - 14	7	Cross-taper with care	Cross-taper with care	Cross-taper with great care	Cross-taper with care	Cross-taper with great care
Citalopram/ Escitalopram	7	7	Cross-taper with care	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible
Fluoxetine	35	35	great care for 4 weeks	Serotonin Syndrome possible		Serotonin Syndrome possible	Serotonin Syndrome possible
Sertraline	7-14	7-14	Cross-taper with great care	Serotonin Syndrome possible	Serotonin Syndrome possible		Serotonin Syndrome possible
Paroxetine	14	14	Cross-taper with great care	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible	
Trazodone	14	14	Cross-taper with care	Care	Care	Care	Care
Moclobemide	No significant problem	No significant problem	Occasional problems reported	No significant problem	No significant problem	No significant problem	No significant problem
Reboxetine	7	7	No significant problem	No significant problem	No significant problem	No significant problem	No significant problem
Mirtazapine	7	7	No significant problem	No significant problem	No significant problem	No significant problem	No significant problem
Venlafaxine	7	7	No significant problem	Cross-taper with care	Cross-taper with care	Cross-taper with care	Cross-taper with care
Duloxetine	5	5	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible	Serotonin Syndrome possible

NB: The use of MAOIs carries life-threatening risks - use under consultant supervision only.

Notes: Cross-taper indicates that drugs can be swapped by cross-tapering cautiously over a few weeks. “No significant problems” refers to lack of reported incidents, but a careful cross taper is always advisable.

Switching Between Antidepressants (2)

Recommended Washout Periods - numbers shown are in days

From / To	Trazodone	Moclobemide	Reboxetine	Mirtazapine	Venlafaxine	Duloxetine
MAOIs Hydrazines	14	No Gap, Dietary restriction for 14 days	14	14	14	14
Tranylcypromine	14	No Gap, Dietary restriction for 14 days	14	14	14	14
Tricyclics	No significant problem	Seek advice	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Citalopram/Escitalopram	Cross-taper with care	7	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Fluoxetine	Cross-taper with care	21	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Sertraline	Cross-taper with care	7-14	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Paroxetine	Cross-taper with care	7	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Trazodone		No significant problem	No significant problem	No significant problem	Cross-taper with care	Serotonin Syndrome possible
Moclobemide	No significant problem		No significant problem	No significant problem	No significant problem	Serotonin Syndrome possible
Reboxetine	No significant problem	No significant problem		No significant problem	No significant problem	No significant problem
Mirtazapine	No significant problem	No significant problem	No significant problem		No significant problem	No significant problem
Venlafaxine	Cross-taper with care	No significant problem	No significant problem	No significant problem		Serotonin Syndrome possible
Duloxetine	Serotonin Syndrome possible	Serotonin Syndrome possible	No significant problem	No significant problem	Serotonin Syndrome possible	

NB: The use of MAOIs carries life-threatening risks - use under consultant supervision only

Notes: Cross-taper indicates that drugs can be swapped by cross-tapering cautiously over a few weeks. “No significant problems” refers to lack of reported incidents, but a careful cross taper is always advisable.

Refs: Psychotropic Drug Directory 2014; Bazire.S Reproduced by kind permission of Prof. Bazire.

Serotonin Syndrome

Serotonin syndrome (SS) is often an iatrogenic adverse drug reaction secondary to a relative or absolute increase in serotonin levels in the central and peripheral nervous system. Serotonergic drugs most commonly SSRI's result in increased serotonin neurotransmission at postsynaptic 5-hydroxytryptamine 1A and 5-hydroxytryptamine 2A receptors. While mainly used in the treatment of depression, SSRI's may also be used to treat other conditions such as panic disorder, eating disorders and OCD.

In practice, serotonin syndrome is usually encountered as a consequence of drug interactions or following overdose situations where large quantities of serotonergic drugs have been ingested. It can also occur when drugs used may have previously unrecognised serotonergic properties[2]. Intentional overdose ingestion of combinations of serotonergic drugs acting via different sites eg an SSRI and (especially an irreversible) MAOI is usually said to result in SS of a severe form in around 50% of cases. However, anticonvulsants, anti-emetics, antimicrobials, anti-migraine, and recreational drugs amongst others have also been associated with SS[3].

Symptom onset may occur between two to 24 hours post ingestion. Acute medical presentations with hyperthermia and clonus should prompt more careful scrutiny of the pharmacotherapy including use of over-the-counter medicines. Chronic less dramatic presentations have been described where the only symptom may be anxiety, restlessness or diarrhoea, thus perhaps escaping recognition. In some cases symptoms may be misattributed to deterioration in mental state; with the risk of increasing or additional use of further medications. Severe cases of serotonin syndrome are said to carry a mortality of between 0.1% and 12%.

Diagnosis is clinical. Several criteria have been described including Sternbach's[4] which require the presence of at least three out of ten clinical features. However, these features are not specific to SS. The Hunter criteria[5] lists combinations of seven features: **clonus** (inducible, spontaneous or ocular), agitation, diaphoresis, tremor and hyperreflexia, hypertonicity and body temperature > 38 degrees C. These criteria are said to be more specific. Other criteria include Radomski[6] and Hegerl.[7]

It may be simpler to consider the symptoms under three group headings:

1. Neuro-muscular: tremor, clonus, nystagmus, hyperreflexia, muscular rigidity,
2. Autonomic: fever, flushed skin, tachycardia, diaphoresis, diarrhoea, abdominal cramps, tachypnoea
3. Mental state/CNS: agitation, insomnia, hypomania, hallucinations (visual), confusion, seizures

It is important to consider and exclude Neuroleptic Malignant Syndrome as well as alternative possible causes such as infection, metabolic upset, substance misuse / withdrawal states, prior to diagnosing serotonin toxicity. Additional factors that contribute to SS may include dietary supplements, lithium and electroconvulsive therapy, liver or renal diseases, genetic defects in xenobiotic metabolizing enzymes, combinations of psychotropic medication with inhibitors of their enzymes.

Treatment consists of identifying and discontinuing the serotonergic medication(s), resolution usually follows within 1-2 days[8]; 70% of cases are said to resolve within the

first 24 hours.[9] Elevations of the total WBC, CK and liver enzymes or reduced bicarbonate levels have been reported.

Moderate to severe cases require further intervention including input from the Medical Team. This should be done immediately in cases where large quantities of drugs have been consumed and where there is doubt about quantity/type of medication ingested, combinations of medications involved and, or where there is suicidal intent as the extent of the overdose may not have been fully revealed.

Benzodiazepines: may help with muscle rigidity/hyperactivity, myoclonus, seizures, and agitation Lorazepam or oxazepam have been suggested-the rationale being shorter duration of action and lack of active metabolites.[9] Diazepam use has also been described.[10] Prudence is required in use with elderly patients who may develop deterioration of delirium or hypotension especially where there may be impaired liver/ kidney function.

Use of Cyproheptadine[11, 12] and Chlorpromazine [12 13] both drugs with serotonin receptor antagonist properties has been described on a theoretical basis. However, due to often a common symptom profile shared by SS and NMS it may be wise to defer use of the latter drug to those experienced in its use and only for severe cases. Consider seeking Specialist advice at this point as disseminated intravascular coagulation, kidney failure, acidosis or acute respiratory distress syndromes are possible secondary complications of SS and intensive supportive care may be required.

Further management

One or two weeks after the serotonin syndrome has resolved, undertake detailed review of the prescribed drugs. Consider alternatives where possible. Some of the causative medications can be individually re-titrated gradually; beginning at lower doses. Most of the SSRIs have a half-life of 12-36 hours and require approximately a 1-2 week washout period before re-starting. Fluoxetine has active metabolites with a 5-7 day half-life, thereby requiring a 5-week washout period. In cases where an MAOI was involved in the syndrome, serotonergic agents should not be re-started for at least 2 weeks. Recurrence of serotonin syndrome following exposure to a different serotonergic drug has been described in the presence of pre-existing liver disease.[14]

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Lithium

Lithium should be prescribed by brand name e.g Priadel, as pharmacokinetics differ between brands. It is also important that the dose and form are specified as bioavailability differs with change in formulation. Care is required if changing from tablets to liquid. Blood levels should be checked 5 – 7 days after formulation change as with dose change.

Priadel is the lithium brand of choice

Lithium initiation and monitoring

Prior to starting lithium, thyroid function tests and U&Es are required (an ECG if clinically indicated). Starting dose is usually 400mg lithium carbonate equivalent at night. (200mg in the elderly). A serum level should be taken after 5 – 7 days, and every 5 – 7 days after each dose change until the required level is reached. A further sample should be measured to confirm that the blood level is stable. Blood should be taken 12 hours after the last dose (trough level).

Once stable, lithium serum level should be checked every 3 months. Check U&Es and thyroid function every 6 months. Patient education is important and should include the need for monitoring, identification of adverse drug reactions and symptoms of toxicity.

NPSA patient packs consist of a patient information booklet, a lithium alert card and a patient held record book for tracking blood test results.

Therapeutic serum lithium concentrations are within the range 0.4 – 1.0mmol/litre

Common side effects of lithium include GI disturbances, weight gain, oedema, fine tremor, polyuria, polydipsia and hypothyroidism. Side effects may be short term and are usually dose dependent. They can often be prevented or relieved by a moderate reduction in dose.

Lithium Toxicity

Most cases of lithium toxicity are caused by reduced lithium excetion due to various factors including - dehydration, deterioration of kidney function, infection, co-administration of interacting medication such as diurectics or NSAIDs eg ibuprofen.

In overdose, delayed onset of symptoms may occur (12 hours or more) due to the slow entry of lithium into the tissues and continuing absorption from modified release tablets.

Serum lithium concentrations over 1.5mmol/litre may be fatal and require immediate medical treatment

The early clinical features of toxicity are non-specific and may include apathy and restlessness which could be confused with the patient's underlying mental state. Other symptoms may follow such as :vomiting, diarrhoea, loss of appetite, confusion, slurred speech, abnormal drowsiness or sluggishness, severe tremor, muscle twitching, muscle weakness, blurred vision, ringing in the ears, dizziness, loss of balance.

If any of these potentially dangerous signs occur, withhold further lithium doses, check lithium level and seek advice.

Severe poisoning is associated with convulsions, coma, renal failure, hypotension, dehydration, electrolyte imbalances and death.

Stopping lithium
Under normal circumstances, lithium should be slowly reduced over at least a month.

For further information refer to guidance:

NHSGG&C Prescribing Management Group (Mental Health) has produced a Good Practice statement. The “Good Practice in Managing Lithium Treatment in GG&C (Aug 2011)”

http://www.staffnet.ggc.scot.nhs.uk/Partnerships/MHP/News%20and%20Events/Team%20Brief/Documents/01%20MANAGING%20LITHIUM%20TREATMENT%20good%20practice%20statement%20August%202011.pdf

This also refers to

- NICE guidelines CG38:Bipolar disorder
- NPSA safety alert for lithium therapy

Mood Stabilisers

	Lithium	Sodium Valproate	Carbamazepine
Starting Dose	Start dose 400mg (elderly 200mg).	See BNF.	Start at 200mg BD (lower if worried about side effects).
Blood Levels	Check levels at 12 hours post-dose every 5-7 days until in range 0.4- 1.0 mmol/l.	**Only check level if poor response or adherence is in doubt.**	Target range 8 -12mg/l. **NICE recommend 6-monthly monitoring of levels.**
Side-effects	Thirst, polyuria. tremor, nausea, hypothyroidism.	Nausea, vomiting, sedation. Rarely ataxia, headache, thrombocytopenia and platelet dysfunction.	Drowsiness, ataxia, diplopia, nausea, agranulocytosis, transient leucopoenia.
Interactions	Diuretics and NSAIDs (not aspirin) increase Lithium levels. (for more refer to BNF).	May potentiate effect of warfarin. May increase Tricyclic Antidepressant levels. Complex interactions with other anticonvulsants.	Need two week wash-out of MAOIs. **Potent enzyme inducer therefore alters levels of many drugs (refer to BNF).**

Physical Health Monitoring

	Clozapine and other anti-psychotics[1]	Lithium[2]	Sodium Valproate[3]	Carbamazepine[3]
Weight, BMI and/or waist circumference	Baseline, at 3 months and annually	Baseline and monitor	Baseline and at 6 months	Baseline and at 6 months
FBC	See Clozapine (pages 7-8)		Baseline, then at 6 months	Baseline, then at 6 months
Glucose	Baseline, at 1 month , then 4-6 monthly			
Lipids	Baseline, every 3 months for 1 year then annually			
U&Es	Baseline, then as clinically indicated	Baseline, then 6 monthly		Baseline, then 6 monthly
TFTs		Baseline, then 6 monthly		
LFTs	Baseline, then as clinically indicated.		Baseline, then at 6 months	Baseline, then at 6 months
Drug levels		7 days after dose change. 3 monthly once stable		NICE recommend 6-monthly monitoring of levels.
ECG	Baseline, at 3 months and annually	Baseline (if risk factors or existing cardiovascular disease)		

1. NHS Scotland Clozapine physical health monitoring standards
2. Good practice in managing lithium treatment in GG&C health board area. NHS GG&C Mental health services prescribing management group (2011)
3. NICE clinical guideline 38. Bipolar disorder: the management of bipolar disorder in adults, children and adolescents, in primary and secondary care

Glasgow Antipsychotic Side-Effect Scale (GASS)

Name: …… Age: …….. Sex: M / F
Please list current medication and total daily doses below:

This questionnaire is about how you have been recently. It is being used to determine if you are suffering from excessive side effects from your antipsychotic medication.
Please place a tick in the column which best indicates the degree to which you have experienced the following side effects.

Also tick the end or last box if you found that the side effect was distressing for you.

Over the past week:	Never	Once	A few Times	Every Day	Tick this box if distressing
1. I felt sleepy during the day					
2. I felt drugged or like a zombie					
3. I felt dizzy when I stood up and/or have fainted					
4. I have felt my heart beating irregularly or unusually fast					
5. My muscles have been tense or jerky					
6. My hands or arms have been shaky					
7. My legs have felt restless and/or I couldn't sit still					
8. I have been drooling					
9. My movements or walking have been slower than usual					
10. I have had uncontrollable movements of my face or body					
11. My vision has been blurry					
12. My mouth has been dry					
13. I have had difficulty passing urine					
14. I have felt like I am going to be sick or have vomited					
15. I have wet the bed					
16. I have been very thirsty and/or passing urine frequently					
17. The areas around my nipples have been sore and swollen					
18. I have noticed fluid coming from my nipples					
19. I have had problems enjoying sex					
20. Men only: I have had problems getting an erection					

Tick yes or no *for the* ***<u>last three months</u>***	No	Yes	Tick this box if distressing
21. Women only: I have noticed a change in my periods			
22. Men and women: I have been gaining weight			

GASS Information for Staff

Allow the patient to fill in the questionnaire themselves. All questions relate to the previous week.

Scoring

For questions 1-20

Award 1 point for the answer “once”, 2 points for the answer “a few times” and 3 points for the answer “everyday”.

Please note zero points are awarded for an answer of “never”.

For questions 21 and 22 award 3 points for a “yes” answer and 0 points for a “no”.

Total for all questions = ☐

For male and female patients a score of:

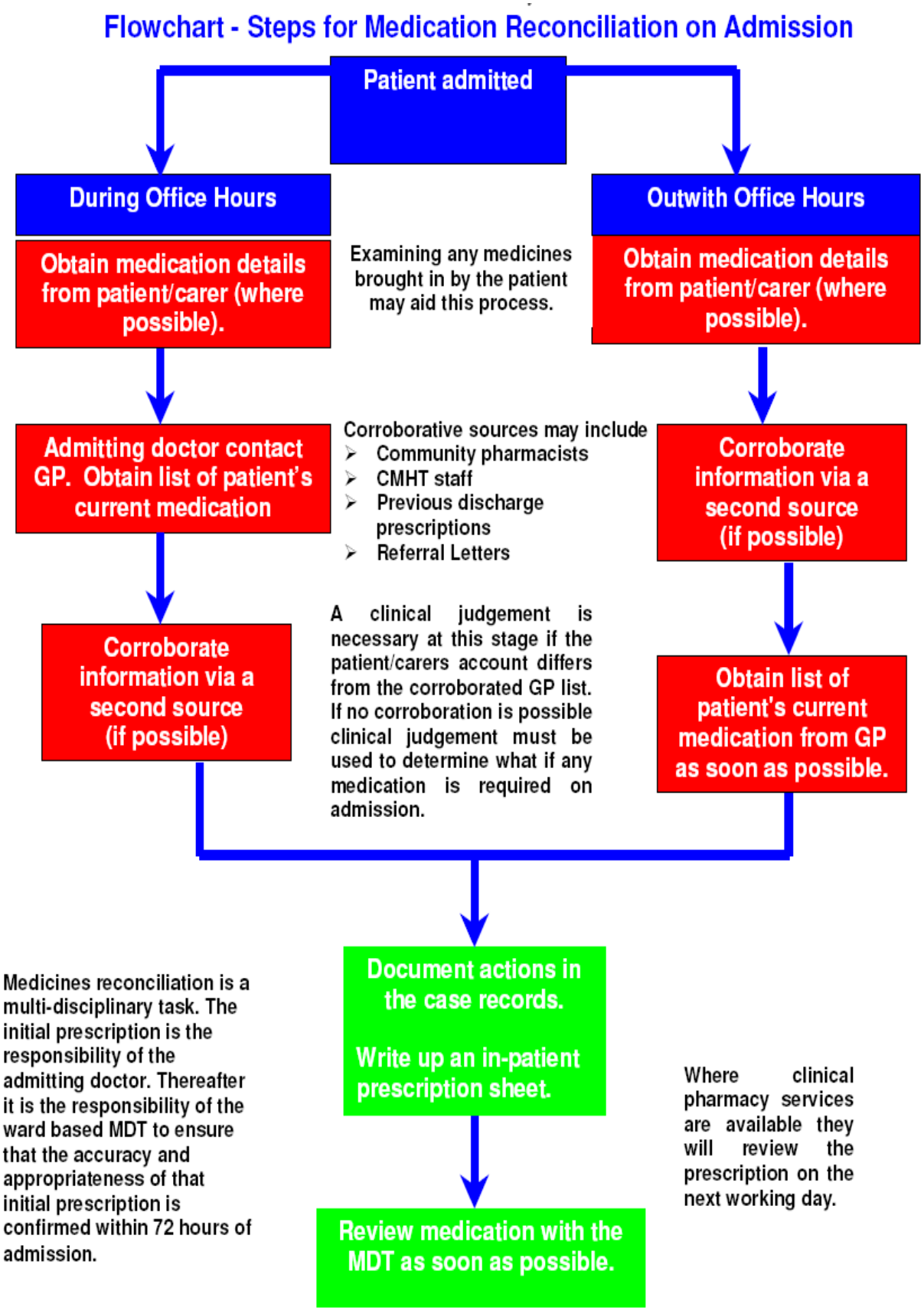
0-21	Absent/mild side effects
22-42	Moderate side effects
43-63	Severe side effects

Side effects covered include:

1-2	Sedation and CNS side effects
3-4	Cardiovascular side effects
5-10	Extra pyramidal side effects
11-13	Anticholinergic side effects
14	Gastro-intestinal side effects
15	Genitourinary side effects
16	Screening question for diabetes mellitus
17-21	Prolactinaemic side effects
22	Weight gain

The column relating to the distress experienced with a particular side effect is not scored, but is intended to inform the clinician of the service user’s views and condition.

Medicines Reconciliation



Mental Health Prescribing Guidelines

Available on the GG&C Intranet at …
http://www.staffnet.ggc.scot.nhs.uk/Partnerships/MHP/Care%20Governance/Prescribing%20Management/Pages/default.aspx

High Dose Antipsychotic Therapy Guideline

The guideline should be followed whenever a patient, is prescribed antipsychotic drugs in the high-dose range, regardless of his/her location – hospital or community or of the status of the prescriber, GP or Psychiatrist.

Doses above the BNF maximum are more likely to occur with the co-prescription of depot and oral medication or typical and atypical drugs. It should also be noted that the prescribing of 'as required' antipsychotics may contribute to high-dose neuroleptic use. In Glasgow, audit has shown a prevalence of 10-11% of antipsychotic prescribing in the high-dose range. When an as required medication is included, this prevalence becomes 19-23%.

Past audit of prescribing for inpatients has suggested poor adherence to monitoring recommendations. All patients on high-dose antipsychotic treatment must be monitored. The guidelines attempt to clarify the identification of patients on high-dose antipsychotics and factors to be taken into account before such prescribing and the documentation require when antipsychotics are prescribed in high-dose.

Contents include:

- HDAT: Professional Responsibilities
- HDAT: Monitoring Responsibilities
- Identification of Patients on High-Dose Antipsychotic Medication
- Guidance on the use of more than one antipsychotic at a time
- High Dose Antipsychotic Monitoring Form
- High Dose Antipsychotic Ready Reckoner
- Audit Criteria

Rapid Tranquillisation Guideline

Rapid tranquillisation describes the use of medication to control severe mental and behavioural disturbance, including aggression associated with schizophrenia, mania and other psychiatric conditions. It is used when other less coercive techniques of calming a service user, such as verbal de-escalation or intensive nursing techniques, have failed. It usually involves the administration of medication over a time-limited period of 30-60 minutes, in order to produce a state of calm/light sedation.

The guideline is also applicable to individuals with a learning disability presenting to inpatient units with severe aggression and/or behavioural disturbance who have not responded to verbal de-escalation or intensive nursing techniques, and are a risk to themselves or others.

Contents include:

- General Principles
- Risks associated with rapid tranquillisation
- Management of problems occurring during rapid tranquillisation
- Medication choice

Hypnotic Prescribing Guideline

Insomnia is a common problem associated with mental illness. The guideline is based upon NICE Technology Appraisal No77, 2004, Guidance for the short term management of insomnia.

Insomnia is often poorly managed therefore the guideline describes best practice around the promotion of sleep hygiene and appropriate pharmacological intervention.

Contents include:

- Non-pharmacological Interventions
- Pharmacological Interventions
- Choice of Hypnotic

Where medication is required, zopiclone is the preferred formulary choice within NHSGGC. Particular consideration should be given in situations where there is an incidence of benzodiazepine abuse.

Symptomatic Relief Policy

The Symptomatic Relief Policy is intended to allow nurses to exercise their professional judgement to administer a specific range of medicines to patients for the relief of minor ailments.