

## Schizophrenia Formulary Guidance [v1.0] (adapted from NICE guidelines CG82 and CG155)

### 1. Introduction

These Guidelines are intended for routine use. However there will be instances where they are not suitable for the patient you are managing, where more bespoke treatment will be necessary. In such instances the rationale for prescribing away from formulary must be recorded.

In the management of schizophrenia, antipsychotics may be used for the treatment of acute episodes, for relapse prevention and for emergency treatment of acute behavioural disturbance (rapid tranquilisation).

There is little evidence of any clinically significant differences in efficacy between antipsychotic drugs except for superior efficacy of clozapine when used for schizophrenia that has not responded adequately to other antipsychotic medication.

### 2. Prescribing and Use of Antipsychotics – Key Points

- For people with newly diagnosed schizophrenia, acute exacerbation or recurrence of schizophrenia, offer oral antipsychotic medication. Take into account the previous clinical response and side effects.
- Valid consent should be sought
- For initial treatment with antipsychotic, choice of agent is determined by service user's past medication history, current symptoms, co-occurring conditions, concurrent treatments and individual preferences. See table for suggested choices.
- Discuss the condition and the benefits and side-effect profile of each drug with the service user and/or carer and provide written information
- Initiate treatment at the lower end of the licensed dose range and slowly titrate upwards within the recommended dose range. Antipsychotic-naive individuals may respond to doses of antipsychotics at the lower end of the recommended range
- Prescribe antipsychotics within the recommended dosage range as there is little evidence to support the use of higher dosage. High dose treatment is associated with a greater risk of side effects.
- Carry out a trial of antipsychotic at the optimum dosage for 4–6 weeks. Oral antipsychotics are usually continued for at least 1–2 years after the person has recovered and remained stable, to reduce risk of relapse.
- Consider depot/long-acting injectable antipsychotic medication for maintenance treatment of people with schizophrenia who would prefer such treatment after an acute episode or where necessary to avoid covert non-adherence
- Wherever possible, long-acting injectable antipsychotic treatment without prior stabilisation on oral treatment should not be used in treatment-naive or in acutely disturbed service users
- Do not initiate regular combined antipsychotic medication, except for short periods (for example, when changing medication) because this results in prescribing higher than necessary total dosage and increases the risk of side effects. (See specific guidance on high dose)
- Routine use of PRN antipsychotics is not supported, such prescriptions must be regularly reviewed, each week or as appropriate.
- Do not use loading doses or intermittent dose maintenance strategies routinely.
- For people with coexisting substance misuse, consider the level and type of substance misuse, potential interactions and increased risk of side effects
- If withdrawing antipsychotic medication, undertake gradually and monitor regularly for

signs and symptoms of relapse. After withdrawal from antipsychotic medication, continue monitoring for signs and symptoms of relapse for at least 2 years.

- Patients who have failed to respond to two or more agents (ideally one of which should have been a second generation agent), unless due to side effects, should be considered as treatment resistant and should be considered for Clozapine. For further information on treatment resistance see guidance further on.
- If a patient is subject to consent to treatment rules then ensure prescribing is in line with T2/T3, and if not take suitable steps to update these, using a Sn62 if necessary.
- Offer cognitive behavioural therapy (CBT) to all people with schizophrenia. This can be started either during the acute phase or later.

### 3. Side-effects and Interactions

Antipsychotics can be divided into older first-generation ('FGAs', 'conventional' or 'typical') and newer second-generation ('SGAs' or 'atypical') antipsychotics.

All are associated with a high incidence and broad range of side effects including:

- nausea, dry mouth, constipation, headache, lethargy, sedation, postural hypotension, weight gain,
- Extrapyramidal side effects (EPSE) such as acute dystonia, akathisia, parkinsonism, and tardive dyskinesia, and
- Raised prolactin leading to menstrual abnormalities, sexual dysfunction, reduced bone density and osteoporosis.
- Antimuscarinic effects such as blurring of vision, increased intra-ocular pressure, dry mouth and eyes, constipation and urinary retention can occur.
- Metabolic effects (including hyperglycaemia and raised blood lipids)
- Blood disorders,
- Neuroleptic malignant syndrome
- Seizures
- QT-interval prolongation and tachyarrhythmia

The profile and clinical significance of side effects varies among drugs and individuals. SGAs have a lower but dose dependent risk of EPSE. However, they cause other side effects, such as weight gain hyperlipidaemia, hypertension, impaired glucose tolerance which can increase cardiovascular risk.

[See table 5 for comparisons](#)

Older adults are particularly prone to the side effects of antipsychotics. The balance of risks and benefit should be carefully considered before prescribing.

Important drug interactions can occur between antipsychotics and drugs that increase sedation (e.g. alcohol, benzodiazepines); increase the risk of arrhythmias associated with QT-interval prolongation; increase hypotension risk; increase seizure risk and increase the risk of neuroleptic malignant syndrome (NMS). Antipsychotics inhibit the effect of dopamine agonists used for Parkinson's disease.

[See table 4 for more details on interactions](#)

### 4. Warnings

- There is a clear increased risk of stroke and a small increased risk of death associated with use of both typical and atypical antipsychotics in older adults with dementia and in any person with pre-existing risk factors for stroke.
- The possibility of cerebrovascular events should be considered carefully before treating people with a history of stroke or transient ischaemic attack, risk factors for cerebrovascular disease
- Antipsychotic use may be associated with an increased risk of venous thromboembolism (VTE). All possible risk factors should be identified before and during treatment, and preventative measures taken.
- Seizures are a recognised dose-related side effect of antipsychotics, especially clozapine

- Neuroleptic malignant syndrome (NMS), a rare but life-threatening adverse effect, can occur with any antipsychotic and requires immediate discontinuation of antipsychotic. Symptoms include hyperthermia, muscle rigidity, autonomic instability and fluctuating consciousness. NMS is a medical emergency and requires immediate management.
- QT interval prolongation is a widely reported side effect of antipsychotics and considered to be a class effect. It increases the risk serious arrhythmia.
- Antipsychotic drugs can cause sedation, poor concentration, and extrapyramidal symptoms, all of which can impair driving. Careful assessment is therefore needed to determine whether adverse effects of medication will impair driving.
- Routine monitoring is a mandatory pre-requisite to clozapine use because of the risk of neutropenia and agranulocytosis. On-going monitoring must be maintained.
- Smoking induces the metabolism of psychotropic medication (particularly olanzapine and clozapine). Dose adjustments may be necessary on smoking cessation.

## 5. Monitoring

Baseline physical health checks should be carried out including:

- Weight/body mass index, blood pressure, pulse, urea and electrolytes/renal function, liver function tests, full blood counts, glucose, lipids, and where appropriate prolactin.
- Ask about smoking status, alcohol and substance misuse.
- An ECG at baseline and after dose changes, if specified in product licence or if there is an identified risk, following taking a cardiac history. All inpatients should receive an ECG

Routine physical health screening of people prescribed antipsychotic drugs in the longterm is required, within three months of initiation by secondary care and then annually thereafter in primary care. Results of all monitoring should be documented in the clinical records and communicated to the GP.

The following must be monitored and recorded throughout treatment (especially during titration and at least once a year): efficacy, side effects of treatment, adherence and physical health.

People taking clozapine require registration with a clozapine monitoring service and frequent monitoring of full blood counts.

[See table 3 for monitoring schedule](#)

## 6. Switching Antipsychotics

There are different options available, the one most clinically suitable should be chosen. If cross tapering be aware of the risk of high dose prescribing, and cumulative/synergistic side effects.

### 6.1 Oral – Oral

- Stop the first agent then introduce and titrate the new agent
- Start the new agent then gradually lower the old agent, whilst increasing the new
- Lower the dose of the existing agent before introducing the new agent and titrating upwards

### 6.2 Oral – Depot

- Give a test dose of the depot then after the depot has started to become established gradually reduce and stop the oral agent

### 6.3 Depot – Oral

- Omit the depot and start the new agent, and gradually titrate upwards, be aware of the half-life of the depot.
- Start the oral medication the week prior to the last dose of the depot, and slowly titrate upwards
- Risperidone – Ask for advice from pharmacy or a senior colleague if unsure, due its unique

release characteristics.

#### 6.4 Depot – Depot

- Consider a test dose, then switch from one agent to the next

### 7. Treatment Resistant Schizophrenia

Defined as an inadequate response to treatment despite the sequential use of adequate doses of at least two different antipsychotic drugs including at least one second-generation antipsychotic prescribed for an adequate duration.

- Check adherence to treatment, dose and duration of treatment.
- Clozapine has evidence of superior efficacy in people whose symptoms have not responded to other measures and should be considered first line for treatment resistance
- In cases of poor response to clozapine alone, augmentation with another antipsychotic may be beneficial. An adequate trial of clozapine augmentation may be up to 8–10 weeks. Choose a drug that does not compound the common side effects of clozapine.
- Use of high-dose antipsychotic medication and combinations of antipsychotics is common, but there is little evidence of any significant benefit and side effects are greater. Routine use is not recommended.
- Consider augmentation of antipsychotics with other drugs like lithium, carbamazepine, sodium valproate, lamotrigine, antidepressants and benzodiazepine.

See table 2 for additional details

### 8. High Dose Antipsychotic Prescribing

Current evidence does not justify the routine use of high-dose antipsychotic medication in general adult mental health services, either with a single agent or combined antipsychotics.

Calculating the level of antipsychotic dose\*

The Consensus Working Group recommends the following definition for high dose: a total daily dose of a single antipsychotic which exceeds the upper limit stated in the British National Formulary or a total daily dose of two or more antipsychotics which exceeds the BNF maximum using the percentage method, including PRN medication.

Example: Olanzapine 15mg plus Aripiprazole 20mg  
 $((15/20) \times 100) + ((20/30) \times 100) = \sim 142\%$

\* recommendations adapted from CR 138 (RCPSYCH 2006)

#### Considering prescribing

Use of high dose of antipsychotics should only be considered in individual cases

- as a carefully monitored therapeutic trial and where evidence-based strategies have failed
- involve an individual risk–benefit assessment by a fully trained psychiatrist. (Consultant only)
- in consultation with the wider clinical team and the patient and a patient advocate, if available, and if the patient wishes their presence
- taking full account of possible contraindications and drug interactions to high dose, for the drug(s) in the patient

#### Having decided to prescribe

Having decided explicitly to prescribe high dose of antipsychotics

- the decision should be documented in the case notes to include as a minimum
  - risks and benefits of the strategy
  - define the length of trial, not less than 6 weeks but not more than 3 months.
  - expected outcome and schedule for monitoring
- Conduct baseline ECG to exclude cardiac contraindications, including long QT

syndromes. This must be repeated after a few days and then ideally every 1–3 months in the early stages of high-dose treatment (the frequency being determined as clinically indicated).

- Baseline U&E's, repeated after a week are required as abnormal electrolyte levels can predispose patients to ECG abnormalities.
- The use of PRN medication should be kept under regular review. Staff administering PRN should be aware of its potential to raise the total daily dose of antipsychotic above the high-dose threshold.

#### **When used in the context or Rapid Tranquillisation.**

- If high-dose antipsychotic treatment has been used, it is particularly important that the routine monitoring of a sedated patient is carried out, with particular attention to regular checks of pulse, blood pressure, respiration, temperature and hydration, in line with the rapid tranquillisation policy.
- ECGs should be carried out frequently during dose escalation, if and when possible, if unable due to patient factors this should be documented and a risk benefit assessment carried out.
- During acute violence or emergency tranquillisation avoid parenteral antipsychotics if possible, but if used, ECG monitoring or regular ECGs should be performed, but see above

#### **Patients subject to T2 or T3 regulations**

- In line with CQC guidance high dose prescribing must be explicitly acknowledged on the form, with a cumulative maximum dose of antipsychotic stated

These Guidance notes must be read in conjunction with other Trust guidance on medicines, and along with NICE guidance, including guidance on the use of ECG's.

## **9. Special Populations**

### **9.1 BPSD in elderly**

Good practice for prescribing any drug, including antipsychotics, for severe agitation/psychosis in dementia:

- Review vascular risk factors
- Explain the possible positive and negative effects of the medication
- Document risk assessment, capacity issues (best interests) and discussions with relatives/carers
- Identify (quantify) target symptom(s)
- Choose effective drug dose, low doses initially
- Choose timeframe (1 month) – discontinue if no clear benefit
- If good response, the prescriber should review (and document) the need for continued treatment every 6-12 weeks according to clinical need.
- Avoid polypharmacy.

The National Strategy for dementia advises this should only be done by specialist services.

As part of the patients care plan relapse symptoms should be discussed with the patient, and what to do if this happens.

### **9.2 CAMHS**

NICE recommend for schizophrenia that Risperidone be considered first line and that Aripiprazole (licensed from age 15) be considered second line.

**NICE CG 155** states that antipsychotic medication should not be used for:

- For psychotic symptoms or mental state changes that are not sufficient for a diagnosis of psychosis or schizophrenia, or

- With the aim of decreasing the risk of developing psychosis.

### 9.3 Learning Disability key points

- Since people with LD are more susceptible to side effects, detection of which is harder than in the
- general population, typical antipsychotics may be better tolerated.
- Valid consent can be an issue in LD where in people lacking the ability to consent, this treatment is given in best Interest of the patient under Section 5 of Mental Capacity Act, or this decision is taken by the LPA holder)
- Patient information should be in LD Easy Read Information forms
- Patients with LD are likely to be more sensitive to side effects, so a slower titration and final dose may be required.
- They may require a longer period of treatment to assess proper response.
- Risk of interactions may be higher in people with LD on polypharmacy, especially those on Anti-epileptic medication.
- People with LD with comorbid conditions and/or polypharmacy may require more frequent monitoring.
- For more specific guidance on challenging behaviour refer to the current Frith Guidelines.

## 10. Communication with Primary Care

Different areas of the Trust have slightly different shared care arrangements with GPs, however in principle, with the GP's agreement once the patient is on a stable dose then primary care can take over prescribing under shared care. Good communication is key, and clear lines of responsibility must be agreed between primary and secondary care. [In Doncaster a pro forma is in place to support these arrangements.]

### Stable patients

In line with new treatment models and NICE guidance there will be instances that it is reasonable to consider handing patients back to primary care. This would only be considered in patients who were stable, and well maintained, and no longer required secondary care input, and the GP was in agreement.

Information to be handed over to primary care:

- Specific information on the actual treatment (treatment plan)
- Results of recent tests and any actions planned from them
- Recommended monitoring
- Relapse signature
- Advice on stopping treatment if appropriate
- How and when to re-refer back

If the patient has been transferred/discharged to primary care re-referral should be considered if:

- Relapse
- Non adherence to medication
- Intolerable side effects of medication
- Co-morbid substance misuse
- Complicating co morbid illness
- Risk to self or others

## 11. Further information

Full guidance on prescribing and use, including information on possible side effects and interactions of antipsychotics available in the BNF or manufacturer summaries of product characteristics (SPCs)

Information on managing side effects can be found on the MHRA site:

<http://www.mhra.gov.uk/ConferencesLearningCentre/LearningCentre/Medicineslearningmodules/Antipsychoticslearningmodule/CON155606>

#### References

1. NICE (2010). National Clinical Guideline Number 82. Schizophrenia - Updated Edition at: <http://www.nice.org.uk/cg82>
2. Thomas RE Barnes and the Schizophrenia Consensus Group of the British Association for Psychopharmacology. Evidence-based guidelines for the Pharmacological treatment of Schizophrenia. [http://www.bap.org.uk/pdfs/Schizophrenia\\_Consensus\\_Guideline\\_Document.pdf](http://www.bap.org.uk/pdfs/Schizophrenia_Consensus_Guideline_Document.pdf)
3. NHS Clinical Knowledge Service. Clinical topic Schizophrenia at: <http://prodigy.clarity.co.uk/schizophrenia#390266001>
4. American Psychiatric Association guideline/update. Treatment of Patients with Schizophrenia, Second Edition at: [http://www.psychiatryonline.com/pracGuide/pracGuideTopic\\_6.aspx](http://www.psychiatryonline.com/pracGuide/pracGuideTopic_6.aspx). (includes NEW Guideline Watch added November 2009)
5. Royal College of Psychiatrists. Consensus statement on high dose antipsychotic medication CR138 <http://www.rcpsych.ac.uk/files/pdfversion/CR138.pdf>
6. Psychotropic Drug Directory Bazire 2012
7. The Maudsley Guidelines: <http://www.library.nhs.uk/booksandjournals/ebooks/>
8. BNF 64th eds. Available online at: <http://bnf.org/>
9. Manufacturer Summaries of Product Characteristics (SPCs) can be found in the Electronic Medicines Compendium (<http://emc.medicines.org.uk/>).

**Table 1: PHARMACOLOGICAL TREATMENTS FOR SCHIZOPHRENIA**  
**1a: FIRST LINE OPTIONS**

Drug/ group	Relative costs	Notes
Appropriate antipsychotic (see first and second generation antipsychotic below)	see individual antipsychotics	NICE states that there is little evidence of any clinically significant differences in efficacy between antipsychotic drugs [except for clozapine for schizophrenia that has not responded adequately to other antipsychotic medication] Choice of antipsychotic is determined by service user's past medication history, current symptoms, co-occurring conditions, concurrent treatments, side effects and importantly, individual preferences.
<b>ORAL - First Tier FGA</b>	<b>Relative costs</b>	<b>Notes</b>
Haloperidol	£	High risk of extrapyramidal side effects; also useful for agitation, aggression, impulsive behaviour
Sulpiride (liquid)	£ (££)	Increased agitation reported at high dosage; care in mania/hypomania; Extrapyramidal side effects and hyperprolactinaemia common; beneficial in apathy and withdrawal
Perphenazine	££	Also used as an adjunct in anxiety, agitation and violent or dangerously impulsive behaviour
Zuclopenthixol	£	Sedative drug; risk of extrapyramidal side effects; Useful when switching between oral to depot
<b>ORAL - First Tier SGA</b>	<b>Relative costs</b>	<b>Notes</b>
Risperidone	£	Increases prolactin; dose-dependent extrapyramidal side effects, hypotension, tachycardia, weight gain, hyperglycaemia can occur
Olanzapine	£	Weight gain and metabolic side effects are common; low EPS; smoking induces metabolism of olanzapine so stopping smoking can increase levels, possibly causing increased adverse effects
Quetiapine (not MR)	£	Low extrapyramidal side effects
Aripiprazole	£££	Limited evidence of benefit above 15mg, unless taking enzyme inducing agents. Doses of 15mg and below should be given once daily, due its long half life
<b>Long Acting Injections</b>	<b>Relative costs</b>	<b>Notes</b>
Haloperidol decanoate	££	Longer-acting – suitable for monthly administration Higher incidence of extrapyramidal effects; risk of QT prolongation and ventricular arrhythmias may be increased with high doses or parenteral use
Pipotiazine palmitate	£££	Phenothiazine antipsychotic; risk of antimuscarinic effects hypotension, cardiac arrhythmias, prolactin elevation, extrapyramidal effects, blood and hepatic disorders and photosensitivity
Flupentixol decanoate	££	Not recommended for excitable or agitated people
Fluphenazine	££	Less likely to cause sedation, hypotension or antimuscarinic effects but high risk of EPSE
Zuclopenthixol decanoate	££	Less likely to cause sedation, hypotension or antimuscarinic effects but high risk of EPSE

## 1b: SECOND LINE OPTIONS

ORAL - Second Tier FGA	Relative costs	Notes - Discuss benefits and side effects and consider previous response
Chlorpromazine	£	Highest incidence of sedation; potent anticholinergic effects, hypotension; can cause skin photosensitivity; Advise using sunscreen if necessary.
Trifluoperazine	££	High liability for extrapyramidal side effects; supply problems
Benperidol	£££	Licensed for control of deviant antisocial sexual behaviour only; Caution – ECG necessary
Flupentixol	£	Not recommended if excitable or agitated
Promazine	£	Adjunctive treatment of psychomotor agitation and agitation/restlessness in the elderly
Levomepromazine	££	Alternative to chlorpromazine especially when it is desirable to reduce psychomotor activity.
Pericyazine (syrup)	££ (£££)	Also used as an adjunct in anxiety, agitation and violent or dangerously impulsive behaviour
Amisulpride (Liquid)	££ (£££)	Marked prolactin elevation

Antipsychotics requiring prior Approval	Relative costs	Consultant initiation only by written request to Chief Pharmacist
Quetiapine XL	££	XL preparation may be considered where twice daily difficult or not tolerated
Risperidone LAI	£££	Complex pharmacokinetics – 3 week lag time to release of drug; oral supplementation required; risk of prolactin elevation; increase risk of EPSE at higher doses
Paliperidone	££££	Not currently approved for general use
Paliperidone palmitate LAI	££££	Not currently approved for general use
Olanzapine embonate LAI	£££	Not currently recommended for general use due to post injection syndrome; Olanzapine can cause significant weight gain, hyperglycaemia, sedation and injection-related side effects

## 1c: SHORT ACTING INJECTABLE ANTIPSYCHOTICS

Short Acting Injectable Antipsychotics	Relative costs	Notes
Haloperidol	£	Indicated for rapid tranquillisation, in line with the policy, and for when patients are refusing oral, and under section
Aripiprazole	££	Indicated for rapid tranquillisation who are intolerant of haloperidol in line with the policy, and for when patients are refusing oral, and under section
Olanzapine	££	Indicated for rapid tranquillisation who are intolerant of haloperidol in line with the policy, and for when patients are refusing oral, and under section

**Table 2: MANAGING TREATMENT RESISTANT SCHIZOPHRENIA**

First Line	Relative costs	Notes
Clozapine	££	<p>Offer clozapine where there is inadequate response to treatment despite the sequential use of adequate doses of at least two different antipsychotic drugs including at least one second-generation antipsychotic prescribed for an adequate duration OR where there are unacceptable side effects from other medication</p> <ul style="list-style-type: none"> <li>• Registration with a clozapine monitoring service (ZTAS) and routine blood monitoring are pre- requisites for clozapine use because of the risk of neutropenia and agranulocytosis.</li> <li>• Prescribers and Pharmacy must ensure that effective ongoing monitoring is maintained.</li> </ul> <p>Before starting clozapine:</p> <ul style="list-style-type: none"> <li>• check adherence to antipsychotic medication</li> <li>• ensure an adequate dose of antipsychotic has been prescribed and for an optimal duration</li> <li>• check that an adequate trial of two antipsychotics has been tried or history of intolerance</li> <li>• if not, consider switching to an alternative antipsychotic agent</li> <li>• consider other causes of non-response, such as co-morbid substance misuse</li> <li>• review engagement with and consider use of psychological treatments</li> <li>• Carry out baseline tests and register with monitoring service</li> </ul> <p>During treatment, monitor bloods and side effects, especially weight gain and metabolic effects                      Prompt adjustment of clozapine dose is required when smoking stops</p>
Second Line	Relative costs	Notes
Clozapine Augmentation	££-£££	<ul style="list-style-type: none"> <li>• Consider psychological treatments before adding a second antipsychotic to clozapine</li> <li>• If unresponsive to clozapine alone, consider adding a second antipsychotic after checking adherence and optimising dose (including measuring plasma levels)</li> <li>• Caution - combined antipsychotics may imply higher than necessary total dosage and an increased risk of side effects</li> <li>• An adequate trial of such an augmentation may need to be up to 8-10 weeks</li> <li>• Monitor and review benefits of combination therapy regularly</li> </ul>
Clozapine + another SGA	££-£££	<ul style="list-style-type: none"> <li>• Choose a drug that does not compound the common side effects of clozapine.</li> <li>• Amisulpride or sulpiride may be tried for predominantly negative symptoms;</li> <li>• Use lower doses; regularly monitor side effects and physical health</li> <li>• Aripiprazole, esp if weight is problematic</li> </ul>
Clozapine + other agents	££-£££	Limited evidence; Augmentation with mood stabilisers (valproate and lamotrigine), antidepressants (SSRIs, mirtazapine) and benzodiazepines may be tried, if clinically indicated
Combinations of antipsychotics (non-clozapine)	£-£££	<ul style="list-style-type: none"> <li>• There is little supportive evidence for superior efficacy but increased risk of side effects</li> <li>• Combination use should be reserved to short periods during switching from one antipsychotic to another.</li> <li>• Only use combinations of antipsychotics where there are no obvious problems with use and as for an adequate therapeutic trial. Discontinue if no benefits are apparent</li> <li>• Document reasons for use fully and monitor treatment outcome regularly</li> <li>• Aripiprazole may reduce prolactin when used in combination with antipsychotics that raise prolactin</li> <li>• Review continued use of combinations regularly and discontinue if no clinical benefits.</li> </ul>

**Table 3: MONITORING SCHEDULE FOR PATIENTS ON ANTIPSYCHOTICS**

**3a: Adults**

Baseline for all patients	1 month	3 months	6 months	12 months and continuing annual check-ups
Secondary care responsibility - first year only				Primary care responsibility
<ul style="list-style-type: none"> <li>BP, pulse,</li> <li>Weight and Height (BMI) Waist circumference<sup>1</sup>,</li> <li>Blood glucose</li> <li>Lipid profile (fasting ideally)</li> <li>Renal function,</li> <li>FBC,</li> <li>LFTs</li> <li>Smoking and drug status</li> <li>ECG<sup>2</sup></li> <li>Prolactin (risperidone, amisulpride)</li> <li>GASS<sup>3</sup> or equivalent (formal assessment of side effects)</li> </ul>	<ul style="list-style-type: none"> <li>Weight (BMI)</li> <li>Waist circumference<sup>1</sup></li> <li>Blood glucose (olanzapine)</li> <li>FBC (if taking olanzapine and valproate)</li> <li>GASS<sup>3</sup> or equivalent</li> </ul>	<ul style="list-style-type: none"> <li>BP</li> <li>Weight (BMI) (more often than 3 monthly if gains weight rapidly)</li> <li>Waist circumference</li> <li>Blood glucose (more often if evidence of elevated levels)</li> <li>Lipids (more often if evidence of elevated levels)</li> <li>FBC</li> </ul>	<ul style="list-style-type: none"> <li>Weight (BMI) (more often if gains weight rapidly)</li> </ul>	<ul style="list-style-type: none"> <li>BP, pulse</li> <li>Weight (BMI)</li> <li>Blood glucose</li> <li>Lipids</li> <li>Renal function</li> <li>FBC</li> <li>LFTs</li> <li>ECG<sup>2</sup> if clinically indicated</li> <li>Smoking/alcohol status</li> <li>GASS<sup>3</sup> or equivalent</li> </ul>

1. Waist circumference may also be measured as indicator of weight gain and risk factor.
2. ECG all inpatients on antipsychotics before commencing treatment if possible. ECG all outpatients on antipsychotics if specified in SPC and consider if signs of, or personal history of, cardiovascular risk.
3. GASS [Glasgow Antipsychotic Side-effect Score], or equivalent – baseline and after one month, or when clinically indicated then annually

**Additional notes**

- FBC tests are mandatory for Clozapine – weekly for 18 weeks, every 2 weeks to 1 year then every 4 weeks)

Refs: NICE clinical guideline 38 Bipolar disorder, NICE clinical guideline 82 Schizophrenia, Maudsley guidelines 9<sup>th</sup> Edn, BNF, CSIP/NIMHE Best practice guidance for primary care staff

**3b: Children and adolescents  
(from NICE CG155)**

Baseline for all patients	Weekly for first 6 weeks	3 months	Monitor every 6 months thereafter	Monitor Regularly throughout treatment and especially during titration
Secondary care responsibility up to and including first six months			Primary care responsibility	Primary and Secondary care
<ul style="list-style-type: none"> <li>Weight<sup>1</sup> (plotted on a growth chart)</li> <li>Height<sup>1</sup> (plotted on a growth chart)</li> <li>Waist and hip circumference (plotted on a percentile chart)</li> <li>Pulse</li> <li>Blood pressure (plotted on a percentile chart)</li> <li>Fasting Blood glucose</li> <li>HbA<sub>1c</sub></li> <li>Blood lipid profile</li> <li>Prolactin level</li> <li>Movement disorders(epse, akathisia, dystonia and tardive dyskinesia)</li> <li>Nutritional Status and levels of daily activity</li> <li>Side effects the child or young person is most or least willing to tolerate</li> <li>ECG<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Weight<sup>1</sup> (plotted on a growth chart)</li> </ul>	<ul style="list-style-type: none"> <li>Weight<sup>1</sup> (plotted on a growth chart)</li> <li>Pulse</li> <li>Blood pressure (plotted on a percentile chart)</li> <li>Fasting Blood glucose</li> <li>HbA1c</li> <li>Blood lipid profile</li> <li>Prolactin level</li> </ul>	<ul style="list-style-type: none"> <li>Weight<sup>1</sup> (plotted on a growth chart)</li> <li>Height1 (plotted on a growth chart)</li> <li>Waist and hip circumference (plotted on a percentile chart)</li> <li>Pulse</li> <li>Blood pressure (plotted on a percentile chart)</li> <li>Fasting Blood glucose</li> <li>HbA1c</li> <li>Blood lipid profile</li> <li>Prolactin level</li> </ul>	<ul style="list-style-type: none"> <li>Movement disorders (epse, akathisia, dystonia and tardive dyskinesia)<sup>2</sup></li> <li>Nutritional Status and levels of daily activity</li> <li>Efficacy</li> <li>Side effects</li> <li>Adherence</li> </ul>

**Should be read in conjunction with the current BNF,BNFC and SPC**

<sup>1</sup> Calculate and document BMI (percentile)

<sup>2</sup> Even if no baseline assessment (and at each clinic appointment if more frequent)

<sup>3</sup> If specified in the SPC for adults and/or children; a physical examination has identified a specific cardiovascular risk (such as diagnosis of high blood pressure); there is a personal history of cardiovascular disease; there is a family history of cardiovascular disease such as sudden cardiac death or prolonged QT interval; or the child or young person is being admitted as an inpatient

**Table 4: COMMON INTERACTIONS AND PROBLEMS WITH ANTIPSYCHOTICS**

(See BNF for more details)

Potential additive side-effects	Most problematic antipsychotic(s)	Drug or class combined with antipsychotic
QT prolongation	Haloperidol, pimozide, high-dose antipsychotic prescribing	Escitalopram, citalopram, high-dose methadone, erythromycin, clarithromycin, co-trimoxazole, mefloquine, sotalol, amiodarone, ciclosporin, hydroxyzine tamoxifen
Increased risk of neutropenia / agranulocytosis	clozapine	Carbamazepine, carbimazole, Chloramphenicol, cytotoxics long-acting depot, antipsychotics, penicillamine, phenylbutazone, sulphonamides, eg co-trimoxazole
Increased sedation	Chlorpromazine, clozapine, Olanzapine, quetiapine, Pericyazine, zuclopenthixol,	Alcohol, antihistamines, Benzodiazepines, mirtazapine, opioid analgesics, trazodone tricyclic antidepressants
Increased risk of anticholinergic Side-effects, eg constipation, urinary retention, blurred vision, confusion	Chlorpromazine, clozapine, Pimozide, trifluoperazine, zuclopenthixol	Anticholinergic drugs, eg procyclidine, hyoscine, tricyclic antidepressants, tolterodine, oxybutnin
Decreased blood pressure or falls	Chlorpromazine, clozapine, Pericyazine, pimozide, Risperidone, Aripiprazole	ACE inhibitors, alcohol, antihypertensives tricyclic antidepressants,
Increased risk of seizures	Chlorpromazine clozapine, most phenothiazines	sudden benzodiazepine withdrawal, tricyclic antidepressants
Increased weight gain / metabolic changes	Chlorpromazine, clozapine, Olanzapine, perphenazine	Lithium, mirtazapine, other antipsychotics, tricyclics, valproate

**Table 5: RELATIVE SIDE-EFFECTS OF ANTIPSYCHOTICS**

DRUG	SIDE-EFFECT									
	Extrapyramidal	Anticholinergic	Cardiac	Hypotension	Sedation	Weight	Glucose	Lipids	Prolactin	Seizures
<b>FGA - Oral agents</b>										
Chlorpromazine	++	+++	++	+++	+++	+++		+++	+++	+++
Flupenthixol	++	++	+	+/-	+	+			++	+
Haloperidol	+++	+/-	++	+/-	+	+			+++	+
Levomepromazine	++	+++	++	+++	+++	+++		+++	+++	++
Promazine	+	++	++	++	+++			+++	+++	++
Sulpiride	+	+	+	+/-	+					
Trifluoperazine	+++	+/-	++	+	+					
Zuclopenthixol	+++	++	+	+	++				++	+
<b>FGA - Depots</b>										
Haloperidol	+++	+	++	+	+	+			+++	+
Fluphenazine	+++	++	++	+	++	+			+++	
Flupenthixol	++	++	+	+/-	+				++	+
Pipotiazine	++	++	++	+	+				+++	++
Zuclopenthixol	+++	++	+	+	+++				++	+
<b>SGA - Oral Agents</b>										
Amisulpride	+	+/-	+	+/-	+	+			++	
Aripiprazole					+	+/-		+	+/-	+++
Clozapine		+++		+++	+++	+++	++	++	+/-	+
Olanzapine	+				++	+++	+++	++	+	+
Paliperidone									+/-	++
Quetiapine	+			++	++	++	++	++	+/-	
Risperidone	++			++	++	++	++	++	++	
<b>SGA - Depots</b>										
Olanzapine		+	+			+++			+	+
Paliperidone	+	+/-	+	+	+	++			++	
Risperidone	+	+/-	+	+	+	++			++	+