

# Women's and Children's Health Network

## CAMHS Procedure

### Guidelines for Monitoring Adverse Effects in Children and Adolescents Prescribed Antipsychotic Medication

<b>Document Number</b>	CPR 2015_031
<b>Publication Date</b>	11 <sup>th</sup> March 2015
<b>Functional Group - Sub Group</b>	Medication Management
<b>Summary</b>	This document is a <b>guide</b> to what observations and monitoring should occur in children and adolescents prescribed antipsychotic medication so that intervention can occur in a timely manner to ensure optimal treatment outcomes. This document is based on current medical literature, consensus guidelines and expert opinion. It is <b>not a directive document</b> and consultants and registrars may use their own clinical judgement. However, health care providers are requested to be aware of and consider these guidelines when prescribing antipsychotics to children and adolescents, especially when treatment is likely to be long-term.
<b>Replaces</b>	DMH 11.4C/002/07
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#### EQulP National Standards

Tick Standard/s which apply to this procedure ✓

Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Governance for Safety & Quality in Health Care	Partnering with Consumers	Preventing & Controlling Healthcare Associated Infections	Medication Safety	Patient Identification & Procedure Matching	Clinical Handover	Blood & Blood Products	Preventing & Managing Pressure Injuries	Recognising & Responding to Clinical Deterioration	Preventing Falls & Harm from Falls	Service Delivery	Provision of Care	Workforce Planning & Management	Information Management	Corporate Systems & Safety
			✓					✓		✓	✓			



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## CAMHS PROCEDURE:

### Guidelines for Monitoring Adverse Effects in Children and Adolescents Prescribed Antipsychotic Medication

#### POLICY:

#### Patient/Client Safety

PROCEDURE STATEMENT	
<b>Intent:</b>	<p>The aims are to;</p> <ul style="list-style-type: none"> <li>highlight to health care providers the potential short- and long-term adverse effects of antipsychotic medication usage in children and adolescents,</li> <li>make recommendations for observation and monitoring of adverse effects in young people prescribed antipsychotics,</li> <li>enable interventions to manage adverse effects of antipsychotics to occur in a timely manner to ensure optimal treatment outcomes of the patient, and</li> <li>facilitate continuity of care of these patients across the various hospital/community interfaces by enabling efficient transfer of patient health monitoring information.</li> </ul> <p>It is intended that the guidelines are to be used in conjunction with the <a href="#">"Antipsychotic Physical Health Monitoring Chart"</a> where results of observations and monitoring performed at recommended time intervals or when deemed necessary are recorded for those likely to use or are using antipsychotics long term e.g. greater than a few months.</p>
<b>Exceptions:</b>	Pregnant and/or lactating adolescents
<b>Definitions and Acronyms:</b>	<ul style="list-style-type: none"> <li><b>First generation Antipsychotics:</b> Older antipsychotics also called typical antipsychotics that are more likely to cause extrapyramidal side effects.</li> <li><b>Second generation Antipsychotics:</b> Newer antipsychotics also call atypical antipsychotics that are more expensive and more likely to cause weight gain.</li> <li><b>EPSE:</b> Extrapyramidal Side Effects are various movements disorders such as acute dystonic reactions, parkinsonism, akathisia or withdrawal or tardive dyskinesia suffered as a result of taking dopamine antagonists, usually antipsychotic drugs.</li> <li><b>Dystonia:</b> uncontrolled muscular spasm of distinct muscle groups, often in the neck, eyes (oculogyric crisis- eyes rolling upwards) or torso.</li> <li><b>Parkinsonism:</b> slowed movement, tremor and rigidity as seen in Parkinson's disease.</li> <li><b>Akathisia:</b> unpleasant state of inner restlessness which frequently manifests as constant pacing or physical agitation.</li> <li><b>Dyskinesia:</b> is an involuntary movement disorder which consists of a wide variety of abnormal movements in the orofacial region (mouth and tongue), hands and other muscles. Tardive dyskinesia has a later onset and may be irreversible while withdrawal dyskinesia can occur with either gradual or sudden cessation of antipsychotics.</li> <li><b>Metabolic Side Effects:</b> includes weight gain, glucose dysregulation/diabetes, and dyslipidemia (elevated triglycerides/cholesterol) that may worsen a patient's cardiovascular health profile.</li> <li><b>Dyslipidaema:</b> is an abnormal amount of lipids (e.g. cholesterol and/or fat) in the blood.</li> <li><b>Hyperprolactinaemia:</b> excessive levels of prolactin in the blood.</li> <li><b>Gynaecomastia:</b> is the abnormal development of large mammary glands in males resulting in breast enlargement.</li> </ul>

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	<ul style="list-style-type: none"> <li>• <b>Galactorrhoea:</b> spontaneous flow of milk from the breast, unassociated with childbirth or nursing.</li> <li>• <b>ASEC:</b> Adolescent Services Enfield Campus.</li> <li>• <b>ACCU:</b> Acute Complex Care Unit.</li> </ul>
<b>Related Forms, Records and Electronic Databases:</b>	<ul style="list-style-type: none"> <li>• <a href="#">Antipsychotic physical health monitoring chart.</a></li> </ul>
<b>Supporting Procedures/ Protocols/Flow Charts etc:</b>	<ul style="list-style-type: none"> <li>▪ <a href="#">South Australia's Mental Health and Wellbeing Policy 2010 – 2015</a></li> <li>• CAMHS procedure - <a href="#">Clozapine Coordination</a></li> <li>• CAMHS procedure - <a href="#">Guidelines for use of Psychotropic Medication in Boylan Ward (inc. PRN Medication)</a></li> </ul>
<b>Key Words:</b>	Antipsychotic medication, weight gain, metabolic effects, hyperprolactinaemia, extrapyramidal side effects (EPSE), liver abnormalities, haematological abnormalities, urea and electrolyte abnormalities, cardiac adverse effects, CAMHS

## DETAILED STEPS, PROCEDURES AND ACTIONS

Procedure		Responsibility
<b>1.</b>	<b>Principles</b>	
1.1	<b>Who requires Monitoring</b> <ul style="list-style-type: none"> <li>• All clients prescribed antipsychotics that are likely to continue for more than a few months.</li> </ul>	Clinical Staff
1.2	<b>Who does the Monitoring</b> <ul style="list-style-type: none"> <li>• It is the responsibility of the initial prescriber to ensure recommended monitoring occurs at appropriate times and that a monitoring chart is started and filled out appropriately. The initial prescriber also holds the responsibility of communicating with local GP's in rural areas to ensure monitoring occurs.</li> </ul>	Clinical Staff
1.3	<b>Basis of Recommendations</b> <ul style="list-style-type: none"> <li>• Compared to adults, observations and monitoring suggested in young people vary depending on the relative risk of adverse effects as outlined in the discussion below and also practical considerations.                             <ul style="list-style-type: none"> <li>◦ While younger children using low doses of antipsychotics are less likely than adolescents using adult doses to develop adverse WCHN "Antipsychotic Physical Health Monitoring Chart" are the same for all young people.</li> <li>◦ It is imperative to ensure optimal safety but at the same time avoid unnecessary, time-consuming, invasive or traumatic interventions.</li> <li>◦ Coordinating the frequency for monitoring of different parameters to occur simultaneously, healthcare costs, inconvenience and burden to the patient can be minimised.</li> </ul> </li> </ul>	Clinical Staff
1.4	<b>Where to Document the Monitoring</b> <ul style="list-style-type: none"> <li>• The WCHN "Antipsychotic Physical Health Monitoring Chart" (see Appendix 1) is a tool to;                             <ul style="list-style-type: none"> <li>◦ prompt health care providers</li> <li>◦ record that monitoring has occurred</li> <li>◦ highlight abnormalities</li> <li>◦ highlight interventions that should occur</li> </ul> </li> </ul>	Clinical Staff

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<b>2.</b>	<b>Adverse Effects that require monitoring</b>	
2.1	<p><b>Weight gain and metabolic effects</b></p> <ul style="list-style-type: none"> <li>• All antipsychotics have the potential to cause weight gain to various degrees. <ul style="list-style-type: none"> <li>◦ In adults, clozapine and olanzapine are the second generation antipsychotics and chlorpromazine, fluphenazine and thioridazine are the first generation antipsychotics that have the highest incidence of weight gain.</li> <li>◦ Young people taking antipsychotics appear to be very vulnerable to weight gain, especially in the early stages of treatment.</li> </ul> </li> <li>• There is an associated risk of metabolic side effects such as diabetes, dyslipidaemia and hypertension, all of which increase cardiovascular risk.</li> </ul>	Clinical Staff
2.2	<p><b>Hyperprolactinaemia</b></p> <ul style="list-style-type: none"> <li>• Hyperprolactinaemia is generally dose related and more common with risperidone, paliperidone, amisulpride, olanzapine and the first generation antipsychotics due to their higher dopamine 2 receptor affinity. <ul style="list-style-type: none"> <li>◦ Prolactin levels increase sharply in the first weeks, peak at around 6 to 8 weeks then trend slowly downward (often not to baseline). <ul style="list-style-type: none"> <li>▪ Normalization of prolactin occurs within 4 days following cessation.</li> </ul> </li> <li>◦ It is essential to exclude other causes of raised prolactin levels such as pregnancy, breastfeeding, stress, tumours and other medications. <ul style="list-style-type: none"> <li>▪ When elevation is mild (less than 1000 mIU/L) it is reasonable to continue monitoring with consideration of reducing the dose</li> <li>▪ When elevation is persistent (greater than 1000 mIU/L), particularly if associated with adverse effects or changes in sex hormone levels, the clinician should consider switching therapy</li> <li>▪ Persistent elevations of prolactin greater than 2000-3000 mIU/L should raise the suspicion of the presence of a pituitary adenoma. <ul style="list-style-type: none"> <li>• Treatment with potent dopamine 2 receptor antagonists such as risperidone has been reported to be associated with pituitary tumours.</li> </ul> </li> </ul> </li> <li>• Children and adolescents appear to be more likely than adults to develop hyperprolactinaemia when taking antipsychotics. <ul style="list-style-type: none"> <li>◦ Most clinical symptoms are observed after puberty and include galactorrhoea and menstrual irregularities in females and gynaecomastia, galactorrhoea and sexual dysfunction in males, which may be particularly distressing to adolescents.</li> <li>◦ In children, hyperprolactinaemia may disrupt normal development, leading to delayed pubertal maturation and decreased growth to cause short stature. Also, there is the potential to decrease bone mineral density and increase the risk of osteoporosis.</li> </ul> </li> </ul> </li></ul>	Clinical Staff
2.3	<p><b>Extrapyramidal side effects</b></p> <ul style="list-style-type: none"> <li>• EPSEs can occur with all antipsychotics. <ul style="list-style-type: none"> <li>◦ More common with first generation antipsychotics.</li> <li>◦ Risperidone, paliperidone, amisulpride and olanzapine have a higher incidence of the second generation antipsychotics.</li> </ul> </li> <li>• EPSEs are generally dose related with a greater likelihood when higher doses are used.</li> <li>• The incidence is higher in young patients compared with adults, especially in young males.</li> </ul>	Clinical Staff
2.4	<p><b>Liver abnormalities</b></p> <ul style="list-style-type: none"> <li>• Transient, asymptomatic elevations of hepatic transaminases occur occasionally with some antipsychotics, especially in early treatment.</li> <li>• Some antipsychotics have been reported to cause hepatotoxicity, particularly in youth who are obese. <ul style="list-style-type: none"> <li>◦ If symptoms of liver dysfunction such as nausea, vomiting and/or anorexia develop, liver function tests should be performed immediately.</li> <li>◦ If there is a clinically relevant elevation in liver function values or if symptoms of jaundice occur, treatment should be discontinued.</li> <li>◦ More frequent monitoring should be conducted if there is significant weight gain or indications of any abnormalities in the liver function tests.</li> </ul> </li> </ul>	Clinical Staff

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2.5	<p><b>Haematological abnormalities</b></p> <ul style="list-style-type: none"> <li>• Decreases in the white blood cell count and other blood dyscrasias can occur during treatment with the range of antipsychotics.             <ul style="list-style-type: none"> <li>◦ Usually occur during the first 2 months of drug therapy and mostly are not clinically significant.</li> <li>◦ More frequent monitoring may be required if patients develop fever, flu-like symptoms, pallor or bruising, especially if it occurs shortly after treatment initiation.</li> <li>◦ Of particular note is the well-established risk of potentially fatal agranulocytosis associated with clozapine that requires mandated monitoring with a clozapine patient monitoring system.</li> </ul> </li> </ul>	Clinical Staff
2.6	<p><b>Urea and electrolyte abnormalities</b></p> <ul style="list-style-type: none"> <li>• There is some evidence of the value of monitoring electrolytes in patients taking antipsychotics.             <ul style="list-style-type: none"> <li>◦ An electrolyte imbalance (e.g. hypokalaemia, hypomagnesaemia and hypocalcaemia) can increase the risk of cardiac arrhythmias (see 2.7).</li> <li>◦ The syndrome of inappropriate antidiuretic hormone (SIADH) has been reported with some antipsychotics and so measuring sodium may be of some use.</li> </ul> </li> </ul>	Clinical Staff
2.7	<p><b>Cardiac adverse effects</b></p> <ul style="list-style-type: none"> <li>• Clozapine has been reported to cause a number of cardiac problems with therapeutic doses.             <ul style="list-style-type: none"> <li>◦ Although cardiac problems such as cardiomyopathy, myocarditis and pericarditis are quite rare, the potential risk to patients warrants close monitoring.</li> <li>◦ Deaths have occurred from heart failure in patients using clozapine.</li> <li>◦ The cardiac monitoring of clozapine is recorded on the relevant SA Health Clozapine Forms as per instructions under Clozapine Resources for Clinicians on the SA Health internet site located at; <a href="http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+interne/clinical+resources/clinical+topics/medicines+and+drugs/clozapine">http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+interne/clinical+resources/clinical+topics/medicines+and+drugs/clozapine</a></li> </ul> </li> <li>• Certain antipsychotics can prolong the cardiac QT interval.             <ul style="list-style-type: none"> <li>◦ Children may be susceptible to QT changes.</li> <li>◦ Some are restricted because of these concerns e.g. thioridazine, pimozide, droperidol and any intravenous antipsychotic.</li> <li>◦ Ziprazidone has concerns with QT interval prolongation that held up its approval in a number of countries.</li> <li>◦ Those less likely to cause prolongation of the QT interval e.g. chlorpromazine and quetiapine can still cause problems.                 <ul style="list-style-type: none"> <li>▪ When a patient is predisposed to developing an arrhythmia such as if they have underlying cardiac abnormalities or an electrolyte imbalance.</li> <li>▪ If the antipsychotic is prescribed in combination with other medications that have the potential to prolong the cardiac QT interval (e.g. some antiarrhythmics, some anti-infectives and tricyclic antidepressants) or with medications that increase the plasma levels of the antipsychotic (e.g. selective serotonin reuptake inhibitors,azole antifungals, macrolide antibiotics).</li> </ul> </li> </ul> </li> </ul>	Clinical Staff
<b>3.</b>	<b>How to Use the Antipsychotic Physical Health Monitoring Chart</b>	
3.1	<p><b>Where to get the chart</b></p> <ul style="list-style-type: none"> <li>• Spare charts can be ordered as a stationary line.</li> <li>• Various clinical areas of the hospital may then keep on hand for use.</li> <li>• Before initiating a new chart, check in the "Medication" section of the patients case notes whether a current chart is in use.</li> <li>• Check with the patient or referring doctor whether a chart is in use outside the hospital and endeavour to obtain a copy of this so that the current status of monitoring can be obtained and avoid unnecessary tests.</li> </ul>	Clinical Staff
3.2	<p><b>Where the charts go after use</b></p> <ul style="list-style-type: none"> <li>• Place the <b>original</b> chart in the patient's case notes after use.</li> <li>• When patients are inpatient units, the current chart may be placed with the current medication chart for easy use and then filed in the "Medication" section of the case notes after discharge.</li> <li>• On discharge a <b>copy</b> of the chart should be sent to the patient's follow-up doctor with the discharge letter.</li> </ul>	Clinical Staff

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3.3	<p><b>How to fill in the chart</b></p> <ul style="list-style-type: none"> <li>• For all new charts place a patient medical record sticker (or write in patient details if being used outside of the WCH) at the top of the chart.</li> <li>• A new chart should be started when either;             <ul style="list-style-type: none"> <li>○ initiating an antipsychotic,</li> <li>○ switching to a different antipsychotic,</li> <li>○ ongoing use of an antipsychotic                 <ul style="list-style-type: none"> <li>▪ and commencing the monitoring chart for the first time (in this instance a true baseline can't be obtained unless good retrospective data available in casenotes)</li> <li>▪ and previous chart is full</li> </ul> </li> </ul> </li> <li>• Refer to "User Guide" at the top of the first page of the monitoring chart for information on where to start depending on situation.</li> <li>• Refer to the heading box (shaded black) in each section of the monitoring chart for information on how often to do the monitoring.             <ul style="list-style-type: none"> <li>○ Any data boxes shaded black indicate monitoring is not required for a given time point.</li> </ul> </li> </ul>	Clinical Staff
3.4	<p><b>Chart Data</b></p> <ul style="list-style-type: none"> <li>• Write in the name of the current antipsychotic(s) being used.</li> <li>• Write in the number of charts that have been used for the individual patient, with new charts numbered sequentially.</li> <li>• Write in the date the chart started.</li> <li>• Tick the appropriate box when starting a new chart whether "Initiating", "Switching" or "Ongoing".</li> </ul>	Clinical Staff
3.5	<p><b>Risk factors</b></p> <ul style="list-style-type: none"> <li>• Assessment of cardiovascular risk factors should occur <b>at baseline and annually</b> <ul style="list-style-type: none"> <li>○ If risk factors are present, more frequent monitoring may be required.</li> </ul> </li> <li>• Factors increasing cardiovascular risk include;             <ul style="list-style-type: none"> <li>▪ smoking</li> <li>▪ personal or family history of diabetes</li> <li>▪ personal or family history of heart disease</li> <li>▪ low level of activity</li> <li>▪ poor diet</li> <li>▪ obesity</li> <li>▪ ethnicity (e.g. Indigenous Australian, African descent, Pacific Islander, Asian etc), and</li> <li>▪ other medications that may cause weight gain or cause significant drug interactions with antipsychotics</li> </ul> </li> </ul>	Clinical Staff
3.6	<p><b>Body weight, height, body mass index (BMI), BMI for age percentiles and BMI z scores</b></p> <ul style="list-style-type: none"> <li>• Monitoring for meaningful changes in weight should occur <b>at baseline, monthly for the first 3 months, then every 3 months.</b> <ul style="list-style-type: none"> <li>○ The measurement of weight and height should be accurate (use of regularly calibrated weighing scales), quick, easy and clinically practical.                 <ul style="list-style-type: none"> <li>▪ <b>BMI</b> should be obtained for monitoring weight changes, as it is a more sensitive parameter than measuring weight alone.</li> <li>▪ <b>BMI for age percentiles according to gender</b> should be obtained as it allows for norms that change with age and gender.</li> <li>▪ <b>BMI z scores</b> allow a more detailed statistical description of obese children who are above the 97<sup>th</sup> percentile for BMI for their age and gender</li> </ul> </li> <li>○ BMI, BMI for age percentiles and BMI z scores may be calculated by using a website that calculates these values e.g.                 <ul style="list-style-type: none"> <li>• <a href="http://stokes.chop.edu/web/zscore/result.php">http://stokes.chop.edu/web/zscore/result.php</a></li> <li>• <a href="http://www.guesgen.com/BMIPedsCalc.php">http://www.guesgen.com/BMIPedsCalc.php</a></li> </ul> </li> </ul> </li> <li>• <b>Results that may cause concern and trigger an alert for appropriate interventions include;</b> <ul style="list-style-type: none"> <li>○ <b>a &gt; 5% weight gain within the first 3 months (height unlikely to play a major role)</b></li> <li>○ <b>a ≥ 0.5 increase in BMI z score</b></li> <li>○ <b>crossing into being overweight i.e. a ≥ 85<sup>th</sup> to &lt; 95<sup>th</sup> BMI percentile plus one adverse health consequence e.g. hyperglycaemia, dyslipidaemia, hypertension, hyperinsulinaemia</b></li> <li>○ <b>crossing into obesity i.e. a ≥ 95<sup>th</sup> BMI percentile</b></li> </ul> </li> </ul>	Clinical Staff

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3.7	<p><b>Blood pressure</b></p> <ul style="list-style-type: none"> <li>• Monitoring for meaningful changes in blood pressure should occur <b>at baseline and every 6 months</b> (with more frequent monitoring in young people with risk factors).             <ul style="list-style-type: none"> <li>◦ The measured blood pressure can be correlated with paediatric BP percentile charts.</li> <li>◦ Blood pressure should be measured preferably after 10 minutes rest in the sitting position, using an appropriate sized cuff, with the young person as quiet and relaxed as possible.</li> </ul> </li> <li>• Note that many antipsychotics can cause postural hypotension, especially at the start of therapy.</li> </ul>	Clinical Staff
3.8	<p><b>Blood Tests</b></p> <ul style="list-style-type: none"> <li>• Blood testing should occur for <b>at baseline, at 3 months, then yearly</b> (with more frequent testing in young people with abnormalities) for the parameters;             <ul style="list-style-type: none"> <li>▪ total cholesterol</li> <li>▪ triglycerides</li> <li>▪ blood glucose</li> <li>▪ white blood cell (WBC) count</li> <li>▪ neutrophil count</li> <li>▪ liver function tests</li> <li>▪ urea &amp; electrolytes and</li> <li>▪ prolactin</li> </ul> </li> <li>◦ These tests should be coordinated together so that only one lot of blood needs to be taken at a time.</li> <li>◦ The best time to take bloods is <b>in the morning in a fasting state before giving any medication</b> (if this is not the case it should be documented).             <ul style="list-style-type: none"> <li>▪ Prolactin undergoes diurnal variations, increases with stress and food intake therefore prolactin should be measured in the morning, after fasting and 8 to 12 hours after the last medication dose.</li> <li>▪ Triglycerides and blood glucose are affected by food and bloods should be taken in a fasting state.</li> </ul> </li> <li>◦ WBC and neutrophil counts do not need to be repeated for clozapine due to the mandated WBC and neutrophil blood testing that is reported to the clozapine patient monitoring system however other blood tests should be coordinated with this to avoid extra bloods being taken.</li> <li>◦ If abnormalities in total cholesterol and triglycerides are detected, a complete lipid profile is recommended.</li> </ul>	Clinical Staff
3.9	<p><b>Extrapyramidal Side Effects</b></p> <ul style="list-style-type: none"> <li>• Questioning and observations for EPSE should occur <b>at baseline, monthly for the first 3 months, then every 3 months</b> for the symptoms of;             <ul style="list-style-type: none"> <li>▪ dystonia</li> <li>▪ Parkinsonism</li> <li>▪ akathisia</li> <li>▪ dyskinesia</li> </ul> </li> <li>• If movement disorders are present at baseline or emerge during antipsychotic treatment, the more complex validated movement scales may be used, especially in specialist settings to more accurately monitor or determine significant problems. e.g.             <ul style="list-style-type: none"> <li>◦ Simpson-Angus Scale (SAS) for assessing Parkinsonism (see <a href="https://www.cognitiongroup.com/pdf/sas.pdf">https://www.cognitiongroup.com/pdf/sas.pdf</a>)</li> <li>◦ Abnormal Involuntary Movement Scale (AIMS) for assessing dyskinesia (see <a href="http://www.cqaimh.org/pdf/tool_aims.pdf">http://www.cqaimh.org/pdf/tool_aims.pdf</a>)</li> <li>◦ Barnes Akathisia Rating Scale (BARS) for assessing akathisia (see <a href="http://www.medafile.com/zyweb/Barnes.htm">http://www.medafile.com/zyweb/Barnes.htm</a>)</li> </ul> </li> </ul>	Clinical Staff
3.10	<p><b>Hyperprolactinaemia</b></p> <ul style="list-style-type: none"> <li>• Questioning and observations for hyperprolactinaemia should occur <b>at baseline, monthly for the first 3 months, then every 3 months</b> for the symptoms of;             <ul style="list-style-type: none"> <li>▪ galactorrhoea</li> <li>▪ gynaecomastia</li> <li>▪ menstrual irregularities</li> <li>▪ sexual dysfunction</li> <li>▪ disruption of normal development in young children</li> </ul> </li> <li>• Symptoms should be investigated and acted upon.             <ul style="list-style-type: none"> <li>◦ Additional prolactin monitoring may be indicated if these adverse effects are present.</li> </ul> </li> </ul>	Clinical Staff

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3.11	<b>Interventions Required</b> <ul style="list-style-type: none"> <li>• If no abnormalities are detected the “none” box should be ticked to highlight no interventions are needed.</li> <li>• If one or more abnormalities are detected, write what interventions need to occur in this space.</li> <li>• Information and flow charts to help guide intervention in young people relating to metabolic abnormalities can be found at the Healthy Active Lives (HeAL) website at <a href="http://www.iphys.org.au/">http://www.iphys.org.au/</a></li> </ul>	Clinical Staff
<b>4.</b>	<b>Strategies for preventing and management of weight gain and metabolic abnormalities in patients taking antipsychotics</b>	
4.1	<b>Healthy Lifestyle Behaviours</b> <ul style="list-style-type: none"> <li>• Replace all drinks containing sugar (e.g. soft drink, cordial, juice), “diet” drinks, and whole milk with at least 2L of water and moderate amounts of unsweetened tea or low-fat milk.</li> <li>• Eat every 3 to 4 hours, with no more than 2 meals in the evening or at night.</li> <li>• Eat small portions at meals.</li> <li>• Eat breakfast every morning.</li> <li>• Eat slowly, drink an ample amount of water between bites and take second helpings only after a delay.</li> <li>• Eat no more than one fast food meal per week.</li> <li>• Replace refined white flour and processed sugar products with whole-grain and other food items that have a low glycemic index (i.e. ≤ 55; <a href="http://www.glycemicindex.com">http://www.glycemicindex.com</a>).</li> <li>• Do not snack when full and replace high-fat, high-calorie snacks with ample amounts of fruit and vegetables.</li> <li>• Limit saturated fat intake, but avoid extensive consumption of processed fat-free food items.</li> <li>• Eat at least 25-30g per day of soluble fibre from fruits, vegetables and/or whole grains.</li> <li>• Limit watching television or playing computer/video games to &lt; 2 hours per day.</li> <li>• Perform moderate to vigorous physical activity for at least 30 to 60 minutes per day.</li> </ul>	Clinical Staff
4.2	<b>Medication Choice</b> <ul style="list-style-type: none"> <li>• Avoid starting treatment with medications that are associated with marked or extreme weight gain.</li> <li>• Consider switching to an agent that is associated with less weight gain potential.</li> </ul>	Clinical Staff
4.3	<b>Additional Weight Loss Treatment</b> (if weight gain/obesity remain problematic despite the first and second strategies) <ul style="list-style-type: none"> <li>• Initiate or refer to formalized, non-pharmacological weight loss program.</li> <li>• Initiate adjunctive pharmacological weight loss treatment under the guidance of a paediatrician who specializes in weight loss programs.</li> </ul>	Clinical Staff
<b>5.</b>	<b>References</b>	
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### ACCOUNTABILITY

<b>Effectiveness of this Procedure:</b>	That any side effects from antipsychotic medication are detected early and ongoing monitoring and management reduce the continued effects.
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## Appendix 1 - ANTIPSYCHOTIC PHYSICAL HEALTH MONITORING CHART (cont.)

3. Blood tests recommended for all antipsychotics (baseline, at 3 months, then yearly) <i>Bloods should be taken in the morning in a fasting state and before giving medication</i>									
Investigations	New Antipsychotic			Ongoing Starting Point	Ongoing Use				
	Baseline	Month 3			Month 12				
Date of blood taken									
Total Cholesterol *									
Triglycerides *									
Blood Glucose									
White Blood Cell (WBC) Count †									
Neutrophil Count †									
Liver Function Tests (Normal Y/N) #									
Urea & Electrolytes (Normal Y/N) #									
Prolactin **									
Name, Signature & Designation									
4.1 Questions to ask for all antipsychotics to monitor for extrapyramidal side effects ** (baseline, monthly for 3 months, then every 3 months)									
Observations <i>(please indicate with a tick = yes, x = no)</i>	New Antipsychotic			Ongoing Starting Point	Ongoing Use				
	Baseline	Month 1	Month 2		Month 3	Month 6	Month 9	Month 12	
Any muscular tremors or spasms ie dystonia?									
Any muscular stiffness or rigidity ie Parkinsonism?									
Any restlessness or agitation ie akathisia?									
Any involuntary hyperkinetic movements ie dyskinesia?									
4.2 Questions to ask or consider for all antipsychotics to monitor for hyperprolactinaemia ** (baseline, monthly for 3 months, then every 3 months)									
Observations <i>(please indicate with a tick = yes, x = no)</i>	New Antipsychotic			Ongoing Starting Point	Ongoing Use				
	Baseline	Month 1	Month 2		Month 3	Month 6	Month 9	Month 12	
Any milk leakage from your breasts?									
Any breast enlargement?									
Have menstrual periods ceased or become irregular?									
Any loss of sexual function or desire?									
Stunted growth or delayed puberty?									
Name, Signature & Designation									
5. Interventions required									
	Baseline	Month 1	Month 2	Ongoing Starting Point	Month 3	Month 6	Month 9	Month 12	
Intervention required if abnormality detected	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None					
Name, Signature & Designation									
Legend: * if any abnormalities are detected, a complete lipid profile is recommended † optional for patients prescribed clozapine because mandatory blood monitoring involving weekly testing for the first 18 weeks then monthly thereafter is recorded elsewhere # if No, indicate abnormality ** pay particular attention with risperidone, amisulpride, olanzapine and first generation antipsychotics									
					mg = milligram kg = kilogram m = metres BMI = Body Mass Index Y = Yes N = No				

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