Clinical Guidelines for the Physical Care of Mental Health Consumers

Clinician Handbook

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Government of Western Australia
Mental Health Commission
Based upon an extensive review of the literature and best practice guidelines, an overall Clinical Guidelines assessment package has been developed to assist in the examination and ongoing monitoring of mental health consumers’ physical health.

Five dimensions that impact upon a mental health consumer’s physical health have been identified. Each dimension has a number of components, and an evaluation tool has been either sourced or developed for each:

- **Medication effects**
- **Lifestyle factors**
- **Physical conditions (pre-existing or developing) & allergies**
- **Alcohol & illicit drug use**
- **Psychosocial factors**

The Clinical Guidelines for the Physical Care of Mental Health Consumers’ assessment package includes:

**Wall Chart – Metabolic Syndrome Algorithm**

This algorithm represents the basic physical health screening that must be conducted when assessing metabolic syndrome – waist circumference, blood pressure, fasting lipids, and fasting blood glucose. Designed as a wall chart, clinicians can easily access information they need to conduct required tests.

**Clinical Handbook**

The handbook outlines information specifically dealing with medications and physical examinations, along with an overview of the other major health dimensions that need to be monitored. Designed for use by psychiatrists and general practitioners, the handbook represents an easily accessible knowledge source, and all results of specific tests are to be placed on the general screening forms provided.
Lifestyle and Psychosocial Assessment

This booklet is a compilation of tools designed to give a deeper understanding of each consumer’s health-related behaviours and social situation – Culture/religion/spirituality, exercise, diet, smoking, oral/dental, sexual activity, alcohol and other drug use, psychosocial supports. It is structured to be user-friendly as most people working within the health field can administer it.

General Screening Forms

There are three results forms. A general screening form has been provided listing the recommended tests for each medication/medication category. A second screening form outlines additional tests recommended for specific medications (e.g. lithium carbonate), and a third screening form has been provided for clozapine.

These forms are to be used as a summary of each consumer’s results, are to sit in the front of the consumer’s medical file, and are colour-coded to match the lifestyle and psychosocial assessment booklet.

References used in this handbook are cited in full in the Clinical Guidelines for the Physical Care of Mental Health Consumers report.

This assessment package provides an overall evaluation of each consumer’s physical health status, with information on the general screening form covering a time span of two years. This allows for recognition of patterns occurring over time, and places relevant information on physical health in the one location.

The Clinical Guidelines for the Physical Care of Mental Health Consumers’ package has been developed for adults. Further investigation is required for distinct populations (e.g. elderly, children, etc).

This Publication was produced with generous financial assistance of the Mental Health Commission of the State Government of Western Australia. The Government of Western Australia is granted a non-exclusive irrevocable non-transferable license to use the contents of this publication for any non-commercial purpose.

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Stanley, S. & Laugharne, J. (2010). Clinical guidelines for the physical care of mental health consumers. Community, Culture and Mental Health Unit, School of Psychiatry and Clinical Neurosciences, The University of Western Australia. Perth: The University of Western Australia
Antidepressants

Recommended Testing

• Blood Pressure
• Fasting Blood Glucose
• Urea & Electrolytes
• ECG
• Liver Function Tests

Adverse Effects

Selective Serotonin Reuptake Inhibitors – SSRIs
(e.g. citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline)

Common
Slow onset (4-12 weeks), nausea, agitation, insomnia, drowsiness, tremor, dry mouth, diarrhoea, constipation, dizziness, headache, sweating, weakness, anxiety, weight loss initially, weight gain long term, sexual dysfunction, rhinitis, myalgia, rash.

Infrequent
Extrapyramidal reactions (including tardive dyskinesia and dystonia), sedation, confusion, palpitations, tachycardia, hypotension, hyponatraemia (as part of SIADH), abnormal platelet aggregation/haemorrhagic complications (e.g. bruising, epistaxis, GI and vaginal bleeding).

Rare
Elevated liver enzymes, hepatitis, hepatic failure, galactorrhoea, blood dyscrasias, seizures, akathisia, paraesthesia, taste disturbance.
Serotonin-Norepinephrine Reuptake Inhibitors – SNRIs
(e.g. venlafaxine, desvenlafaxine, nefazodone, duloxetine)

Common
Nausea, vomiting, anorexia, headache, sweating, rash, anxiety, dizziness, fatigue, syncope, tremor, hypertension (dose-related), insomnia, hyponatremia, agitation, sexual dysfunction, sedation, orthostatic hypotension, elevated cholesterol levels.

Rare
Suicidal thoughts or behaviour, agitation or panic attacks, hostility or aggressiveness, restlessness, mania, hallucinations, tachycardia, allergic reaction.

Norepinephrine Reuptake Inhibitors – NRIs (NARI)
(e.g. reboxetine)

Common
Urinary retention, sweating, paraesthesia, constipation, dry mouth, increase in diastolic blood pressure, increase in heart rate, low libido, insomnia, headache, impotence, dizziness.

Infrequent
Hypotension, hypertension, tachycardia, hyponatremia, blurred vision, flushing, chills, urinary tract infection.

Rare
Anxiety, loss of appetite, urinary retention in males, pain on ejaculation, increased orgasm intensity, premature ejaculation.
Monoamine Oxidase Inhibitors – MAOIs
(e.g. phenelzine, tranylcypromine)

Common
Orthostatic hypotension, sleep disturbances, headache, fatigue, drowsiness, weakness, agitation, tremors, twitching, myoclonus, hyper-reflexia, constipation, dry mouth, weight gain, impotence, loss of libido, elevated serum transaminases.

Infrequent
Itch, rash, sweating, blurred vision, peripheral oedema, mania.

Rare
Hypertensive crisis due to tyramine or medication interactions; hepatocellular damage, leucopenia, SIADH.

Hypertensive Crisis
Severe occipital headache + rapid rise in blood pressure may result in intracranial haemorrhage or acute cardiac failure. Avoid large amounts of tyramine and rich foods (e.g. mature cheese, yeast extracts, red wine).

Use with caution in the elderly due to adverse cardiovascular effects (e.g. orthostatic hypotension) and drug interactions

Reversible Inhibitors of Monoamine Oxidase – RIMAs
(e.g. moclobemide)

Common to Infrequent
Nausea, dry mouth, anxiety, agitation, constipation, diarrhoea, insomnia, restlessness, dizziness, headache, sleepiness, tremor, visual disturbances, GI complaints (feeling of fullness), rash, pruritus, urticaria, flushing.

Rare
Sedation, heartburn, confusion, avoid large amounts of tyramine and rich foods (e.g. mature cheese, yeast extracts, red wine), bone marrow damage, seizures, anaphylaxis, angioedema, hypertension, hypotension, hepatitis, breast enlargement, intrahepatic cholestasis, peripheral oedema.
Tricyclics
(e.g. amitriptyline, clomipramine, dothiepin, doxepin, imipramine, nortriptyline, trimipramine)

Common
Sedation, dry mouth, blurred vision, decreased lacrimation, constipation, weight gain, orthostatic hypotension, sinus tachycardia, urinary hesitancy or retention, reduced GI motility, anticholinergic delirium (particularly elderly, Parkinson’s disease), impotence, loss of libido, other sexual adverse effects, tremor, dizziness, sweating, agitation, insomnia, anxiety, confusion.

Infrequent
Slowed cardiac conduction, T wave inversion or flattening (high doses), arrhythmias, sinus tachycardia, nausea, hyperglycaemia, gynaecomastia in males, breast enlargement and galactorrhoea in females, allergic skin reactions, manic episodes.

Rare
Blood dyscrasias, hepatitis, paralytic ileus, SIADH with hyponatraemia, seizures, prolonged QT interval.

Noritriptyline often chosen for elderly as it is less likely to cause hypotension, sedation and anticholinergic effects

Noradrenergic & Specific Serotonergic Antidepressant’s – NaSSAs
(e.g. mirtazapine)

Common
Increased appetite, weight gain, sedation, asthenia, peripheral oedema, dry mouth, weakness.

Rare
Orthostatic hypotension, elevated lipid levels, postural hypotension, seizures, mania, rash, granulocytopenia, agranulocytosis, eosinophilia.
Adverse Effects

Benzodiazepines
(e.g. alprazolam, bromazepam, clobazam, clonazepam, diazepam, flunitrazepam, lorazepam, midazolam, nitrazepam, oxazepam, temazepam, triazolam)

Common
Drowsiness, over-sedation, light-headedness, memory loss, hypersalivation, ataxia, slurred speech, risk of dependence.

Infrequent
Headache, vertigo, disorientation, confusion, paradoxical excitation, euphoria, aggression and hostility, anxiety, decreased libido, anterograde amnesia, respiratory depression, hypotension, cognitive impairment (long term).

IV Injection – pain and thrombophlebitis, severe hypotension, arrhythmias, respiratory arrest

Rare
Blood disorders including leucopenia and leucocytosis, jaundice, transient elevated liver function tests, allergic reactions including rash and anaphylaxis, treatment emergent depression.

Use low doses in elderly as risks increased

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Anxiolytics

Recommended Testing
- Blood Pressure
- Fasting Blood Glucose
- Urea & Electrolytes
- ECG
- Liver Function Tests
**Adverse Effects**

**Mood Stabilisers/Anticonvulsants**
(e.g. gabapentin, pregabalin, topiramate, tiagabine, lamotrigine)

**Common**
Diplopia, blurred vision, dizziness, ataxia, headache, somnolence, hyperkinesia, nausea, vomiting, maculopapular rash, weight gain, diarrhoea, dysarthria, lethargy, memory impairment, euphoria, tremor, constipation, dry mouth, peripheral oedema, insomnia, (topiramate – reduced serum bicarbonate, nephrolithiasis, leucopenia).

**Infrequent**
Depression, confusion, agitation, hallucinations, myoclonus, hypoaesthesia, hyperaesthesia, tachycardia, heart failure, excessive salivation, sweating, flushing, rash, muscle cramp, myalgia, arthralgia, urinary incontinence, dysuria, facial and tongue oedema, suicidal ideation, aphasia, nystagmus (topiramate).

**Rare**
Multi-organ hypersensitivity syndrome (e.g. fever, abnormalities of blood and liver, lymphadenopathy, rash), neutropenia, pancreatitis, thrombocytopenia, first degree heart block (pregabalin), dysphagia.

**Mood Stabilisers/Antipsychotics**

**Recommended Testing**
- Blood Pressure
- Fasting Blood Glucose
- ECG
- Liver Function Tests
- Urea & Electrolytes
- Full Blood Picture
- Abnormal Involuntary Movement Scale (AIMS)

Additional test for amisulpride, risperidone, and olanzapine:
- Serum Prolactin

Additional test for quetiapine:
- Thyroid Stimulating Hormone
**Antipsychotics**

(e.g. olanzapine, quetiapine, amisulpride, aripiprazole, risperidone, ziprasidone, chlorpromazine, fluphenazine, haloperidol, loxapine, droperidol, flupenthixol, paliperidone, pericyazine, pimozide, trifluoperazine, zuclopenthixol).

**Common**

Sedation, anxiety, agitation, orthostatic hypotension, tachycardia, blurred vision, moderate to marked weight gain, mydriasis, constipation, nausea, dry mouth, urinary retention, sexual adverse effects, hyperprolactinaemia (may result in galactorrhoea, gynaecomastia, amenorrhoea or infertility).

**Extrapyramidal Side Effects**

Incidence highest for haloperidol, fluphenazine, trifluoperazine and pimozide; dystonias, akathisia, Parkinsonism, tardive dyskinesia.

**Infrequent or Rare**

Allergic reactions including urticaria and Stevens-Johnson syndrome; corneal and lens opacities, SIADH, hyperthermia, hypothermia, neuroleptic malignant syndrome, anaemia, thrombocytopenia, agranulocytosis, ECG changes (reversible, broadened QT interval), arrhythmias, cardiac arrest, sudden death, hepatic fibrosis, systemic lupus erythematosus, seizures, increased blood glucose, dysarthria, dysphagia.

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**Specific Drug Monitoring**

Certain medications will need additional monitoring based on the increased incidence of adverse side-effects specific to those drugs.

- Carbamazepine
- Lithium Carbonate
- Valproic Acid
- Clozapine
Carbamazepine

Recommended Testing

- Blood Pressure
- Full Blood Picture
- Urea & Electrolytes
- Thyroid Stimulating Hormone
- Fasting Blood Glucose
- Serum Carbamazepine
- Liver Function Tests
- ECG

Adverse Effects

Common
Drowsiness, ataxia, blurred vision, diplopia, headache, rash, dry mouth, abdominal pain, nausea, vomiting, anorexia, diarrhoea, constipation, asymptomatic hyponatraemia, leucopenia, thrombocytopenia, increased liver enzymes.

Rare
Antibody deficiency, severe skin reactions, systemic lupus erythematosus, aplastic anaemia, multi-organ hypersensitivity syndrome (including fever, lymphadenopathy, haematologic abnormalities, hepatitis), psychiatric disorders, SIADH, arrhythmias, orofacial dyskinesia, hepatitis, jaundice, osteomalacia.

Severe Skin Reactions
Include exfoliative dermatitis, Stevens-Johnson syndrome and toxic epidermal necrolysis; may also occur as part of multi-organ hypersensitivity syndrome. Serious reactions generally occur within the first few months of treatment and are more common in people of Asian ancestry.
Adverse Effects

Common
Metallic taste, nausea, diarrhoea, epigastric discomfort, weight gain, fatigue, headache, vertigo, tremor, acne, psoriasis, polyuria, leucocytosis, hypothyroidism, benign T wave changes on ECG.

Infrequent
Nephrogenic diabetes insipidus with polydipsia and polyuria, memory impairment, hair loss, hyperparathyroidism.

Rare
Arrhythmias, hyperthyroidism.

Mild-to-moderate toxicity
Blurred vision, increasing diarrhoea, nausea, vomiting, muscle weakness, drowsiness, apathy, ataxia, flu-like illness.

Severe toxicity
Increased muscle tone, hyper-reflexia, myoclonic jerks, coarse tremor, dysarthria, disorientation, psychosis, seizures, coma.

Nephrotoxicity
Renal damage – multiple episodes of acute toxicity.

Lithium Carbonate

Recommended Testing

• Blood Pressure
• Full Blood Picture
• Urinalysis (U/A)
• Fasting Blood Glucose
• Thyroid Stimulating Hormone
• Urea & Electrolytes
• Serum Lithium
• ECG
Valproic Acid

Recommended Testing

- Blood Pressure
- Fasting Blood Glucose
- Full Blood Picture
- Liver Function Tests
- Prothrombin Time (PT)
- Valproic Acid
- ECG

Adverse Effects

Common
Nausea, vomiting, increased appetite, weight gain, tremor (dose-related), paraesthesia, drowsiness, ataxia, elevated liver transaminase concentrations (dose-related), asymptomatic hyperammonaemia.

Infrequent
Thinning or loss of scalp hair (usually temporary), menstrual irregularities, abnormal bleeding time (usually clinically unimportant), rash.

Rare
Hepatic failure, pancreatitis (usually occurs within the first 6 months and can be fatal), leucopenia, neutropenia, thrombocytopenia (dose-related), extrapyramidal syndrome, peripheral oedema, hyperammonaemic encephalopathy, hypersensitivity syndrome.

Hypersensitivity Syndrome
Usually occurs within the first 6 weeks and can be fatal; symptoms include fever, rash, lymphadenopathy, hepatitis, haematological abnormalities, hepatorenal syndrome may occur.
Clozapine

Recommended Testing

• Blood Pressure
• Fasting Blood Glucose
• Full Blood Picture
• Blood Type
• ECG
• Echocardiogram
• Liver Function Test
• Urea & Electrolytes
• Troponin T
• Pulse
• Temperature

Within 10 days prior to commencement of Clozapine

• Conduct all baseline tests
• Register the prescriber, pharmacist and consumer with the relevant clozapine monitoring system

NOTE: Possible incidence of myocarditis (early in treatment), and cardiomyopathy (within the first six months of treatment)

(Western Australian Psychotropic Drugs Committee, 2006)
### Daily/Weekly Monitoring

- Daily monitoring of blood pressure, pulse and temperature for the first 4 weeks
- Full Blood Picture to be assessed weekly for 18 weeks, and monthly thereafter. Increase monitoring where required.
- Stop clozapine if neutrophils are $< 1.5 \times 10^9/L$
- Stop clozapine if total leucocytes are $< 3.0 \times 10^9/L$ or eosinophils are $> 3.0 \times 10^9/L$
- Electrocardiogram (ECG)*

* Should be repeated at 2 weeks, and possibly at 6 weeks as most reported cases of myocarditis have occurred within the first 6-8 weeks of therapy.

(New Zealand Medicines & Medical Devices Safety Authority, 2008)

- Troponin T level should be measured baseline, week 1 and week 2, then 3 monthly.

### Adverse Effects

#### Common
Drowsiness, hypersalivation (can cause aspiration pneumonia), constipation, seizures, headache, tachycardia, hyperpyrexia, hepatitis, neutropenia, weight gain, nausea, vomiting, urinary retention, urinary incontinence.

#### Infrequent
Agranulocytosis, eosinophilia, priapism, EPSE.

#### Rare
Cardiomyopathy, myocarditis, hypertension, hyperglycaemia, myoclonic jerks, interstitial nephritis, respiratory arrest.
Normative Ranges for Each Test:

The ranges given here are for adults. Further information is needed for distinct populations such as people over the age of 65yrs, pregnant women, etc.

**Blood Pressure (mmHg)**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Systolic</th>
<th>Diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypotension</td>
<td>&lt; 90</td>
<td>&lt; 60</td>
</tr>
<tr>
<td>Normal</td>
<td>90-119</td>
<td>60-79</td>
</tr>
<tr>
<td>Pre-hypertension</td>
<td>120-139</td>
<td>80-89</td>
</tr>
<tr>
<td>Stage1-Hypertension</td>
<td>140-159</td>
<td>90-99</td>
</tr>
<tr>
<td>Stage2-Hypertension</td>
<td>≥ 160</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>

**Fasting Blood Glucose (mmol/L)**

<table>
<thead>
<tr>
<th>Condition</th>
<th>≤ 5.6</th>
<th>5.6-7.0</th>
<th>≥ 7.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>Impaired</td>
<td>Diabetes</td>
</tr>
</tbody>
</table>

**Glucose Tolerance Test (GTT) (mmol/L)**

<table>
<thead>
<tr>
<th>Fasting</th>
<th>2 Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 6.0</td>
<td>and</td>
</tr>
<tr>
<td>6.1-6.9</td>
<td>and/or</td>
</tr>
<tr>
<td>≥ 7.0</td>
<td>and/or</td>
</tr>
</tbody>
</table>

**Pulse**

<table>
<thead>
<tr>
<th>Condition</th>
<th>≤ 60 bpm</th>
<th>&lt; 60 bpm</th>
<th>&gt; 100 bpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting</td>
<td></td>
<td>Brachycardia</td>
<td></td>
</tr>
<tr>
<td>Tachycardia</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Temperature**

<table>
<thead>
<tr>
<th>Condition</th>
<th>≤ 36°C</th>
<th>≤ 37°C</th>
<th>≤ 37.2°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal – oral</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Liver Function Test**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total protein</td>
<td>60-80 g/L</td>
</tr>
<tr>
<td>Albumin</td>
<td>35-50 g/L</td>
</tr>
<tr>
<td>Bilirubin</td>
<td>&lt; 4 µmol/L or &lt; 5% of total</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>&gt; 13yrs 22-32</td>
</tr>
<tr>
<td>Alkaline Phosphatase</td>
<td>&gt; 20yrs 35-135 U/L</td>
</tr>
<tr>
<td>Alanine Aminotransferase (ALT)</td>
<td>Male &gt; 17yrs &lt; 40 U/L</td>
</tr>
<tr>
<td></td>
<td>Female &gt; 17yrs &lt; 35 U/L</td>
</tr>
</tbody>
</table>

16
25-hydroxyvitamin D (serum)
75 nmol/L

Urea & Electrolytes
- Sodium > 13yrs 134-146 mmol/L
- Potassium > 13yrs 3.4-5.0 mmol/L
- Bicarbonate > 13yrs 22-32 mmol/L
- Glucose > 13yrs < 5.6 mmol/L (fasting)
- Urea > 13yrs 3.0-8.0 mmol/L
- Creatinine Male > 16yrs 60-110 mc mole/L
  Female > 16yrs 45-90 mc mole/L
- Chloride > 13yrs 98-108 mmol/L
- Osmolality 275-295 mosmol/kg

ECG
- Beats per minute 60-90
- PR Interval 0.12-0.20 sec
- QRS Duration 0.06-0.10 sec
- QT Interval QTc ≤ 0.40 sec

Full Blood Picture
- Red Cell Count Male > 12yrs 4.5-5.5 (x10^12/L)
  Female > 12yrs 3.8-4.8
- MCH > 18yrs 27-32 pg
- MCHC > 18yrs 320-360 g/L
- MCV > 18yrs 80-100 fL
- RDW > 18yrs 9-15
- White Cell Count > 18yrs 4-11 (x10^9/L)
- Neutrophils > 18yrs 2-7.5 (Absolute x10^9/L) g/L
- Lymphocytes > 18yrs 1.2-4 (Absolute x10^9/L) g/L
- Monocytes > 2yrs 0.2-1.0 (Absolute x10^9/L) g/L
- Eosinophils > 18yrs 0.00-0.5 (Absolute x10^9/L) g/L
- Basophils > 28 days 0.00-0.2 (Absolute x10^9/L) g/L
- Platelet Count > 28 days 150-400 (x10^9/L)
- MPV > 28 days 6.0-10.0 fL
Thyroid Stimulating Hormone
0.4-4.0

Urinalysis (U/A)
Urea (24hr Urine) 300-600 mmol/Day
Specific Gravity 1.003-1.030

Serum Prolactin
15-25 µg/L Normal range
25-200 µg/L Hyperprolactinaemia
> 200 µg/L Prolactinoma

Serum Lithium
0.5-1.2 mmol/L Therapeutic range

Prothrombin Time (PT)
0.9-1.3 sec

Valproic Acid
50-100 µg/L Therapeutic range

Serum Carbamazepine
6-12 µg/mL Therapeutic range

Troponin T
< 0.03 µg/L Healthy
0.03-0.09 µg/L Possible cardiac risk
≥ 0.10 µg/L Myocardial infarction

Abnormal Involuntary Movement Scale (AIMS)
Facial & oral movements
Extremity movements
Trunk movements
Metabolic Syndrome

Atypical antipsychotic medications were introduced to lower the incidence of extrapyramidal symptoms such as Parkinsonism and tardive dyskinesia, yet it is becoming increasingly evident that they are associated with metabolic disturbances, cardiovascular disease and type 2 diabetes.

- One of the most prevalent health issues found in mental health consumers today
- Relatively common across all mental health diagnoses
- Central obesity, glucose intolerance/insulin resistance, hypertension, and dyslipidemia characterise the syndrome, yet only a small number of consumers are regularly screened

(Meyer & Stahl, 2009; Taylor et al., 2005)

References for Medications:

Rossi (2009)
American Society of Health System Pharmacists (2009)
CMP Medica (2008) MIMS Online
NAMI – National Alliance on Mental Illness (2009)
PathWest, Fremantle Hospital (December, 2009)
Peel & Rockingham/Kwinana Mental Health Services (2009)
Western Australian Psychotropic Drugs Committee (2006)
New Zealand Medicines & Medical Devices Safety Authority (2008)
Guy (1976) Abnormal Involuntary Movement Scale (AIMS)
Clinical algorithm for monitoring metabolic syndrome in mental health patients

### Waist Circumference

<table>
<thead>
<tr>
<th>Waist Circumference</th>
<th>Values</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;94cm (M)</td>
<td>&lt;90cm (M)</td>
<td>Normal</td>
</tr>
<tr>
<td>&lt;80cm (F)</td>
<td>&lt;80cm (F)</td>
<td>Normal</td>
</tr>
<tr>
<td>Europid</td>
<td>Asian</td>
<td>Normal</td>
</tr>
</tbody>
</table>

### Blood Pressure

<table>
<thead>
<tr>
<th>Blood Pressure</th>
<th>Values</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;130mmHg</td>
<td>&lt;85mmHg</td>
<td>Normal</td>
</tr>
<tr>
<td>≥130mmHg</td>
<td>≥85mmHg</td>
<td>Normal</td>
</tr>
</tbody>
</table>

**Within normal range – no action required**

**Further action needed**

**Treatment is required**

*(M) Male (F) Female*
Based on Waterreus & Laugharne (2009).
Screening for the metabolic syndrome in patients receiving antipsychotic treatment: a proposed algorithm. MJA, 190 (4), 185-189.
Sexual Activity

Adequate sexual expression provides people with a sense of psychological, physical and social well-being.

Many psychotropic medications, including antidepressants cause:

- Sexual dysfunction (Baldwin & Mayers, 2003; Montejo, 2008)
- Decreased libido or decrease in sexual desire
- Impotence and problems with orgasm or ejaculation
- Fertility problems
- Lower rates of sexual activity in people with a mental illness, yet higher risk and self-report of unprotected sex, sex trading, and illicit drug use (Meade & Sikkema, 2007)

Cholesterol

Suggested target cholesterol levels:

**High Density Lipoprotein Cholesterol (HDL-C) (mmol/L)**

- **Desirable range**
  - ≥ 1.03 Males
  - ≥ 1.29 Females
- **High Risk patient range**
  - > 1.0 Males and Females

**Low Density Lipoprotein Cholesterol (LDL-C) (mmol/L)**

- **Desirable range**
  - < 3.0
- **High Risk patient range**
  - < 2.0

**Triglycerides (TG) (mmol/L)**

- **Desirable range**
  - < 1.7
- **High Risk patient range**
  - < 1.5

**Total Cholesterol (TC) (mmol/L)**

- **Desirable range**
  - < 5.5
- **High Risk patient range**
  - < 4.0

High cholesterol and triglyceride levels are associated with coronary heart disease and diabetes. Dyslipidemia is associated with many psychotropic medications (e.g. olanzapine, clozapine, haloperidol, imipramine) as they increase lipid biosynthesis.
Exercise

**Activity Level**

- **Vigorous intensity**: Jogging, aerobics, digging, fast bicycling
- **Moderate intensity**: Walking
- **Other**: Slow bicycling, carrying light loads

**Weight**

Monitor weight over time

Use weight measurement to calculate BMI

**Body Mass Index (BMI)**

BMI is a simple index of weight-for-height that is commonly used to classify underweight, overweight, and obese adults.

e.g. \( \text{BMI} = \frac{70 \text{ kg}}{(1.75 \text{ m})^2} = \frac{70}{3.0625} = 22.9 \)

<table>
<thead>
<tr>
<th>BMI</th>
<th>Status</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 18.50</td>
<td>Underweight</td>
<td>High Risk</td>
</tr>
<tr>
<td>18.50-24.99</td>
<td>Normal range</td>
<td>Normal</td>
</tr>
<tr>
<td>≥ 25.00-29.99</td>
<td>Overweight</td>
<td>High Risk</td>
</tr>
<tr>
<td>30.00-34.99</td>
<td>Obese</td>
<td>High Risk</td>
</tr>
<tr>
<td>≥ 35.00</td>
<td>Morbidly Obese</td>
<td>Very High Risk</td>
</tr>
</tbody>
</table>

**Abdominal Girth**

Increased abdominal fat is associated with type 2 diabetes, hypertension, cardiovascular disease, and dyslipidemia.

- Measure directly against the skin
- Tell the person to breathe out normally
- Make sure the tape is snug, without compressing the skin
- Measure halfway between the lowest rib and the top of the hip bone, roughly in line with the belly button.

<table>
<thead>
<tr>
<th>Girth</th>
<th>Status</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 94 cm (male)</td>
<td>&lt; 80 cm (female)</td>
<td>Europid</td>
</tr>
<tr>
<td>&lt; 90 cm (male)</td>
<td>&lt; 80 cm (female)</td>
<td>Asian</td>
</tr>
</tbody>
</table>
Smoking

- 20% of Australian adults smoke tobacco
- 66% of people with bipolar, 74% of people with schizophrenia, and 57% of people with major depression smoke tobacco (Diaz et al., 2009)
- If the consumer smokes tobacco, administer the smoking cessation survey to explore the person’s interest, confidence, and probability of quitting.
- Track attempts to quit / smoking behaviour over time.
- Many people attempt to give up smoking a number of times before they finally succeed.
- Nicotine replacement therapy or medication such as bupropion or varenicline may be used, but caution must be taken as these drugs are linked to depression and suicide.

Oral/Dental

Oral health is generally poor in mental health consumers; they are less likely to visit a dentist, and medication enhances risk.

Problems:
- Bad mouth odour;
- Ulcerated, bleeding and/or inflamed mucous membranes, lips and/or gums;
- Decayed and/or fractured teeth;
- Calculus on teeth;
- Absence of saliva
Psychotropic and Dental Drug interactions:

Amitryptiline (TCA's) + anxiolytics, hypnotics, sympathomimetics, local anaesthetic with adrenaline
= sedative effects, potentiates dental drug, increased heart rate and blood pressure

Cannabis + local anaesthetic with adrenaline
= abnormal response to local anaesthetic

Chlorpromazine + anxiolytics, hypnotics, analgesics, anaesthetics
= sedative effects, potentiates dental drug

Chlordiazepoxide + opioid analgesic, antihistamine
= sedative effects

Clozapine + carbamazepine, cotrimoxazole, anxiolytics, hypnotics
= increased incidence of agranulocytosis, sedative effects

Dexamphetamine Sulphate + adrenaline
= possible hypertension

Dothiepin + anxiolytics, hypnotics
= sedative effects

Fluoxetine + anticoagulants
= potentiates dental drug

Flupenthixol Decanoate + anxiolytics, hypnotics
= sedative effects

Haloperidol + carbamazepine, anxiolytics, hypnotics
= accelerates metabolism, sedative effects

Methylphenidate Hydrochloride + adrenaline
= possible hypertension

Prochlorperazine + anxiolytics, hypnotics
= sedative effects

Procyclidine + antifungals, antihistamine
= reduced absorption, increased antimuscarinic effects

Promazine Hydrochloride, Risperidone or Thioridazine + anxiolytics, hypnotics
= sedative effects
Hepatitis B and C

For all mental health consumers consideration should be given regarding health checks for Hepatitis C and B:

- Prevalence rates higher for people with a mental illness
  - approximately 1% of the general population
  - approximately 19.5% of consumers with a mental illness (across disorders)

- Testing rates very low

- Hep C – Some evidence that interferon-α in combination with ribavirin can be safely administered to mental health consumers (Rifai et al., 2006)

- Hep B is one of the most common infectious diseases in the world

HIV/AIDS & STI’s

For all mental health consumers consideration should be given regarding health checks for HIV/AIDS and Sexually Transmissible Infections (STI’s):

- Prevalence rates higher for people with a mental illness
  - 0.6% general population
  - 1.7%-5% of people with a mental illness (USA data)

- People with mental illness LESS likely to be sexually active when compared to people in the general population:

- People with a mental illness MORE likely than people in the general population to have unprotected sex, engage in sex-trading (trading sex for money, drugs, or other goods), and use illicit drugs.

- No difference in HIV risk between different mental disorders

- Positive symptoms of psychosis are associated with greater sexual activity

- Sex-trading is more likely for people diagnosed with schizophrenia and illicit drug users.
Cancer

All mental health consumers should undergo cancer screening as per the general population.

• Incidence rates similar to general population
• Mortality rates significantly higher than the general population:
  – 40% higher in males
  – 20% higher in females
  (Lawrence et al., 2000 – WA study of 172,932 mental health patients)
• Likely that mental health consumers are not being adequately screened for cancer

Males

Highest cancer mortality rate ratios *(in order)*:
  – cancer of the brain
  – prostate
  – urinary bladder
  – unknown primary site
  – lymphoma
  – leukaemia
  – lung

Females

Highest cancer mortality rate ratios *(in order)*:
  – cancer of the brain
  – unknown primary site
  – breast
  – cervix
  – ovary
  – lung
  – pancreas
  – lymphoma

*Majority of brain tumours found in older consumers*
Irritable Bowel Syndrome (IBS) & Gastrointestinal Dysfunction

Irritable Bowel Syndrome (IBS) is characterised by abdominal discomfort or pain, bloating, and diarrhoea and/or constipation.

- Incidence in general population is 10-15%
- Incidence in mental health consumers is 20-25%
- IBS is thought to result from hypersensitivity in the bowel wall (Talley, 2001, 2006)
- Evidence of central dysregulation, serotonin dysregulation, inflammatory bowel disease, and bacterial overgrowth

**95% of the body’s serotonin resides in the gut:**

- Constipation-predominant IBS = low levels of plasma serotonin
- Diarrhoea-predominant IBS = high levels of plasma serotonin

**Care must be taken to exclude the presence of Inflammatory Bowel Disease (IBD):**

Inflammatory conditions of the colon and small intestine e.g.

- Crohn’s disease
- Ulcerative colitis

*Mental health consumers sometimes fluctuate between constipation and diarrhoea, and most experience some abdominal discomfort or pain.*
Type 2 Diabetes

Type 2 diabetes occurs when either the pancreas does not make enough insulin, or the body’s cells become resistant to insulin.

**Risk Factors:**

- Genetics
- Environment – high blood pressure, a lack of exercise & poor diet *(may result in obesity)*
- Psychotropic medications – elevated blood glucose levels

- 4% of the general Australian population have diabetes
  - 88% Type 2 diabetes *(ABS, 2008)*
- 14.5% of people with schizophrenia, schizo-affective disorder have diabetes *(Cohen, 2006)*
- 1979 to 1995 – before and immediately following atypical antipsychotics the incidence of diabetes in people with schizophrenia was similar to the general population
- 1996 to 2001 – 70% of patients in the USA now take atypicals – 0.7% increase per year of diabetes mellitus for people with schizophrenia *(Basu & Meltzer, 2006)*

- Antidepressants show an increased risk in diabetes mellitus *(Andersohn et al., 2009):*
  - Large observational study – 160,000 patients from 1990 to 2005
  - Long-term use (24 months +)
  - Tricyclics, SSRI’s – 84% risk of diabetes
  - SNRI’s – 80% risk of diabetes

**Testing – Sex Differences:** *(Magliano et al., 2008)*

- Males have higher fasting plasma glucose in general
- Females have higher 2-h plasma glucose in general (during a standard GTT)

- Women with high fasting blood glucose levels more likely to develop Type 2 diabetes than males
- Men with impaired glucose tolerance levels more likely to develop Type 2 diabetes than females
Cardiovascular Disease

- Cardiovascular disease accounts for 36% of all deaths in Australia. The two most common conditions are:
  - stroke
  - heart attack

- In 2004/2005 roughly 3.5 million people (18%) in Australia reported having a long-term cardiovascular condition such as high blood pressure (most commonly reported) \( (ABS, 2006) \)

**Key Risk Factors:**

- dyslipidemia
- obesity
- smoking
- hypertension
- hyperglycemia

- Atypical antipsychotics – olanzapine and quetiapine greatest risk for high blood pressure and cardiovascular disease \( (Daumit et al., 2008) \)
- Baseline risk for cardiovascular disease across all antipsychotics – 8.1% to 9.1%
- Antipsychotics, Tricyclics and SSRI’s show an elevated risk for sudden cardiac death \( (Ray et al., 2001; Whang et al., 2009) \)
- Typical antipsychotics (e.g. haloperidol, thioridazine, chlorpromazine, thiothixene) show a 60% greater incidence of sudden cardiac death than atypical antipsychotics
Respiratory Disease

- Respiratory disease accounted for 8.4% of all registered deaths in Australia in 2007 (ABS, 2007)
- Chronic Obstructive Pulmonary Disease (COPD) (e.g. asthma, bronchitis, emphysema) accounted for the majority of these deaths
- In Australia 10.8% of people suffer from COPD symptoms (Buist et al., 2007)
- Almost 20% of Australians > 40yrs have COPD (Lung Foundation, 2009)
- Approximately 11% of adults have asthma (Asthma Foundation Australia, 2009)
- Due to the high incidence of tobacco smoking (the highest risk factor for COPD) in people with a mental illness, it is likely that respiratory disorders will be more prominent
- COPD is often mistaken for asthma or is unrecognised in mental health consumers (Frith, Esterman, Crocket & James, 2004).
**Alcohol**

- In Australia, 21% of people drink at a level that poses a high risk to their health (ABS, 2008).
- Anxiety disorders often precede alcohol disorders (Kushner et al., 2009)
- Alcohol disorders often precede depressive disorders (Jane-Llopis & Matytsina, 2006)

**Health complications:**
Liver dysfunction; memory loss; possible brain damage (Wernicke’s encephalopathy to Korsakoff’s syndrome); oral, throat, and oesophageal cancers; aggression and violent behaviour; peptic ulcers; impaired sensation in peripheral extremities; heart failure; anaemia; bleeding, severe inflammation of the stomach, vomiting; inflammation of the pancreas; impaired sexual function; birth defects; alcohol can also affect the metabolism of prescription drugs.

**Assessment:**

**AUDIT (Alcohol Use Disorders Identification Test)**
Babor, de la Fuente, Saunders & Grant (1992)
Identifies possible drinking-related problems

**SADQ-C (Severity of Alcohol Dependence Questionnaire)**
Stockwell, Sitharan, McGrath & Lang (1994)
If a drinking problem has been established, SADQ-C will establish the severity of dependence
- Both tests can be administered by assessor or consumer
- Both tests found to be reliable for psychiatric populations

**Illicit Drugs**

**Health Complications:**

**Amphetamines and related drugs (e.g. ecstasy, cocaine)**

*When taken:*
Muscular tension, bruxism, jaw clenching, restlessness of the legs, increased body temperature.
Two to three days after:
Pain and stiffness in lower back, headache, nausea, dry mouth, blurred
vision, loss of appetite, insomnia, fluctuating heart rate and blood pressure.

For some:
Hyperactivity, inability to focus, mild hallucinations, depersonalisation and
anxiety can occur.

Long term use can cause:
Serotonin neurotoxicity, impairments of memory, decision making, and
information processing, greater impulsivity, panic attacks, recurrent paranoia
and psychotic episodes, major physical toxicity (hepatic, cardiovascular,
cerebral, and hyperpyrexic), and possible death.

Opioids
Much of the physical harm is caused by unsterilized needles, needle
swapping (e.g. HIV/AIDS, Hepatitis C), intravenous use of drug preparations
for oral use only, and abscesses and cellulitis.

Cannabis
During drug use:
Effects on cognition, depression of the immune system, and possible psychosis.

Long-term:
Heavy smokers of cannabis risk serious adverse effects on the respiratory system.

Anabolic Steroids
Significant increase in anxiety, aggression, sexual behaviour, cardiovascular
events, cholesterol, impaired liver function, liver tumours, jaundice,
hypomania, and depression

Assessment:

DAST (Drug Abuse Screening Test)
Skinner (1982)
Identifies possible drug abuse including:
• prescribed or over-the-counter drugs used in excess of directions
• any non-medical use of drugs
• does NOT include alcoholic beverages

SDS (Severity of Dependence Scales)
Gossop, Darke, Griffiths, Hando, Powis, Hall & Strang (1995)
Culture/Religion/Spirituality

Values/Belief Systems:

“Culture includes, but is not restricted to, age or generation; gender; sexual orientation; occupation and socioeconomic status; ethnic origin or migrant experience; religious or spiritual belief; and disability”

(Nursing Council of New Zealand, 2009, p.4).

- Differences between religious and cultural beliefs, values and meaning, practices and customs can result in alienation, discrimination, and abuse
- Individual differences within cultures as well as between cultures
- The need to respect and consider the views of a client embodies the realisation that different people require different therapeutic assistance

Language:

- 27.1% of WA’s population were born overseas
- 11.4% of WA’s population speak a language other than English at home
- Around 270 different languages spoken in WA
- The use of interpreters enables better communication between consumers and practitioners

Consumers may prefer to have a family member present
Autonomy and Relatedness:

- Western cultures – high levels of autonomy and moderate levels of relatedness are encouraged and valued
  - individuals require a strong sense of control, achievement, competency, agency, independence, uniqueness, and separateness from others to maintain emotional/mental health
- Non-western cultures – high levels of relatedness and moderate levels of autonomy are encouraged and valued
  - emphasise communion, affiliation, connectedness, harmonious relationships, interdependence, and sociality to maintain emotional/mental health

Mental/Physical Health Ideology:

- No universal explanation of mental illness can be applied to an entire cultural group (Tyson & Flaskerud, 2009)
- Individuals and groups consider emotions, thoughts and behaviours within the context of their own society
- Western medical explanations and treatments may not carry the same meaning or relevance for people from other cultures
- Definitions of support are dependent upon beliefs surrounding autonomy, dependency and reciprocity, and these beliefs in turn, shape the way in which people and groups give, receive, accept or reject support (Jacobson, 1986)
Assessment – Cultural Safety:

Protocols
Addresses cultural forms of engagement (e.g. informed consent, permission)
Seeking and sharing cultural knowledge

Personal Knowledge
Being mindful of your own cultural identity
Socio-historic location/power in relation to the consumer
Personal ideology and commitment to ways of conceptualising mental health and well-being
Sharing personally relevant information creates equity and trust

Partnerships
Sharing knowledge versus ‘telling’
Collaborative practice where those seeking help share in the problem solving versus expert/authority models

Process
Ensure equity and dignity
Negotiate goals and activities
Talk less and listen more
Frequent checking to ensure that proposed solutions fit with the consumer’s values, preferences and lifestyle
Psychosocial Supports

Familial Relationships:
Social and emotional support is associated with a reduced risk of morbidity, mental illness, and mortality, and affects the way in which people cope with stressful events and situations

(Uchino, 2006; Strine et al., 2008)

Close social support from significant others equates to lower levels of depressive symptoms, hassles, and substance abuse

(Jackson, 2006)

Family contact cannot be assumed to be sufficient as the supports given may not meet the needs of the person

(Fleury et al. (2008)

Patients in contact with family – PF
Patients not in contact with family – PNF

<table>
<thead>
<tr>
<th>Need</th>
<th>PF</th>
<th>PNF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for daytime activities</td>
<td>61%</td>
<td>44%</td>
</tr>
<tr>
<td>Physical health problems</td>
<td>37%</td>
<td>35%</td>
</tr>
<tr>
<td>Need social company</td>
<td>61%</td>
<td>50%</td>
</tr>
<tr>
<td>Need for intimate relationships</td>
<td>31%</td>
<td>26%</td>
</tr>
<tr>
<td>Need for sexual expression</td>
<td>33%</td>
<td>14%</td>
</tr>
</tbody>
</table>

No help from relatives or services with:

| Health                      | 10.5% | 10.6% |
| Social                      | 31%   | 42%   |
| Information and utilities   | 31%   | 27%   |

• High rates of sexual impairment:
  Antipsychotics – 60% men, 80% women (Fan et al., 2007)
  SSRI’s – around 50% (Schweitzer et al., 2009)
Community Involvement:

- Belonging – a connection to others through intimate relationships, community engagement or group activities appears to protect people against physical symptoms of ill health (Hale et al., 2005)
- Kindness, being in a non-stigmatising environment, and having others to listen to them allows consumers to gain self-confidence and develop new social skills (Shiner et al., 2008)
- Mental and physical health can benefit greatly by providing assistance to others who also have mental health concerns (Bates, Kemp & Isaac, 2008; Bracke, Christiaens & Verhaeghe, 2008)
- The availability of peer supporters enhances the credibility of the service provider in that peers offering support draw from their own experiences of mental illness in order to engage with and assist others (Davidson et al., 2006)

Socio-Economic Status and Employment:

- The overwhelming majority of the main indicators of health status (e.g. self-rated health, functional impairments, disease-specific morbidity, and mortality) are inversely associated with Socio-Economic Status (SES) (Schnittker & McLeod, 2005)
- Low SES is consistently related to a higher risk of mental illness (Hudson, 2005)
- Low SES affects the affordability of medications and essential health services (Hynd et al., 2008)
- Unemployment associated with more negative symptoms and a poorer quality of life
- People involved in non-labour force work such as students, trainees, and volunteers are more like the employed than the unemployed in regard to symptoms (Turner et al., 2009)
Assessment – Psychosocial Supports Survey:

Social supports may need to be investigated and support structures implemented if they are absent or not available when the person needs them.

*Emotional* – *crisis*:
i.e. empathy and care from family and friends for a person in crisis allows the expression of feelings and emotion (e.g. fear, anxiety, emotional distress).

*Cognitive* – *transition*:
i.e. knowledge and information, and developing coping skills assists with decision-making and personal direction.

*Material* – *deficiency*
i.e. rent assistance, and hostel accommodation assists people experiencing a deficiency in personal resources (e.g. housing and homelessness).

![Figure 1. Types and timing of supports in stressful situations (adapted from Jacobson, 1986, p.254).](image-url)