



Clinical practice in early psychosis

How to screen and intervene for positive cardiometabolic health

Introduction

People with psychosis face a reduction in life expectancy of up to 20 years compared with the general population. This gap is largely due to physical health conditions, such as cardiovascular disease, rather than suicide, and it is widening.¹

Poor cardiometabolic health is prevalent among people with schizophrenia, and is a result of a mixture of factors, including side effects of medication, lifestyle-related factors such as poorer diet, higher smoking rates and reduced physical activity,²⁻⁵ and wider socioeconomic factors that are associated with psychosis, such as poverty, poorer access to health care,⁶ social isolation and marginalisation.²

Young people with early psychosis should be screened in a number of physical health areas, including sexual health, dental health, medical side effects and risk factors for diseases such as cancer. However, in this clinical practice point we focus on screening for cardiometabolic risk factors – the risk factors associated with heart disease and diabetes. For more detailed guidelines regarding physical health screening, please refer to the ENSP manual *Medical management in early psychosis: a guide for medical practitioners*.

Screening for cardiometabolic risk factors and intervening to reduce their impact on a young person's physical health is a crucial part of care for young people with early psychosis.

“ I really think that it is an area in our care that isn't addressed properly a lot of the time ... that actually they're focusing so much on your mind that they're not really giving the attention to your physical wellbeing. You know – they put you on medication and then six months later you've put on twenty kilos

Young person, EPPIC, Orygen Youth Health Clinical Program

Why is managing cardiometabolic health important?

People with psychosis are at increased risk of poor cardiometabolic health

In 2010, the second Australian national survey of psychosis, which examined adults with a diagnosed psychotic disorder, found that 72% of participants were overweight or obese, approximately 55% met the criteria for the metabolic syndrome (see Box 1) and 96% reported low physical activity levels.⁷ Other studies have also shown that physical activity levels are far lower in people with psychosis compared with those in the general population,⁸ and heavy alcohol



use is more common.⁸ In Australia, the rate of smoking among young people experiencing a first episode of psychosis has been reported to be as high as 72%⁹ – nearly three times that of the general population.¹⁰ There is also evidence that people with psychosis are at greater risk of developing diabetes.¹¹

Obesity, physical inactivity, smoking and poor diet are the biggest modifiable risk factors for diabetes and heart disease,¹² meaning their increased prevalence among people with psychosis places this group at higher risk of these conditions than the general population (see Box 2 for a list of risk factors for cardiovascular disease).

Furthermore, most antipsychotic medications have metabolic side effects and can cause clinically significant weight gain.^{3,13-15} This weight gain, as well as having profound physical health effects, can also have negative effects on a person's self-esteem and lead to further stigmatisation and social isolation.

Most young people with first episode psychosis will be prescribed antipsychotic medication. Although antipsychotic medication is not indicated in young people considered to be at ultra high risk for psychosis (UHR), these young people may be prescribed medications, such as mood stabilisers or antidepressants, that can also cause metabolic effects.

Unfortunately, young people appear to be particularly susceptible to the weight gain and metabolic dysfunction caused by antipsychotic medication,¹⁶ although some studies suggest that people with psychosis have an increased risk of developing diabetes **before** they even begin treatment, suggesting a link between psychosis and increased cardiometabolic risk that is independent of treatment effects.¹¹ Regardless, this increased risk indicates a need for cardiometabolic health screening.

Box 1. The metabolic syndrome

The metabolic syndrome is defined by the International Diabetes Federation as a cluster of risk factors that are associated with the development of cardiovascular disease. These risk factors are diabetes and raised fasting plasma glucose, abdominal obesity, raised cholesterol and raised blood pressure.

To be defined as having the metabolic syndrome, a person must have central obesity (defined by waist circumference with ethnicity-specific values or as BMI \geq 30), plus any two of the following:

- raised triglycerides
- reduced HDL cholesterol
- raised blood pressure
- raised fasting plasma glucose.

According to the second Australian survey of psychosis, 84% of participants met the above threshold for abdominal obesity, 58% for reduced HDL cholesterol, 56% for high triglycerides, 54% for elevated blood pressure and 35% for elevated fasting blood glucose levels.¹⁷

The full diagnostic criteria and further information about the metabolic syndrome can be found on the [International Diabetes Federation website](#).

Box 2. Risk factors for heart disease¹²

Non-modifiable risk factors include:

- family history of heart disease
- ethnicity
- gender (male and post-menopausal women)
- age.

Modifiable risk factors include:

- high blood pressure (hypertension)
- high cholesterol
- obesity
- physical inactivity
- type 2 diabetes
- unhealthy diet
- tobacco use
- harmful alcohol use.

Prevention does work

The first 12 months after commencing on antipsychotic medication has been identified as a critical period in which weight gain and metabolic changes most rapidly occur.^{16,18} Indeed, significant weight gain has been shown to occur in the first 6–8 weeks, by which time many people initiated on antipsychotic medication may also develop abnormal insulin, glucose, cholesterol and triglyceride levels;^{19,20} the metabolic effects of the antipsychotic olanzapine can be observed within hours or days of beginning treatment.²¹

However, weight gain and adverse metabolic effects *are* preventable if interventions such as those presented on page 7 are put in place from the time young people begin antipsychotic medication.^{16,22} It is therefore crucial that early psychosis services take an early intervention approach to addressing both the mental **and** physical health needs of young people in their care.

The Healthy Active Lives (HeAL) statement reflects an international consensus on tackling physical health in young people with psychosis. It outlines a set of key principles and processes that support the goal of maintaining good physical health, including cardiometabolic health, for young people with psychosis. These include young people having the right to:

- maintain the physical health they possess, despite the effects of having a mental illness or being treated
- a healthy, active life
- the same physical health and health care as people who have not experienced psychosis.²³

The full statement can be downloaded from the [International Physical Health in Youth working group website](#).

Improved physical health has many benefits

Interventions to prevent weight gain and adverse metabolic effects can have a number of other benefits for young people. For example, exercise can result in improved physical fitness, improvement in symptoms, reduced stress, better sleep and improved quality of life.^{24–29} As well as helping to manage weight, there is some evidence that a healthier diet may also help improve symptoms of depression and anxiety.^{30–32}



TIP It's important to be tactful when giving young people advice about things like diet and exercise, as they may already feel stigmatised or have low self-esteem because of their diagnosis. Discuss diet and exercise as something that is important for everyone, regardless of diagnosis, and that is routinely offered as part of good clinical care to all young people in the service. Education about the benefits of physical health interventions, and the interventions themselves, should always consider the preferences and goals of the young person.

Cardiometabolic health screening

Who is responsible for cardiometabolic screening?

All clinicians in the service are responsible for making sure that assessment and monitoring of young people's cardiometabolic health occurs. Non-medical clinicians can be trained in measuring waist circumference, height and weight to measure BMI and central obesity. They can also take blood pressure (with an automatic sphygmomanometer [blood pressure monitor]) if trained properly and made aware of what the parameters are for seeking medical advice. See 'Tips for cardiometabolic health monitoring in practice' on page 4.

Medical staff should be primarily responsible for blood monitoring, although it is the whole team's responsibility to support young people to attend a pathology service to have bloods taken. It is also the medical staff's responsibility to collate and interpret the results of blood tests and collaboratively develop a management plan with the young person and the rest of the treating team (including the young person's general practitioner) regarding ongoing monitoring and any required interventions.³³

All clinicians can provide psychoeducation about the physical health side effects of medication and help young people to develop and implement strategies that can mitigate these side effects. See also the ENSP manual *A shared understanding: psychoeducation in early psychosis*.

Guidelines for screening

The routine cardiometabolic health screening of all young people with early psychosis is recommended to guide detection, prevention and early intervention of physical health issues.³⁴ Initial screening should occur upon a young person's entry to a service to gather baseline information about their cardiometabolic health. This should be repeated at 1 month, after which, screening should continue at least every 3 months for the duration of their treatment within the service.

Any time there is a switch in a young person's antipsychotic medication, the initial screening time points should be repeated (i.e. at baseline, 1 month and 3-monthly thereafter). This helps determine whether any metabolic changes occur as a result of change in medication. A record of all changes in medication should also be kept so that any side effects experienced by a young person can be clearly attributed to a medication. This information should always be regularly shared with the young person's general practitioner.

At a minimum, cardiometabolic health screening should incorporate:

- waist circumference
- weight
- height
- BMI
- blood pressure
- level of physical activity
- smoking (cigarettes per day)
- fasting pathology (lipid profile, glucose, liver function tests, vitamin D)
- diet.

An algorithm for metabolic screening and intervention for young people who have been prescribed antipsychotic medication is available on the [NSW Health Education and Training Institute's website](#).



Baseline assessment of smoking, physical activity levels and diet quality can be incorporated as part of the usual biopsychosocial assessment that occurs when a young person first enters the service.

“ Metabolic screening should begin as soon as possible after a young person is accepted into the service, before they begin antipsychotic medication. This information should guide choice of medication.

Senior registrar, Orygen Youth Health Clinical Program

Tips for cardiometabolic health screening in practice

Physical health screening should be introduced to each young person as a routine part of their overall assessment and care. It is important to explain to young people why cardiometabolic monitoring in particular is necessary, and more generally why it is important to adopt healthy behaviours. Here we present some tips and tools that can help clinicians more easily incorporate the various components of cardiometabolic screening into routine practice.

Height and weight

Height and weight are easy to measure if you have a tape measure and scales. When measuring weight, take into account the weight of clothing the person might be wearing, especially during winter months. Ask the young person if they would mind removing their shoes and outer layers of clothing. Younger individuals will need to have their height measured fairly often, as they will continue to grow through adolescence and early adulthood.



Each time you take a young person's measurements, make sure you tell them what they are; this can be a good opportunity to engage them in discussions about physical health and address any worries or issues they might be having.

Waist circumference

This is easily measured using a simple measuring tape and if preferred, can be done by the young person themselves. For girls or women, position the tape half-way between the lower ribcage and the upper hip. For men or boys, position the tape at the belly button (see Figure 1). You can ask the young person to hold the measuring tape in the right place and then either guide the tape around their waist or ask them to do a twirl while you hold the other end of the tape. Make sure the tape is parallel to the floor and that it is snug, but not tight. Ask the young person to exhale and relax the abdomen when taking the measurement.

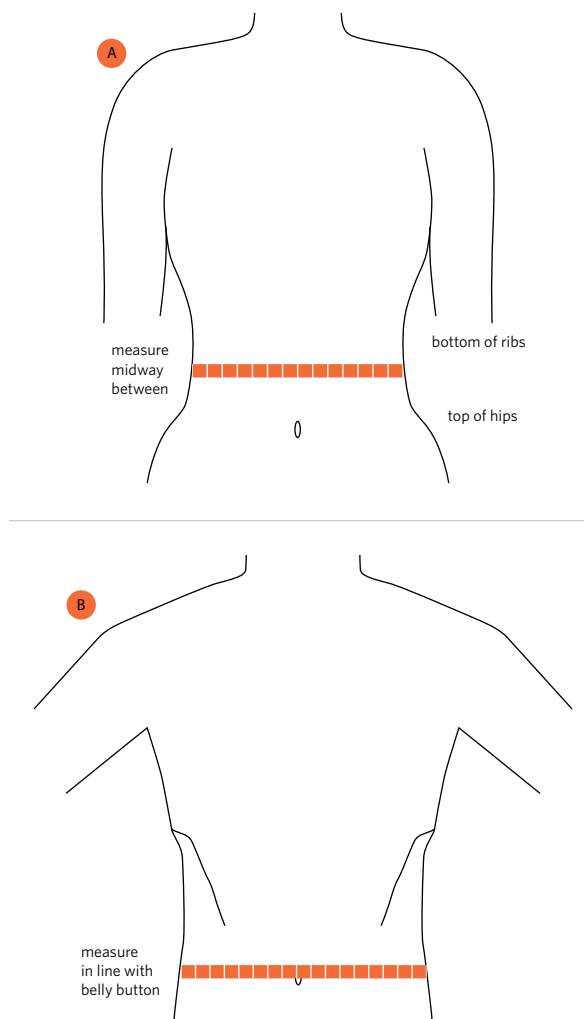


Figure 1. Tape measure positioning for measuring waist circumference for (A) women and (B) men.

Blood tests

Medical clinicians are primarily responsible for ordering blood tests, but it is up to all clinicians to make sure that they are carried out, and at the required intervals. They can do this by reminding young people on the day or the day before a blood test is scheduled (particularly if fasting tests are ordered), helping young people attend pathology services if necessary, or ensuring that a young person's family supports the young person to complete tests.



Although doctors usually organise required blood tests, this doesn't mean that non-medical clinicians can't learn what an abnormal range is and at what point treatment is indicated.

Blood pressure

Ideally, blood pressure should be taken manually by a doctor or nurse, as this is the most accurate measure. However, an alternative is to use an automatic sphygmomanometer, which all clinicians can be trained to use. Training involves learning the appropriate placement of the cuff and selection of cuff size. What is most important for all clinicians to know are the upper and lower limits of blood pressure that warrant medical attention, and how urgently. Guidelines for this should be readily available to all clinicians in a service.



Placing a blood pressure chart in each room can be an easy reference for clinicians - and it also acts as a reminder to complete cardiometabolic screening.

Physical activity and exercise

Standardised questionnaires to assess physical activity are important as they allow changes in physical activity to be accurately monitored over time. Simply asking the young person about their physical activity and exercise may not give an accurate picture and also makes it difficult to compare activity levels from one time point to the next.

The Simple Physical Activity Questionnaire (SIMPAQ) is a five-item self-report interview questionnaire that estimates overall physical activity.³⁵ Developed by an international working group, this tool is freely available in English from www.simpaq.org and is being translated into other languages. The International Physical Activity Questionnaire (iPAQ) may also be used as an assessment of physical activity, and includes

estimation of vigorous and moderate physical activity, walking and sitting. Both tools provide a standardised way for clinicians to gather information about exercise and physical activity of young people at regular intervals.

If your service employs or has access to an exercise physiologist, they can do a full assessment of a young person's physical fitness and activity level.

Smoking

Tobacco smoking is one of the key modifiable risk factors when it comes to cardiometabolic health. It is important to remember to screen for smoking, as it can easily drop off the priority list – especially if young people are engaged in other harmful substance use.

During baseline screening, all young people should be asked:

- Do you currently smoke?
- If so how much (cigs/day) and what kind of cigarettes?
- Have you ever smoked?
- How much did you previously smoke and how long is it since you quit?

This information can then be used to offer young people the opportunity to discuss their options and the support available to them to quit or abstain from smoking (see also page 9).

Diet

Dietary screening should be carried out for every young person experiencing a first episode of psychosis. If a young person is overweight (BMI > 25) or presents with metabolic syndrome, then further assessment and intervention by a dietitian is warranted.

Dietary screening may initially involve a general discussion with the young person about how food is shopped for and prepared at home, and who does this. This can be a useful way to assess their level of knowledge and interest in this area. Also consider asking about:

- fruit and vegetable intake
- choice of meals (prepared, frozen or takeaway)
- how frequently they eat processed foods
- how frequently they eat high-calorie, nutrient-poor snacks
- consumption of sugary drinks
- alcohol intake.

Simple screening questionnaires can be developed by each service. These might include a reminder of when to screen for diet-related issues or discuss when it is appropriate to refer someone to a dietitian.



Keeping a food diary is an effective way for young people to keep track of their diet, rather than trying to recall their dietary habits. A number of mobile phone applications are available that have food diary functions.

Promoting cardiometabolic screening in an early psychosis service

Despite the benefits of routine cardiometabolic health screening, it can be neglected by treating clinicians. Factors that have been shown to contribute to poor screening compliance by clinicians include concerns that routine screening may affect engagement and the therapeutic relationship, the perception that it will increase consultation length, a lack of clinician confidence in carrying out cardiometabolic health checks, and a lack of access to the necessary equipment.³⁶

Services can actively address these barriers by providing training for all clinicians in the service, developing and disseminating local guidelines for cardiometabolic health monitoring, ensuring the right equipment is provided and implementing service and structural supports to support staff with this essential activity. Service level supports might include having specific forms available for assessing and recording cardiometabolic health results, and designating staff members to be responsible for reminding all staff about protocols and organising training for clinicians.³⁶

“ It doesn't have to hugely impact on the length of the appointment ... the case manager can do the measurements while I'm getting the script ready, or I can do it right at the end of the consultation ... it actually only takes two minutes if the equipment is there.

Senior registrar, Orygen Youth Health Clinical Program



Proactively addressing cardiometabolic health issues may actually promote young people's engagement with services. Young people are often concerned about their weight and appearance, and side effects that cause weight gain can therefore have a huge impact on adherence and engagement. As well as helping identify such side effects early, routine cardiometabolic health monitoring may also reassure young people that their concerns about their physical health are taken seriously.

Interventions to address cardiometabolic risk factors

There are clear recommendations for physical activity and diet to prevent weight gain; however, these guidelines are not readily adhered to by even the general population, and young people with mental illness face additional barriers, such as socioeconomic and symptom-related factors, that make it difficult to follow such guidelines. Young people will therefore benefit greatly from targeted and supported interventions to address cardiometabolic risk.³⁷

Evidence suggests that structured behavioural and lifestyle interventions can help reduce the weight gained by young people after they commence antipsychotic medication.^{16,22,38} Lifestyle interventions, including structured exercise programs and dietetic interventions, have also been shown to be acceptable to young people receiving care.²²

Some such interventions are outlined here. Motivational interviewing, cognitive-behavioural interventions and peer support or education models can also be useful tools in addition to the interventions addressed below.^{22,39} Ideally, weight management interventions should be offered when the young person first begins treatment, in order to prevent clinically significant weight gain and to assist the young person to take a more proactive role in managing their health.

“ I think they should be talking about these things before it gets too far, rather than, 'Oh, you've gone from a healthy BMI to medically overweight - now we're going to fix it'.

Young person, EPPIC, Orygen Youth Health Clinical Program

Lifestyle interventions

Physical activity

The Australian physical activity guidelines recommend 60 minutes of moderate to vigorous physical activity every day for people between 12 and 18 years old. For people aged over 18, the guidelines recommend being active every day and accumulating 150 to 300 minutes of moderate-intensity physical activity or 75 to 150 minutes of vigorous physical activity per week. The guidelines also recommend engaging in muscle-strengthening exercises 2 days per week and minimising the amount of time spent sitting. The full guidelines and information sheets can be downloaded from the [Australian Government Department of Health website](#).

Physical exercise can help prevent or address weight gain and metabolic problems. Interventions to increase young people's physical activity therefore need to be considered along with everything else. This might include education about exercise, but education alone is not enough – young people experiencing psychosis will encounter many barriers to engaging in physical activity interventions,⁴⁰ such as lack of access to equipment, cost, symptom-related factors such as amotivation, and side effects of medication such as sedation.

Structured lifestyle programs that incorporate dietary, exercise and cognitive interventions are preferable.³⁷ If these aren't readily available, the following tips can help clinicians promote physical activity.

- Support young people to access gyms, sporting groups, or lifestyle groups that might be offered as part of the service's group program.
- Low-cost or free interventions are best.
- Interventions should be accessible for young people to reduce the barriers to engaging (e.g. low-cost, located near the service or the young person's home).
- Try to suggest activities that are interesting - nearly everyone has trouble finding the motivation to exercise, and most young people want to do something more interesting than walking. Gym-based resistance training, yoga, sport or dance classes might be more fun for young people.
- Simple interventions to increase incidental activity, such as getting off one bus stop early or taking stairs instead of lifts may help to reduce the amount of time spent in sedentary activities.

“ It's really important for clinicians to model healthy behaviour ... things like having walking appointments with the young person are good - no need to sit in a stuffy office!

Senior clinician, Orygen Youth Health Clinical Program

Referral to a physiotherapist or exercise physiologist can help young people develop an individualised exercise program to target specific needs. Ideally, these specialised clinicians are employed by services as part of the multidisciplinary team, making it easier to incorporate exercise and physical activity into routine care.⁴¹



TIP Technology such as pedometers, digital activity trackers or apps can assist young people to sustain motivation and track progress over time.

Physical activity interventions have been shown to have positive effects not just on physical health but also on wellbeing, quality of life and symptoms. It is

therefore important to educate young people about the importance of exercise for overall health and wellbeing.^{24,26,42,43}

Diet

For a healthy diet, the Australian dietary guidelines recommend consuming a wide variety of nutritious foods, including wholegrains and plenty of legumes, other vegetables and fruit. They also recommend limiting intake of foods containing saturated fat and added salt or sugars, and limiting alcohol. See www.eatforhealth.gov.au for more information.

However, research suggests that individuals with psychosis tend to have diets that are high in energy and fat and lower in fruits and vegetables compared with the general population.⁴⁴⁻⁴⁶ People taking antipsychotics can also experience cravings for sugars and other carbohydrates. Interventions to improve diet are therefore important for young people with early psychosis.

A dietary assessment can provide the first opportunity to discuss healthy eating, provide education about diet, motivate the young person to improve their diet and set goals. Remember that it is essential to not only educate young people about healthy foods, but to also provide them with practical strategies for eating well. Helping young people to understand nutrition labels, develop shopping lists and learn healthy cooking skills has been shown to improve diet quality and help prevent weight gain, as has educating people about weight management, food quality and portion control.²²

It is essential to not only educate young people about healthy foods, but to also provide them with practical strategies for eating well.

Involving an accredited dietitian in dietary interventions may be particularly beneficial – there is some evidence that dietary interventions, whether for physical or mental health conditions, that are delivered by a trained dietitian are more effective than those delivered by other clinicians,³¹ and a dietitian can provide specialised advice to help manage particular conditions such as metabolic syndrome (see Box 3). The young person's GP may be consulted for referral to a dietitian. Food diaries and mobile phone applications can also help support dietary change.

It is important to involve family as well, as often young people will be living with their parents and may not be the ones primarily responsible for shopping and cooking at home. Some young people who are living independently may not have developed healthy shopping and cooking habits, and so there is a role for group work within the early psychosis service to develop these skills.³³

Box 3. Involving an accredited dietitian in young people's care

The Dietitians Association of Australia recommends that a dietitian be involved in the care of young people in early psychosis services if they:

- have pre-existing metabolic comorbidities
- are at risk of metabolic syndrome
- have an unrelated acute or chronic illness
- have developed metabolic syndrome
- are commencing antipsychotics
- would like assistance with weight management.

Go to www.daa.asn.au for more information.

Tobacco and alcohol use

The UK's National Institute for Health and Care Excellence (NICE) guidelines for psychosis recommend that people with psychosis or schizophrenia who smoke should be offered help to stop smoking, even if previous attempts have been unsuccessful. To help quitting smoking, the guidelines recommend considering nicotine replacement therapy (NRT), bupropion or varenicline,⁴⁷ and success rates for smoking cessation are often increased when psychological and behavioural therapies are combined with pharmacotherapy.^{48,49}

Being motivated to quit and having clear goals for the process are important. Discussing the range of harms that can occur as a result of cigarette smoking can help provide motivation, as young people are often unaware

that cigarette smoking harms nearly every organ of the body and causes many diseases (see Box 4). Cost is often a strong motivation to quit smoking, as is the possibility of the young person's needing a lower dose of antipsychotic medication (for those prescribed clozapine) if they reduce smoking. A motivational interviewing approach, where you discuss the pros and cons of smoking with the young person, can help the young person to develop reasons for stopping smoking and set goals. This approach may also help you understand the young person's perspective.



TIP It is important to be aware of the effect reducing or quitting smoking may have on the required dose of certain drugs such as olanzapine and clozapine.⁵⁰ As tobacco smoke affects the metabolism of these drugs, lower doses may be required if a young person stops smoking.^{48,50} It is recommended that plasma levels of antipsychotics, particularly clozapine, are monitored for at least 6 months after quitting.⁴⁸

If a young person is not ready to quit altogether, a harm minimisation approach may be more useful, where the young person tries to reduce smoking gradually. There are some NRT products that can be used to help cut down on cigarettes even if the young person does not quit completely.⁴⁸

Other useful tools for quitting or reducing smoking are mobile phone applications. There are apps that help monitor cigarette intake, provide reminders about delaying strategies or health promoting behaviours when a young person has cravings and track their progress towards quitting.

The Quit website, www.quit.org.au, offers free resources to individuals, communities, social services and health professionals, including online training and resources.

“ I used to smoke a lot of cigarettes when I was being treated. I don't smoke any more, but I would have loved help to stop it at the time.

Young person, EPPIC, Orygen Youth Health Clinical Program

Box 4. Smoking, cancer and chronic diseases

Smoking is associated with many cancers and chronic diseases, including:

Cancers

- Oropharynx
- Larynx
- Oesophagus
- Trachea, bronchus and lung
- Myeloid leukaemia (bone marrow)
- Stomach
- Liver
- Kidney and ureter
- Cervix
- Bladder
- Colorectal

Chronic diseases

- Stroke
- Blindness (cataracts, macular degeneration)
- Periodontitis (gum disease)
- Coronary artery disease and heart disease
- Aneurysm
- Pneumonia
- COPD, asthma, emphysema, chronic bronchitis
- Diabetes
- Ectopic pregnancy
- Erectile dysfunction
- Rheumatoid arthritis
- Ulcers of the digestive system
- Osteoporosis
- Immune dysfunction

Pharmacological interventions

Manage psychotropic medication

Where possible, an antipsychotic with a lower adverse metabolic profile should be used, and prescribing should follow recommendations for early psychosis. The principle of 'start low, go slow' should be applied when prescribing antipsychotic medication to ensure a minimal dose is used, which will help minimise weight gain and other metabolic side effects. Note that it is

now recommended that olanzapine is no longer used as first-line treatment for first episode psychosis due to its significant adverse metabolic effects. For more information and a prescribing algorithm please refer to the ENSP manual *Medical management in early psychosis: a guide for medical practitioners*.

Polypharmacy should also be avoided where possible, and prescription medication rationalised where more than one medication is needed.

Other medications

Where lifestyle interventions have been trialled for at least 3 months and targets for weight, lipids and glucose are not achieved, the addition of specific medication may be necessary. Although it is most beneficial to keep metabolic monitoring and intervention within the treating team, it may be necessary to involve external medical specialists in the young person's care.

If the young person requires pharmacological intervention for cardiometabolic health, screening and treatment can still be carried out by the early psychosis service, but it is important to collaborate with the young person's general practitioner. Referral to other medical specialists (such as an endocrinologist) should also be considered. All pharmacological treatment should follow the appropriate clinical guidelines.

Metformin should be considered as a specific adjunctive strategy for weight gain. Metformin has been shown to be effective in reducing or attenuating antipsychotic-induced weight gain and is considered to be relatively safe and effective in young people.^{51,52} It might also be considered if the young person presents with increased blood glucose, especially when accompanied by central obesity, hypertension and dyslipidaemia and where active lifestyle interventions have not succeeded.³³

Antihypertensive medication may also be considered in young people who present with persistent high blood pressure and where lifestyle interventions for exercise and diet (including salt reduction) have not succeeded.

For young people who present with persistently elevated blood lipid levels despite lifestyle interventions, **statins** may be prescribed to reduce future cardiovascular risk. **Fibrates** might be considered for elevated triglycerides.⁵³

Screening for cardiometabolic health saves lives!

When a young person presents to an early psychosis service, it is easy (and understandable) for clinicians to focus on mental health outcomes as they try to minimise the devastating impact that psychosis may have on a young person's life. Yet in the long term, young people with early psychosis face a greater risk of mortality from the physical health issues that result from both the disorder and its treatment. In particular, the poor cardiometabolic health associated with psychosis and treatment contributes significantly to the gap in mortality between the general population and people with psychosis. An early intervention approach therefore must be taken towards cardiometabolic health as well as mental health.

Here we have presented recommendations for screening and intervening to maintain or improve the cardiometabolic health of young people. We cannot stress enough the need to intervene as early as possible. Weight gain and metabolic effects are **not** inevitable, even for young people prescribed antipsychotic medication – but they can have serious consequences if they are allowed to develop without intervention. Ensuring cardiometabolic screening is carried out as part of routine care can make a material difference to the health and wellbeing of young people with early psychosis.

References

1. Lawrence D, Hancock KJ and Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *BMJ* 2013; 346: f2539.
2. Beebe LH. Obesity in schizophrenia: screening, monitoring, and health promotion. *Perspect Psychiatr Care* 2008; 44: 25-31.
3. De Hert M, Detraux J, van Winkel R et al. Metabolic and cardiovascular adverse effects associated with antipsychotic drugs. *Nat Rev Endocrinol* 2012; 8: 114-26.
4. Nyboe L and Lund H. Low levels of physical activity in patients with severe mental illness. *Nord J Psychiatry* 2013; 67: 43-6.
5. Kwan CL, Gelberg HA, Rosen JA et al. Nutritional counseling for adults with severe mental illness: key lessons learned. *J Acad Nutr Diet* 2014; 114: 369-74.
6. De Hert M, Correll CU, Bobes J et al. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 2011; 10: 52-77.
7. Galletly CA, Foley DL, Waterreus A et al. Cardiometabolic risk factors in people with psychotic disorders: the second Australian national survey of psychosis. *Aust N Z J Psychiatry* 2012; 46: 753-61.
8. Mitchell AJ, Vancampfort D, Sweers K et al. Prevalence of metabolic syndrome and metabolic abnormalities in schizophrenia and related disorders--a systematic review and meta-analysis. *Schizophr Bull* 2013; 39: 306-18.
9. Myles N, Newall HD, Curtis J et al. Tobacco use before, at, and after first-episode psychosis: a systematic meta-analysis. *J Clin Psychiatry* 2012; 73: 468-75.
10. Morgan VA, Waterreus A, Jablensky A et al. People living with psychotic illness in 2010: the second Australian national survey of psychosis. *Aust N Z J Psychiatry* 2012; 46: 735-52.
11. Cohen D and De Hert M. Endogenous and iatrogenic diabetes mellitus in drug-naive schizophrenia: the role of olanzapine and its place in the psychopharmacological treatment algorithm. *Neuropsychopharmacology* 2011; 36: 2368-9.
12. World Heart Federation: cardiovascular disease risk factors. Viewed 24 February. <http://www.world-heart-federation.org/cardiovascular-health/cardiovascular-disease-risk-factors>.
13. Correll CU, Manu P, Oshansky V et al. Cardiometabolic risk of second-generation antipsychotic medications during first-time use in children and adolescents. *JAMA* 2009; 302: 1765-73.
14. Correll CU and Carlson HE. Endocrine and metabolic adverse effects of psychotropic medications in children and adolescents. *J Am Acad Child Adolesc Psychiatry* 2006; 45: 771-91.
15. De Hert M, Dobbelaere M, Sheridan EM et al. Metabolic and endocrine adverse effects of second-generation antipsychotics in children and adolescents: A systematic review of randomized, placebo controlled trials and guidelines for clinical practice. *Eur Psychiatry* 2011; 26: 144-58.
16. Alvarez-Jimenez M, Gonzalez-Blanch C, Crespo-Facorro B et al. Antipsychotic-induced weight gain in chronic and first-episode psychotic disorders: a systematic critical reappraisal. *CNS Drugs* 2008; 22: 547-62.
17. Morgan VA, McGrath JJ, Jablensky A et al. Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychological medicine* 2014; 44: 2163-2176.
18. Perez-Iglesias R, Martinez-Garcia O, Pardo-Garcia G et al. Course of weight gain and metabolic abnormalities in first treated episode of psychosis: the first year is a critical period for development of cardiovascular risk factors. *Int J Neuropsychopharmacol* 2014; 17: 41-51.
19. Tarricone I, Ferrari Gozzi B, Serretti A et al. Weight gain in antipsychotic-naive patients: a review and meta-analysis. *Psychol Med* 2010; 40: 187-200.
20. Foley DL and Morley KI. Systematic review of early cardiometabolic outcomes of the first treated episode of psychosis. *Arch Gen Psychiatry* 2011; 68: 609-16.
21. Hahn M, Wolever T, Arenovich T et al. Acute effects of single-dose olanzapine on metabolic, endocrine and inflammatory markers in healthy controls. *J Clin Psychopharmacol* 2013; 33: 740-46.
22. Curtis J, Watkins A, Rosenbaum S et al. Evaluating an individualized lifestyle and life skills intervention to prevent antipsychotic-induced weight gain in first-episode psychosis. *Early Interv Psychiatry* 2015;
23. International Physical Health in Youth working group. *Healthy Active Lives (HeAL): Keeping the Body in Mind in Youth with Psychosis*. 2013.
24. Scheewe TW, Backx FJ, Takken T et al. Exercise therapy improves mental and physical health in schizophrenia: a randomised controlled trial. *Acta Psychiatr Scand* 2013; 127: 464-73.
25. Rosenbaum S, Watkins A, Teasdale S et al. Aerobic exercise capacity: an important correlate of psychosocial function in first episode psychosis. *Acta Psychiatr Scand* 2015; 131: 234.
26. Malchow B, Reich-Erkelenz D, Oertel-Knochel V et al. The effects of physical exercise in schizophrenia and affective disorders. *Eur Arch Psychiatry Clin Neurosci* 2013; 263: 451-67.
27. Vancampfort D, Stubbs B, Ward PB et al. Why moving more should be promoted for severe mental illness. *Lancet Psychiatry* 2015; 2: 295.
28. Vancampfort D, Stubbs B, Ward PB et al. Integrating physical activity as medicine in the care of people with severe mental illness. *Aust N Z J Psychiatry* 2015; 49: 681-2.
29. Vancampfort D, Guelinckx H, Probst M et al. Health-related quality of life and aerobic fitness in people with schizophrenia. *Int J Ment Health Nurs* 2015; 24: 394-402.
30. O'Neil A, Quirk S, Housden S et al. Relationship between diet and mental health in children and adolescents: a systematic review. *Am J Public Health* 2014; 104: e31-e42.
31. Opie R, O'Neil A, Itsopoulos C et al. The impact of whole-of-diet interventions on depression and anxiety: a systematic review of randomised controlled trials. *Public Health Nutr* 2014; 18:
32. Jacka F, Rothson C, Taylor S et al. Diet quality and mental health problems in adolescents from East London: a prospective study. *Soc Psych Psych Epid* 2013; 48: 1297-1306.
33. ENSP Medical Management Writing Group. *Medical Management in Early Psychosis: a guide for medical practitioners*. Parkville: Orygen Youth Health Research Centre, 2014.
34. Curtis J, Newall HD and Samaras K. The heart of the matter: cardiometabolic care in youth with psychosis. *Early Interv Psychiatry* 2012; 6: 347-53.
35. Rosenbaum S and Ward PB. The Simple Physical Activity Questionnaire. *The Lancet Psychiatry* 2016; 3: e1.
36. Thompson A, Hetrick SE, Alvarez-Jimenez M et al. Targeted intervention to improve monitoring of antipsychotic-induced weight gain and metabolic disturbance in first episode psychosis. *Aust N Z J Psychiatry* 2011; 45: 740-8.
37. Ward MC, White DT and Druss BG. A meta-review of lifestyle interventions for cardiovascular risk factors in the general medical population: lessons for individuals with serious mental illness. *J Clin Psychiatry* 2015; 76: e477-86.
38. Alvarez-Jimenez M, Hetrick SE, Gonzalez-Blanch C et al. Non-pharmacological management of antipsychotic-induced weight gain: systematic review and meta-analysis of randomised controlled trials. *Br J Psychiatry* 2008; 193: 101-7.
39. Zhang JP, Weiss JJ, McCardle M et al. Effectiveness of a cognitive behavioral weight management intervention in obese patients with psychotic disorders compared to patients with nonpsychotic disorders or no psychiatric disorders: results from a 12-month, real-world study. *J Clin Psychopharmacol* 2012; 32: 458-64.
40. Vancampfort D, De Hert M, Stubbs B et al. Negative symptoms are associated with lower autonomous motivation towards physical activity in people with schizophrenia. *Compr Psychiatry* 2015; 56: 128-32.

41. Rosenbaum S, Tiedemann A, Stanton R et al. Implementing evidence-based physical activity interventions for people with mental illness: an Australian perspective. *Australas Psychiatry* 2015;
42. Beebe LH, Tian L, Morris N et al. Effects of exercise on mental and physical health parameters of persons with schizophrenia. *Issues Ment Health Nurs* 2005; 26: 661-76.
43. Rosenbaum S, Tiedemann A, Sherrington C et al. Physical activity interventions for people with mental illness: a systematic review and meta-analysis. *J Clin Psychiatry* 2014; 75: 964-74.
44. McCreddie RG and Scottish Schizophrenia Lifestyle Group. Diet, smoking and cardiovascular risk in people with schizophrenia: descriptive study. *Br J Psychiatry* 2003; 183: 534-9.
45. Brown S, Birtwistle J, Roe L et al. The unhealthy lifestyle of people with schizophrenia. *Psychol Med* 1999; 29: 697-701.
46. Dipasquale S, Pariante CM, Dazzan P et al. The dietary pattern of patients with schizophrenia: a systematic review. *J Psychiatr Res* 2013; 47: 197-207.
47. National Institute for Health and Care Excellence. *Psychosis and schizophrenia in adults: prevention and management*. London: NICE, 2014.
48. Stubbs B, Vancampfort D, Bobes J et al. How can we promote smoking cessation in people with schizophrenia in practice? A clinical overview. *Acta Psychiatr Scand* 2015; 132: 122-30.
49. Ragg M and Ahmed T. Smoke and mirrors: a review of the literature on smoking and mental illness. In (ed). *Tackling Tobacco Program Research Series No. 1*. Sydney: Cancer Council NSW, 2008.
50. Lowe EJ and Ackman ML. Impact of tobacco smoking cessation on stable clozapine or olanzapine treatment. *Ann Pharmacother* 2010; 44: 727-32.
51. Curtis J, Newall H, Myles N et al. Considering metformin in cardiometabolic protection in psychosis. *Acta Psychiatr Scand* 2012; 126: 302-3.
52. Newall H, Myles N, Ward PB et al. Efficacy of metformin for prevention of weight gain in psychiatric populations: a review. *Int Clin Psychopharmacol* 2012; 27: 69-75.
53. Royal Australian College of General Practitioners. *Guidelines for preventive activities in general practice, 8th edn*. East Melbourne: RACGP, 2012.

The EPPIC National Support Program of Orygen, The National Centre of Excellence in Youth Mental Health, has produced this document as part of its work to support the implementation of the EPPIC model within headspace, the National Youth Mental Health Foundation, in Australia.

Acknowledgements

We would like to thank Brian O'Donoghue and Rachel Tindall for contributing their expertise to the development of this clinical practice point.

We would also like to thank the Platform team at Orygen Youth Health Clinical Program for their invaluable contribution.

Disclaimer

This information is provided for general educational and information purposes only. It is current as at the date of publication and is intended to be relevant for all Australian states and territories (unless stated otherwise) and may not be applicable in other jurisdictions. Any diagnosis and/or treatment decisions in respect of an individual patient should be made based on your professional investigations and opinions in the context of the clinical circumstances of the patient. To the extent permitted by law, Orygen, The National Centre of Excellence in Youth Mental Health, will not be liable for any loss or damage arising from your use of or reliance on this information. You rely on your own professional skill and judgement in conducting your own health care practice. Orygen, The National Centre of Excellence in Youth Mental Health, does not endorse or recommend any products, treatments or services referred to in this information.



EPPIC

Early Psychosis
Prevention and
Intervention
Centre

Orygen, The National Centre of Excellence in Youth Mental Health is the world's leading research and knowledge translation organisation focusing on mental ill-health in young people.

For more details about Orygen visit orygen.org.au

Copyright © 2016 Orygen,
The National Centre of Excellence in Youth Mental Health.

This work is copyrighted. Apart from any use permitted under the Copyright Act 1968, no part may be reproduced without prior written permission from Orygen.

Orygen, The National Centre of Excellence in Youth Mental Health

1300 679 436

info@orygen.org.au

orygen.org.au