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SPEAKER SERIES

# Improving Physical Health in Individuals with Serious Mental Illness

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Dr Jackie Curtis is the Clinical Director of Youth Mental Health, South Eastern Sydney Local Health District and conjoint Senior Lecturer with the School of Psychiatry, University of New South Wales, Australia. She leads the Bondi Early Psychosis Programme, from which the KBIM programme and y-QUIT, a smoking cessation project, were developed. She has a long-standing interest in the physical health of young people with severe mental illness. Dr Curtis's clinical research has had strong research translation implications, influencing clinical practice, health service delivery, policy and guidelines in mental health services locally, nationally and internationally.

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The 2018 Congress of the Royal Australian and New Zealand College of Psychiatrists was held in Auckland in May. Dr Jackie Curtis, Clinical Director of Youth Mental Health at South Eastern Sydney Local Health District, Australia, spoke at a breakfast symposium sponsored by Janssen on May 17th. She highlighted the current evidence for prevention, screening and intervention in cardiometabolic health of individuals with serious mental illness. She focused in particular on the Keeping the Body in Mind (KBIM) programme operating in Sydney, as well as discussing practical tools to assist clinicians with addressing physical health in individuals with serious mental illness.

Research Review was commissioned by Janssen to produce this publication summarising key points of Dr Curtis's presentation. It was written by Research Review, not Dr Curtis herself. The content and opinions expressed in this publication do not necessarily reflect the views of Janssen unless so specified. Please consult full data sheets for any medications mentioned in this publication at [www.medsafe.govt.nz](http://www.medsafe.govt.nz) before prescribing. Treatment decisions based on these data are the full responsibility of the prescribing physician.

## Mortality and morbidity in individuals with serious mental illness

A recently published Australian meta-analysis of 34 studies and more than 1.7 million participants found that mortality among individuals with schizophrenia is three times higher than the general population,<sup>1</sup> said Dr Curtis. The mortality gap isn't closing and could even be widening.<sup>1</sup> In Western Australia, the life expectancy gap for individuals with serious mental illness is 15.9 years for males and 12 years for females.<sup>2</sup> The latest evidence guide from the New Zealand Equally Well collaboration quotes a reduction in life expectancy of up to 25 years for individuals with a serious mental illness.<sup>3</sup> Furthermore, Māori with mental illness have higher rates of chronic pain and respiratory conditions, and higher BMIs, than Europeans or Asians.<sup>3</sup>

Individuals with serious mental illness have higher rates of cardiovascular risk factors than the general population, including tobacco use, obesity, hypertension, dyslipidaemia and diabetes.<sup>3</sup> However, they have lower rates of cardiovascular risk factor monitoring, are under-treated when diagnosed, and have a higher cancer mortality rate.<sup>4,5</sup> This is despite higher rates of primary care attendance,<sup>4,5</sup> said Dr Curtis. As an example, she discussed a recent article published in the *New England Journal of Medicine*, highlighting the case of a man with mental illness who died of cancer, and whose physical symptoms had been attributed to his mental state.<sup>6</sup>

## Antipsychotic-induced weight gain and the metabolic syndrome

Individuals with serious mental illness are often faced with the additional burden of significant antipsychotic-induced weight gain. In a systematic review of this phenomenon, average weight gain in the first 2 years of receiving antipsychotic medication was 12kg, and continued to increase as medication was continued.<sup>7</sup> A large amount of literature now supports the association between weight gain and use of antipsychotic medications.<sup>8,9,10</sup>

The metabolic syndrome is associated with central obesity, insulin resistance, dyslipidaemia and hypertension.<sup>11</sup> Individuals with the metabolic syndrome have an increased risk of cardiovascular disease.<sup>11</sup> The prevalence of metabolic syndrome in individuals with first-episode psychosis is 13%.<sup>12,13</sup> By the time these individuals have an established mental illness, the rate of metabolic syndrome has skyrocketed to 54-62%.<sup>14,15,16</sup>

## Reducing cardiovascular disease risk in serious mental illness

STRIDE,<sup>17</sup> ACHIEVE<sup>18</sup> and In SHAPE,<sup>19,20</sup> large US studies published between 2013 and 2015, showed that cardiovascular risk factors can be significantly reduced by lifestyle intervention (diet + exercise) in individuals with serious mental illness. The lead investigator of In SHAPE concluded that the greatest barrier to increasing life expectancy of individuals with serious mental illness is no longer a knowledge gap – it is an implementation gap.<sup>20</sup>



However, results from a more recent group of UK studies, including CHANGE,<sup>21</sup> PRIMOSE<sup>22</sup> and IMPACT,<sup>23</sup> as well as others awaiting publication, have not been as promising, with no significant effect of lifestyle intervention on cardiovascular risk factors. Dr Curtis emphasised the importance of not giving up on lifestyle intervention based on the UK study findings. Individuals in these studies had well-established mental illness, she said. An earlier onset of intervention may provide the best chance of making a difference, said Dr Curtis.

### A cardiometabolic health algorithm to promote early intervention

To promote early intervention in individuals receiving antipsychotic medication, Dr Curtis and colleagues at the Bondi Early Psychosis Programme designed a cardiometabolic health algorithm (see **Figure 1**).<sup>24</sup> This algorithm has now been rolled out across New South Wales Health, and has also been adapted in the UK as the Lester UK adaptation and embedded in the National Institute for Health and Care Excellence (NICE) guidance for schizophrenia and related psychoses. It is a freely available tool on the New South Wales Government Health Education and Training Institute (HETI) website ([www.heti.nsw.gov.au/adolescentcma/](http://www.heti.nsw.gov.au/adolescentcma/) for adolescents and [www.heti.nsw.gov.au/cmalgorithm/](http://www.heti.nsw.gov.au/cmalgorithm/) for adults). The algorithm will be updated this year.

Dr Curtis said individuals need to start lifestyle intervention at the time antipsychotic medication is first prescribed. All individuals, including adolescents, should be weighed weekly in the first 6-8 weeks of therapy, as the most rapid weight gain occurs early on. Rapid initial weight gain can predict future extreme weight gain, said Dr Curtis.

### KBIM programme for first-episode psychosis

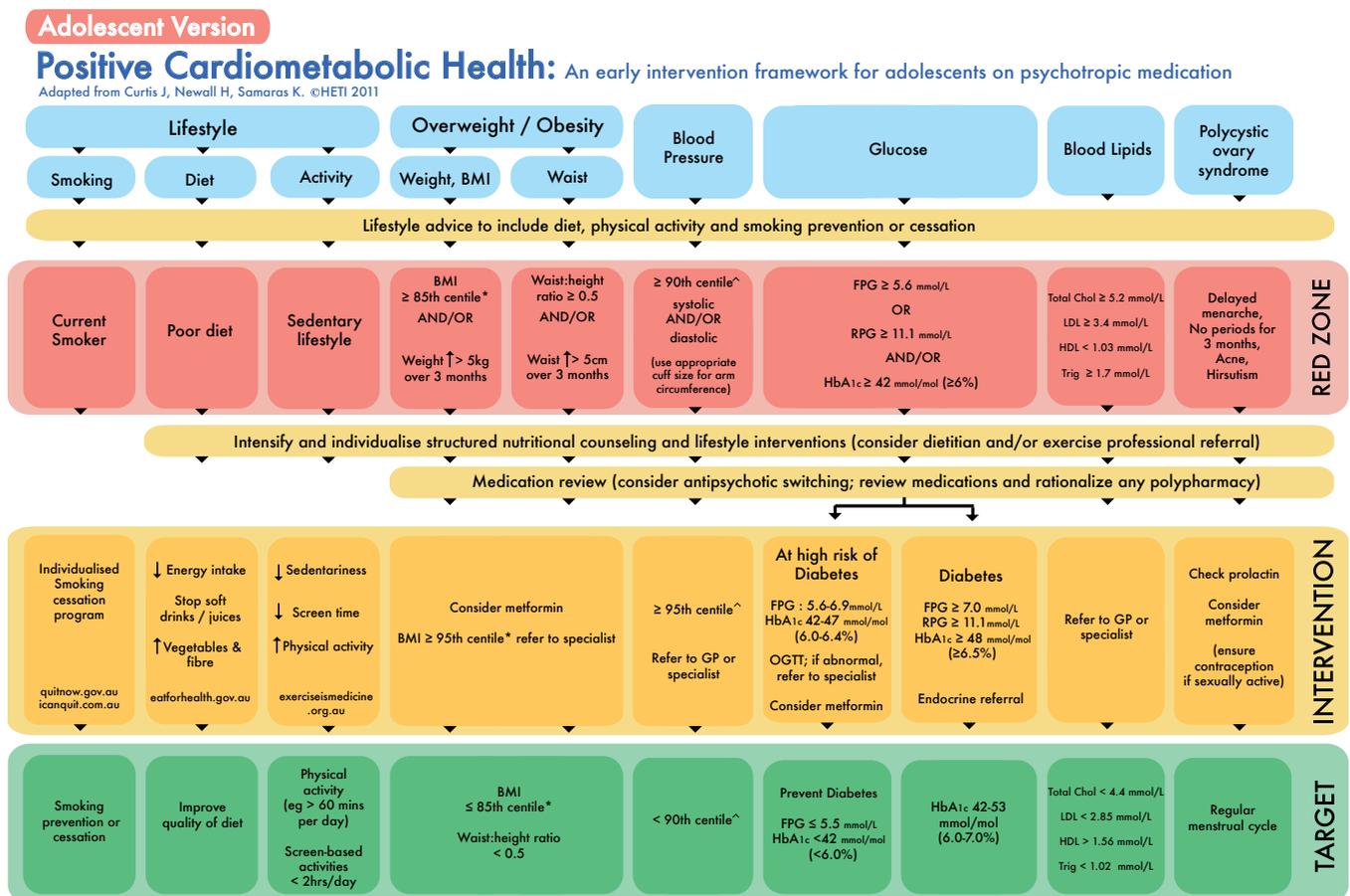
KBIM is an intervention for individuals aged 15-25 years to prevent antipsychotic-induced weight gain in first-episode psychosis, developed within the Bondi Early Psychosis Programme. Patients are seen within 4 weeks of commencing medication, and undergo a 12-week, individualised lifestyle and life skills intervention. In the first published report of KBIM, average weight gain over the 12-week period was 1.8kg for individuals receiving the intervention, compared with 7.8kg for those receiving standard care only ( $p < 0.001$ ).<sup>25</sup> Corresponding gains in waist circumference were 0.1cm and 7.1cm, respectively. Clinically significant weight gain ( $> 7%$ ) occurred in 13% of patients receiving the intervention compared with 75% of patients receiving standard care only.

The 1.8kg average weight gain noted in the KBIM pilot study was maintained at 2 years.<sup>26</sup> Furthermore, the intervention showed similar success when replicated in individuals outside the Bondi area.<sup>26</sup>

### Antipsychotic prescribing in first-episode psychosis

Some antipsychotic medications are much more likely to cause weight gain than others, said Dr Curtis, particularly chlorpromazine, clozapine and olanzapine.<sup>27</sup> Key take-home messages from current guidelines on the use of antipsychotic medications include:

- All patients should be started on a low dose of antipsychotic medication
- Olanzapine is a now a second-line treatment for first-episode psychosis
- Lifestyle intervention should be started at the time of antipsychotic therapy initiation.<sup>28,29,30</sup>



\*BMI sex-specific centile chart, either US-CDC or WHO. Ensure that the same chart is used over time to allow for consistent monitoring of growth ^Pediatrics 2004; 114:555  
BMI = Body Mass Index | FPG = Fasting Plasma Glucose | RPG = Random Plasma Glucose | Total Chol = Total Cholesterol | LDL = Low Density Lipoprotein | HDL = High Density Lipoprotein | Trig = Triglycerides

Figure 1. Cardiometabolic health algorithm for adolescents receiving antipsychotic medication.<sup>24</sup>



The Early Psychosis Prevention and Intervention Centre (EPPIC) guidelines include flowcharts for use of pharmacological therapy in first-episode non-affective and affective psychosis.<sup>28</sup>

The Royal Australian and New Zealand College of Psychiatrists (RANZCP) clinical practice guidelines for schizophrenia emphasise that regular screening and intervention for cardiometabolic disorders in individuals with schizophrenia should be mandatory, from the first episode of psychosis.<sup>30</sup> Recommendations relating to the physical health of individuals with psychosis include the following:

- Engage the individual and carers in strategies to ensure healthy living (e.g. diet, exercise)
- If the individual is gaining weight or has other metabolic complications of treatment, switch to a weight-neutral antipsychotic agent
- Consider the use of agents such as metformin to reduce weight gain and insulin sensitivity in individuals taking antipsychotic agents associated with obesity
- Liaise with the GP to ensure optimal treatment for hypertension, elevated cholesterol and other cardiometabolic conditions
- For individuals who do not attend a GP, consider undertaking investigations, monitoring and prescribing as needed to treat physical health problems within the mental health service
- Liaise with an endocrinology specialist or other specialist colleagues as appropriate
- All mental health services should provide evidence-based programmes to address obesity and lack of exercise
- All mental health services should provide evidence-based programmes to help smokers to quit
- Ensure that regular dental care is provided.<sup>30</sup>

## KBIM for individuals receiving clozapine and long-acting injectables

The KBIM programme currently has four centres in the South Eastern Sydney Local Health District, each with a full-time nurse consultant, a full-time exercise physiologist, a full-time dietician and a part-time peer support worker. The programme now serves populations beyond first-episode psychosis, including individuals receiving clozapine and long-acting injectables.

Dr Curtis discussed a recent publication from the KBIM group which looked at cardiometabolic risk and management in 451 clozapine-treated individuals across three public hospitals in Sydney.<sup>31</sup> In the majority of patients, cardiometabolic risk factors were either untreated or under-treated, highlighting the need for intervention in this population. Data from 517 individuals receiving long-acting injectables across three Sydney hospitals is being analysed now, said Dr Curtis. Preliminary findings indicate that physical health in these individuals is even worse than those receiving clozapine, probably because they do not undergo regular blood monitoring. BMI was  $\geq 25$  kg/m<sup>2</sup> in 71-76% of patients across the three hospitals. Risk of developing type 2 diabetes in the next 5 years was high in 58-73% of individuals (unpublished data).

## Tobacco use and first-episode psychosis

The prevalence of smoking across the general population in Australia is the lowest in the world, at 12.8%.<sup>32</sup> However, prevalence in individuals with a severe mental illness is 50-66%, even higher in those with schizophrenia.<sup>33,34</sup> Adolescents with first-episode psychosis have a smoking prevalence of 59%.<sup>35</sup> They are likely to be heavier smokers and commence on average 5.3 years before the general population.<sup>35</sup>

Dr Curtis said that there is growing evidence for a causal link between tobacco use and psychosis, with three large population-based studies suggesting an increased risk of schizophrenia in individuals who smoke.<sup>36,37,38</sup> A 2018 study found that heavy tobacco smoking in adolescence was associated with a greater risk for psychosis, even after adjustment for confounders.<sup>39</sup>

Most individuals with a serious mental illness who smoke want to stop.<sup>40,41</sup> However, their attempts are less successful than those of the general population.<sup>42</sup> Furthermore, there is a prevailing culture of acceptance of smoking in those with mental illness, with many never encouraged by hospital staff to stop smoking.<sup>43</sup>

## The y-QUIT project

As noted in the 2016 RANZCP clinical practice guidelines, there is currently no evidence to guide smoking cessation efforts in individuals with first-episode psychosis.<sup>30</sup> The y-QUIT project, which was built on a landmark UK smoking cessation intervention and is now embedded within the KBIM programme, was designed to address this need. The 12-week intervention for 12-to 25-year-olds is delivered by a mental health nurse with tobacco cessation training and includes:

- Nicotine replacement therapy and other pharmacologic interventions
- Measurements of BMI, waist circumference, smoking history and exhaled carbon monoxide
- Behavioural therapy and motivational interviewing
- Exercise physiologist and dietician-led management.

Preliminary findings indicate that young people with first-episode psychosis can reduce their nicotine dependence with the help of this comprehensive cessation service.

## Policy and strategic guidance

A number of policy documents are now available to provide guidance on physical health care in individuals with serious mental illness. National strategy documents for New Zealand<sup>3</sup> and Australia<sup>44</sup> are produced by Equally Well, and are available at [www.tepou.co.nz](http://www.tepou.co.nz) and [www.equallywell.org.au](http://www.equallywell.org.au).

iphYs is an international working group for youth first-episode psychosis. The group has developed the Healthy Active Lives Declaration (HeAL).<sup>45</sup> The declaration specifies the following targets for the next 5 years:

- Antipsychotic medications are regularly reviewed according to recommended prescribing standards that minimise risks for obesity, cardiovascular disease and diabetes
- 90% of users understand their risks for future obesity, diabetes and cardiovascular disease
- 75% maintain blood glucose, lipid profile and BP within normal range 2 years after initiating antipsychotics
- 75% gain <7% of pre-illness weight 2 years after initiating antipsychotics
- 90% receive health promotion advice
- <30% smoke tobacco
- >50% engaging in age-appropriate physical activity.<sup>45</sup>

Brochures for patients, entitled Right from the Start, have also been developed by iphYs and are available for download from their website ([www.iphys.org.au/other-resources](http://www.iphys.org.au/other-resources)).

The KBIM programme has developed online resources – including a video about the programme ([www.iphys.org.au/videos](http://www.iphys.org.au/videos)) as well as training and education modules ([www.seslhd.health.nsw.gov.au/Mental\\_health/KBIM/](http://www.seslhd.health.nsw.gov.au/Mental_health/KBIM/)).

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## REFERENCES

1. Oakley P, et al. Increased mortality among people with schizophrenia and other non-affective psychotic disorders in the community: A systematic review and meta-analysis. *J Psychiatr Res*. 2018 Apr 26;102:245-253.
2. Lawrence D, et al. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population-based registers. *BMJ*. 2013 May 21;346:f2539.
3. Te Pou o te Whakaaro Nui. The physical health of people with mental health conditions and/or addiction: Evidence update - December 2017. Available at: <https://www.tepou.co.nz/uploads/files/TePou-EquallyWell-EvidenceReview-FullReport.pdf> [Accessed June 2018].
4. Crawford MJ, et al. Assessment and treatment of physical health problems among people with schizophrenia: national cross-sectional study. *Br J Psychiatry*. 2014 Dec;205(6):473-7.
5. Waterreus A & Morgan VA. Treating body, treating mind: The experiences of people with psychotic disorders and their general practitioners - Findings from the Australian National Survey of High Impact Psychosis. *Aust N Z J Psychiatry*. 2018 Jun;52(6):561-572
6. Reilly, BM. The best medical care in the world. *N Engl J Med*. 2018 May 3;378(18):1741-1743.
7. Alvarez-Jiménez M, et al. Antipsychotic-induced weight gain in chronic and first-episode psychotic disorders: a systematic critical reappraisal. *CNS Drugs*. 2008;22(7):547-62.
8. Manu P, et al. Weight gain and obesity in schizophrenia: epidemiology, pathobiology, and management. *Acta Psychiatr Scand*. 2015 Aug;132(2):97-108.
9. Bak M, et al. Almost all antipsychotics result in weight gain: a meta-analysis. *PLoS One*. 2014 Apr 24;9(4):e94112
10. Musil R, et al. Weight gain and antipsychotics: a drug safety review. *Expert Opin Drug Saf*. 2015 Jan;14(1):73-96.
11. Harris MF. The metabolic syndrome. *Aust Fam Physician*. 2013 Aug;42(8):524-7.
12. Curtis J, et al. Metabolic abnormalities in an early psychosis service: a retrospective, naturalistic cross-sectional study. *Early Interv Psychiatry*. 2011 May;5(2):108-14.
13. De Hert M, et al. Typical and atypical antipsychotics differentially affect long-term incidence rates of the metabolic syndrome in first-episode patients with schizophrenia: a retrospective chart review. *Schizophr Res*. 2008 Apr;101(1-3):295-303.
14. Brunero S, et al. Prevalence and predictors of metabolic syndrome among patients attending an outpatient clozapine clinic in Australia. *Arch Psychiatr Nurs*. 2009 Jun;23(3):261-8.
15. Galletley CA, et al. Cardiometabolic risk factors in people with psychotic disorders: the second Australian national survey of psychosis. *Aust N Z J Psychiatry*. 2012 Aug;46(8):753-61.
16. Lappin JA, et al. Cardio-metabolic risk and its management in a cohort of clozapine-treated outpatients. *Schizophr Res*. 2018 Feb 24. pii: S0920-9964(18)30112-9. doi: 10.1016/j.schres.2018.02.035. [Epub ahead of print]
17. Green CA, et al. The STRIDE weight loss and lifestyle intervention for individuals taking antipsychotic medications: a randomized trial. *Am J Psychiatry*. 2015 Jan;172(1):71-81.
18. Daumit GL, et al. A behavioral weight-loss intervention in persons with serious mental illness. *N Engl J Med*. 2013 Apr 25;368(17):1594-602.
19. Bartels SJ, et al. Clinically significant improved fitness and weight loss among overweight persons with serious mental illness. *Psychiatr Serv*. 2013 Aug 1;64(8):729-36.
20. Bartels SJ, et al. Pragmatic replication trial of health promotion coaching for obesity in serious mental illness and maintenance of outcomes. *Am J Psychiatry*. 2015 Apr;172(4):344-52.
21. Speyer H, et al. The CHANGE trial: no superiority of lifestyle coaching plus care coordination plus treatment as usual compared to treatment as usual alone in reducing risk of cardiovascular disease in adults with schizophrenia spectrum disorders and abdominal obesity. *World Psychiatry*. 2016 Jun;15(2):155-65.
22. Osborn D, et al. Clinical and cost-effectiveness of an intervention for reducing cholesterol and cardiovascular risk for people with severe mental illness in English primary care: a cluster randomised controlled trial. *Lancet Psychiatry*. 2018 Jan 15. pii: S2215-0366(18)30007-5. doi: 10.1016/S2215-0366(18)30007-5. [Epub ahead of print].
23. Gaughran F, et al. Randomised control trial of the effectiveness of an integrated psychosocial health promotion intervention aimed at improving health and reducing substance use in established psychosis (IMPACT). *BMC Psychiatry*. 2017 Dec 28;17(1):413.
24. Curtis J, et al. The heart of the matter: cardiometabolic care in youth with psychosis. *Early Interv Psychiatry*. 2012 Aug;6(3):347-53.
25. Curtis J, et al. Evaluating an individualized lifestyle and life skills intervention to prevent antipsychotic-induced weight gain in first-episode psychosis. *Early Interv Psychiatry*. 2016 Jun;10(3):267-76.
26. Curtis J, et al. 2-year follow-up: Still keeping the body in mind. *Aust N Z J Psychiatry*. 2018 Jun;52(6):602-603.
27. Holt RI & Mitchell AJ. Diabetes mellitus and severe mental illness: mechanisms and clinical implications. *Nat Rev Endocrinol*. 2015 Feb;11(2):79-89.
28. Early Psychosis Prevention and Intervention Centre. Medical management in early psychosis – A guide for medical practitioners. 2014. Available at: <https://www.orygen.org.au/Education-Training/Resources-Training/Resources/Paid/Manuals/Medical-Management-Manual> [Accessed June 2018].
29. Kreyenbuhl J, et al. The Schizophrenia Patient Outcomes Research Team (PORT): updated treatment recommendations 2009. *Schizophr Bull*. 2010 Jan;36(1):94-103.
30. Galletly C, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of schizophrenia and related disorders. *Aust N Z J Psychiatry*. 2016 May;50(5):410-72.
31. Lappin JM, et al. Cardio-metabolic risk and its management in a cohort of clozapine-treated outpatients. *Schizophr Res*. 2018 Feb 24. pii: S0920-9964(18)30112-9. doi: 10.1016/j.schres.2018.02.035. [Epub ahead of print].
32. Australian Institute of Health and Welfare. Australia's health 2016. Available at <https://www.aihw.gov.au/reports/australias-health/australias-health-2016/contents/summary> [Accessed June 2018].
33. Bowden JA, et al. Smoking and mental illness: a population study in South Australia. *Aust N Z J Psychiatry*. 2011 Apr;45(4):325-31.
34. Cooper J, et al. Tobacco smoking among people living with a psychotic illness: the second Australian Survey of Psychosis. *Aust N Z J Psychiatry*. 2012 Sep;46(9):851-63.
35. Myles N, et al. Tobacco use before, at, and after first-episode psychosis: a systematic meta-analysis. *J Clin Psychiatry*. 2012 Apr;73(4):468-75.
36. McGrath JJ, et al. Age at first tobacco use and risk of subsequent psychosis-related outcomes: A birth cohort study. *Aust N Z J Psychiatry*. 2016 Jun;50(6):577-83.
37. Wium-Andersen MK, et al. Tobacco smoking is causally associated with antipsychotic medication use and schizophrenia, but not with antidepressant medication use or depression. *Int J Epidemiol*. 2015 Apr;44(2):566-77.
38. Kendler KS, et al. Smoking and schizophrenia in population cohorts of Swedish women and men: a prospective co-relative control study. *Am J Psychiatry*. 2015 Nov 1;172(11):1092-100.
39. Mustonen A, et al. Smokin' hot: adolescent smoking and the risk of psychosis. *Acta Psychiatr Scand*. 2018 Feb 18. doi: 10.1111/acps.12863. [Epub ahead of print].
40. Ashton M, et al. What do 1000 smokers with mental illness say about their tobacco use? *Aust N Z J Psychiatry*. 2013 Jul;47(7):631-6.
41. Aschbrenner KA, et al. Cigarette smoking and interest in quitting among overweight and obese adults with serious mental illness enrolled in a fitness intervention. *J Nerv Ment Dis*. 2015 Jun;203(6):473-6.
42. McClave AK, et al. Smoking characteristics of adults with selected lifetime mental illnesses: results from the 2007 National Health Interview Survey.
43. Olivier D, et al. Tobacco smoking within psychiatric inpatient settings: biopsychosocial perspective. *Aust N Z J Psychiatry*. 2007 Jul;41(7):572-80.
44. National Mental Health Commission. Equally Well Consensus Statement: Improving the physical health and wellbeing of people living with mental illness in Australia. Sydney NMHC, 2016. Available at: <https://equallywell.org.au/wp-content/uploads/2017/03/Equally-Well-Consensus-Statement.pdf> [Accessed June 2018].
45. International Physical Health in Youth (ipHys) working group. Healthy Active Lives (HeAL) consensus statement 2013. Available at: [https://docs.wixstatic.com/ugd/3536bf\\_81c20d5af8e14e7b978d913f00a85397.pdf](https://docs.wixstatic.com/ugd/3536bf_81c20d5af8e14e7b978d913f00a85397.pdf) [Accessed June 2018].