

# Are the cardiometabolic complications of schizophrenia still neglected? Barriers to care

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Mortality rates of people with schizophrenia, even after accounting for suicide, have been described as excessive and premature.<sup>1</sup> Death may occur 10–25 years earlier than in the general population,<sup>2,3</sup> and cardiovascular disease (CVD) is the major cause.<sup>1</sup> The cardiovascular standardised mortality ratio among people with schizophrenia is twice that in the general population (male, 2.3; female, 2.1),<sup>4</sup> and the gap appears to be widening.<sup>5</sup>

These increased rates may reflect the higher than expected range of cardiometabolic risk (CMR) factors experienced by patients with psychotic disorders. First, the metabolic syndrome, a predictor of early CVD and premature mortality, is more prevalent in people with schizophrenia than in the general population.<sup>6,7</sup> Compared with the general population, among people with schizophrenia there is an increased prevalence of obesity (1.5–2 times), diabetes (2 times), dyslipidaemia (5 times), and smoking (2–3 times).<sup>3</sup> Such patients have a profile similar to members of the general population who are 10 to 15 years older than they are.<sup>6</sup> Second, patients with schizophrenia have more prevalent family histories of diabetes and CVD and, although it remains unclear whether this might be genetically or environmentally determined, schizophrenia itself may confer an increased risk.<sup>8</sup> In Australia, a large proportion of patients receiving care in the public psychiatric system are from ethnically diverse backgrounds, and may be at higher risk of developing type 2 diabetes because of their ethnic status.<sup>9</sup> Third, antipsychotic medications are known to increase patients' risk of developing diabetes.<sup>10</sup> This suggests that antipsychotic choice is a key step in preventive action.<sup>11</sup>

## ABSTRACT

- Patients with schizophrenia have a wide range of risk factors for cardiometabolic disease, at rates 1.5–5 times greater than the general population.
- Despite the provision of many sets of guidelines and protocols for screening and monitoring of cardiometabolic risks, morbidity and mortality rates for those with psychotic illnesses remain excessive and premature.
- Surveys of mental health practitioners reveal a clear acknowledgement of the importance of managing cardiometabolic risks and subsequent comorbidity. However, inadequate screening rates of patients with antipsychotic-treated mental illnesses suggest “knowing is not doing”.
- Surmountable barriers (at service, patient and illness levels) to adequate integrated health care are not being adequately challenged for this population.
- Recommendations to improve the situation include service reorganisation, communication enhancement, improved training and education, better incentives, accreditation rigour, and government leadership.

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## Guidelines for screening and management of cardiometabolic risks

In the past 5 years, a number of national and international guidelines have been developed to promote cardiometabolic health in patients with schizophrenia.<sup>12</sup> Despite the introduction of such guidelines, there is little evidence to suggest that CMR screening has substantially increased.<sup>13–16</sup> A population-based study in the United States showed that between 1998 and 2003 there was a small, clinically insignificant increase in the rate of glucose (but not lipid) screening.<sup>13</sup> Further, among patients requiring treatment with a second-generation antipsychotic medication, baseline glucose levels were estimated in 19%, lipids in 6%, and both in 5%.<sup>13</sup> Predictors of receiving screening included service location, ethnicity, sex, pre-existing disorder, and which antipsychotic was prescribed. This is in contrast with guidelines, which suggest that all patients with psychosis treated with any antipsychotic medication should be regularly monitored.<sup>17</sup> The problem may lie with the fact that in many branches of medicine, including psychiatry, evidence-based guidelines do not appear to be readily disseminated into real-world practice.

## Surveys of screening and cardiometabolic risk management

Several surveys and audits have assessed psychiatrists' and mental health teams' knowledge and practice of their patients' cardiometabolic health. In a US postal survey, 97% of psychiatrists rated CMR monitoring activity as either a “very serious” (36%) or

### 1 Rates of poor assessment for cardiometabolic risk factors

Risk factor	Study A <sup>18</sup>		Study B <sup>19</sup>	Study C <sup>20</sup>	
	Difficult to obtain	Base-line*	On-going*	On-going*	On-going*
Personal and family history	8%	10%	—	—	—
Height and body weight	11%	40%	25%	40%	65%
Waist circumference	42%	95%	95%	95%	—
Blood pressure	18%	50%	45%	65%	60%
Fasting blood glucose	23%	65%	65%	60%	60%
Fasting lipid profile	24%	70%	75%	70%	70%

All baseline and ongoing data rounded to the nearest 5%. \* Per cent infrequently assessed or not assessed.

Study A: estimated from Figures 1 and 2, Buckley et al, a postal survey (n = 258).<sup>18</sup> Study B: derived from Newcomer et al, a telephone survey (n = 300).<sup>19</sup> Percentages represent those reporting “some”, “few”, or “none”. Study C: derived from Barnes et al, an audit (n = 1966 [48 clinical service teams provided 1966 patient responses]).<sup>20</sup> ♦

**2 Health care system-related barriers to recognition and management of physical illness in patients with schizophrenia (and other mental illnesses)\***

- Guidelines are perceived as a threat to autonomy, are not well known, or are not clinically accepted.<sup>24</sup>
- Non-psychiatric doctors are reticent to treat patients with serious mental illness,<sup>25</sup> despite relative deficits in the quality of care being linked to increased mortality.<sup>26</sup>
- Lack of continuity of treating doctor makes it difficult for patients to have their longitudinal history available.<sup>25,27</sup>
- Treatment teams may have various levels of consensus over their collective role for metabolic health screening.<sup>20</sup>
- The move to “community mental health” places more onus on non-medical case managers to provide a range of physical health services that they may not be trained to provide.<sup>24</sup>
- Specific health promotion and public health interventions targeted towards people with schizophrenia are generally insufficient.<sup>28</sup>
- Perception by specialists and community mental health teams that physical health matters should be the province of referring or other doctors.<sup>20,27</sup>
- Attention solely focused on presenting psychiatric problems,<sup>29</sup> with infrequent subsequent physical examination of patients.<sup>16</sup>
- Time and resources for physical and medical examinations not available in current mental health service settings.<sup>20,24,25</sup>
- Physical complaints are regarded as psychosomatic symptoms.<sup>29</sup>
- Separation of the medical and mental health systems of care (geographic, financial, organisational and cultural) rather than integrated services.<sup>30</sup>
- Financial barriers, including reimbursement, copayments, affordability, profit incentives, and establishment, infrastructure and information technology costs.<sup>24</sup>

\* Adapted and extended from Box 2 in Lambert et al.<sup>31</sup>

**3 Patient- and illness-related barriers to recognition and management of medical illness in patients with schizophrenia (and other mental illnesses)\***

- Difficulty comprehending health care advice and/or carrying out required changes in lifestyle (eg, exercise, diet, sleep) due to cognitive deficits, impoverished social contacts, development of depression due to the rigours of lifestyle curtailment, or lack of confidence.
- Physical symptoms are unreported or masked because of a reported high pain tolerance, and a reduction in pain sensitivity because of the use of antipsychotic drugs.<sup>27,29</sup>
- Poor general treatment adherence.<sup>32</sup>
- Lack of adequate follow-up of patients with psychiatric disorders, due to itinerancy, the effects of homelessness or lack of motivation on the part of the patient.<sup>32</sup>
- Unawareness of physical problems due to the cognitive deficits associated with mental illness.<sup>25,29</sup>
- Avoidance or neglect of contact with general practitioners or general health care services.<sup>25</sup>
- Difficulty communicating physical needs and problems in general due to social deficits and/or stigma.<sup>16,33</sup>
- In some cases, reluctance to discuss problems or volunteer symptoms, and/or general uncooperativeness, perhaps due to mistrust.<sup>25,27,34</sup>
- Migrant status and/or cultural and ethnic diversity.<sup>35</sup>

\* Adapted and extended from Box 2 in Lambert et al.<sup>31</sup>

“serious” (61%) concern when prescribing antipsychotics.<sup>18</sup> However, this and other surveys reveal a broad disparity between an awareness of the need for, and the actual performance of, adequate monitoring.<sup>18,19</sup> Box 1 shows that although ratings concerning the difficulty of obtaining CMR data are generally low, the proportion of patients not receiving the tests in practice is much higher.

One might expect regular assessment of obesity to be more common. A number of lines of evidence suggest that adiposity is a key to identifying at-risk individuals.<sup>3</sup> US researchers found that body mass index (BMI) and waist circumference significantly predict insulin sensitivity in healthy controls and participants with schizophrenia,<sup>21</sup> suggesting that mental health workers should consider carrying and using a tape measure as part of their usual clinical interaction with patients. Alarming, one US survey revealed that although obtaining waist measurements was “difficult to obtain/unobtainable” for 42% of respondents, this parameter was not measured in 95% of patients.<sup>18</sup> A study in the United Kingdom found that 70% of mental health teams reported having no access to a tape measure.<sup>20</sup> This is unfortunate because waist circumference, rather than BMI, may be the best tool for screening, as it is more reliably associated with the prediction of myocardial infarction.<sup>22</sup>

Blood pressure measurements were deemed difficult to obtain in 17%–18% of patients, and yet not measured in 45%–65%.<sup>18,20</sup> In the UK, about 40% of respondents had issues with the reliability or

retrievability of test results,<sup>20</sup> somewhat higher than the quarter that suggested difficulty in obtaining these data in the US.<sup>18</sup> With respect to baseline and ongoing blood tests for glucose and lipids, there is remarkable concordance between studies in the rates of non-assessment — 60%–65% of patients do not have regular glucose monitoring and 70%–75% do not have regular lipid monitoring (Box 1).<sup>18–20</sup> Similar figures were found in an outpatient study that contrasted patients with psychotic disorders with those with HIV.<sup>23</sup> In this study, over 90% of patients with HIV had chart recordings for CMR factors (smoking, lipids, blood pressure, BMI, glucose). Patients with psychosis, on the other hand, had 28%–70% of tests for these risk factors charted.<sup>23</sup>

**Barriers to recognition and diagnosis of physical conditions in people with psychosis**

What are the barriers that deny psychotic patients these same standards of care? A considerable number of barriers have been identified that prevent patients with mental illness from receiving adequate physical care. Box 2 outlines barriers associated with the health care system and health care professionals. Box 3 outlines barriers related to patients and their illnesses.

The problems lie not only with screening and monitoring, but also in taking action once CMR factors are identified. In assertive community teams, where services should be integrated, high rates of non-treatment were identified even when risk factors had been detected — 38% of patients with diabetes, 63% of those with dyslipidaemia, and 52% of those with hypertension were not receiving treatment for these conditions.<sup>20</sup> It should be stressed that this study also indicated that for every case of diabetes, hyperlipidaemia, and hypertension recorded, the anticipated rates of disease incidence, based on previous studies,

**4 Recommendations to address integrated health care in those with severe mental illnesses\***

Issue	Obstacles to integrated care	Suggested policy recommendations
Reorganisation of mental health service delivery	<ul style="list-style-type: none"> <li>Mental health staff do not routinely provide screening or monitoring of physical health and have little knowledge of the general health plan.</li> <li>Links between services (eg, co-location) are non-existent or are ineffective in providing coordinated care.</li> </ul>	<ul style="list-style-type: none"> <li>Mental health providers should attend to all health care needs of patients with serious mental illness.</li> <li>Enhanced collaboration and communication with general practitioners is essential.</li> <li>Case-management policy directed specifically towards physical health needs of patients should be developed.</li> </ul>
Promotion of patient-sanctioned communication and collaboration between providers	<ul style="list-style-type: none"> <li>The potential of information technology to improve care coordination, safety and efficiency has failed in general and mental health settings.</li> <li>Varying interpretations of privacy laws.</li> </ul>	<ul style="list-style-type: none"> <li>Federal and state departments of health should offer incentives for the provision of functional clinical information systems.</li> <li>Consent to relay clinical information between sectors should be enhanced bilaterally.</li> </ul>
Preparation of the health care workforce to provide coordinated care	<ul style="list-style-type: none"> <li>The development and sustainability of interdisciplinary skills essential to integrated care are not well addressed across mental health and general health professional groups.</li> </ul>	<ul style="list-style-type: none"> <li>Increase mental health staff competencies in physical health screening and developing patient self-care skills.</li> <li>Increase GPs' practical knowledge of severe mental illnesses.</li> <li>Stress interdisciplinary teamwork and provide appropriate skills at a professional and postgraduate level.</li> <li>Alter professional licensing and certification procedures to reflect the needs of integrated models of care.</li> </ul>
Elimination of policies and practices that offer no incentives for, or discourage, integrated care	<ul style="list-style-type: none"> <li>Mental health funding at present has little in the way of incentives to promote integrated care.</li> </ul>	<ul style="list-style-type: none"> <li>Funding policies need to reflect that integrated care should be written in to all agreements.</li> </ul>
Strengthening of the accreditation process	<ul style="list-style-type: none"> <li>Few formal accreditation standards exist for integrated physical and mental health care.</li> </ul>	<ul style="list-style-type: none"> <li>Standards organisations (such as the Australian Council on Healthcare Standards) should require coordinated and integrated general health metrics to be demonstrated.</li> </ul>
Development of federally sponsored coordination research and demonstrations.		<ul style="list-style-type: none"> <li>Evaluative research is required to assess feasibility and effectiveness of programs implemented on the basis of evidence-based medicine, and quality improvement initiatives.</li> </ul>

\* Based on Horvitz-Lennon et al.<sup>30</sup>

were expected to be 2, 7 and 4 times higher, respectively. These figures support previous findings of undertreatment of metabolic comorbidities in the CATIE (Clinical Antipsychotic Trials in Intervention Effectiveness) study — 30% of patients with diabetes, 88% of those with dyslipidaemia, and 62% of those with hypertension.<sup>14</sup>

Mental health clinicians may transfer a degree of therapeutic “nihilism” regarding schizophrenia outcomes to such patients’ physical health. However, many barriers outlined in Box 2 and Box 3 can be remedied by clinicians taking a more proactive role. Physical examinations are performed less often than necessary, even though structured physical assessments of patients with schizophrenia are effective in revealing physical illness.<sup>27</sup> Many medications used in general practice (statins, hypoglycaemics, antihypertensives) are infrequently prescribed in mental health settings despite their effectiveness. For CVD, removing or reducing risk factors improves outcomes over a period of months to several years. Modest decrements can have large clinical effects — for example, a CVD risk reduction of 30% may be achieved by reducing cholesterol by 10%.<sup>1</sup> The lack of coordination between primary and secondary care is a notable barrier that may perpetuate undertreatment.

**Policy recommendations**

A number of changes to services, training, and (in many countries) funding are needed to improve patient outcomes.<sup>30,34</sup> Central to the problem is poor integration between the general and specialist mental health sectors. Although it is beyond the scope of this article to discuss policy issues in depth, based on the obstacles to integrated care, Horvitz-Lennon and colleagues have proposed a number of policy recommendations to address the need for improved integrated health care for those with major psychiatric illnesses (Box 4).<sup>30</sup>

There is a dearth of research into models to improve medical care despite the premature mortality, long morbidity and the barriers outlined above. A range of models should be provided and adapted for selective use, reflecting variations in local micro-medical culture and its specific barriers.<sup>36</sup>

Finally, screening and management for CMR factors should be undertaken at a younger age as the relative risks may be higher for patients in this group.<sup>37</sup> Ultimately, the greatest potential for decreasing the premature mortality from CVD in patients with psychoses is primary prevention in combination with a reduction in the misuse or underuse of evidence-based general medical procedures.<sup>15,34</sup>

**Concluding remarks**

Compared with the general population, patients with persistent psychotic disorders, such as schizophrenia, experience significant physical health problems, leading to decreased quality of life and premature mortality. This occurs despite a growing awareness of the need to screen for common metabolic risks. The disparity between “knowing” and “doing” may be attributed to a number of health care barriers that should be urgently addressed in this high-risk, undertreated population. The solution, at least in a preliminary form, may lie in the implementation of a variety of strategies that reinforce the need for truly integrated health care between the primary and secondary health sectors — mandated by government, and subject to stringent accreditation assessments.

**Competing interests**

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**References**

- 1 Hennekens CH. Increasing global burden of cardiovascular disease in general populations and patients with schizophrenia. *J Clin Psychiatry* 2007; 68 Suppl 4: 4-7.
- 2 Hennekens CH, Hennekens AR, Hollar D, Casey DE. Schizophrenia and increased risks of cardiovascular disease. *Am Heart J* 2005; 150: 1115-1121.
- 3 Newcomer JW. Antipsychotic medications: metabolic and cardiovascular risk. *J Clin Psychiatry* 2007; 68 Suppl 4: 8-13.
- 4 Brown S. Excess mortality of schizophrenia. A meta-analysis. *Br J Psychiatry* 1997; 171: 502-508.
- 5 Saha S, Chant D, McGrath J. A systematic review of mortality in schizophrenia: is the differential mortality gap worsening over time? *Arch Gen Psychiatry* 2007; 64: 1123-1131.
- 6 Bobes J, Arango C, Aranda P, et al. Cardiovascular and metabolic risk in outpatients with schizophrenia treated with antipsychotics: results of the CLAMORS Study. *Schizophr Res* 2007; 90: 162-173.
- 7 Cohn T, Prud’homme D, Streiner D, et al. Characterising coronary heart disease risk in chronic schizophrenia: high prevalence of the metabolic syndrome. *Can J Psychiatry* 2004; 49: 753-761.
- 8 Holt RIG, Peveler RC. Association between antipsychotic drugs and diabetes. *Diabetes Obes Metab* 2006; 8: 125-135.
- 9 Baskar V, Kamalakannan D, Holland MR, Singh BM. Does ethnic origin have an independent impact on hypertension and diabetic complications? *Diabetes Obes Metab* 2006; 8: 214-219.
- 10 AACE Diabetes Mellitus Clinical Practice Guidelines Task Force. American Association of Clinical Endocrinologists medical guidelines for clinical practice for the management of diabetes mellitus. *Endocr Pract* 2007; 13 Suppl 1: 1-68.

- 11 Newcomer JW. Metabolic considerations in the use of antipsychotic medications: a review of recent evidence. *J Clin Psychiatry* 2007; 68 Suppl 1: 20-27.
- 12 Cohn TA, Sernyak MJ. Metabolic monitoring for patients treated with antipsychotic medications. *Can J Psychiatry* 2006; 51: 492-501.
- 13 Morrato EH, Newcomer JW, Allen RR, Valuck RJ. Prevalence of baseline serum glucose and lipid testing in users of second-generation antipsychotic drugs: a retrospective, population-based study of Medicaid claims data. *J Clin Psychiatry* 2008; 69: 316-322.
- 14 Nasrallah HA, Meyer JM, Goff DC, et al. Low rates of treatment for hypertension, dyslipidemia and diabetes in schizophrenia: data from the CATIE schizophrenia trial sample at baseline. *Schizophr Res* 2006; 86: 15-22.
- 15 Newcomer JW, Hennekens CH. Severe mental illness and risk of cardiovascular disease. *JAMA* 2007; 298: 1794-1796.
- 16 Phelan M, Stradins L, Morrison S. Physical health of people with severe mental illness. *BMJ* 2001; 322: 443-444.
- 17 Lambert TJR, Chapman L, Group CW. Diabetes, psychotic disorders and antipsychotic therapy: a consensus statement. *Med J Aust* 2004; 181: 544-548.
- 18 Buckley PF, Miller DD, Singer B, et al. Clinicians’ recognition of the metabolic adverse effects of antipsychotic medications. *Schizophr Res* 2005; 79: 281-288.
- 19 Newcomer JW, Nasrallah HA, Loebel AD. The Atypical Antipsychotic Therapy and Metabolic Issues National Survey: practice patterns and knowledge of psychiatrists. *J Clin Psychopharmacol* 2004; 24: S1-S6.
- 20 Barnes TR, Paton C, Cavanagh MR, et al. A UK audit of screening for the metabolic side effects of antipsychotics in community patients. *Schizophr Bull* 2007; 33: 1397-1403.
- 21 Haupt DW, Fahnestock PA, Flavin KA, et al. Adiposity and insulin sensitivity derived from intravenous glucose tolerance tests in antipsychotic-treated patients. *Neuropsychopharmacology* 2007; 32: 2561-2569.
- 22 Yusuf S, Hawken S, Ounpuu S, et al. Obesity and the risk of myocardial infarction in 27,000 participants from 52 countries: a case-control study. *Lancet* 2005; 366: 1640-1649.
- 23 Jennex A, Gardner DM. Monitoring and management of metabolic risk factors in outpatients taking antipsychotic drugs: a controlled study. *Can J Psychiatry* 2008; 53: 34-42.
- 24 Sernyak MJ. Implementation of monitoring and management guidelines for second-generation antipsychotics. *J Clin Psychiatry* 2007; 68 Suppl 4: 14-18.
- 25 Goldman LS. Medical illness in patients with schizophrenia. *J Clin Psychiatry* 1999; 60: 10-15.
- 26 Druss BG, Bradford WD, Rosenheck RA, et al. Quality of medical care and excess mortality in older patients with mental disorders. *Arch Gen Psychiatry* 2001; 58: 565-572.
- 27 Anath J. Physical illness and psychiatric disorders. *Compr Psychiatry* 1984; 25: 586-593.
- 28 Roick C, Fritz-Wieacker A, Matschinger H, et al. Health habits of patients with schizophrenia. *Soc Psychiatry Psychiatr Epidemiol* 2007; 42: 268-276.
- 29 Jeste DV, Gladsjo JA, Lindamer LA, Lacro JP. Medical comorbidity in schizophrenia. *Schizophr Bull* 1996; 22: 413-430.
- 30 Horvitz-Lennon M, Kilbourne AM, Pincus HA. From silos to bridges: meeting the general health care needs of adults with severe mental illnesses. *Health Aff (Millwood)* 2006; 25: 659-669.
- 31 Lambert TJR, Velakoulis D, Pantelis C. Medical comorbidity in schizophrenia. *Med J Aust* 2003; 178 (9 Suppl): S67-S70.
- 32 Brown S, Inskip H, Barraclough B. Causes of the excess mortality of schizophrenia. *Br J Psychiatry* 2000; 177: 212-217.
- 33 Kim MM, Swanson JW, Swartz MS, et al. Healthcare barriers among severely mentally ill homeless adults: evidence from the five-site health and risk study. *Adm Policy Ment Health* 2007; 34: 363-375.
- 34 Druss BG. Improving medical care for persons with serious mental illness: challenges and solutions. *J Clin Psychiatry* 2007; 68 Suppl 4: 40-44.
- 35 Lai DW, Chau SB. Effects of service barriers on health status of older Chinese immigrants in Canada. *Soc Work* 2007; 52: 261-269.
- 36 Druss BG, von Esenwein SA. Improving general medical care for persons with mental and addictive disorders: systematic review. *Gen Hosp Psychiatry* 2006; 28: 145-153.
- 37 Lambert BL, Cunningham FE, Miller DR, et al. Diabetes risk associated with use of olanzapine, quetiapine, and risperidone in veterans health administration patients with schizophrenia. *Am J Epidemiol* 2006; 164: 672-681.

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