The Canadian Journal of Psychiatry

Volume 55 | Ottawa, Canada, December 2010 | Number 12

Guest Editorial

Excess Mortality From Chronic Physical Disease in Psychiatric Patients—The Forgotten Problem

Stephen Kisely, MD, PhD[1]

Can J Psychiatry. 2010;55(12):749–751.

Physical and psychiatric symptoms often occur together. In both hospital and primary care the presence of one leads to a worse outcome in the other.[1] For instance, physical illness has a large, immediate effect on depressive symptoms, while further depressive symptoms are associated with increased subsequent physical morbidity. Among all outcomes, it is the increase in mortality that is of most concern. The death rate for people with mental illness is around 70% higher than for the rest of the population, even after adjusting for demographics, including socioeconomic status.[2] In the case of schizophrenia, the risk is considerably greater.[3] Patients with major mental illnesses, such as schizophrenia, and major depressive, bipolar, and delusional disorders, can die up to 25 years earlier than the general population.[4] Contrary to common perception, it is not suicide that accounts for most of these deaths among people with mental illness, but common diseases such as heart disease, cancer, and chronic lung disease.[2] Excess mortality from these diseases is 10 times that of deliberate self-harm yet receives little attention when compared with suicide prevention. Nova Scotian data suggest that while 100 people a year will die of suicide, an additional 1000 people with psychiatric illness will die of preventable physical disease than would be expected if their mortality risk was the same as the general population.[5] This represents about 33 000 potentially preventable deaths for Canada annually.

The first In Review paper in this issue, by Dr David Lawrence, me, and Ms Joanne Pais,[6] examines in detail the scale of the problem. Even though the risk of mortality is greatest for people with severe mental illness, such as schizophrenia, in terms of absolute figures, 72% of excess deaths occur in patients who have only ever attended general practice for their psychiatric care.[5] This is therefore an issue for all clinicians, not just those in mental health settings. It had been thought that the increased mortality noted in earlier papers might be explained by overcrowding or poor levels of medical care in large institutions.[7] With the move to treatment in the community, this cannot be the explanation now. Further, the disparity in the mortality risk between people with mental illness and the general population has actually increased during the last 20 to 30 years.[2,3]

What are the possible explanations? In part, psychiatric patients have not benefited from preventative measures that have reduced the incidence of chronic disorders such as cardiovascular disease in the general population. Although many of the risk factors for cardiovascular disease, cancer, and other major natural causes of death, such as smoking, obesity, and hypertension, are potentially modifiable, people with mental disorders appear to miss out on appropriate preventative care. For instance, patients with severe mental illness are less likely to be assessed or treated for hypertension or hyperlipidemia in ambulatory and primary care.[8–12] This is despite higher consultation rates with family physicians among people with severe mental illness, compared with those of the general population.[13] The issue may therefore not always be the quantity of care, but also its quality.

Tobacco is a case in point. Up to 80% of patients with chronic schizophrenia smoke.[14,15] Nevertheless, clinicians may be missing opportunities to help psychiatric patients quit, even though there are effective treatments available. In a survey of patients admitted to a smoke-free psychiatric unit, nicotine replacement therapy was only prescribed in just over one-half of the smokers, even though they showed evidence

of nicotine withdrawal.[16] Less than 1% were encouraged to stop smoking, referred for a formal cessation program, or provided with nicotine replacement therapy on discharge. Among outpatients, psychiatrists are less likely to offer smoking cessation counselling than family physicians.[17] Psychiatric patients receive cessation counselling in only 12% of visits to a psychiatrist, compared with 38% of primary care contacts.[18]

Closer to home, psychiatrists may consider the medical care of their patients to be beyond the scope of their care. Some may also be reluctant to perform general physical examination of their patients, fearing that this would disrupt the therapeutic relationship.[19] Two-thirds of psychiatrists have never physically examined their patients. Only 8% of psychiatric outpatients receive a physical examination.[20]

However, as Dr Lawrence, Ms Pais, and I highlight,[6] lifestyle, with factors such as smoking, is not the sole explanation. The incidence of many cancers is no higher than the general population, while mortality is greater. If lifestyle were the sole cause, incidence should more closely match mortality. Less data are available for other disorders such as cardiovascular disease; however, they share many of the same risk factors such as obesity, tobacco, and alcohol. If people are no more likely to develop a disorder, but are more likely to die of it, this suggests increased case fatality and possible issues around treatment. Lastly, psychiatrists need to be aware of the potential risks of psychotropic medications when selecting therapy, and that these are greatest in the initial years of treatment.[21]

Patient-based explanations could include lower compliance with treatment, problems with communication, or difficulties in giving informed consent. But there may also be issues for providers. It may be that chronic physical disease may be more difficult to spot in some patients with a preexisting psychiatric condition, given symptom overlap. Somatic complaints such as poor appetite, weight loss, or decreased energy may have both psychiatric and physical causes. Access to treatment may also be a possible explanation for increases in case fatality. For example, psychiatric patients are more likely to die of disorders such as cardiovascular diseases, but are less likely to receive the appropriate treatment such as cardiac catheterization or coronary artery bypass grafting.[6,22]

The companion In Review paper, by Dr Chris J Bushe and Dr Richard Hodgson,[23] further explores the complexity of the problem in relation to cancer. For instance, there is a lower risk of lung cancer than expected when incidence is adjusted for smoking rates. Further evidence of a protective effect of schizophrenia against cancer derives from the reduced risk of cancer in parents of patients with schizophrenia.

Notwithstanding these intriguing findings, how should we address the issue of excess mortality from chronic physical disease, in general, in people with severe mental illness? Removing the stigma attached to mental illness in society as a whole, and within the health professions, is crucial. People with a psychiatric disorder should be encouraged to register with a family physician. And family physicians have to be educated to be more thorough in the examination of patients with mental illness, rather than assuming symptoms are related to the psychiatric condition. Shared mental health care models may also help. Integrating psychiatric and general medical care at a single site, or increasing the role of psychiatric providers, in general, and preventive medical services, may be possible solutions to this problem.[24] Toolkits, produced by the Canadian Collaborative Mental Health Initiative[25] for use in primary care, emphasize the need to monitor physical health, especially in people with severe mental illness.

In addition, mental health service facilities need to provide physical examination facilities, including basic items such as blood pressure monitors and stethoscopes. Refresher training in the detection, management, and prevention of chronic medical conditions should be regularly provided for mental health clinicians. This could be complemented by guidelines for managing physical health, such as those of the American Diabetes Association and others.[26] Certain high-risk groups should be targeted, such as patients with severe mental illness and those receiving atypical antipsychotics.[25] In the longer term, under- and postgraduate training programs should give more emphasis to the physical and psychological problems of psychiatric patients.

One in 5 Canadians has a psychiatric disorder and so the increased mortality rate in this population is a major public health concern. Should this be a priority for the Mental Health Commission of Canada?

References

1. Kisely S, Goldberg DP. The effects of physical illness on psychiatric disorder. J Psychopharmacol (Suppl). 1993;7(1):119–125.
2. Lawrence D, Jablensky AV, Holman CD. Preventable physical illness in people with mental illness. Perth (AU): University of Western Australia; 2001.
3. 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.
4. Colton CW, Manderscheid RW. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states [Internet]. Prev Chronic Dis [serial online]. 2006 Apr [cited 2008 Nov 11]. Available from: http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm.
5. Kisely S, Smith M, Lawrence D, et al. Mortality in individuals who have had psychiatric treatment. Population-based study in Nova Scotia. Br J Psychiatry. 2005;187:552–558.
6. Lawrence D, Kisely S, Pais J. The epidemiology of excess mortality in people with mental illness. Can J Psychiatry. 2010;55(12):752–760.
7. Harris EC, Barraclough B. Excess mortality of mental disorder. Br J Psychiatry. 1998;173:11–53.
8. Bradford DW, Kim MM, Braxton LE, et al. Access to medical care among persons with psychotic and major affective disorders. Psychiatr Serv. 2008;59:847–852.
9. Kilbourne AM, Welsh D, McCarthy JF, et al. Quality of care for cardiovascular disease-related conditions in patients with and without mental disorders. J Gen Intern Med. 2008;23:1628–1633.
10. Hippisley-Cox J, Parker C, Coupland C, et al. Inequalities in the primary care of patients with coronary heart disease and serious mental health problems: a cross-sectional study. Heart. 2007;93:1256–1262.
11. Roberts L, Roalfe A, Wilson S, et al. Physical health care of patients with schizophrenia in primary care: a comparative study. Fam Pract. 2007;24:34–40.

12. Weiss AP, Henderson DC, Weilburg JB, et al. Treatment of cardiac risk factors among patients with schizophrenia and diabetes. Psychiatr Serv. 2006;57:1145–1152.
13. Mai Q, Holman CD, Sanfilippo FM, et al. Do users of mental health services lack access to general practitioner services? Med J Aust. 2010;192:501–506.
14. SANE Australia. Cessation of smoking in long term psychiatric patients. Melbourne (AU): SANE Australia; 1997.
15. Hughes JR. Possible effects of smoke-free inpatient units on psychiatric diagnosis and treatment. J Clin Psychiatry. 1993;54:109–114.
16. Prochaska JJ, Gill P, Hall SM. Treatment of tobacco use in an inpatient psychiatric setting. Psychiatr Serv. 2004;55(11):1265–1270.
17. Himelhoch S, Daumit G. To whom do psychiatrists offer smoking-cessation counseling? Am J Psychiatry. 2003;160(12):2228–2230.
18. McFall M, Saxon AJ, Thompson CE, et al. Improving the rates of quitting smoking for veterans with posttraumatic stress disorder. Am J Psychiatry. 2005;162:1311–1319.
19. Singh GP. Medical illnesses in psychiatric patients. Hong Kong J Psychiatry. 2005;15:127–131.
20. McIntyre S, Romano J. Is there a stethoscope in the house (and is it used)? Arch Gen Psychiatry. 1977;34:1147–1151.
21. Tiihonen J, Lönnqvist J, Wahlbeck K, et al. 11-year follow-up of mortality in patients with schizophrenia: a population-based cohort study (FIN11 study). Lancet. 2009;374:620–627.
22. Kisely S, Smith M, Lawrence D, et al. Inequitable access for mentally ill patients to some medically necessary procedures. CMAJ. 2007;176:779–784.
23. Bushe CJ, Hodgson R. Schizophrenia and cancer: in 2010 do we understand the connection? Can J Psychiatry. 2010;55(12):761–767.
24. Druss BG, Rohrbaugh RM, Levinson CM, et al. Integrated medical care for patients with serious psychiatric illness: a randomized trial. Arch Gen Psychiatry. 2001;58:861–868.
25. Canadian Collaborative Mental Health Initiative. Toolkits for health care providers and planners [Internet]. Ottawa (ON): Canadian Collaborative Mental Health Initiative; 2006 [cited 2008 Nov 11]. Available from: http://www.ccmhi.ca/en/products/toolkits/providers.htm.
26. American Diabetes Association, American Psychiatric Association, American Association of Clinical Endocrinologists, North American Association for the Study of Obesity. Consensus development conference on antipsychotic drugs and obesity and diabetes. Diabetes Care. 2004;27:596–601.

[1] Professor and Director, The University of Queensland, Health LinQ: The Queensland Centre for Health Data Services, Brisbane, Australia; Professor, Department of Psychiatry, Community Health and Epidemiology, Dalhousie University, Halifax, Nova Scotia.
Address for correspondence: Dr S Kisely, Health LinQ: The Queensland Centre for Health Data Services, Room 518(A), McGregor Building (No 64), The University of Queensland, Brisbane, Queensland 4072, Australia; s.kisely@uq.edu.au

Books Received

The following books have been received; the courtesy of the sender is acknowledged by this listing. Books of particular interest to readers of *The Canadian Journal of Psychiatry* will be reviewed by selected reviewers. Not all books are available for review.

Spirituality and Psychiatry. Chris Cook, Andrew Powell, Andrew Sims, editors. London (GB): RCPsych Publications (The Royal College of Psychiatrists); 2009. 300 p. £25.00.

Pagliaros' Comprehensive Guide to Drugs and Substances of Abuse, Second Edition. Louis A Pagliaro, Ann Marie Pagliaro. Washington (DC): American Pharmacists Association; 2009. 419 p. US$79.00.

Nidotherapy: Harmonising the Environment With the Patient. Peter Tyrer. London (GB): RCPsych Publications (The Royal College of Psychiatrists); 2009. 98 p. £10.00.

Memory Rehabilitation: Integrating Theory and Practice. Barbara A Wilson. New York (NY): Guilford Publications; 2009. 284 p. US$48.00.

Personal Recovery and Mental Illness: A Guide for Mental Health Professionals. Mike Slade. New York (NY): Cambridge University Press; 2009. 275 p. US$63.00.

Making Minds and Madness: From Hysteria to Depression. Mikkel Borch-Jacobsen. New York (NY): Cambridge University Press; 2009. 266 p. US$45.00.

Treatment of Posttraumatic Stress Disorder in Special Populations: A Cognitive Restructuring Program. Kim T Mueser, Stanley D Rosenberg, Harriet J Rosenberg. Washington (DC): American Psychological Association; 2009. 404 p. US$69.65.

Canadian Mental Health Law and Policy, Second Edition. John E Gray, Margaret A Shone, Peter F Liddle. Markham (ON): LexisNexis Canada Inc; 2009. 490 p. Can$165.00.

Risk Assessment for Domestically Violent Men: Tools for Criminal Justice, Offender Intervention, and Victim Services. N Zoe Hilton, Grant T Harris, Marnie E Rice. Washington (DC): American Psychological Association; 2009. 232 p. US$69.95.

A Clinician's Guide to Statistics and Epidemiology in Mental Health: Measuring Truth and Uncertainty. S Nassir Ghaemi. New York (NY): Cambridge University Press; 2009. 151 p. US$50.00.

Publication Manual of the American Pschological Association, Sixth Edition. American Psychological Association. Washington (DC): American Psychological Association; 2009. 300 p. US$28.95.

The Maudsley Family Study of Psychosis: A Quest for Intermediate Phenotypes. Colm McDonald, editor. East Sussex (GB): Psychology Press; 2008. 218 p. £43.95.

Making Sense of Madness: Contesting the Meaning of Schizophrenia. Jim Geekie, John Read. East Sussex (GB): Routledge, Taylor & Francis Group; 2009. 208 p. £34.95.

Cognitive Therapy of Anxiety Disorders: Science and Practice. David A Clark, Aaron T Beck. New York (NY): Guilford Publications; 2009. 628 p. US$65.00.

History of the Introduction of Lithium into Medicine and Psychiatry: Birth of Modern Psychopharmacology 1949. Johan Schioldann. Upper Sturt (AU): Brascoe Publishing; 2009. 390 p. A$135.00.

Copyright of Canadian Journal of Psychiatry is the property of Canadian Psychiatric Association and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Library Logo

1. Excess Mortality From Chronic Physical Disease in Psychiatric Patients--The Forgotten Problem.

By: Kisely, Stephen. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p749-751, 3p

Subjects: MENTALLY ill; MORTALITY

Database: Health Source: Nursing/Academic Edition

PDF Full Text (319KB)

2. Books Received.

Canadian Journal of Psychiatry, Dec2010, Vol. 55 Issue 12, p751-751, 1/2p

Subjects: BIBLIOGRAPHY (Documentation); PSYCHIATRY

Database: Health Source: Nursing/Academic Edition

PDF Full Text (108KB)

3. The Epidemiology of Excess Mortality in People With Mental Illness.

By: Lawrence, David; Kisely, Stephen; Pais, Joanne. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p752-760, 9p, 1 Diagram, 1 Graph

Subjects: MENTAL illness; MENTALLY ill; EPIDEMIOLOGY; CARDIOVASCULAR system -- Diseases; LITERATURE reviews; RESPIRATORY organs -- Diseases; MORTALITY

Database: Health Source: Nursing/Academic Edition


PDF Full Text (6.3MB)

4. Schizophrenia and Cancer: In 2010 Do We Understand the

Connection?

By: Bushe, Chris J.; Hodgson, Richard. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p761-767, 7p, 1 Chart

Subjects: SCHIZOPHRENIA; CANCER -- Mortality; DISEASE incidence; EPIDEMIOLOGY; SMOKING -- Health aspects; TOBACCO -- Physiological effect; CARDIOVASCULAR system -- Diseases -- Mortality

Database: Health Source: Nursing/Academic Edition

PDF Full Text (695KB)

5. ## The Relation Between Disease Severity and Cost of Caring for Patients With Alzheimer Disease in Canada.

By: Herrmann, Nathan; Tam, Derrick Y.; Balshaw, Robert; Sambrook, Robert; Lesnikova, Nadia; Lanctôt, Krista L.. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p768-775, 8p, 1 Chart, 2 Graphs

Subjects: CANADA; ALZHEIMER'S disease -- Treatment; MEDICAL care, Cost of; AMBULATORY medical care -- Utilization; SEVERITY of illness index; CAREGIVERS

Database: Health Source: Nursing/Academic Edition



PDF Full Text (5.1MB)

6. ## Time Trends in Mortality Associated With Depression: Findings From the Stirling County Study.

By: Murphy, Jane M.; Gilman, Stephen E.; Lesage, Alain.; Horton, Nicholas J.; Rasic, Daniel; Trinh, Nhi-Ha; Alamiri, Bibi; Sobol, Arthur M.; Fava, Maurizio; Smoller, Jordan W.. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p776-783, 8p, 5 Charts

Subjects: WESTERN Australia; DEPRESSION, Mental; SMOKING -- Health aspects; ALCOHOL -- Physiological effect; MORTALITY; CIGARETTE smokers

Database: Health Source: Nursing/Academic Edition

Show all 5 images

PDF Full Text (843KB)

7. Anxiety Disorders Among Offenders With Antisocial Personality Disorders: A Distinct Subtype?

By: Hodgins, Sheilagh; De Brito, Stephane A.; Chhabra, Preeti; Côté, Gilles. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p784-791, 8p, 2 Charts

Subjects: PRISON psychology; PRISONERS -- Mortality; ANXIETY disorders; ANTISOCIAL personality disorders; COMORBIDITY; PRISONERS -- Health & hygiene

Database: Health Source: Nursing/Academic Edition

PDF Full Text (790KB)

8. Pharmacoepidemiology of Benzodiazepine and Sedative-Hypnotic Use in a Canadian General Population Cohort During 12 Years of Follow-up.

By: Patten, Scott B.; Williams, Jeanne V. A.; Lavorato, Dina H.; Kassam, Aliya; Sabapathy, David. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p792-799, 8p, 1 Diagram, 2 Charts, 2 Graphs

Subjects: CANADA; BENZODIAZEPINES; PHARMACOEPIDEMIOLOGY; FOLLOW-up studies (Medicine); SEDATIVES; HYPNOTICS

Database: Health Source: Nursing/Academic Edition

Show all 5 images

PDF Full Text (5.4MB)

9. Propriétés psychométriques de la version française de l'inventaire de sentiment de culpabilité. *(French)*

/ Psychometric Properties of the French Version of the Guilt Inventory. *(English)* By: Kedia, Gayannée; Berthoz, Sylvie. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p800-809, 10p, 1 Diagram, 2 Charts; Language: French

Subjects: FRANCE; GUILT; SELF-destructive behavior; SOCIAL desirability; STUDENTS -- Psychology; FRENCH students

Database: Health Source: Nursing/Academic Edition

Show all 4 images

PDF Full Text (6.2MB)

10. Chronotherapeutics for Affective Disorders: A Clinician's Manual for Light and Wake Therapy.

By: Levitan, Robert D.. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p810-810, 1p, 1 Black and White Photograph

Subjects: CHRONOTHERAPEUTICS for Affective Disorders: A Clinician's Manual for Light & Wake Therapy (Book); BOOKS -- Reviews; TERMAN, Michael; WIRZ-Justice, Anna; BENEDETTI, Francesco; AFFECTIVE disorders -- Treatment; NONFICTION

Database: Health Source: Nursing/Academic Edition

PDF Full Text (708KB)

11. History of the Introduction of Lithium into Medicine and Psychiatry: Birth of Modern Psychopharmacology 1949.

By: Duffy, Anne; Grof, Paul. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p811-811, 1p, 1 Black and White Photograph

Subjects: HISTORY of the Introduction of Lithium Into Medicine & Psychiatry: Birth of Modern Psychopharmacology 1949 (Book); BOOKS -- Reviews; SCHIOLDANN, Johan; LITHIUM -- Therapeutic use; NONFICTION

Database: Health Source: Nursing/Academic Edition

PDF Full Text (648KB)

12. Re: Reduction in Psychiatry and Psychiatry and Neuroscience.

By: Gold, Ian. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p812-812, 1/2p

Subjects: LETTERS to the editor; PSYCHIATRY

Database: Health Source: Nursing/Academic Edition

PDF Full Text (95KB)

13. Reduction in Psychiatry and Psychiatry and Neuroscience.

By: Savenkov, Oleg. *Canadian Journal of Psychiatry*, Dec2010, Vol. 55 Issue 12, p812-812, 1/2p

Subjects: LETTERS to the editor; PSYCHIATRY

Database: Health Source: Nursing/Academic Edition

PDF Full Text (95KB)

University of Queensland Library

EBSCO Support Site | Privacy Policy | Terms of Use | Copyright

© 2011 EBSCO Industries, Inc. All rights reserved.

Log in to My Ulrich's

University of Queensland Library --Select Language--

Search Workspace Ulrich's Update Admin

Enter a Title, ISSN, or search term to find journals or other periodicals:

07067437

Advanced Search

Search Results

Find in: JCR Web

Search My Library's Catalog: UQ Library ISSN Search | Title Search

The Canadian Journal of Psychiatry

Title Details | Table of Contents

Related Titles

▼ Alternative Media Edition (2)

- The Canadian Journal of Psychiatry
  - Active
  - Microform
- The Canadian Journal of Psychiatry
  - 1497-0015
  - Active
  - Online

Lists

Marked Titles (0)

Search History

07067437
JOURNAL OF STATISTICAL MECHANICS-THEORY AND EXPERIMENT
14639076
10538100
0012821X
09528369
10361073
10502947
1048-891X
00908258
00411337
1539-1663
14346621

Save to List Email Download Print Corrections Expand All Collapse All

▼ Basic Description

Title	The Canadian Journal of Psychiatry
ISSN	0706-7437
Publisher	Canadian Psychiatric Association
Country	Canada
Status	Active
Start Year	1956
Frequency	Monthly
Language of Text	Text in: French, English
Refereed	Yes
Abstracted / Indexed	Yes
Serial Type	Journal
Content Type	Academic / Scholarly
Format	Print
Website	http://www.cpa-apc.org/Publications/cjpHome.asp
Email	cjp@cpa-apc.org
Description	Provides a forum for a broad spectrum of scholarly presentations, case reports, position papers, editorial contributions and current perspectives.

▶ Subject Classifications

▶ Additional Title Details

▶ Title History Details

▼ Publisher & Ordering Details

Commercial Publisher General

Canadian Psychiatric Association
Address: Suite 701 - 141 Laurier Ave West Ottawa ON K1P-5J3 Canada
Phone: 613-234-2815
Fax: 613-234-9857
Website: http://www.allenpress.com

Commercial Publisher Subscription

Canadian Psychiatric Association
Address: 260 - 441 MacLaren St Ottawa ON K2P 2H3 Canada
Editor's Email: subscriptions@cpa-apc.org

Corporate Author General

Canadian Psychiatric Association

▶ Price Data

▶ Online Availability

▶ Other Availability

▶ Demographics

Save to List Email Download Print Corrections Expand All Collapse All

Contact Us | Privacy Policy | Terms and Conditions | Accessibility

Ulrichsweb.com™, Copyright © 2011 ProQuest LLC. All Rights Reserved