



**Assessing Rural Health:
Toward Developing Health Indicators
for Rural Canada**



Assessing Rural Health: Toward Developing Health Indicators for Rural Canada

A Study Prepared for Health Canada by:
Centre for Rural and Northern Health Research
Laurentian University

in collaboration with
Canadian Institute for Health Information
and
College of Family Physicians of Canada

J. Roger Pitblado, Ph.D.
Raymond W. Pong, Ph.D.
Andrew Irvine, M.A.
K.V. Nagarajan, Ph.D.
Vic Sahai, M.Sc.
Jennifer Zelmer, M.A.
Lynn Dunikowski, M.L.S.
Dave A. Pearson, B.A.

June 1999

Table of Contents

	Page
List of Tables	v
List of Figures	vi
List of Appendix Tables	xi
List of Appendix Figures	xii
Acknowledgements	xiii
1. Introduction	
1.1 Overview	1-1
1.2 Health Indicators and Rural Health Indicators	1-2
1.3 Scope of the Study and the Research Process	1-5
1.3.1 Literature review	1-6
1.3.2 Inventory of Potential Rural Health Indicators	1-6
1.3.3 Applying “Rural” to Health Datasets	1-6
1.4 Organization of the Report	1-7
2. Conceptual Issues in Rural Health Indicator Development	
2.1 Introduction	2-1
2.2 Health and Health Indicators	2-1
2.2.1 Health Status Indicators	2.2
2.2.2 Health Determinant Indicators	2-3
2.2.3 Health Behaviour Indicators	2-5
2.2.4 Health Resource Indicators	2-6
2.2.5 Health Service Utilization Indicators	2-7
2.3 Understanding Rurality	2-9
2.3.1 Statistics Canada Standard Classification	2-9
2.3.2 Organization for Economic Co-operation and Development	2-16
2.3.3 Other Alternatives	2-18
2.3.4 Communities and Regions: <i>The First Step to a Functional Definition of Rural</i>	2-21
3. Generating Rural Health Indicators in the Canadian Context	
3.1 Introduction	3-1
3.2 The Four Sources of Health Indicators	3-2
3.2.1 Report on the Health of Canadians (Health Canada)	3-2
3.2.2 Community Health Indicators: Definitions and Interpretations (Canadian Institute for Health Information)	3-3
3.2.3 Health Indicator Database (Statistics Canada)	3-3
3.2.4 Institute of Clinical Evaluation Sciences (ICES) Practice and Electronic Atlas (Second Edition)	3-3
3.3 Structure of the Rural Health Indicators Inventory Database	3-3
3.3.1 Health Indicator Information	3-4
3.3.2 Dataset Information Sheets	3-5

3.4	Summary Chart of Major Datasets	3-7
3.5	Issues Pertaining to the Rural Health Indicators Inventory Database	3-12
4.	Selected Rural Health Indicators as Illustrations	
4.1	Introduction	4-1
4.2	Health Status Indicator: Example 1	4-2
4.3	Health Status Indicator: Example 2	4-18
4.4	Health Status Indicator: Example 3	4-29
4.5	Health Status Indicator: Example 4	4-31
4.6	Health Determinant Indicator: Example 1	4-34
4.7	Health Determinant Indicator: Example 2	4-43
4.8	Health Determinant Indicator: Example 3	4-51
4.9	Health Behaviour Indicator: Example 1	4-53
4.10	Health Resources Indicators: Example 1	4-55
4.11	Health Services Utilization Indicator: Example 1	4-63
4.12	Health Services Utilization Indicator: Example 2	4-72
5.	Summary and Conclusions	
5.1	Introduction	5-1
5.2	Summary of major Findings	5-1
5.3	Issues and Suggested Approaches	5-3
	5.3.1 <i>A “Functional” Definition of Rural</i>	5-3
	5.3.2 <i>Beyond a Functional Definition of Rural</i>	5-4
	5.3.3 <i>Inadequacies of the Geographic Approach</i>	5-5
	5.3.4 <i>Rural Health Indicators Inventory Database</i>	5-6
	5.3.5 <i>Small Numbers and Releasability of Information</i>	5-6
	5.3.6 <i>Other Considerations</i>	5-6
5.4	The Next Step	5-7
Appendix I	Terrestrial Ecozones and the Urban/Rural Distribution of Canada’s Population	
Appendix II	Relationships Between Statistics Canada and OECD Based Definitions of Rural	
Appendix III	Rural Health Indicators Database Instructions	
	References	

List of Tables

		Page
Table 2.1	Standard Geographical Classifications	2-10
Table 2.2	1996 Proportions of Canadians by Province/Territory and Statistics Canada Urban/Rural Codes	2-16
Table 2.3	1996 Proportion of Canadians by Province/Territory	2-17
Table 2.4	1996 Proportion of Canadians by Province/Territory Using the OECD Definitions of Rural/Urban Applied to Census Divisions (CDs)	2-18
Table 3.1	Summary Chart of Major Statistics Canada Datasets	3-8
Table 4.1	Low Birthweight Proportions (1996) by Mother's Age-groups and Province	4-2
Table 4.2	Percentage of LBW by "Rural/Urban" by Age Groups	4-3
Table 4.3	Motor Vehicle Accident Rates for Ontario 1996 by the Statistics Canada and OECD Definitions of Rural	4-19
Table 4.4	A Comparison of the Total, Youth and Old-Age Dependency Ratios for Three Census Points	4-34
Table 4.5	Dependency Ratios by OECD and Statistics Canada Definitions of Rural, 1996	4-35
Table 4.6	Average Proportions of Canadians Below LICO When Classified Using the OECD and Statistics Canada Definitions of Rural	4-43
Table 4.7	Average Length of Stay for all Causes in 1996 by Province	4-64
Table 4.8	Average Length of Stay for all Causes by the OECD and Statistics Canada Definitions of "Rural"	4-64

List of Figures

		Page
Figure 2.1	Standard Geographical Boundaries, 1996 Census: Province/Territory and Census Division	2-12
Figure 2.2	Standard Geographical Boundaries, 1996 Census: Census Consolidated Subdivision and Enumeration Area	2-13
Figure 2.3	Standard Geographical Boundaries, 1996 Census	2-14
Figure 2.4	1996 EAs Classified by StatsCan Rural/Urban Codes	2-15
Figure 2.5	Census Divisions Classified by Degrees of Rurality Based on Statistics Canada Rural/Urban Codes (using 1996 census population data)	2-19
Figure 2.6	Census Divisions Classified by Degrees of Rurality Based on the OECD Definitions (1996 census population data)	2-20
Figure 4.1	Overall Low Birthweight Proportions by Census Division 1996	4-4
Figure 4.2	Teen Mothers Low Birthweight Proportions by Census Division 1996	4-5
Figure 4.3	Overall Low Birthweight Proportions by Predominantly Rural Census Divisions 1996 (Statistics Canada Definition)	4-6
Figure 4.4	Overall Low Birthweight Proportions by Intermediate Census Divisions 1996 (Statistics Canada Definition)	4-7
Figure 4.5	Overall Low Birthweight Proportions by Predominantly Urban Census Divisions 1996 (Statistics Canada Definition)	4-8
Figure 4.6	Overall Low Birthweight Proportions by Predominantly Rural Census Divisions 1996 (OECD Definition)	4-9
Figure 4.7	Overall Low Birthweight Proportions by Intermediate Census Divisions 1996 (OECD Definition)	4-10
Figure 4.8	Overall Low Birthweight Proportions by Predominantly Urban Census Divisions 1996 (OECD Definition)	4-11

List of Figures (continued)

		Page
Figure 4.9	Teen Mothers Low Birthweight Proportions by Predominantly Rural Census Divisions 1996 (Statistics Canada Definition)	4-12
Figure 4.10	Teen Mothers Low Birthweight Proportions by Intermediate Census Divisions 1996 (Statistics Canada Definition)	4-13
Figure 4.11	Teen Mothers Low Birthweight Proportions by Urban Census Divisions 1996 (Statistics Canada Definition)	4-14
Figure 4.12	Teen Mothers Low Birthweight Proportions by Predominantly Rural Census Divisions 1996 (OECD Definition)	4-15
Figure 4.13	Teen Mothers Low Birthweight Proportions by Intermediate Census Divisions 1996 (OECD Definition)	4-16
Figure 4.14	Teen Mothers Low Birthweight Proportions by Predominantly Urban Census Divisions 1996 (OECD Definition)	4-17
Figure 4.15	Fatal Collisions for 1996	4-21
Figure 4.16	Personal Injury Collisions in 1996	4-22
Figure 4.17	Automobile Collision Rates per 10,000 People by Statistics Canada Urban/Rural Census Division 1996	4-23
Figure 4.18	Fatalities Per 1000 Collisions by Statistics Canada Urban/Rural Census Division 1996	4-24
Figure 4.19	Injuries Per 100 Collisions by Statistics Canada Urban/Rural Census Division 1996	4-25
Figure 4.20	Automobile Collision Rates per 10,000 People by OECD Urban/Rural Census Division 1996	4-26
Figure 4.21	Fatalities Per 1000 Collisions by OECD Urban/Rural Census Division 1996	4-27
Figure 4.22	Injuries Per 100 Collisions by OECD Urban/Rural Census Division 1996	4-28

List of Figures (continued)

		Page
Figure 4.23	Proportions of Farm Operators Reporting Farm-related Injuries Requiring Professional Medical Attention (1996 Census of Agriculture)	4-30
Figure 4.24	Health Status Index (with 95% Confidence Intervals)	4-33
Figure 4.25	Dependency Ratios by Census Division 1996	4-36
Figure 4.26	Dependency Ratios by Predominantly Rural Census Divisions 1996 (Statistics Canada Definition)	4-37
Figure 4.27	Dependency Ratios by Intermediate Census Divisions 1996 (Statistics Canada Definition)	4-38
Figure 4.28	Dependency Ratios by Predominantly Urban Census Divisions (Statistics Canada Definition)	4-39
Figure 4.29	Dependency Ratios by Predominantly Rural Census Divisions 1996 (OECD Definition)	4-40
Figure 4.30	Dependency Ratios by Intermediate Census Divisions 1996 (OECD Definition)	4-41
Figure 4.31	Dependency Ratios by Predominantly Urban Census Divisions 1996 (OECD Definition)	4-42
Figure 4.32	Low Income Cut-Offs by Census Division 1996	4-44
Figure 4.33	Low Income Cut-Offs by Predominantly Rural Census Divisions 1996 (Statistics Canada Definition)	4-45
Figure 4.34	Low Income Cut-Offs by Intermediate Census Divisions 1996 (Statistics Canada Definition)	4-46
Figure 4.35	Low Income Cut-Offs by Predominantly Urban Census Divisions 1996 (Statistics Canada Definition)	4-47
Figure 4.36	Low Income Cut-Offs by Predominantly Rural Census Division 1996 (OECD Definition)	4-48
Figure 4.37	Low Income Cut-Offs by Intermediate Census Divisions 1996 (OECD Definition)	4-49

List of Figures (continued)

		Page
Figure 4.38	Low Income Cut-Offs by Predominantly Urban Census Divisions 1996 (OECD Definition)	4-50
Figure 4.39	Herbicides Applied to Farmland in 1995 Areal Proportions (%) of Census Consolidated Subdivisions	4-52
Figure 4.40	Smoking: Daily	4-54
Figure 4.41	Population to Physician Ratios: All Specialists 1996	4-56
Figure 4.42	Population to Physician Ratios by Predominantly Urban Census Division, 1996 (Statistics Canada Definition)	4-57
Figure 4.43	Population to Physician Ratios by Intermediate Census Division, 1996 (Statistics Canada Definition)	4-58
Figure 4.44	Population to Physician Ratios by Predominantly Rural Census Division, 1996 (Statistics Canada Definition)	4-59
Figure 4.45	Population to Physician Ratios by Predominantly Urban Census Division, 1996 (OECD Definition)	4-60
Figure 4.46	Population to Physician Ratios by Intermediate Census Division, 1996 (OECD Definition)	4-61
Figure 4.47	Population to Physician Ratios by Predominantly Rural Census Division, 1996 (OECD Definition)	4-62
Figure 4.48	Average Length of Stay by Census Division 1996	4-65
Figure 4.49	Average Length of Stay by Predominantly Rural Census Divisions, 1996 (Statistics Canada Definition)	4-66
Figure 4.50	Average Length of Stay by Intermediate Census Division (Statistics Canada Definition)	4-67
Figure 4.51	Average Length of Stay by Predominantly Urban Census (Statistics Canada Definition)	4-68
Figure 4.52	Average Length of Stay by Predominantly Rural Census Division (OECD Definition)	4-69

List of Figures (continued)

	Page
Figure 4.53 Average Length of Stay by Intermediate Census Divisions (OECD Definition)	4-70
Figure 4.54 Average Length of Stay by Predominantly Urban Census Division (OECD Definition)	4-71
Figure 4.55 Contacted at least once: Dentist or Orthodontist	4-73

List of Appendix Tables

		Page
Table I.1	1996 Proportions of Canadians by Ecozone and Statistics Canada Urban/Rural Codes	I-3
Table II.1	Crosstabulation of the numbers of communities in Canada based on the OECD definition by the numbers of communities classified using 1996 population proportions by Statistics Canada urban/rural codes.	II-3
Table II.2	Crosstabulation of the numbers of regions in Canada grouped by type of community having the largest proportion of the population against the number of regions using the OECD scheme	II-5

List of Appendix Figures

	Page
Figure I.1 Terrestrial Ecozones	I-5
Figure I.2 Dependency Ratios by Boreal Shield Ecodistricts 1996	I-6

Acknowledgements

The Centre for Rural and Northern Health Research (CRaNHR) is grateful to Health Canada for commissioning and funding this study. In addition, we would like to thank the Research and Knowledge Development Division and the Office of Rural Health, Health Canada, for supporting our research effort and for providing needed assistance.

This study is the product of a successful collaboration between CRaNHR, the Canadian Institute for Health Information (CIHI), and the College of Family Physicians of Canada (CFPC). CRaNHR wishes to thank CIHI and CFPC for their cooperation which has expedited and enriched the study. In particular, the contributions of Jennifer Zelmer and Jill Strachan of CIHI and Lynn Dunikowski of CFPC are very much appreciated.

Other individuals have also contributed to the study. Mark Richards, Research Analyst, CRaNHR, provided support to the investigators. Michael Pacey of the Department of Geography, Laurentian University, assisted in preparing some of the maps found in this report. We are grateful for their help.