Chapter 1

Introduction

1.1 Overview

According to the Canadian Rural Restructuring Foundation, rural Canada refers to about 20 percent of the employed Canadian workforce, one-third of the Canadian population and over 90 percent of the nation's territory. It is a highly diverse economy and society, from its coastal regions, through its remote areas and its agrarian heartland. Rural Canada provides employment, forest products, minerals, oil and gas, manufactured goods, food security and foreign exchange. It processes metropolitan pollution, educates a third of Canada's youth and manages the environment on behalf of all Canadians. Rural Canada provides recreation and countryside amenities for all Canadians.

Although there is a lingering idyllic notion about the countryside and rural lifestyle and a lot of talk about a rural renaissance, the reality is that many rural communities in Canada are facing demographic, ecological, economic, and social problems due to geographic isolation, depletion of natural resources, boom-and-bust cycles in resource-extraction industries, chronic high unemployment, depopulation and population aging, environmental decay, etc. These problems have profound implications for the health and well-being of the rural population.

While Canadians are justifiably proud of their health care system which is seen by many observers as one of the best in the world, there are growing signs that all is not well in the rural health scene. Shortages of physicians and other health care practitioners, as well as facilities and services, in rural communities, which have made access to health care difficult for many residents, are just some of the most obvious plights. There are other more fundamental, but less well publicized, problems. Based on data from the Quebec Health Survey, Pampalon (1991) has painted a bleak picture of rural health conditions in Quebec:

> "It clearly shows a trend towards a progressive deterioration in health as one moves from that area bordering urban centres into the very remote hinterland. This deterioration is revealed through inactivity, dissatisfaction with social support, perceived health and a global health index, osteo-articulary diseases, disability, medication, and little professional consultation" (Pampalon, 1991: p. 359).

Such an unflattering and worrisome picture may be used to describe many rural regions in other parts of the country.

That rural communities differ from urban and suburban communities in many respects has been extensively documented. There are considerable rural-urban differences in health status, health behaviour and health service utilization patterns (Badgley, 1991; Black et al., 1999; Mansfield et al., 1999; Pitblado et al., 1996; Pitblado and Pong, 1995). The much higher prevalence of heart disease in northeastern Ontario, higher prevalence of certain types of cancer among farmers (Fair, 1992) and

miners, substantially higher rates of diabetes and respiratory and infectious diseases in many aboriginal communities, more accident- and violence-related deaths, shorter life expectancy and higher infant mortality in rural and small communities (Wilkins, 1992), more reliance on institutional care but fewer physician contacts (Cohen and MacWilliam, 1995) are just some examples. Rural and urban residents may even have divergent understanding of health, illness, and well-being (Elliott-Schmidt and Strong, 1997).

Even on such issues as health promotion and disease prevention where rural and urban populations should share similar objectives, there could be differences in perspective. As an illustration, breast screening has been advocated as an effective means to reduce breast cancer mortality among women and few would disagree that women, regardless of where they live, should be encouraged to be screened. However, as two authors (Hamilton and McRae, 1992) have insightfully observed, the much higher risks of motor vehicle accidents in rural areas as a result of the great distances women often have to travel to access breast screening programs and poor road and weather conditions may outweigh the benefits of breast screening. Using Manitoulin Island in northern Ontario as an example, the authors have estimated that for every life saved by mammography screening, 2.6 to 34.7 severe automobile crashes could occur, some of which might end up in fatalities. All this suggests that there are distinct patterns between rural and urban areas in relation to health and that such rural-urban differences should be recognized and taken seriously.

Rural health is finally making its way onto the national agenda. “As we modernize medicare and continue to help Canadians maintain and improve their health, it is essential that the perspective of rural Canada is reflected in all of our work,” said the Honourable Allan Rock, federal Minister of Health, as he announced the appointment of the first Executive Director of Rural Health (Health Canada, 1998). This recent appointment signifies Health Canada’s recognition of the need to pay special attention to rural health issues. In the 1999 federal budget, there was a special allocation to support rural health initiatives, the first time rural health has been given a separate budget line. Recently, the Health Minister announced funding to host a national rural health research summit to be held in British Columbia in the fall of 1999 and to establish a Canadian network of rural health researchers (Health Canada, 1999).

1.2 Health Indicators and Rural Health Indicators

One of the preconditions for understanding and improving rural health is to be able to describe the health conditions of rural communities or populations and to know what is right and what is wrong about rural health. To this end, rural health indicators can play a useful role as they can tell us how rural areas fare relative to non-rural areas with respect to various health conditions.

Generally speaking, a health indicator is a quantitative or qualitative measure that describes the state of health of a population or a community. In the present context, the state of health refers to different health conditions, ranging from the health status of the people to their health behaviors or practices to characteristics of the health care system to broader ecological or socioeconomic determinants that could have an impact on health. Rural health indicators, therefore, refer to measures that can be used to reflect or describe the health conditions of rural communities or populations, relative to non-rural

communities or populations. But as will be noted in the next chapter, there is as yet no consensus on what "rural" and "health" mean.

Health indicators are a subset of social indicators. While work on social indicators dates back to the 19th century, the interest in and the proliferation of health indicators are a more recent phenomenon. According to Larson (1994), development of health indicators began in the 1930s when the League of Nations sought data on health and vitality, the environment and public health activities. Several factors account for the growing interest in and use of health indicators. One is the wide-spread fascination with quantitative measurement. At the international level, the social indicator program of the Organization for Economic Cooperation and Development (OECD) had a substantial promotional impact (Hansluwka, 1985). At the national level, the now defunct Economic Council of Canada proposed a set of indicators for health, housing, and the environment, and encouraged the development of databases that made the creation of health indicators possible (Townson, 1999).

Secondly, as Townson (1999) has observed, policy-makers are embracing "evidence-based" decision-making. There is a new focus on outcome measures within government in order to understand how well policies and programs are meeting their stated goals and to determine what activities government should pursue in the future. It is in this vein that the World Health Organization (WHO), as part of its "Health for All by the Year 2000" movement, has advocated the use of health indicators to monitor and evaluate national, regional and global health strategies. Similarly, the Honourable Allan Rock has called for the production of a "national report card on health care." Presumably, a national health report card would include a series of health indicators which would provide comparative data on health conditions across the nation. The "Health Report" published in the June 7, 1999 issue of the *Maclean's Magazine*, which compares 16 Canadian cities in health services, is just one of many recent attempts to use health indicators to assess the health of the health care system. Another example is the "Hospital Report," published by the Ontario Hospital Association, which uses a series of indicators to measure the performance of Ontario hospitals in a number of key areas such as patient perceptions, service utilization, and clinical outcomes.

Thirdly, and most important for the present study, there is a growing concern about health disparities. According to Culyer, "(t)here is another, extremely under-researched area where health indicators research and political philosophy interrelate. That concerns…questions of social equity" (Culyer, 1983). According to Hansluwka (1985), there is a growing awareness that health policies should not only aim at improving the general level of health, but also aspire to reducing inequalities in health within a country. Thus, besides indicators of the health status of the population as a whole, it is important to have measurements on the distribution of health or geographic variations in health conditions. It is in this context that rural health indicators assume special significance since they can be used to identify problem areas, to reveal disparities between rural and non-rural areas, to track progress or deterioration over time, and to assess the outcomes of interventions.

Finally, as local authorities acquire more autonomy in the provision of health care as a result of decentralization, regionalization, or "downloading" of health services, the need for health indicators, particularly indicators of local health conditions, has grown. Such indicators are important because they could affect funding and decisions regarding the types of services to be provided (Galal and Qureshi, 1997). For instance, in Britain, mortality rates are often used as the basis for allocating

health care resources (Larson, 1994). The development of health indicators at the regional or local level is seen by some as an important and strategic task for regions or communities as they will increasingly be required to plan services based on needs, to defend funding levels, or to justify new or improved programs. An example is the Population Health Information System (or POPULIS) in Manitoba which provides planners in Regional Health Authorities with data and indicators on health status and health services utilization in order to allow them to make informed decisions (Black et al., 1999). Similarly, the Toronto District Health Council (undated) is using a set of indicators to monitor the effects of health care reform on health care delivery in the metropolitan area of Toronto.

Most researchers agree on the characteristics of a "good" health indicator. These include:

- Must be measurable;
- Must have credibility and validity;
- Must be based on data that are relatively easy and economical to collect; and
- Must be understandable.

To this list we must add that, for the purpose of understanding and supporting rural health, a health indicator

- Must be capable of providing information either for geographically defined rural communities or for clearly defined rural (sub)populations.

In addition, there is general agreement on how health indicators can be used. These include:

- To be a yardstick for spatial and/or temporal comparisons;
- To help assess health conditions;
- To be able to provide evidence to support health programs and policies;
- To provide clear statements of the starting point and desired end point of any intervention; and
- To identify levels of and gaps in health and well-being of a population or community.

There are several terminological issues that require clarification at the outset. Some people have loosely equated "health indicator" with "health status indicator." This, unfortunately, has resulted in a restricted view on health indicators and has limited the scope of health indicator research. We believe that health indicators, as instruments for describing the health conditions of a community or population, are more than health status indicators. Because indicators can be constructed to measure different aspects of health or to describe diverse health conditions in a population or community, there are different types of health indicators. Although there is not a universally accepted classification of health indicators (Hansluwka, 1985), we have proposed a five-category typology: Health status indicators, health determinant indicators, health behaviour indicators, health resources indictors and health service utilization indicators. Although not meant to be exhaustive, these five categories capture most commonly used health indicators. This classification scheme reflects our broad perspective on rural health and is influenced to some extent by how health indicators are categorized by the major Canadian sources of health indicators (see Chapter 3). The five aspects of health conditions and their corresponding indicators are discussed in greater detail in Chapter 2.

Another terminological issue is the distinction between "health indicator" and "health index." With the exception of a few (e.g., Culyer, 1978) who reverse the definitions, most authors (e.g., Abelin et al, 1987; Bowling, 1991; Hunt et al., 1986; McColl, 1992) agree with Young (1998: p. 59) that "an indicator is a measure that reflects the health status of a population… an index is a composite measure that draws together several indicators in a mathematical formula." Health index can be seen as a special type of health indicator. In this report, the term "health indicator" is usually used in a generic sense to include health index. When the term "health index" is used, it specifically refers to a composite measure.

1.3 Scope of the Study and the Research Process

The title of this study is *Assessing Rural Health: Toward Developing Health Indicators for Rural Canada*. The word "toward" is important because it helps clarify the nature and the scope of the present study. While there is a brief discussion on health indicators in general (in the previous section and in the next chapter), it is not the intent of this study to examine the history, nature, methodology, and utility of health indicators in an exhaustive manner. Since the field of health indicators is vast, the number and kinds of indicators are almost limitless, and the literature is widely scattered, it is not possible, within the limited time frame and resources, to study health indicators in a comprehensive manner. Instead, the focus of this study is on rural health indicators. It is also not possible to construct a wide array of rural health indicators as part of this study. That task, hopefully, will be undertaken in a follow-up project. Although a few rural health indicators will be developed for illustrative purposes, the primary objective of the present study is to examine the *feasibility* of developing health indicators for rural Canada and to discuss some of the conceptual and practical problems that are likely to be encountered. In other words, the central question is: *Can health indicators for rural Canada be readily developed given the types and nature of health and related data at our disposal?*

In order to answer this question, we need to address some conceptual and practical issues. First of all, we need to know what "health" means in the context of rural health indicators and to decide what kinds of indicators we should focus on. Another major task is to come up with some functional or operational definition of "rural." Although there are a myriad of definitions of rural, some of which are theoretically elegant but impractical, it is necessary to find a workable definition that can be used with readily available data at the national level.

To this end, we implemented a research process that comprised several major components: Review of selected studies and documents on health indicators and rural health, identification of major Canadian sources of health indicators, construction of a Rural Health Indicators Inventory Database, decision on how rural should be defined in the context of developing rural health indicators, application of the concepts of rural to existing datasets and/or health indicators, and construction of a small number of rural health indicators to illustrate the approaches adopted. Some of these components are briefly described in the following paragraphs while others are discussed in greater detail in subsequent chapters.

1.3.1 Literature Review

The first major task was to identify, retrieve and select relevant literature for further review. The studies that were found useful were then analyzed and synthesized: The literature search and review process included the following steps:

- Developed keyword search strategies and a list of keywords in collaboration with literature search experts at the Canadian Library of Family Medicine of the College of Family Physicians of Canada;
- Conducted on-line searches on such databases as MEDLINE for potentially relevant studies using the identified keywords;
- Canvassed selected experts, research centres, health planning agencies, and ministries of health for unpublished documents;
- Searched the internet for relevant websites, using various search engines;
- Reviewed the references section of books, articles, and reports for additional titles;
- Screened titles and/or abstracts to identify studies for further review;
- Obtained most hard copies of studies from the Canadian Library of Family Medicine of the College of Family Physicians of Canada;
- Reviewed studies to determine their relevance and usefulness; and
- Analyzed and incorporated useful studies in the synthesis of research findings.

1.3.2 Inventory of Potential Rural Health Indicators

In order to examine the extent to which data are available for developing rural health indicators, a list of existing health indicators was compiled. Through the review of literature and documents and discussions with knowledgeable individuals, we identified an extensive list of health indicators. What we found was that there was a great deal of overlap in the health indicators used. As a result, we decided to select four published sources as the basis to examine the feasibility of developing rural health indicators. These four published sources are discussed in greater depth in Chapter 3, but suffice it to say at this point that they have been chosen because they present a very broad range of health indicators that we have identified from our literature review. As well, these four sources have used a wide variety of national datasets to derive their health indicators. Thus, these four sources provide a useful point of departure for examining the feasibility of developing health indicators for rural Canada. These health indicators, together with information on their respective datasets, were integrated to form the Rural Health Indicators Inventory Database.

1.3.3 Applying "Rural" to Health Datasets

We then proceeded to examine the extent to which rural health indicators could be derived using one or more of the definitions of rural. As rural is meaningful only in relation to non-rural or in terms of varying degrees of "ruralness," the task at hand is an assessment as to whether the data are collected, analyzable, and/or released at appropriate geographical levels. Essentially, it entails the determination of whether the data can be partitioned into rural and urban, or finer geographical categories.

To show how this was done and what rural health indicators could accomplish, we constructed several indicators for illustrative purposes. These indicators were then mapped, using geographic information

systems (GIS) techniques (Gilbert, 1995). The application of this mapping technology to health datasets allows us to show visually how rural areas compare with non-rural areas, or areas of different levels of rurality, in terms of different health conditions.

1.4 Organization of the Report

This report is divided into five chapters, plus a number of appendices. Following the Introduction, the second chapter is devoted to discussing some important conceptual issues in relation to rural health indicators. More specifically, it examines the concepts of "health," "health indicator," and "rural." Clarifying what rural means is particularly important as it dictates, to a large extent, how rural health indicators should be developed.

While the second chapter deals with conceptual issues, Chapter 3 focuses on the practical aspects of rural health indicator development. The question to be answered in this chapter is: While there are many health indicators in existence, to what extent can they be transformed into rural health indicators, given our understanding of rural? To this end, we examine four major sources of health indicators in Canada and compile the Rural Health Indicators Inventory Database. Because of its size and in order to facilitate searching and cross-referencing, the Database is contained in a CD-ROM as an appendix. As pointed out earlier, because the number of possible health indicators is limited only by the ingenuity of researchers, data availability, and resources, it is not possible for us, within the confines of this study, to construct a vast array of rural health indicators. However, a small number of rural health indicators are developed to illustrate how they can be done and to show the relationship between the ways rural is defined and the nature of the indicators. These can be found in Chapter 4 and are presented in the form of maps as a means for illustrating regional variations in some of the rural health indicators.

Chapter 5 is the final chapter with a summary and conclusion. It recapitulates the major points of discussion and findings and raises issues that need to be addressed in greater depth in future studies. As well, it makes several recommendations on what needs to be done as the next step and what actions should be taken by various authorities in order to make it possible to develop rural health indicators on a systematic basis. This chapter is followed by several appendices that contain mostly technical information or information that is too detailed to be included in the various chapters.