

Healthy Aging: Insights for Research and Policy

B. Payne, *University of Manitoba*, J. Dawe, *Department of Social Services, Government of Newfoundland and Labrador*, R. Evans, *University of British Columbia*, V. Marshall and P. Clarke, *University of Toronto*, D. Norris and J. Hagey, *Statistics Canada*, E. Shapiro, *University of Manitoba*, R. Wilkins, *Statistics Canada*, and B. Havens, *University of Manitoba*

RÉSUMÉ

En ces temps de réforme de la santé, de restrictions financières et de vieillissement de la population, il est de plus en plus essentiel de comprendre les mesures à prendre pour mieux relier les politiques et la recherche en matière de santé. Ce document constitue un débat sur les facteurs importants d'un vieillissement sain en relation avec les cadres conceptuels actuels sur la santé, les indices de mesure, les méthodologies et les sources de données. Dans une optique de maximisation de la santé des aînés canadiens d'aujourd'hui et de demain, des recommandations sont présentées à Statistique Canada, à Santé Canada et au Programme de recherche pour l'autonomie des aînés qui couvre une gamme de questions reliées aux indices de mesures et aux sources de données ainsi qu'aux services de santé, à l'état de la santé, à la condition économique et à l'éducation.

ABSTRACT

In times of health reform, fiscal restraint and population aging, it becomes increasingly imperative to understand what must be done to better link research and policy in the health area. In this paper, the major determinants of healthy aging are discussed in terms of current conceptual frameworks of health, measurement, methodologies, and data sources. In order to maximize the benefit for the health of current and future Canadian seniors, policy recommendations are made to Statistics Canada, Health Canada, and the Seniors Independence Research Program (SIRP) which cover a range of issues related to measurement and data sources, health services, health status, economic status, and education.

In keeping with government initiatives to address fiscal realities, dramatic changes are being implemented that affect a variety of facets of Canadians' lives, including policies related to health issues. As the aging of the Canadian population continues and the possibility of health declines increases, the

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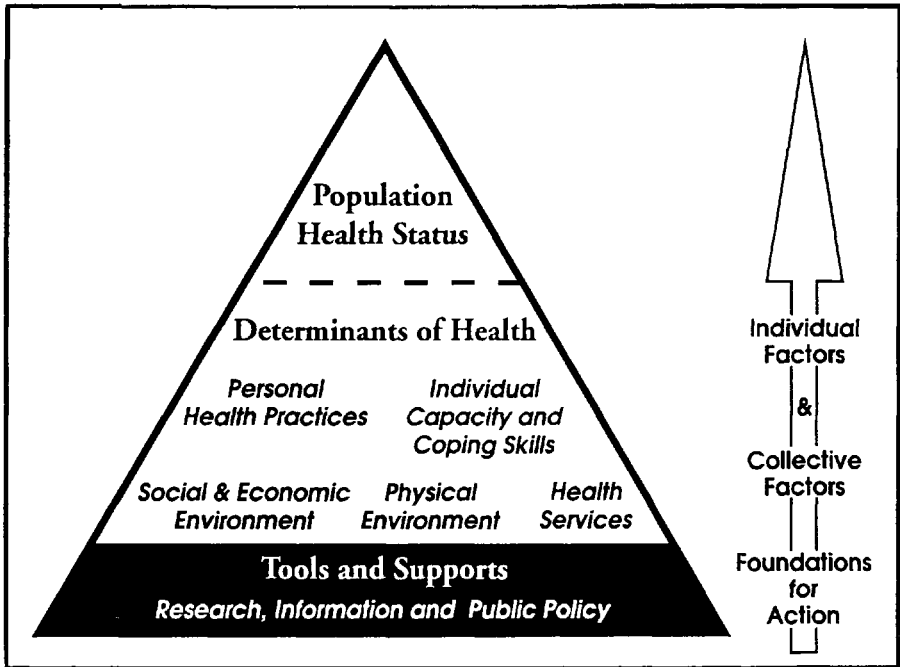
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Dr. B. Payne

Department of Sociology

University of Manitoba

Winnipeg, MB R3T 2N2



SOURCE: Federal, Provincial and Territorial Advisory Committee on Population Health (1994)

Figure 1 A framework for population health

need to gain an understanding of the determinants of health becomes imperative, particularly for those determinants related to “disability free years of life”. Achievement of these goals requires: the adoption of a conceptual framework that is capable of addressing population health rather than individual health; recognition that questions remain relating to measuring health determinants; the augmentation of current data sources; and the development of new policies in the variety of areas that influence health. This paper is a summary of the deliberations on these issues by researchers, data experts, policy-makers, and seniors at a workshop at the Seniors Independence Research Program’s (SIRP) Symposium on “Bridging Policy and Research on Aging in Canada”.

Determinants of Population Health: A Conceptual Framework

There is a growing body of evidence about what makes people healthy. In particular there are mounting indications that the contributions of medicine and health care are quite limited, that spending more on health care will not necessarily result in further improvements in health, and that other determinants such as living and working conditions are crucially important for a healthy Canadian population.

Traditionally, health and its determinants have been measured in terms

of consumption of health services and *individual* health status as indicated by clinical factors and risks related to particular diseases. In contrast, *population* health shifts the emphasis to the health of the entire population while incorporating a wide range of factors (c.f., Evans & Stoddart, 1990; Federal, Provincial and Territorial Advisory Committee on Population Health, 1994; Roos et al., 1995). One example of a conceptual framework that incorporates the multiplicity of components thought to be integral to population health is presented in Figure 1.

As defined in the discussion paper "Strategies for Population Health: Investing in the Health of Canadians" (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994), this model places *Population Health Status* at the top of the pyramid underpinned by five categories of *Determinants of Health*. The population health approach recognizes that health is determined by both *Collective and Individual Factors* including the social and economic environment, the physical environment, health services, personal health practices, and individual capacity and coping skills. These are shown on two different levels to convey the idea that *Collective Factors*, i.e. the social, economic, and health environments, and health services, provide the bases for *Individual Factors*. Making up the *Foundations for Action* of this conceptual framework for population health are public policy, research, and information.

Public policy, since it affects almost all aspects of modern life, is not limited to the health sector. Consequently, policies in the economic, education, social service, transportation, housing, recreation and other public sectors are of crucial importance. However, effective development, integration and implementation of policies that involve numerous government departments provide significant challenges to existing structural barriers within governments.

Research and information provide sound evidence about factors that determine health and information about the potential impact of interventions and programs to address these determinants. Research and information are seen as key tools for addressing the determinants of health and providing policy-makers with the appropriate information for making healthful decisions. However, in order to make this shift from an individual to a population health focus as proposed in this framework, it is necessary to consider what changes must be made with respect to measurement and methodology issues and to identify appropriate data sources.

Measurement, Methods and Data Sources

As presented above, the proposed framework for population health provides a clear conceptual framework for guiding research to explore the determinants of health. However, there are inherent risks in the operationalization of this framework, as illustrated in the following examples.

The risk exists of making the leap from "what we do know" to "what we do not know" through assumptions that pretend that "we do". There are

certain specific points that have been firmly established through research. However, from that existing research great leaps are sometimes made into the area of hypotheses. For example, increased reference is being made to the notion that people are responsible for their own old age (Rowe, J. cited in Brody, 1996). However, in relation to the framework for population health (Figure 1), this hypothesis gives consideration to only one level of the framework, that of *Individual Factors*. In this limited view, personal health practices become equated with personal choices, and individual capacity and coping skills become equated with genetics. When the evidence suggests a relatively limited role for genetics in explaining the varying health experience of seniors, this radically over-simplified conceptual framework forces one to conclude that personal choices must be the key factor. It then follows that successful aging is a personal responsibility. It is clear from this example that consideration must be given to the framework as a whole in order to avoid false conclusions arising from selective operationalization of the various components.

A second risk in considering the determinants of health concerns the investigation of health services as they relate to the Canadian population. It is known that certain groups are heavy users of the health system. What is *not* known, however, is what kinds of health services are *not* needed, regardless of age. What are the health services that are not appropriate, that can be cut back in order to free up resources for other priorities? Without careful consideration of these new questions, the risk remains of continuing to focus on rates of use rather than the broader questions relevant to the health of all Canadians.

In addition to these risks, other relevant issues include the problems in distinguishing between correlation and causality, the need to use “hard” measures, and the establishment of appropriate time frames for research.

Current knowledge about the determinants of health consists mainly of *correlations*. A lot less is known about the *causality* that underlies the correlations, although much of what we would like to know has to do with the causal chain that lies behind these stable correlations, e.g., between income and measures of health status. In order to move from correlation to causality in “attacking” population health, one approach involves taking a characteristic of a group and looking for the variations within that group or whatever group is of interest.

Also of critical importance, particularly in these times of fiscal crises, is the use of very narrow, very hard-edged measures of health, e.g., mortality rates. It is difficult to make convincing arguments for less hard measures such as independence or well-being. While the World Health Organization’s definition of health as a state of complete physical, mental and social well-being (WHO, 1948) broadens the definition of health, it also allows ample opportunity for evasion of social responsibility. When “health” is defined too broadly, it becomes unclear whether it is improving or deteriorating, or is better or worse in different groups. In any case, it is difficult to determine that there is a problem for which someone should be held

responsible. It is more difficult for policy-makers to avoid thinking about the evidence indicating major differences in mortality. A consistent finding in health research is of significant differences in mortality by income class and by education, measures that can be viewed as being "hard" (mortality) or "pretty hard" (income and education). While the use of these "hard" measures improves our ability to explore the determinants of population health, it is important to note that our knowledge of these relationships consists of correlations, which cannot imply causality. Misinterpretation of these correlations is common because simplifications and distortions can provide support for political biases on both the left and the right of centre.

The left wing might explain the relationship between lower income and higher mortality in terms of social justice, i.e. the lack of material resources such as food, clothing and adequate, safe housing are the key factors. However, as intrinsically appealing as these factors may seem, the existing data do not support the notion that this relationship is due to material deprivation. Rather, a significant gradient across the whole income spectrum can be found (depending on which measures are used). Much data support the notion of a gradient in mortality, i.e. having the highest level of income is the most advantageous position, being second highest is less advantageous relative to being in the highest group but better than being in the third highest group and so on.

Also counter to the material deprivation argument is evidence that demonstrates a physiological gradient in animal studies. For example, studies of baboon communities in the wild have found superior endocrine systems and greater stress resistance in individuals with high social status (Sapolsky, 1990, 1993). As well, studies of captive rhesus monkeys, controlling for diet, have found that dominant animals have much lower rates of coronary artery occlusion (Hamm, Kaplan, Clarkson, & Bullock, 1983). Clearly, the argument of the left that focusses on social justice is not an adequate enough explanation for establishing the determinants of health.

The right wing, on the other hand, on examining the relationship between income and mortality, might attribute total causality to income as a means of justifying reorganization of the economy to encourage rapid growth, the benefits of which are assumed to trickle down to people at the lower income level. Clearly, some dangerous political traps await too simple and too ready an acceptance of over-simplistic explanations.

Two additional problems in addressing the determinants of population health are the questions of population and the appropriate time frames for study. Rather than emphasizing the seniors' population, it may be more relevant to consider the Canadian population at large, as a means to discover the entry points and pathways that lead to health and, ultimately, the correlates and causality of health outcomes. This in turn raises the question of "how long is long"? What is the time period of study, given that we know that the present has its roots in the past? For example, research by Barker and colleagues (1990) suggests that heart disease rates among people in their fifties can be traced back to birth weights and weight gains during the

first year; there is a fifty-year lag before those measures in the first year show an effect on health. It may well be that a lot of the issues critical to a seniors' population should be dealt with substantially earlier than age 65. While evidence suggests that policies and programs addressing seniors do in fact make a difference in the short term, there is equally suggestive evidence (e.g., Wolfson, Gentleman, & Tomiak, 1993) that unknown factors 10 to 20 years prior to retirement can have a substantial impact.

The issue of time frames for study can be illustrated by recent research in retirement patterns. A new, emerging pattern of the life course has been identified that has the potential for negative health consequences for Canadians and members of other highly industrialized societies currently undergoing corporate restructuring. The life course, defined in relation to work, has three major components: a period of pre-work, including education; a period of work; and a period of retirement. However, this "assumed normal" career pattern is becoming less common and being replaced by a new work life course. Here entry into and exit from career jobs is typically preceded and followed by transition periods during which the individual will probably occupy several bridge jobs of lesser quality and possibly experience unemployment (Marshall & Clarke, 1996). This new pattern of work in the life course is appearing just as the huge bulge of baby boomers is entering the so-called "older workers" category, defined as persons aged 45 and over.

These new work patterns beg for research that addresses gender, race/ethnicity and social class variations, and for research that examines the health effects of later life career disruption. For example, evidence suggests that voluntary retirement, at any age, has no apparent adverse health effects and might even enhance health (Midanik, Soghikian, Ransom, & Tekawa, 1995). However, many of the factors that predispose retirement to become a stressful life event (Minkler, 1981), such as poor timing, a lack of anticipation, a lack of control over the event, or financial problems can potentially occur when retirement increases as a result of corporate restructuring.

In sum, this example of an operationalization of the *Social and Economic Environment* determinant presented in the Framework for Population Health model is one illustration of some of the conceptual and methodological challenges that confront researchers investigating the determinants of population health. However, investigators may be assisted in rising to these challenges by using evidence from the development of a number of new data sources that have the capacity to both determine causality and to address limitations in previous surveys. These new sources may address such limitations as the lack of longitudinal data, inadequate design, the exclusion of the institutionalized population, the small sample size of the seniors' population, and limited health content. Chart 1 presents these sources which enrich the possibilities for research investigating the determinants of population health.

As a means of encouraging secondary analysis of these survey data sets, Statistics Canada has initiated the "Data Liberation Initiative" in partner-

Chart 1: Data sources

<i>Source</i>	<i>Scope</i> ⁺	<i>Content Focus</i>
Ageing and Independence, ¹ 1991	National. * Ages 45 and over.	Health status, retirement, social support.
Health and Activity Limitation Survey (HALS), ¹ 1986, 1991 (Post-Censal Survey)	National. All persons with a physical or psychological disability. Institutional component.	Disability.
Canadian Study of Health and Aging, ² 1991-92, 1996-97	National. * Ages 65 and over. Institutional component. Longitudinal.	Dementia, clinical component, caregiving.
General Social Survey, ¹ 1985	National. * Ages 15 and over.	Health status, social support by and for seniors.
General Social Survey, ¹ 1991	National. * Ages 15 and over.	Health status, social support by and for seniors.
General Social Survey, ¹ 1992	National. * Ages 15 and over.	Time use.
General Social Survey, ¹ 1994	National. * Ages 15 and over.	Retirement.
General Social Survey, ¹ 1996	National. * Ages 15 and over.	Social support, health status.
National Population Health Survey (NPHS), ¹ 1994-95, 1996	National. Ages 12 and over. Institutional component. Longitudinal.	Health and illness, health behaviours, service utilization, drug use, stress and coping.
Survey of Labour and Income Dynamics (SLID), ¹ 1993, 1994, 1995, 1996	National. Ages 16 and over. Longitudinal.	Labour force characteristics, income.
Aging in Manitoba Longitudinal Study, ³ 1971, 1976, 1983, 1990, 1996	Provincial. Ages 60 and over. Institutional component. Longitudinal.	Population aging, health determinants, health services utilization.
Ontario Longitudinal Survey of Aging (LSA), ⁴ 1959-1976, 1978, 1990	Provincial. Males ages 45 and over. Longitudinal.	Health and retirement.

⁺ Unless otherwise specified, surveys cover only the non-institutionalized population.

* Excludes residents of the Yukon and Northwest Territories, persons on reserves and members of the Canadian Armed Forces.

¹ Data available from Statistics Canada.

² Data available from Department of Epidemiology and Community Medicine, University of Ottawa.

³ Data available from Department of Community Health Sciences, University of Manitoba.

⁴ Data available from Department of Health Studies and Gerontology, University of Waterloo.

ship with the Social Science and Humanities Federation of Canada and a number of federal departments. This initiative will facilitate the distribution of Statistics Canada's public use micro data files and other electronic datasets to the university research community. The 1994 General Social Survey was the first file to be distributed under this initiative.

A final area of methodological importance concerns the inclusion of more qualitative data in large scale surveys in order to better link quantitative and qualitative data. Although including open-ended questions is one approach already in use in some surveys, other approaches may be considered such as conducting in-depth qualitative studies with small subsamples of large scale surveys (Chappell, 1995).

In sum, investigation of the determinants of health can be enhanced by adoption of a conceptual model focussing on population rather than individual health, awareness of a variety of measurement and methodological issues, and improved access to existing data sources. While these have the potential to provide crucial information about the health of current and future seniors, they cannot be fully addressed without the formulation and implementation of relevant policies.

Policy Recommendations

From our discussions, a number of policy recommendations were developed and directed to Statistics Canada, Health Canada, and the Seniors' Independence Research Program (SIRP).

To begin, five recommendations were made to Statistics Canada. The first three are directly related to components of the conceptual framework; recommendations four and five address methodological and data collection issues.

- First, with respect to the measurement of *Population Health Status*, given the numerous surveys that include senior populations and the variety of items related to health currently being used, it is critical to have comparable information across surveys. Thus it is recommended that *a module to measure the health status of seniors be developed that can be used in a variety of surveys.*

- Second, in considering the *Social and Economic Environment*, today's reality of early exit and possibly frequent re-entry to the paid labour force requires the introduction, definition and use of new terms reflective of changes in normative labour force patterns. Statistics Canada is urged to consider that the terms "retirement" and "retired" be recognized as no longer valid for understanding a person's current paid labour force status.

- Third, although socio-economic status is critical to health determinant research, current measurement of social status lacks consensus. The need for accurate and appropriate measurement requires Statistics Canada to *make the development of measures of social status that are appropriate to seniors an extremely high priority in order to facilitate measurement of the Social and Economic Environment.*

- Fourth, with respect to methods, it is recommended that *the practice of oversampling seniors in surveys be continued and, in fact, increased*. Unaugmented sampling frames do not enable sufficient analyses of the older populations, especially the oldest old (ages 85 and over). Oversampling of those aged 45 and over, particularly those representative of paid labour force patterns, should be considered. Oversampling may also provide opportunities for *qualitative* substudies.

- Fifth, while the proposed Data Liberation Initiative allows access to some Statistics Canada and other federal data sources by a broader range of researchers, continuing efforts are required to expand this initiative further to include all relevant data sets across the country. The recommendation is made that *the Data Liberation Initiative be supported, and that development and inclusion of other data sources become a priority*.

Four additional recommendations were made to Health Canada addressing conceptual, measurement and policy issues related to the determinants of seniors' health.

- First, it is recommended that *the continuing development of the Population Health Strategies be supported*. Of particular importance are seniors' health issues as they relate to the determinants of health initiated by, and following from, the Federal, Provincial and Territorial Advisory Committee on Population Health. This framework holds the potential to facilitate the shift from the measurement of individual to *population health* status and from disease perspectives to health promotion, disability postponement and disease prevention strategies.

- Second, as in recommendation three to Statistics Canada regarding the *Social and Economic Environment*, we urge the development of measures of social status that are appropriate to seniors in order to facilitate accurate and appropriate measurement of this critical variable.

- Third, given the numerous surveys that include senior populations and the variety of items related to health currently being used, it is important to have comparability across the various surveys. It is recommended that *the efforts by Health Canada and the Federal, Provincial, Territorial Committees to identify commonalities across data sources be supported*.

- In the fourth recommendation, the current fiscal reality and the need for the reallocation of resources without access to new funds are acknowledged. However, *with respect to the reallocation of resources, three principles must be followed: a) that inappropriate treatments NOT be maintained in any sector or age group; b) that the voices of seniors be heard and given full recognition in this debate; and, c) that not all reallocated resources be drained by deficit and debt reduction and that adequate resources be directed to the community health needs of seniors*.

The third group of recommendations was directed to the Seniors Independence Research Programme (SIRP). SIRP is encouraged to identify and implement appropriate mechanisms to address the following three issues.

- One, it is essential to *educate the public, physicians, and other health professionals about the importance of broadly conceptualized health deter-*

minants and population health strategies (as proposed here) to secure both understanding and collaboration. Without the understanding and collaboration of all players, the narrow but more widely understood disease causality models will continue to persist, despite research that clearly refutes them.

- Two, that SIRP *advocate the maximum use of secondary data sources and analyses by health researchers and health policy-makers and secure the appropriate funding to maintain and analyse these data.* Given constrained resources and an explosion of knowledge requirements, the wisest strategy is to invest in secondary data analyses that require only a minimal value-added cost to data resources already in existence. Maximization of this recommendation will follow from adopting and identifying comparability across data bases as per recommendations one to Statistics Canada and three to Health Canada. This recommendation will also enable far more longitudinal analyses to be undertaken than would be possible if all longitudinal aging research needed to be initiated today without the use of any earlier data.

- Third, as in recommendation two to Statistics Canada, *it is important to recognize that the terms “retirement” and “retired” are no longer valid terms for understanding a person’s current paid labour force status.*

Conclusion

This paper has summarized and integrated discussions from the Workshop on the determinants of population health presented at the Symposium on “Bridging Policy and Research on Aging in Canada” sponsored by SIRP. More specifically, the discussions addressed the question of what must be done to better link research and policy for the benefit of Canada’s seniors.

Here it was argued that research addressing health determinants must be guided by a comprehensive conceptual framework that moves from the current bio-medical model emphasizing *individual health* to one that can address the multiple determinants of *population health*. To do this, however, requires a number of methodological and measurement innovations including consideration of future cohorts of seniors. Research that is relevant to this goal can only proceed, however, if the policy recommendations that have been made are adopted and implemented.

The goal of the recommendations developed at this workshop was to foster links that, first, would enhance the opportunities for policies to be made based on research that further illuminates the determinants of health as presented in the conceptual framework. To this end recommendations were made related to: standardizing health measures across surveys; developing appropriate definitions and measures relative to social and economic determinants; over-sampling the seniors’ population to focus on seniors’ health issues; enhancing the Data Liberation Initiative; and, using secondary data, longitudinal data, and qualitative sources to further understand population health.

Second, as a means of advocacy, recommendations were proposed relevant to: educating health professionals and the public in order to enable the transition to population health from idiosyncratic disease-oriented individual health; reallocating resources to ensure no inappropriate treatments are maintained; the reallocation of funds to community health needs; and, most important, giving seniors full recognition and voice on these issues.

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