A NEEDS, GAPS AND OPPORTUNITIES ASSESSMENT FOR RESEARCH

HOUSING AS A SOCIO-ECONOMIC DETERMINANT OF HEALTH

FOR:

The Canadian Institutes of Health Research

BY:

Dr. James R. Dunn
University of Calgary

Dr. Michael Hayes
Simon Fraser University

Dr. David Hulchanski
University of Toronto

Dr. Stephen Hwang
St. Michael's Hospital

Dr. Louise Potvin
Université de Montréal

MARCH 2003

Acknowledgements

We would like to thank all the project participants for their kindness and openness in sharing with us. Without their enthusiasm and active involvement this assessment would not have been possible.

The opinions expressed in this publication are those of the authors/researchers and do not necessarily reflect the official views of CIHR.

About the Funders

Funding for this assessment was provided by the Canadian Institutes of Health Research (CIHR), Institute of Population and Public Health through the Needs, Gaps, and Opportunities Assessments (NGOA) Grants in Priority Research Areas.

SUMMARY

A Needs, Gaps and Opportunities Assessment (NGOA) was undertaken on Housing as a Socio-Economic Determinant of Health. This was in response to a request for proposals that would assist the Institute of Population and Public Health (IPPH) of the Canadian Institutes of Health Research (CIHR) to address their strategic priority to enhance research on the influence of various 'contexts' on the health of Canadians, especially those characteristics that are potentially alterable by improved design and/or public/private/voluntary sector policies and programs.

An interdisciplinary team of researchers, in partnership with the National Housing Research Committee (NHRC) and the Canadian Housing Renewal Association (CHRA), conducted a national stakeholder consultation to identify needs, gaps and opportunities in the area of *housing as a socio-economic determinant of health*. This consultation took the form of an electronic questionnaire and eight, one-day regional workshops across Canada. Participants included people and organizations firmly in the housing sector, the health sector and those at the interface. It included academic researchers, government policy and research staff at all levels, and people working in government and non-government organizations involved in the delivery of both housing and health services.

The reason for focusing on *housing* and particularly the *socio-economic dimensions of housing* and their impact on health was due to its intrinsic importance, as well as the relative dearth of current research emphasis in Canada on the issue. In contrast, there is a considerable concentration of activity on the biophysical aspects of housing and health as well as the impact of homelessness on health. Our team identified seven dimensions of housing as potentially influential factors upon health: physical hazards, physical design, social dimensions of housing, psychological dimensions of housing, political dimensions of housing, financial dimensions of housing and location. These dimensions formed the basis for workshop interactions, although it was acknowledged that they would have different impacts on the lines that define different population sub-groups, including: owners/renters, life-cycle stage (seniors, children), gender, ethnicity/immigration, chronic illness (esp. mental illness), (dis)ability, aboriginal status, and family / household structure.

The NGOA found that there was considerable interest, across a vast array of stakeholders, in the potential policy and program guidance that research on housing as a socio-economic determinant of health could provide. The key obstacle to developing this interest further, however, was a critical lack of research capacity in the country. It was recommended that immediate action be taken to redress this research capacity deficit, which occurs in service provider, government and academic organizations alike. Finally, it was also recommended that efforts to build 'receptor capacity' in the policy environment at the local, provincial and national level be made a priority.

In substantive terms, the NGOA results suggest the need to directly evaluate the health impact of housing interventions, especially for vulnerable sub-groups (people with mental illness, disabilities), using administrative health care databases. It was also suggested that more emphasis be placed on assessing the cost-effectiveness of housing, especially as it impacts the health care system. Moreover, the impact that housing may have on the health and development children was identified as a priority, as well as low-income families, seniors, immigrants and aboriginal peoples.

EXECUTIVE SUMMARY

A Needs, Gaps and Opportunities Assessment (NGOA) of research on Housing as a Socio-Economic Determinant of Health was conducted with funding from the Institute of Population and Public Health (IPPH) of the Canadian Institutes of Health Research (CIHR). The NGOA is part of IPPH's efforts to develop research in one of their strategic areas, namely, to enhance understanding of the effects of social and physical environments on the health of Canadians.

The specific objectives of the NGOA were as follows:
1) to conduct an environmental scan of completed research and compile a database of existing literature (both Canadian and from appropriate international contexts) – (see bibliography on www.housingandhealth.ca);

2) to identify and catalogue details of existing studies of relationships between socio-economic dimensions of housing and health, as well as emerging 'natural experiments' (e.g. occupation of a new social housing complex, or forced relocation of tenants)[1];

3) to compile an inventory of Canadian research capacity in housing, SES and health, which would include researchers, policy-makers, program providers and other stakeholders with interests and/or expertise in relationships between socio-economic dimensions of housing and health;

4) to identify needs, gaps and opportunities and set priorities for housing, SES and health research. This will be accomplished through an iterative, consultative exercise with relevant Canadian researchers, policy-makers, service providers and other stakeholders;

5) to facilitate appropriate collaborative partnerships between the various stakeholder communities in housing and health research, including academic researchers, government researchers, researchers in NGOs, policy-makers, service providers (government and non-government);

6) to build infrastructure for research in the socio-economic dimensions of housing and population health, including: a) a network of individuals and groups with interests, expertise, or ongoing activities in housing and health research, linked by a website and e-mail listserve; and b) resources to support such research, including an on-line library, as well as conceptual and methodological resources to assist stakeholders in developing research funding proposals and conducting research;

7) to investigate opportunities for collaborative partnerships between CIHR, investigators eligible for CIHR funding, and providers of programs and services (governmental or non-governmental), that combine an experimental housing policy intervention and a scientific evaluation of its effect;

[1] An example of a situation that may approximate a natural experiment is the anticipated relocation of some 1,000 tenants of Don Mount Court in Toronto due to needed repairs to the complex (Taylor, 2001).

8) to report on needs, gaps, and opportunities and deficiencies in research capacity to participants in the NGOA and other relevant groups, including funding agencies, government departments, policy-makers, NGOs, and the academic community.

An interdisciplinary team of researchers used multiple methods to seek the input of a diverse group of stakeholders in the latter half of 2002 and the early part of 2003. These methods included an on-line, open-ended questionnaire and eight regional, one-day workshops across the country. Snowball techniques were used to contact potential stakeholders, while initial contact names were generated from the networks of the study team and its advisory partners, the National Housing Research Committee (NHRC) and the Canadian Housing Renewal Association (CHRA). In total, contact was made with 519 individuals and organizations (including 111 on-line questionnaire respondents, 185 workshop participants) representing a wide range of interests and expertise from service provider organizations, government agencies, NGOs and academic researchers from both housing and health.

There was considerable support from stakeholders for an enhancement and expansion of research on housing and health. Many of the stakeholders had considerable anecdotal experience of the health impacts of housing, both for marginalized sub-populations (people with existing illnesses and disabilities, children, seniors, aboriginal peoples, etc.) but also for the general population. The majority of the stakeholders, however, came from organizations with insufficient expertise or resources to bring research to bear on the issue of housing as a socio-economic determinant of health. Indeed, the critical lack of research capacity, including both the capacity to *conduct* research and the capacity to *use* research was a key finding of the NGOA.

Science: Basic Research in Housing and Health

- conduct a systematic review of studies pertaining to each of the seven dimensions of housing relevant to housing as a socio-economic determinant of health
- conduct a systematic review of relationships between housing conditions and health (and known determinants) for key population sub-groups (e.g, children, people with chronic illness (including mental illness); aboriginal people, seniors, immigrants)
- conduct basic research to translate conceptual / theoretical knowledge in the seven dimensions into empirical tools (instruments, questionnaires)
- establish a cohort of households, with oversampling of subgroups of interest, to routinely survey on housing and health, and upon whom to test new tools
- conduct a national survey of housing conditions; include measures of numerous housing dimensions based on expert advice and measure health status in a robust way

Pertinence / Strategic Importance

- offer targeted research funds to investigate the health system effects of specific housing programs (e.g., supported housing, homeless shelters, etc.) on health care utilization, costs, etc. These projects should develop ‘receptor capacity’ in provincial and municipal government departments to reduce obstacles to rapid implementation
- establish a network centre for housing and health research to conduct meta-analytic research in which small housing providers may enroll; data collected from clients would be linked to administrative health care records; results to be fed back to organizational participants

- offer targeted research funds to investigate the effects of socio-economic dimensions of housing on the health of vulnerable sub-populations: children, seniors, aboriginal peoples, single-parent families, working poor families, immigrants, etc.

Organizational Arrangements

- CIHR-IPPH should take a leadership role in developing a co-ordinated national research strategy on housing and health, in order to streamline the efforts of the Canada Mortgage and Housing Corporation, the National Homelessness Secretariat, and the National Housing Research Committee and the Canadian Housing Renewal Association (the latter representing NGO and local and provincial governments)
- CIHR-IPPH should immediately invest (with government partners and other CIHRs) in building the human resources research capacity in the area of housing as a socio-economic determinant of health, including:
    - a national network of housing and health research stakeholders to allow for standardized data collection efforts, data sharing, meta-analyses of the health outcomes of housing programs (e.g., 'natural experiments), and dissemination of research findings
    - programs to develop 'receptor capacity' for housing and health research in relevant federal, provincial and municipal government departments
    - targeted housing and health training and career development awards at the Master's, Doctoral, Post-Doctoral and New Investigator levels
    - training programs for individuals working in housing service provider organizations focused on clientele with existing health conditions, or with significant potential for improving the health of Canadians or the effectiveness of the health care system

In short, the results of the NGOA indicate that there is considerable potential for development of research opportunities in the area of housing as a socio-economic determinant of health. Housing is an issue of great importance that touches the lives of all Canadians in some fashion; this and a host of other factors underscore its potential for improving the health of Canadians. The NGOA also found, however, that there is a dearth of research capacity in this area in Canada – both in terms of capacity to do research and to use research. This suggests that there is a strong need for investment in research capacity and in policy receptor capacity in order to take full advantage of the many opportunities identified in the NGOA.

Table of Contents

Summary

Executive Summary

1.0 Introduction/Purpose

2.0 Background
- 2.1 Review of Literature
- 2.2 Vulnerable Populations
- 2.3 Prospectus for Research on Housing as a Socio-economic Determinant of Health
  - 2.3.1 Physical Hazards
  - 2.3.2 Physical Design
  - 2.3.3 Psychological Dimensions
  - 2.3.4 Social Dimensions
  - 2.3.5 Political Dimensions
  - 2.3.6 Financial Dimensions
  - 2.3.7 Location
- 2.4 Study Team and Advisory Structure

3.0 Report
- 3.1 Methodological Approach to Environmental Scan
- 3.2 Collaborative Stakeholder Consultation Process
- 3.3 Unanticipated Outcomes and Significant Challenges
- 3.4 Presentation of Needs, Gaps, Opportunities and Prioritization of Results
  - 3.4.1 Housing as a Socio-economic Determinant of Health
  - 3.4.2 Needs/Gaps
    - 3.4.2.1 Building Research Capacity and Research Transfer
      - i) Coordination and Accessibility of Information
      - ii) Building Networks
      - iii) Building Research Capacity
    - 3.4.2.2 Data Needs and Resources
    - 3.4.2.3 Research Methodology and Infrastructure Priorities
      - i) Long-term/Longitudinal Studies
      - ii) Natural Experiments
      - iii) Greater Linkage of Health Data
      - iv) Performance Indicators or Benchmarks
      - v) Outcome Based Planning
      - vi) Comparative Information
    - 3.4.2.4 Substantive Research Priority Areas
      - i) Economics Aspects of Housing and Health
        - a) Cost-benefit analysis
        - b) Discounting health and household budgets
      - ii) Research Over Life Span
        - a) Children

b) Seniors
iii) Integration and Social Mix
iv) Physical Hazards
v) Home Ownership vs. Renting
3.5 Conclusions and Recommendations
3.5.1 Science: Basic Research in Housing and Health
3.5.2 Pertinence / Strategic Importance
3.5.3 Organizational Arrangements

References

Appendices

Appendix A Major Emphases in Extant Housing and Health Research

Appendix B On-line Questionnaire (questionnaire, organizations responding, dimensions and social categories of interest to respondents)

Appendix C Workshops (invitation, agenda, presentation, list of attendees)

Appendix D Summaries of issues discussed under each dimension

Appendix E Ongoing Research in Housing and Health

Appendix F Suggested Generic Criteria for Selection of Strategic Initiatives by CIHRs

1.0 INTRODUCTION / PURPOSE

The Needs, Gaps and Opportunities Assessment (NGOA) described in this report sought to investigate relationships between socio-economic dimensions of housing and health. Socio-economic factors embedded in everyday life are widely acknowledged to be important determinants of health (Macintyre 1998; Lynch and Kaplan 1997). Housing is a crucial nexus for the operation of a wide range of socio-economic factors that fundamentally shape the character of everyday life for people across the socio-economic spectrum and people from vulnerable sub-groups (Dunn 2000). It follows that the socio-economic dimensions of housing are a highly relevant focus of study for research in the socio-economic determinants of health. Recent reviews of the literature on housing and population health (Hwang, et al. 1999; Dunn 2000; Thompson, et al. 2001), however, point to a dearth of research on relationships between socio-economic dimensions of housing and health, despite convincing arguments of its potential for promoting health (Ellaway, et al. 2001; Thomson, et al. 2001; Maclennan and More 1999). This NGOA, therefore, through consultation with relevant stakeholders, sought to identify research needs and gaps, future opportunities for research, and both existing and needed research capacity in housing, SES and health. The results of priority research, it is anticipated, will have the capacity to inform policy-making by demonstrating the health effects of existing policies, and the health potential of housing interventions informed (in their design) by research.

The specific objectives of the NGOA were as follows:
1) to conduct an environmental scan of completed research and compile a database of existing literature (both Canadian and from appropriate international contexts) – see bibliography on www.housingandhealth.ca);

2) to identify and catalogue details of existing studies of relationships between socio-economic dimensions of housing and health, as well as emerging ‘natural experiments’ (e.g. occupation of a new social housing complex, or forced relocation of tenants)[2];

3) to compile an inventory of Canadian research capacity in housing, SES and health, which would include researchers, policy-makers, program providers and other stakeholders with interests and/or expertise in relationships between socio-economic dimensions of housing and health;

4) to identify needs, gaps and opportunities and set priorities for housing, SES and health research. This will be accomplished through an iterative, consultative exercise with relevant Canadian researchers, policy-makers, service providers and other stakeholders;

5) to facilitate appropriate collaborative partnerships between the various stakeholder communities in housing and health research, including academic researchers, government researchers, researchers in NGOs, policy-makers, service providers (government and non-government),

[2] An example of a situation that may approximate a natural experiment is the anticipated relocation of some 1,000 tenants of Don Mount Court in Toronto due to needed repairs to the complex (Taylor, 2001).

6) to build infrastructure for research in the socio-economic dimensions of housing and population health, including: a) a network of individuals and groups with interests, expertise, or ongoing activities in housing and health research, linked by a website and e-mail listserve; and b) resources to support such research, including an on-line library, as well as conceptual and methodological resources to assist stakeholders in developing research funding proposals and conducting research;

7) to investigate opportunities for collaborative partnerships between CIHR, investigators eligible for CIHR funding, and providers of programs and services (governmental or non-governmental), that combine an experimental housing policy intervention and a scientific evaluation of its effect;

8) to report on needs, gaps, and opportunities and deficiencies in research capacity to participants in the NGOA and other relevant groups, including funding agencies, government departments, policy-makers, NGOs, and the academic community.

2.0 BACKGROUND

2.1 Rationale and Review of Literature

The justification for a Needs, Gaps and Opportunities Assessment on housing as a socio-economic determinant of health follows from the contemporary literature on socio-economic inequalities in health. Among the affluent countries of the world, it has been observed for over a century that there is a strong relationship between an individual's socio-economic status and their health status. The relationship appears to be independent of the measure of socio-economic status used (income, education, job class) and appears to operate independently of most disease processes or illness states. At all points during the 20th century steep social gradients in health have been observed for the conditions of the day: acute infectious diseases (tuberculosis, measles, cholera) dominated prior to the epidemiological transition of the 20th century, and chronic, non-infectious diseases since then (heart disease, stroke, cancers, etc.). It has also been demonstrated that explanations for the social gradient in health cannot be reduced to behavioural factors (smoking, diet, exercise), genetics, access to health care, or reverse causation (Wilkinson 1996). Nor is the relationship confined only to the margins of society: studies routinely find evidence that the social gradient in health spans the entire social spectrum.[3]

Efforts to develop policy interventions that could redress socio-economics inequalities have been thwarted by the inadequacy of current explanations of the pathways and generating mechanisms for health inequalities. The research base, while compelling and remarkably consistent, employs indicators of social and economic circumstances which are too abstract to offer much policy guidance. Moreover, policy prescriptions which encourage raising incomes, improving social

[3] The gradient is not uniformly steep across the social spectrum however. The health effects of relatively lower socio-economic status are experienced more acutely at lower incomes (Gravelle, H. (1998). "How much of the relation between population mortality and unequal distribution of income is statistical artefact?" British Medical Journal **316** (January 31): 382-385.)

benefits for the poor and narrowing income distribution bump up against a now well-entrenched retreat of the welfare state. Such investments become all the more difficult to justify when the interventions of competing policy sectors, such as the health care sector, appear to have a more direct causal pathway between the intervention and a (potential) health benefit. It follows that health inequalities research needs a much more sophisticated model of the connection between socio-economic circumstances and health.

One of the most influential approaches to this explanatory vacuum in health inequalities research has been to emphasize the biological mechanisms that could account for socio-economic differences in health status. These accounts draw their conceptual inspiration from the famous 'fight or flight syndrome' (Selye 1956) and their empirical sustenance from research on maladaptive responses of the physiological stress system to low social status in primate populations (Sapolsky 1998; Shively 1998; Sapolsky 2001) as well as observational research on human activity in hierarchically ordered contexts (such as workplaces and bureaucracies), using stress biomarkers (e.g., fibrinogen levels) as well as disease endpoints (Brunner 1996).

The development of the *social* components of explanations to account for the influence of socio-economic environments has also made great strides in recent years. Indeed, it is a central feature of a rapidly growing and influential body of research known as the 'population health perspective' (Evans, Barer et al. 1994; Dunn and Hayes 1999; Kawachi, Kennedy et al. 1999). The population health perspective according to Hayes, asks how and why health outcomes "are systematically distributed across identifiable social characteristics, and how public expenditures ought to be deployed to maximize the health status of the population" (Hayes 1994).

One plausible way of approaching the questions regarding the pathways between socio-economic status and health has been proposed by Lynch and Kaplan (Lynch and Kaplan 1997). They call for an 'epidemiology of everyday life'. From this perspective, systematic social differences in health biologically rooted in the physiological stress are a response to systematic differences in the quality and stressfulness of everyday life. The challenge of such an approach, however, is mainly social, as it raises questions about what kinds of experiences are (socially or emotionally) stressful, in what kinds of contexts are experiences of stress translate into maladaptive physiological stress responses (whether the experience of stress is conscious or not) and how is it that these factors come to be systematically distributed by social class.

If one accepts the foregoing arguments, it follows that housing should *at least* be a crucial lens through which we seek to understand socio-economic geographies of everyday life and their influence upon health.[4] This report argues however, that housing is much more than *just* such a lens, it is also a nexus for the operation of unequal social relations and a medium through which socio-economic status is expressed and through which a wide range of known health determinants operate. These forces may be especially influential on the health and functioning of vulnerable and marginalized groups in Canadian society (e.g., seniors, children, people with disabilities and chronic illnesses, First Nations, etc.).

[4] The expression 'geographies of everyday life,' developed by Dunn (1998), is an alternate expression which helps to place the concrete circumstances of everyday life in socio-spatial terms rather than just in epidemiological terms.

Yet the extant literature on relationships between housing and health points to a dearth of research on the impact of socio-economic dimensions of housing upon health. Indeed, recent reviews by Dunn (2000), and especially Hwang, et al. (1999) strongly suggest that research on socio-economic dimensions of housing and health is underdeveloped relative to research on connections between biological, physical and chemical exposures in the home. It is also clear from the review that there are crucial intersections between the biophysical and the socio-economic dimensions of housing which only serve to heighten the urgency of further research on socio-economic dimensions of housing and health.

Appendix A presents a short review of the extant literature on housing and health, focusing on four key emphases: 1) pathological aspects of housing and health; 2) health selection and housing (the housing disadvantages faced by people with existing illnesses); 3) homelessness and health (care); and 4) an emergent stream of research on socio-economic dimensions of housing.

A framework for studying housing and population health was modified from Dunn (2000; 2002a) by the research team to frame existing research and provide some initial direction for the workshop discussions. This model identifies seven dimensions of housing (left column) that have the potential to generate social inequalities, and either directly or indirectly health consequences. The framework emphasizes the importance of physical hazards, physical design, psychological benefits, social benefits, political dimensions, financial dimensions and location of housing in the production of health. These dimensions may combine with other types of social disadvantage and vulnerability among several population sub-groups to powerfully undermine health and development. For a number of these groups that experience marginality and disempowerment, the importance of linkages between socio-economic status and housing and health is acutely felt. For First Nations' people, people with mental illnesses and addictions, seniors, people with disabilities and chronic illnesses, and oftentimes women and visible minorities, the experience of poor housing, low SES and other aspects of social marginality are tightly linked and may severely compromise their health. In short, this demands that the proposed framework be employed in a manner that is also sensitive to the question: "Are some groups in society more vulnerable to health effects of socio-economic dimensions of housing and domestic life?"

Table 1: Housing, Socio-economic Status and Health Framework

Housing Dimension	Socio-economic Categories
Physical Hazards Physical Design Psychological Benefits Social Benefits Political Dimensions Financial Dimensions Location	Owners/Renters Different income levels Family/Household status (Dis)ability Mental illness Life stage (particularly children & seniors) Gender Ethnicity/Immigration Aboriginal Status

2.2 Vulnerable Populations

Most of the housing-related socio-economic factors thought to shape health are magnified for vulnerable sub-populations. Although the proposed framework for housing and health emphasized by the seven dimensions of housing was a useful heuristic for unifying the experiences of most Canadians, our team is cognizant of the fact that the socio-economic dimensions of housing relevant to health may manifest in the everyday lives of some sub-populations very differently. It was necessary for the team to ensure that the assessment of needs, gaps and opportunities in housing and health research took into consideration these differing experiences. A concern with the unique experiences of relevant sub-populations was a fundamental component of our approach to all participatory consultation activities. In particular, we ensured that we addressed the relationships between socio-economic dimensions of housing and population health differed: a) near the beginning (children); and b) end of life (seniors); c) for people with physical disabilities and chronic illnesses; d) for new Canadians; e) for visible minorities; f) for urban First Nations' people; and g) for people with mental illnesses and mental disabilities. Other relevant factors that differentiate the experience of housing and health (but do not necessarily constitute 'vulnerability') that were considered in our NGOA included gender, rurality, and household composition. Due to budget constraints, we were unable to address housing and health issues for remote and northern areas.

Homelessness is an issue that has received a great deal of publicity in the past two decades, and has recently been the target of a number of federal government initiatives. This NGOA did not deal directly with homelessness *per se* as a research priority area or the homeless as a vulnerable sub-population. In excluding homelessness from explicit consideration, we use the same rationale as Hwang, et al. (1999) who argue that the health problems of people *without* housing do not logically belong in an analysis of relationships between housing and population health. Rather, the NGOA treats homelessness as the extreme end of a continuum of housing. This is not to deny that homelessness is an important area for health research, as there are literally hundreds of studies showing the acute health consequences of homelessness (Hwang, et al. 1999), but a focus on homelessness would have detracted the focus of the NGOA from important variations in housing conditions amongst the 'housed' that are associated with health. Moreover, many of the same factors that put individuals and families at risk for homelessness also have the capacity to undermine their health status.

2.3 Prospectus for Research on Housing as a Socio-Economic Determinant of Health

The foregoing suggests a relatively limited number of studies on housing as a socio-economic determinant of health. Moreover, the literature lacks any clear foci for future development. This, of course, was part of the rationale for the NGOA described in this report. The potential of this area of research, coupled with the lack of such foci has already been recognized by the National Housing Research Committee (NHRC), and they commissioned a report (Dunn 2002b), which developed such a framework to guide their activities in housing and population health research.

2.3.1 Physical Hazards

In terms of physical hazard dimensions of housing, there are clearly well-founded concerns about housing disrepair and exposure to toxins and hazards (moulds, dust mites, falls, etc.) that sub-

standard housing may entail. These are well-established in the literature, and the Canadian literature is particularly well-documented by Hwang, et al. (1999). The concern for the health impact of physical hazards underlies building codes and standards as well as many public programs. The Residential Rehabilitation Assistance Program (RRAP), for example, is offered by CMHC to provide financial assistance to homeowners and landlords in order to bring their dwellings up to minimum health and safety standards. There is already a rich body of research on the health effects of physical hazards in the home, but a dearth of research on the intersection between physical hazards and socio-economic factors. To address this intersection would raise some of the following questions:

- do people of lower socio-economic status experience a systematically greater exposure to biological, chemical and physical hazards in the home?
- is there a systematic socio-economic bias in the capacity for households to redress such hazards, for example, through the uptake of housing improvement programs?

Moreover, there is some evidence from a recent British study that social and economic factors may substantially mediate the experience of health impacts even in the presence of empirically verifiable exposures. Evans, et al. (2001) found that the experience of respiratory symptoms amongst households exposed to moulds was significantly mediated by worry about mould. In short, the intersection between socio-economic and bio-chemical-physical dimensions of housing is an avenue of research which presents a substantial opportunity.

2.3.2 Physical Design

Aspects of physical design can contribute to health status in a variety of possible ways. In the first instance, disrepair of stairs, floors, etc. may create the possibility of falls and accidents, particularly for people with mobility and balance problems, while the absence of specialized adaptive equipment (e.g., handrails) or inadequate fire escape routes may also be threats. In a somewhat different way, design factors may be influential in creating living spaces that allow for rest and restoration, privacy and refuge and surveillance zones, while in multiple dwelling projects, design features may enhance possibilities for safe and appropriate social interaction. The fields of landscape architecture, architecture, and environmental psychology conduct research on these topics, but it is not well-recognized in the housing and health literature. This despite the existence of an active cadre of scholars and practitioners associated with the International Academy for Design and Health (www.designandhealth.com).

2.3.3 Psychological Dimensions

Psychological dimensions of housing are well-recognized through the emphasis on the home as a site for the investment of meaning in scholarship in environmental psychology and geography. There are two common components to the construction of meaning about the home in Western societies. First, the home is an important expression of identity, social status and prestige. Analyses of real estate advertising have made this evident (Eyles 1987), these are selling an identity as much as they are selling the physical structure of the house. Additionally, home ownership may provide an added sense of status and security that has long-term health benefits (Despres 1991; Smith, 1994). Home ownership has traditionally been an accurate marker of socio-economic status in the UK, and consequently there have been several studies of the health effects of housing tenure (Macintyre, et al. 1998; 2001; 2003; Hiscock, et al. 2001). Additionally, some have argued that the relationship between socio-economic status and health is at least in

part underlain not just by people's material circumstances *per se,* but also by the meanings people attach to their material circumstances (Wilkinson 1994). This proposition is mostly untested, but the importance of the home as a site for the investment of meaning would be a logical avenue for research.

The second major psychological dimension of housing relevant to health concerns the notion of control. Of all the spaces we occupy in our daily life, there is only one space where we are socially (and legally) sanctioned to have complete control. If this is the dominant cultural expectation, when one lacks control over their domestic space, this may undermine health. There is already a large literature on job strain and health which indicates that lack of control can be influential on the development of heart disease risk factors and can undermine mental health (Karasek and Theorell 1990). If control is important in the workplace, it follows that it should be important in the other 16+ hours of the day, much of which is spent in or near the home. Previous work has shown that control in the home is associated with self-rated and mental health status (Dunn and Hayes 2000; Dunn 2002a; Griffin, et al. 2002).

2.3.4 Social Dimensions

The point has already been made that the home is an extremely important site for the investment of meaning. Part of this is due to the sociological significance of the boundary between the inside of the home and the outside world, something that is common to almost all cultures. As such, the home is an important site for the development and maintenance of social relationships, both with household members and others. The importance of social support is already very well established in the health literature as a significant determinant of health. It follows that there are important research questions that could be posed concerning the adequacy of individuals' homes both for relationships between household members and for making and maintaining social ties with individuals living outside the household.

But one's home is also the site in the landscape from which their situated daily life experience begins and ends, so that where you live (the dwelling ***and*** its socio-spatial context) may be influential in shaping individuals' and households' socio-economic opportunities, social status and identity (Harvey 1973; Badcock 1984). Some research has suggested that local social relations may be important determinants of health (e.g., Haan, et al. 1987) and more recently, the arguments have been made for the importance of local social capital in the production of health (Kawachi and Kennedy 2003). Insofar as the relative location of one's home shapes their access to local social supports and social capital, there may be important health consequences, but the influence of residential proximity and the geographic scale at which social capital may influence health are not yet well understood.

2.3.5 Political Dimensions

There are a two key ways in which political dimensions of housing may influence socio-economic determinants of health. In the first instance, housing quality, availability and affordability are (or can be) significantly influenced by public policy. A significant portion of Canadian housing policy is designed to support home ownership and ensure the vitality of the housing construction industry (the latter demonstrated by the heavy emphasis placed on housing starts as an economic indicator). Until the early 1990s, Canada was also making fairly significant investments in public housing (although not at the same levels as many European countries and

other British colonies). But fiscal retrenchment in the early 1990s led to the near elimination of new investments in public housing, although support for home ownership continued, and arguably increased (e.g., the Home Buyer's Plan was introduced, allowing first-time home buyers to use RRSP funds for their downpayment). These developments raise questions about the political viability of voices calling for more affordable and public housing. In other words, in housing policy, who gets what, where and under what conditions?

The second way of thinking about the political dimensions of housing as a socio-economic determinant of health concerns the political struggle for neighbourhood conditions. All human activity must occupy some space, and unwanted land uses (e.g., industrial and waste disposal facilities, prisoners' half-way houses, etc.). Lower socio-economic neighbourhoods typically bear the greater burden of unwanted land uses, partly due to their inability to resist them. Higher socio-economic neighbourhoods are better able, due to their political influence, education, financial resources to resist unwanted land uses, and additionally to informally and quietly demand a better package of neighbourhood amenities and insist on the maintenance of those amenities to a higher standard.

2.3.6 Financial Dimensions

Financial dimensions of housing are very influential on socio-economic factors. It is well-established, but seldom recognized in housing and health research, that housing markets are powerful engines of inequality (Harvey 1973; Badcock 1984). While labour markets are perhaps the principal source of inequality in capitalist societies, land and housing markets also work to redistribute wealth and income in a highly regressive fashion. The key fulcrum on which this redistribution hinges in Canadian society is the distinction between owner-occupiers and renters of housing (Badcock 1984; Hulchanski 2001). Indeed, there are several well-understood (but seldom tracked) pathways by which income and wealth are redistributed from owners to renters (e.g., capital gains tax exemption for the primary residence; other tax deductions, subsidies for home ownership, and the non-taxability of imputed rents). While numerous studies point to the relationship between income and health, it is likely that wealth is a better indicator of a household's socio-economic status, and if so, this would underscore the importance of housing given that it is commonly the single most important asset in most households. Yet little has been written on the influence of inequalities in housing wealth on health inequalities (recent exceptions include Macintyre, *et al.* 1998 and Nettleton and Burrows 1998; Ostrove, *et al.* 1999).

2.3.7 Location

The locational dimensions of housing are potentially important to health because the home acts as a focal point for everyday activity. This means that one's home and its immediate environment is likely to be the setting for exposure to a mix of positive and negative influences on health. One example of the importance of the locational dimensions of housing can be seen by considering the location of the home relative to services and amenities such as schools, public recreation facilities, health services, and job opportunities. This may also explain part of the so-called neighbourhood effects on health and human development seen in the research literature. Another important aspect of the spatial dimensions of home is the social environment it places one in, particularly with respect to social norms. Moreover, housing market dynamics confer significant locational advantages upon households in ways that systematically disadvantage households of lower SES. A location in space, a place to base one's activities and existence, a

place that provides access to goods, services, work, and recreation are important functions of housing - spatiality is consequential.

2.4 Study Team and Advisory Structure

The research team gives the topical expertise, the regional representation and the disciplinary diversity required for a project of this kind. Drs. Hwang and Hulchanski were authors of a recent exhaustive review of the literature (Hwang, et al. 1999) on housing and population health research (commissioned by CMHC). Both bringing extensive knowledge to the table on this issue. Dr. Hulchanski, an urban planner by training, is an internationally recognized leader in housing research, holding the only endowed chair in Housing Studies in Canada. Dr. Hwang is a physician who works with the Inner-City Health Unit at St. Michael's hospital in Toronto, and therefore brings to the team a very concrete understanding of the health effects of marginal housing and homelessness. In addition to authoring the above-mentioned literature review, Dr. Hwang brings considerable epidemiological and health services research expertise to the team.

Drs. Dunn and Hayes also have considerable experience in housing and health research, having conducted primary studies of housing, socio-economic status and population health in Vancouver neighbourhoods (Dunn and Hayes 2000; Dunn 2002a) and authored conceptual analyses of the issue (Dunn 2000; Dunn 2002b). Both have been keynote speakers at the National Housing Research Committee's semi-annual meeting (Hayes in May, 1999; Dunn in May, 2000). In addition to his appointment as Associate Director of SFU's Institute of Health Research and Education, Dr. Hayes sits on the Federal / Provincial / Territorial Advisory Committee on Population Health (Health Canada).

Dr. Potvin is one of Canada's leading scholars in Population and Public Health. She is a Professor of Social and Preventive Medicine at the Université de Montréal, where she holds a Chair in Health Services Research from the Canadian Health Services Research Foundation. Her extensive expertise in the evaluation of community health programs and in examinations of the social and community determinants of health was of enormous value to the investigator team. Dr. Potvin also has strong ties to a number of community groups related to health and social issues in the Montréal region. These were instrumental to the consultative process in the Montréal area.

The study team received advice and direction on the NGOA from the Housing and Population Health Working Group of the National Housing Research Committee (NHRC) and the Board of Directors and the Research Committee of the Canadian Housing Renewal Association (CHRA). The NHRC is a committee overseen by CMHC that includes representation from CMHC, other Federal Government departments, Provincial Government departments, and stakeholder groups (such as the Canadian Co-operative Housing Association and the Canadian Homebuilder's Association). It meets twice per year. The CHRA is the national organization for stakeholders in Canadian affordable housing. They provide support and leadership to affordable housing providers across Canada.

3.0 REPORT

3.1 Methodological Approach to Structured Environmental Scan

In the environmental scan, we developed an inventory of the following three items: a) existing literature on the relationship between socio-economic dimensions of housing and health, with a focus on Canadian studies; b) ongoing studies of the relationship between socio-economic dimensions of housing and population health (see Appendix F); and c) research capacity, including: academic researchers, government researchers, researchers in NGOs, policy-makers, and service providers (government and non-government) (see www.housingandhealth.ca) .

In developing an inventory of existing research a number of different strategies were utilized given that many sources of information are not found within the mainstream academic literature. An initial strategy for identifying existing literature involved the search of electronic databases, including major social science, health, government and humanities databases, as well as library catalogues of academic institutes and public libraries. Sources in the 'grey' literature were sought from individuals and organizations identified in the capacity scan, through an online questionnaire (see Appendix B) and workshop discussions.

In the capacity scan, individuals were identified using snowball sampling techniques, beginning with contacts provided by the investigator team, the NHRC and CHRA. This was supplemented by internet searches of national, regional and local organizations with possible interest in housing and health (visit the Resource section of www.housingandhealth.ca for an annotated listing of these organizations). Individuals identified in the capacity scan may not necessarily have had past experience with research on housing *and* health: some only have expertise, interests, or service responsibilities in one area or the other. In the government sector, we sought individuals at the federal, provincial, regional and local levels. Many non-government organizations were targeted for participation, from community health clinics, affordable housing advocates to homeless shelters. In many parts of the country, there was even interest from consumers of housing and health services, providing a thorough perspective on the issues.

Early in the process we established an internet site (www.housingandhealth.ca) to assist us with the communications aspect of the NGOA. The site provides a central, accessible forum for all of the background information on the research team and the NGOA. It includes: a 'what's new' section with current information on the NGOA (workshop invitations, agendas, summaries etc.); a Web form that allows individuals to add their names to a list of 'who's who in housing and health research' (about 30 signups so far); a bibliography of existing research; over 100 annotated links to government (Provincial, Federal), non-government, academic and international organizations with an interest in housing and health. We intend to continue to maintain the Web site after the completion of the NGOA.

3.2 Collaborative stakeholder consultation process

Having identified a large set of stakeholders in the environmental scan, we contacted each of the approximately 300 individuals and organizations on our stakeholder list, through email, letter or fax (see Appendix B and C), and: 1) invited them to visit our Web site for background information and a discussion document (literature review) on the assessment; 2) invited them to participate in the process by responding to a questionnaire (online or paper version) identifying needs, gaps and opportunities for research in housing and health; 3) asked them if they would be willing to participate in a day-long workshop; and 4) asked them to forward the information along to anyone they may know with an interest in housing and/or health.

We estimate that this initial email reached well over 800 people or organizations across Canada as we were carbon copied on many of the forwarded e-mails. Our final stakeholder list consists of 519 individuals or organizations including those individuals who completed the online questionnaire (111), workshop attendees (185), Who's who signups (29) and other individuals identified in the environmental scan.

On-line questionnaire responses were analyzed by identifying emergent themes and quotations and other data were extracted and classified according to these themes. Additionally, the questionnaire responses were analyzed for the degree to which they emphasized the 7 dimensions and the sub-populations of interest contained in the team's framework on housing as a socio-economic determinant of health. Specific projects that were mentioned were also abstracted from the questionnaires and compiled as part of the capacity scan.

Eight regional workshops were held across Canada: Vancouver, Calgary, Saskatoon, Winnipeg, Toronto, Ottawa, Montreal and Halifax with a total of 185 participants. The Montreal workshop was held in both French and English using simultaneous translation. Invitations were sent to all individuals and organizations on our stakeholder list. We sought representation from a diverse set of interests: academic, NGO, and government researchers, service providers, individuals representing national, provincial, local perspectives, the health sector, the housing sector, and individuals representing the perspectives of vulnerable sub-groups. We were satisfied with the diversity of interests represented in the NGOA. (Appendix C – list of attendee's organizations) To permit attendance of individuals distant from workshop cities, travel subsidies were offered. Some local collaborators also assisted us in identifying additional local stakeholders and venues for the workshops (Montreal: Jocelyne Bernier, Saskatoon: Dr. Ron Labonte and Russell Mawby and Tom Young (Regina), Winnipeg: Dr. Noralou Roos).

Because of the diverse nature of the participant groups the workshops were designed to engage participants in discussion of an informal nature. Hence, we did not expect participants to prepare statements or papers. Instead, the study team provided a brief review of existing research and an overview of the specific dimensions of housing as a socio-economic dimension of health as a framework for discussion (see Appendix C for presentation handouts and workshop agenda). In each instance, the workshop began with a presentation to the participants by Dr. Dunn, on the framework consisting of 7 dimensions of housing. At each workshop, at least one other member of the investigator team was present in addition to Dr. Dunn.

Typically after the presentation, each of the participants briefly introduced themselves and outlined for the group their and/or their organizations interest in housing and health. The

participants then broke up into smaller groups (5 to 8 per group) for the workshop sessions. Designated note takers for each group recorded participant's feedback on flip charts to help the group monitor progress during the session as well as a tool for evaluating whether the workshop met people's needs at the close of the session. This record as well as other notes made by participants or members of the research team were used to summarize the findings.

Two small-group workshop sessions were conducted. The first was intended to seek participants feedback on the framework and to encourage participants to explain how the 7 dimensions manifested themselves (if at all) in their own local context. We also asked them to try to assign some priority to one or more of the 7 dimensions. After the first workshop, a spokesperson for each small group reported back to the whole group. The second workshop (typically after lunch) was intended to get participants to develop research questions, identify data sources and local opportunities for research, as well as prioritizing future research opportunities. The workshop agenda (including specific questions to guide participants' discussions) appears in Appendix C.

In addition to the workshops, on behalf of the investigator team, Dr. Dunn also participated in several conferences and meetings pertaining to the topic of housing and health during the course of the NGOA. He presented the rationale and current findings of the NGOA to the following meetings / conferences:

- Canadian Housing Renewal Association Annual Congress, Ottawa, ON, April 2-5, 2002
- National Housing Research Committee Meeting, Ottawa, ON, Jun 4, 2002
- Canadian Housing Renewal Association Board of Directors, Ottawa, ON, Nov. 1, 2002
- National Homeless Secretariat meeting on Homelessness and Health, Ottawa, ON, Nov. 3-4, 2002
- Canadian Institute for Advanced Research, Population Health Program meeting, Toronto, ON Nov. 6, 2002

In addition to these domestic activities, Dr. Dunn also sought links with international researchers studying connections between housing and health and advertised the existence of the NGOA. He publicized or presented the details of the NGOA at the following meetings / conferences:

- European Network on Housing Research, Housing and Health Study Group, Vienna, Austria, July 1-5, 2002
- European Regional Office, World Health Organization, Housing and Health Working Group meeting, Forli, Italy, Nov. 21, 2002
- Wellington School of Public Health, University of Otago, Workshop on Housing and Health, Wellington, New Zealand, Feb. 11, 2003

Additionally, Dr. Dunn will be making a presentation in a housing and health session at the CHRA Annual Congress in Toronto in April, 2003 and is participating in the planning for an international housing and health conference to take place at the Harvard School of Public Health in June, 2003.

3.3 Unanticipated Outcomes and Significant Challenges

Participants made mention of how beneficial it was to have a forum to network with people from other organizations around a common theme as important as housing and health. There were several comments by participants regarding the fact that they did not know any, or at least very few, of the other participants in the room even though they shared an interest in housing and health.

A number of possible collaborative projects and data sources were identified from the stakeholder consultations. Some examples include:

- New Brunswick Ministry of Social Services: possible collaborative project on assisted housing and health care utilization using administrative data (Contact: Tom Henderson)
- Nunavut Ministry of Social Services: possible collaborative project on Inuit housing conditions and health (longitudinal survey under way – Contact: Don Ellis)
- Health Canada cohort study of childhood housing conditions and asthma in P.E.I. – examining the mediating role of SES? (Contact: Dr. David Miller, Carleton University)
- British Columbia, BC Housing: 2001 survey of persons with mental illness living in supported and unsupported hotel units in downtown; permission to link to administrative health care utilization records received from respondents (Contact: Lorraine Copas)

One of the key challenges that emerged from the stakeholder consultations was to maintain a focus on research questions, data sources, etc. Dr. Dunn and the NGOA team took care to acknowledge to participants that research was not only an end in itself, but that it should have some practical application, but for many of the stakeholders, it was very difficult to articulate issues as research questions. Instead, many of the workshop discussion focused on 'what should be done' and 'who should do it', although efforts were made by the facilitators to get participants to focus on how to articulate their experiential knowledge into empirical research questions. But ultimately, many participants, despite an interest in what research could provide, were stymied by the sentiment *'We don't know what we don't know'*.

3.4 Presentation of Needs, Gaps, Opportunities and Prioritization of Results

3.4.1 Housing As a Socio-Economic Determinant of Health

Participants clearly recognized that the interactions between the various determinants affected health outcomes and welcomed the evolving body of evidence that supported what most of them knew from experience affected the health of their communities. There was great enthusiasm among participants across the country at the prospect of being involved in future research initiatives around housing and health. We found that participants had a widely varying depth of understanding of what is meant by population health, the determinants of health and the interactions between them. They found the proposed framework helpful for thinking about the relationships between housing and health, but suggested the addition of a cultural and/or spiritual dimension, a legal dimension and the inclusion of an overriding sustainability element. The interrelatedness of the determinants and social categories and the difficulties in attempting to study all aspects was discussed by participants in all the workshops. There was some concern that the categories were not objective. *"There are many things that need to come together to get housing – if one fails, the whole process fails"*

The argument for finding a way to incorporate a cultural dimension is a persuasive one, particularly given the challenges immigrants face in acquiring adequate housing (see for instance: housing new Canadians Web site). The interaction between cultural dimensions of housing, and design, for example were also raised in the case of First Nations housing. The

NGOA accepted the argument and added cultural dimensions to the current social dimensions of housing in the framework: the new dimension is: socio-cultural dimensions of housing.

In terms of sustainability the participants were referring to environmental sustainability (through urban sprawl, home energy efficiency, water consumption, environmentally friendly building materials, etc.) and social sustainability (through issues of residential segregation and the consequences it may have both on minority and majority groups). The NGOA team felt that these issues were either too distantly connected to health or already encompassed by existing components of the framework.

Some of the determinants emerged as being more salient than others. For example, there was general consensus among the workshop groups that the financial dimension was the most important – *"poverty comes before homelessness"*, *"demonstrating economic savings will make the most difference"*. Social benefits of housing perhaps garnered the most discussion time in all of the workshops as evidenced below by the large number of issues discussed under this dimension. The political dimension was also discussed in depth by many of the workshop groups – especially around issues of power at the community level.

Culture and ethnicity were also mentioned and focused upon. While the goal of public health is to protect the health of all, some subpopulations may be more at risk than others. Understanding the impact of housing on specific populations can result in concrete steps towards identifying, preventing, reducing and elimination various health risks. Participants identified the need for extensive and creative efforts to reach out to diverse ethno/cultural groups, study over the lifecycle, northern communities and rural populations.

Detailed summaries of issues raised in the workshops are presented in Appendix D.

3.4.2 Needs/Gaps

Workshop participants and questionnaire respondents were asked to identify what they perceived as the gaps in existing research and to relate these gaps to potential priorities for future research. Responses ranged from the need for baseline data on the current housing situation in Canadian communities, to the use of more consistent and understandable language in academic and government documents. These results are presented below.

Participants drew particular attention to a dearth of research information on the housing situation of a number of subgroups – aboriginal, immigrant, single mothers, seniors, families in poverty, mental health consumers. Of particular concern was the Aboriginal population, which is disproportionately represented among the homeless population, particularly in prairie cities. Several participants suggested that more information is required on issues of service delivery to this and other sub-populations, particularly around barriers to service.

3.4.2.1 Building Research Capacity and Research Transfer

"Perhaps the most pressing concern is the need for knowledge transfer and sustained linkages among frontline service providers, policy makers and researchers to communicate needs and information related to this area." (Questionnaire response)

"We don't know what we don't know." (Workshop comment)

"People need simple sources of information about housing so they can make decisions and apply knowledge." (Questionnaire response)

"We would benefit from the existence of a comprehensive and accessible database of all literature and research, both academic and non-academic, on the subject of housing and health." (Questionnaire response)

"Housing best practices available in a concise format in one place." (Questionnaire response)

i) Coordination and Accessibility of Information

a) Dissemination and sharing of information

The lack of dissemination of research information was identified as a major area of concern for many workshop participants and questionnaire respondents resulting in lack of knowledge and awareness about available research. Statements like "w*e don't know what we don't know*" were echoed across the country by workshop participants and questionnaire respondents alike. "*It's not the lack of research, instead the caution is duplication*" and determining "*how to make repeated findings have an impact"*. Rigorous evaluation of housing programs across the country along with consistent and routine documentation of the results is needed in an accessible and useable format. Proper dissemination is also vital for implementation of findings.

A Web-based national housing and health information network was the most recommended method of accessing and sharing information. "*The internet facilitates the use of research at the grass-roots level".* However, the comment was made by participants in several workshop that these 'virtual' networks, once built, need to be maintained beyond the life of single projects or the work is lost. That said, internet access is not universal amongst stakeholders, and as such, internet sources should be supplemented by a hardcopy newsletter.

The perception of service providers and front-line workers taking part in the workshops was that the research disappears after their participation in a project. In some cases, the research findings could be 'used against them' – the failure to find an effect of the service they provide could leave them worse off than they were without the research. They noted that researchers must distribute and make available the results of their work in a timely manner to facilitate implementation.

b) Language

Explaining the concepts and clarifying the language used by researchers and policy-makers in their reports was a challenge for many participants. Many said the difficulties in reading the already large reports were magnified by the 'jargon-laden' language in academic and government materials. Many of the Quebec participants noted that many reports were only available in English, with no Quebec examples.

ii) Building Networks

"We need to work together because the problem is so big no one sector will be able to deal with it." (Debbie Saidman, Edmonton Housing Trust Fund)

In all workshops participants expressed their support for intersectoral, collaborative partnerships as "*a more responsive way to approach research"*. Collaborations may include as partners the academic, government and private sector as well as volunteer and community groups. In discussing the socio-economic dimensions of housing and health it was evident to many participants that there was a *"lack of cross-pollination across fields"* (between housing and health sectors, non-government organizations etc.).

a) Researchers

There was strong interest in all of the workshop sessions in creating working partnerships between academia and communities on research projects that could investigate the effects of housing on health status. However, one of the major obstacles to collaborative research between academia and community-level work is best described by the question: *"How can we all contribute to the development and strengthening of partnerships between community and academe when both have competing needs on what they expect from the research? For instance, communities need tangible results (i.e. funds for shelters, training for women etc.). Academics need tangible results as well, such as writing and publishing in recognized journals"*. These different needs seemed to create hesitation as to whether real partnership is possible.

b) Policy/decision makers

An important link in the translation of knowledge into practice is to communicate research results to decision-makers. A common question raised by workshop participants, however, was *"who* <u>*are*</u> *the decision makers anyway?"* Research on the decision-making structure in local, provincial, and national government units as well as their relationships with the housing industry would be useful in addressing this question. What is needed is information about who makes decisions, how decisions are made, what influences them, and who the "gatekeepers" are. This will allow researchers and front-line providers to determine the key questions ("the slam dunks") that key decision-makers need answered.

Many participants suggested that the federal government needs to be more proactive in promoting the affordable housing and housing and health links with the general public since they found that this responsibility was too great for the community and/or voluntary sector alone.

c) Community Stakeholders – Service providers (Users, advocates, volunteers)

It became evident early on in this needs analysis that there was a vast stakeholder population interested in housing and health issues across Canada. Interested groups included – front-line service providers in the housing and health sector (community health clinic staff, public health nurses), affordable housing advocates, charitable organizations, shelter workers/administrators, mental health consumers and social activists to name a few. The specific research needs of many of these stakeholders differ, but there was widespread support for the idea of research to be able to better assess housing as a socio-economic determinant of health.

d. Business and Media as Stakeholders

Participants identified the need to bring the media and business community onside as stakeholders. Research needs to support and articulate the message that the benefits (health, economic, social etc.) of safe, affordable, accessible housing are in the public interest. *"How do we popularize the research/information to get into the public consciousness?"* One popular articulation of the broader interests that housing and health research may represent was 'housing as investment'. Some suggested a study to investigate how housing is portrayed in the media. Meanwhile, stakeholders argued that producers of research must become more savvy in their communication and seek to reach a broad public audience (e.g., press releases and events, story ideas, etc.).

"Building the business case" for the impact housing has on well-being, another issue raised by stakeholders, requires more than just the link to health but an economic component as well. One possible way to achieve this is to highlight the early child development issues, for example, and the impact this has on health/housing in the future.

iii) Build Research Capacity

Participants all expressed interest in becoming more active in research. Many organizations, particularly service providers, routinely collect information but do not do so in a uniform fashion which would allow for assessment of interventions, best practices etc. Time, financial constraints and a lack of expertise were identified as challenges for organizations to become producers of research.

a) Capacity to Do Research

Most service providers, where a lot of the existing data is collected, are busy delivering the services and are ill equipped to conduct research. For example, a lack of basic research training (such as proposal writing, study design, analysis skills) among individuals in service agencies was described as a hindrance. The development of a standardized research methodology module for use by service provider organizations would be a first step towards addressing this shortage of research capacity. It may help them in their own reporting to funders, etc. and it may also be possible to aggregate data from such organizations up to the provincial level, for example, in order to communicate possible policy options to decision-makers at that level.

b) Capacity to Use Research

Service provider organizations not only need to know how and what data/information to collect within their own contexts, but how to acquire reliable information about the effectiveness of practices elsewhere. They are hungry for information on 'best practices', 'success stories' and other information about how to better serve their clientele. They typically lack the resources and time to search for this kind of information, and many argued that a newsletter or periodic report would substantially enhance their ability to translate research findings into practice.

3.4.2.2 Data Needs and Resources

i) Establish reliable baseline information of existing conditions

The majority of participants expressed their concern over a lack of solid baseline data on housing. Need an accurate, up-to-date snapshot of what housing and social supports exist in the community, beyond just housing industry data. There is a great need to identify the prevalence of

poor housing conditions. Census data are out of date upon release and inadequate for service planning. Local (municipal/regional) data is needed because that's where the programs are delivered and this will provide concrete evidence demonstrating the need for more secure, adequate, affordable housing. If a population profile can be built, some participants said, it is possible to identify service gaps. The current use of anecdotal information at the community level was noted as a barrier for the development of interventions and other planning processes.

Specifically:

- Baseline inventory of housing stock.
  - How much is there? Rented condos and houses, illegal suites – all difficult to account for.
  - Housing conditions. There is a lack of good measures of housing quality in current data sets.
  - Neighbourhood and community conditions – what to measure?
- Compile categories of need.
  - Information on tenants
  - Extent of homelessness, hidden homeless, unstably housed and families living in poverty (incipient homeless). How do you find them in the community?
- Development or access to health (and other) service utilization records.

Problems/Obstacles:

- Lack good measures of housing quality in most data sets that also measure health.
- There is no money available for groups to characterize housing problems even though government agencies require studies that show the extent of the problem.
- Little expertise to conduct this type of research; where it is done, it is piecemeal and 'one time only' – unable to track trends.
- Municipal governments may need information on housing stock for planning purposes, but fear litigation for illegal apartments which do not meet building code – they don't want to officially 'know' about illegal suites, although they are desperately needed.

The lack of access to or unavailability of certain data was also stated as a challenge for research. The case of comparing health service utilization rates in the homeless and general population was an example.

Suggestions:

- Conduct a national survey of housing conditions which also collects data on health status (e.g., using standardized scales) and known determinants of health (e.g., social support, labour force attachment, etc). Use sampling techniques like those in the Canadian Community Health Survey (nationally representative with some clusters). Must include size of the residence, physical condition, rent/utility burden, geographic location, nearby community services, connections with neighbours, individuals' perceptions of their housing and health. Need a simplified social assessment questionnaire.
- Longitudinal data – *"this kind of research is particularly important if you are attempting to establish the cause and effect links between health and housing"*

- Ready-to-use toolkit for providers of housing services (especially those focused on vulnerable populations) for gathering standardized, comparable data across the country
- Compare census data with dwelling counts and do a “missing persons report” to determine the amount of affordable housing

Examples:

- Calgary Homeless Data – counts of individuals on a given night.
- City of Saskatoon Housing Inventory – Russell Mawby developing a data system to monitor housing, something more routine than the census
- Vancouver – Eberle and Kraus doing work on tracking of affordable housing (condos rented, illegal suites etc.)
- Housing Needs and Options of Older Adults in Peel Region: Final Report (March 2000)
- Canada Mortgage and Housing Corporation (CMHC) is developing a Canadian Housing Observatory. Its purpose is to provide authoritative reporting on the state of the nation’s housing, supplemented by, and electronically linked to, up-to-date housing data in tables and charts. The Observatory will bring together a wide spectrum of housing information in one place, making CMHC’s data and analyses more accessible to researchers, decision-makers and the public. An expanded Housing in Canada e-database is expected in 2004. An online database will report on trends, demographics, socio-economic characteristics and housing indicators.

3.4.2.3 Research Methodology and Infrastructure Priorities

“Documented evidence (rather than just anecdotal information) of the benefits of secure, adequate, affordable housing would provide greater ammunition in the lobbying efforts for more social housing programs.”

“There is a basic understanding of the links between adequate housing, impacts of living in a secure home and health outcomes. But we are constantly having to prove the health links, evidence is being asked.”

i) Long-term/Longitudinal Studies

Many participants stated that the priorities for research should focus on obtaining longitudinal data as they provide stronger evidence of a relationship between housing and health. Such information would be useful in evaluating the effectiveness of existing interventions, or for developing future programs. Several participants mentioned the HIFIS program (an information system for transitional housing shelters established by the National Homelessness Secretariat) and felt this could be used as a tool for obtaining data on long-term trends.
Similarly, the idea of a national survey of housing conditions was seen as an effective method to maintain surveillance over housing conditions and trends. Participants raised a problem with research-to-policy transfer: short term outcomes are preferred because of the nature of the electoral cycle. “Are you being set up for failure simply because you can't measure health issues for the short term (4 years)?”

ii) Natural Experiments

An alternative approach to developing longitudinal data for the study of housing and health would be to use so-called quasi-experimental methods, or natural experiments. As reported by

workshop participants, there are hundreds of new public (and private) housing developments opened each year across the country, and many other existing units which are occupied by new residents. These have the potential to become natural experiments because they represent a change from one housing circumstance to a new housing circumstance, and it is possible to assess their health status before and after a resident moves. Moreover, there exist many residential intervention programs, which routinely house new clientele. All of these examples represent lost scientific opportunities. If there were some routine data collection, it would be possible to capture the effects of housing interventions on health and health care utilization, and possibly to establish some *"best practices in housing and health."*

iii) Greater Linkage of Health Data
"The need to start linking health data to other geographically oriented databases (greenspace, community facilities, housing, school populations, environmental conditions etc.). One of the questions being how do you get health information into other systems, especially those that have some ability to influence the determinants of health."(Questionnaire response)

In studies based either on questionnaires or natural experiments, it is often possible to gain permission from respondents to use their health care utilization records from administrative databases as a proxy for health status, particularly in vulnerable populations. In many provinces (B.C., Alberta, Saskatchewan, Manitoba, Ontario) these health care utilization databases, which can provide very strong evidence of changes in health care utilization, can be used for research as long as ethics approvals are granted and individuals' privacy and anonymity is protected.

Administrative health care utilization data could also be used for research that investigated the effectiveness (and cost-effectiveness) of housing interventions for vulnerable sub-groups, especially people with chronic conditions, disabilities, and mental illnesses and addictions. In other words, it would be possible to investigate whether there were health care savings realized by providing stable, supported housing to people with mental illnesses, for example (especially if done in the context of a natural experiment). This kind of policy analysis would provide strong evidence of the impact of housing on health, and strong justification for a greater investment in housing programs for individuals with chronic illnesses and disabilities.

An excellent example of such a study was conducted by the Nanaimo Affordable Housing Society (NAHS) in their evaluation of the 350 Prideaux Street project, a 17-bed supported facility for people with serious and persistent mental illness. The NAHS received permission from residents to link to their individual provincial health care utilization files in order to track changes in their service utilization after moving to the facility. Utilization was simply measured as number of hospitalizations and length of stay for 'medical' causes and for 'psychiatric' causes. Remarkably, the NAHS found a more than seven-fold decline in average annual days in hospital for medical admissions (from 100.4 days per year to 13.5) after residents began residing at Prideaux, and a five-fold decline in average annual hospital days for psychiatric admissions (from 104.1 days per year to 20.5).

vi) Performance Indicators or Benchmarks
Along with the need for establishing best practices, as previously discussed, there needs to be greater understanding of the risks and benefits associated with various housing interventions so

policy decisions can be made that favour human health. One way to do this is to identify variables/indicators that can help us understand how human health is affected by our housing, ideally as a cause-effect relationship. To be effective, indicators need to be: 1) built around clear, specific goals; 2) consider the ambient physical and social environment; and 3) be embedded within a context of sustainability.

The first question therefore becomes "What are these goals?" Is it simply to house everyone? What is an acceptable standard for what people need? Can we agree on a definition of well-being? What are the expectations? Is there a minimum income for well-being? Workshop discussions around the setting of these benchmarks led us into a discussion of quality of life measures (what do we need to have quality of life?) and ultimately how we measure health. As well these benchmarks need to be agreed upon by funders, government agencies, decision-makers, policy makers etc. – they are the ones that need to have these negotiations. Setting standards is difficult because they are relative. What is important is that debate is initiated.

There was much discussion about the current benchmark for housing affordability: that no more than 30% of gross income going towards housing. This threshold has been adopted by many studies with little critique of its value as a measure. Presumably, 30% of gross income towards housing is going to be a much greater financial burden for poorer households than for wealthier households. Moreover, by adopting such a threshold, information about the households spending much less or much more than 30% of income on housing is lost. To develop better benchmarks studies, therefore, should be collecting information on gross and net monthly household income, housing / shelter expenditures, needed housing modifications (often a substantial unspent financial burden) and other major expenditures (e.g., medical costs for people with chronic illnesses) to get a full picture of total household income and the true burden of housing costs.

v) Outcome Based Planning

One of the main themes to come out of the discussion of research methodologies concerned outcome measurement. There was much discussion around outcome-based planning being built into future research objectives. An outcome may simply be an overall improvement in the measure – fewer police calls, fewer hospital admissions – instead of success being measured by meeting a previously defined and set system-defined "benchmark". It seems most desirable to develop outcome measures that show reduced costs to the healthcare and justice systems. Some general outcome measures identified by participants that may be appropriate if they were measurable in some way:

- Increased quality of life
- Decreased costs to health and justice systems
- Increased social benefits of adequate housing
- Increased awareness and conscience of public
- Eviction prevention – create understanding of landlord/tenant system (aboriginals)
- Increased "sense of control" (comparison to workplace research)

More specific examples of health outcomes for housing and health research might include: self-reported health status, mental health screening instruments, and measures of children's emotional, social and cognitive development, like parent-child attachment. Many of these health

measures are strongly correlated with 'harder' measures of health, like symptom reporting, diagnosable illness, and even death.

Specific plans are needed for the use results of research – this was particularly appealing to the service-provider audience who wanted to see what was in it for them when they commit resources to collecting data for others to use (academics, policy makers, decision-makers).

vi) *Need for comparative information*
In order to successfully encourage positive outcomes there is a the need to engage in comparative analysis of how other jurisdictions have addressed the issues, i.e., have they successfully encouraged positive outcomes? There is a definite need for more research on program evaluation techniques and the development of indicators in the housing and health sector to allow for the comparisons of outcomes. These can then be used for evaluating program objectives (to track and evaluate over time – these performance measures can help in assessing the effects of various policies and interventions over time).

Example:
FCM Quality of Life Indicators (1996, 2001) reports - These indicators measure social and economic conditions in Canada's cities and generate a global picture of living conditions that usually escape other traditional assessments of policy outcome. Also provides a benchmark against which to measure progress. Limited by available national census data – so housing measures are rental costs, vacancy rates and housing starts.

3.4.2.4 Substantive Research Priority Areas

i) Economic aspects of housing and health

"Poverty comes before homelessness"

"Failure to spend on housing is short-sighted and a false economy – drawback of this is that it is all economic – no other values."

There is a need for much more thorough research on the financial aspects of housing and health status. At the household level, financial aspects of housing are also important. Because income, which is commonly used in existing research on socio-economic status and health, only accounts for household revenues and not household expenditures, income gradients in health quite likely underestimate the steepness of the social gradient in health. If well done, studies with complete household budgets (revenues and expenditures), as well as housing wealth (equity) effects may help to indirectly estimate the magnitude of health benefit that could accrue to lower income households if policies were implemented to reduce the financial burden of housing.

More research is needed on the health consequences of renting vs. owning. In terms of financial advantages it is well known that wealth is redistributed through housing through tax benefits and other public subsidies to homeowners. What would be the impact of directing some of those

subsidies to renters to reduce rent burdens? What are the best options? Do they make a difference to reducing the 'discounting' of health (Cheer, et al. 2002).

a) Cost-Benefit Analysis

Particularly for vulnerable sub-groups, providing housing may be far more cost-effective than not, although there is a lack of systematic evidence on this. There is a definite need to *"Alter the ideology – housing is an investment."* (financially and socially). It was voiced again and again across the country that we need to *"quantify what we know anecdotally"*, *"put it into financial language"* and effectively communicate the results to policy decision-makers. Participants and questionnaire respondents agreed that "d*emonstrating economic savings will make the most difference." "the political will needs to change."*

Participants also suggested that research be used to identify the specific attributes of housing which make a difference to health and other social outcomes, particularly for vulnerable populations. They articulated this as a trade-off between spending on housing ***or*** spending on 'supports'. If we monitor the spending/saving impacts of providing housing and support (community services/facilities) then it may be possible to assess the impact of housing on health. The bottom line is that it is necessary to devote resources to studies that address these issues.

Additionally, recent work by Eberle and Kraus, et al. (2001) for the B.C. provincial government showed that the health, social services and criminal justice systems bear considerable costs due to homelessness. More research of this kind needs to be done.

b) 'Discounting' health and household budgets

Especially in low-income households, expenditures made on housing are expenditures not made on other possibly health-enhancing goods. Research is needed to ascertain the health consequences of such household budget decisions; this is especially magnified for low-income households. Questions that need to be answered: How and to what extent is health compromised?

ii) Research Over Life Span

An individual's stage in the life-course (with particular emphasis on the beginning and end of life) is an important theme in the research.

a) Children

There are direct effects of exposure to physical, chemical and biological hazards that must be considered, but children in lower socio-economic status households are often more likely to be exposed to such hazards, possibly creating a 'multiple jeopardy' effect. Other direct effects on child development concern the location, design and amenities of housing. An example of indirect effects of housing on child development is through the impact of parental stress. Housing, according to such a hypothesis, can be linked to patterns of parent-child attachment. Parent-child attachment, in turn, is a very strong predictor of future emotional, social, economic and physical well-being for children. Additionally, a recent study has shown that substandard housing is commonly a factor in children being taken into care by the state in the Toronto area (Chau, et al. 2001)

Several possible avenues for investigation of the effects of socio-economic dimensions of housing on early child development are discussed and examples presented. A focus on children's living conditions and developmental outcomes represents a particularly underdeveloped area of research. Although the opportunities in children's housing and health research are emphasized, several key issues for housing and health relationships amongst seniors are also identified.

If you have children mis-housed it follows them through their life cycles.

What are the relationships – housing and early childhood (0-6 years) development – especially among low-income renters? Age 6-12 very little research here, teens/youth etc.

Highlight the fact that children live in families, they are not separate.There seems to be a willingness to assist children and value their potential but they live inside families. Need more focus on families. Housing is vital to their well-being

Early childhood research themes catch the attention of business because a failure to invest in children has implications for the supply of skilled labour in the future.

b) Seniors

Seniors are another population sub-group for whom housing can be a challenging issue, particularly for seniors of lower socio-economic status. Many seniors are poor and may have chronic illnesses. They are also vulnerable to social isolation. There is a wealth of research on seniors housing, some of which investigates relationships to health, or more commonly, to functional status, cognitive function and competency. As the population ages there will be a greater concentration of resources required to allow people to "age in place". Key research issues that remain include:

- housing affordability
- research tools for rapid, inexpensive, but accurate identification of seniors at-risk for functional incompetence
- interventions to alleviate social isolation both for those who are housebound and those who are not
- identification of obstacles and barriers to making house modifications to prevent falls and reduce hazards in seniors' homes

There has been a great deal of research on seniors' housing and conditions and their well-being, broadly defined. A complete review of the unique housing issues facing seniors (and their potential health consequences) is outside the scope of this report. The framework developed in this report can nevertheless be applied to seniors' housing issues in future research.

iii) Integration and Social Mix

There is a growing body of research suggesting a relationship between residential segregation and health and human development outcomes (e.g., Acevedo-Garcia 2000; Waitzman and Smith 1998). Similarly, a number of studies now suggest that neighbourhood level socio-economic factors may exert an independent influence upon health and human development, independently of an individual's own socio-economic status (Diez-Roux, et al. 2001; Brooks-Gunn, et al.

1993). These findings beg questions about neighbourhood and site planning for social mix, and the social and health outcomes that may be produced. Preliminary evidence suggests that living in socially mixed neighbourhoods is beneficial for children from poor families (Brooks-Gunn, et al. 1993). To date, however, there are no known systematic evaluations have been done of initiatives to create social mix, and this is therefore an area of great research potential (see Cole and Goodchild 2001; Vischer 1986). There is some evidence that 'social integration' may create better outcomes for people with chronic mental illness, but there is still a strong tendency for such individuals to live in highly segregated neighbourhoods. An important question that was raised in a number of the workshops on the prairies was the issue of rising urban Aboriginal segregation, which has become quite severe. What will be the health and social consequences of such patterns?

iv) Physical Hazards

Two specific research questions were raised by participants concerning indoor air quality and various environmental sensitivities:

a) What is the societal costs of poor indoor air quality and other physical hazards?
b) What is the extent of environmental sensitivity disabilities in Canada? (severe, mild, chronic)?

The application of a social determinants of health perspective to potential exposures in the home raises three main questions:

a) what is the overall burden of illness and exposure from a given exposure/outcome pair?;
b) what is the distribution of such exposures across social groups, especially along socio-economic lines?
c) are there identifiable obstacles, barriers and / or constraints to ameliorative action on the part of exposed individuals, especially of a socio-economic nature?

A policy-oriented set of further research questions follows from these:

d) do methods for rapid and economical identification of exposed individuals exist (e.g., Dales, *et al.* 1994)?
e) do methods exist for the subsequent estimation of burden of exposure / illness?
f) are data available to estimate the economic costs / health benefits of possible policy responses – e.g., regulation vs. behavioural change?
g) if behavioural change is attempted, how can the appropriate behaviour be promoted most effectively at the least cost and what methods should be used for the evaluation of behavioural interventions[5] (Green and Kreuter, 1991)?

v) Home ownership vs. renting

Without more information on the context of home ownership in surveys that contain both housing tenure and health status information, it is impossible to move much beyond a simple

[5] The National Academy of Sciences (2000) points out that although there is somewhat less than complete certainty about the effectiveness of actions like mould and dampness reduction, relatively little intervention research has been conducted.

association between housing tenure and health status. What is required is an 'unpacking' of the notion of housing tenure – this requires an approach that uses theoretical insights and to identify the social, economic, psychological, etc. benefits (or burdens) that home ownership brings. Such an endeavour may also be helped by qualitative research as well. Drawing on such theoretical and qualitative research, measures of relevant properties can then be investigated for their association with health status, while controlling for relevant confounders.

3.4.3 Prioritization of Needs, Gaps and Opportunities

The prioritization of needs, gaps and opportunities presented a significant challenge to workshop participants. The current dearth of systematic studies, organized literature scans, research capacity and overall research focus meant that suggested research themes and issues were almost all ranked as 'high priority'. That said, some of the issues raised can be prioritized because they must logically precede others (e.g., development research capacity must precede the conduct of studies), while the categorization of priorities into the themes of 'Science'; 'Pertinence / Strategic Importance'; and 'Organizational Arrangements' (see: Appendix F for these criteria) helps to further organize the findings of the NGOA. In the following section, conclusions and recommendations are made with these prioritization criteria in mind.

3.5 Conclusions and Recommendations

The collaborative stakeholder process revealed that there is a strong appetite for strengthening housing and health research among a wide variety of stakeholders who participated in the regional workshops, and/or have submitted on-line questionnaires and amongst 'corporate' stakeholders like the National Housing Research Committee (NHRC) and the Canadian Housing and Renewal Association (CHRA). Despite this keen interest, numerous needs, gaps and obstacles were identified on the path to a greater concentration of research on housing and health and its translation into policy. The following conclusions and recommendations attempt to address these and give them each some priority status.

The key obstacle / need identified herein is an issue that penetrates all of the more specific needs: a lack of research capacity in the area of housing as a socio-economic determinant of health. There are remarkably few academic researchers focused in this area in Canada, there is very little research activity taking place on this topic in Federal or Provincial ministries and departments, and most of the (usually quite small) organizations who deliver housing services for provincial governments do not have the resources, skills, or time to participate in research. These issues are addressed more thoroughly under 'Organizational Arrangements'.

3.5.1 Science: Basic Research in Housing and Health

The conceptual framework used to guide this NGOA, which identifies seven key dimensions of housing with possible influence on health, forms the basis for the 'science' recommendations. In each of the seven dimensions, there is a need for a systematic review of existing studies, with

sensitivity to the likelihood that specific factors may operate very differently for different population sub-groups. Particular attention should be drawn to intervention studies or quasi-experimental studies involving changes in residence. Where there is a dearth of existing studies, promising theoretical conjectures evident in the literature should be identified and testing of empirical measurement methods should begin. A good vehicle for this preliminary empirical work may be a cohort study. If it were possible to enrol a large cohort of households with adequate representation across sub-populations, and follow them through time with frequent data collection rounds, new methods to investigate concepts and theories from the literature could be tested in an efficient manner. Some examples of issues to investigate would include: questionnaire-based rapid assessment of physical housing quality; psychometric development of instruments to measure demand and control (or similar constructs) as they pertain to the domestic setting; assessment tools for determining the 'dwelling skills' of individuals (i.e., recognizing that to 'dwell' is an acquired skill, not and intrinsic property of humans); and measurement tools to investigate the adequacy of the home for making and maintaining social ties.

While these priorities speak mainly to conceptual and methodological issues, there is a class of what might be called 'applied scientific research', which addresses the need for systematic information on issues already considered a priority. For example, although there are numerous studies of homelessness and health, there is relatively little known about the housing and health conditions of the 'incipient homeless' – people who are one misfortune away from homelessness. A national survey of housing conditions would help to address this information need.

Recommendations:

- conduct a systematic review of studies pertaining to each of the seven dimensions of housing relevant to housing as a socio-economic determinant of health
- conduct a systematic review of relationships between housing conditions and health (and known determinants) for key population sub-groups (e.g, children, people with chronic illness (including mental illness); aboriginal people, seniors, immigrants)
- conduct basic research to translate conceptual / theoretical knowledge in the seven dimensions into empirical tools (instruments, questionnaires)
- establish a cohort of households, with over sampling of subgroups of interest, to routinely survey on housing and health, and upon whom to test new tools
- conduct a national survey of housing conditions; include measures of numerous housing dimensions based on expert advice and measure health status in a robust way

3.5.2 Pertinence / Strategic Importance

The key issues of strategic importance pertain to the potential to improve the health of Canadians and reduce inequalities in health on the one hand, and the potential to improve the efficiency and effectiveness of the health care system one the other. The latter represents a significant case of 'low-hanging fruit' and studies which investigate 'housing as a substitute for health care' should be given very high priority. There are numerous organizations throughout the country who are providing housing services to people with disabilities, frailties and chronic illnesses, yet remarkably little is known about how these services affect health outcomes and health service

utilization. The advent of research-ready administrative health care databases makes it possible to investigate such questions. Yet these organizations are characterized by their small size, limited resources, and dearth of research capacity. In terms of reducing health inequalities and improving the health of Canadians, a research focus on the impact of housing on health and known antecedents to good health (e.g., social support, labour force attachment, health behaviours) for sub-populations who are widely recognized as socio-economically disadvantaged or vulnerable has considerable strategic potential.

Recommendations:

- offer targeted research funds to investigate the health system effects of specific housing programs (e.g., supported housing, homeless shelters, etc.) on health care utilization, costs, etc. These projects should develop 'receptor capacity' in provincial and municipal government departments to reduce obstacles to rapid implementation
- establish a network centre for housing and health research to conduct meta-analytic research of in which small housing providers may enrol; data collected from clients would be linked to administrative health care records; results to be fed back to organizational participants
- offer targeted research funds to investigate the effects of socio-economic dimensions of housing on the health of vulnerable sub-populations: children, seniors, aboriginal peoples, single-parent families, working poor families, immigrants, etc.

3.5.3 Organizational Arrangements

The NGOA reported upon here found a great deal of unrealized potential in the organizational arrangements. The NHRC recently established a permanent working group on Housing and Population Health, while the CHRA Board of Directors and the Research Committee have worked closely with Dr. Dunn on the NGOA and have had workshops on housing and health at their annual congress for two years running (2002 and 2003). At the same time, the National Homelessness Secretariat has funded a great deal of research on homelessness and health issues, as was evident from a workshop held in November 2002, which was attended by the Principal Investigator. Yet there is almost no co-ordination of research efforts at the Federal level, even between these two agencies. This is symptomatic of the housing policy environment in the country more generally. The separation of homelessness research from housing research is inefficient and illogical. Health could be a vehicle or 'test-case' for creating greater co-ordination of effort.

Recommendations:

- CIHR-IPPH should take a leadership role in developing a co-ordinated national research strategy on housing and health, in order to streamline the efforts of the Canada Mortgage and Housing Corporation, the National Homelessness Secretariat, and the National Research Committee and the Canadian Housing Renewal Association (the latter representing NGO and local and provincial governments)
- CIHR-IPPH should immediately invest (with government partners and other CIHR institutes) in building the human resources research capacity in the area of housing as a socio-economic determinant of health, including:

  - a national network of housing and health research stakeholders to allow for standardized data collection efforts, data sharing, meta-analyses of the health outcomes of housing programs (e.g., 'natural experiments), and dissemination of research findings
  - programs to develop 'receptor capacity' for housing and health research in relevant federal, provincial and municipal government departments
  - targeted housing and health training and career development awards at the Master's, Doctoral, Post-Doctoral and New Investigator levels
  - training programs for individuals working in housing service provider organizations focused on clientele with existing health conditions, or with significant potential for improving the health of Canadians or the effectiveness of the health care system
- CIHR-IPPH should take a leadership role in securing investments to establish or enhance the following routinely collected data sources:
  - a national survey of housing and health conditions in Canada
  - a cohort study of housing and health conditions in households in several centres
  - a methodologic research program which exploits administrative health care databases for their potential to investigate the health effects and health system (including costs and benefits) effects of housing and housing interventions

References

Acevedo-Garcia, D. (2000). “Residential segregation and the epidemiology of infectious diseases.” Social Science and Medicine **51**: 1143-1161.

Badcock, B. (1984). Unfairly structured cities. Oxford, Basil Blackwell.

Brooks-Gunn, J., G. J. Duncan, et al. (1993). “Do neighborhoods influence child and adolescent development?” American Journal of Sociology **99**(2): 353-395.

Brunner, E. (1996). The social and biological basis of cardiovascular disease in office workers. Health and Social Organization. D. Blane, E. Brunner and R. Wilkinson. London, Routledge.

Chau, S., A. Fitzpatrick, et al. (2001). “One in five... Housing as a factor in the admission of children to care.” Centre for Urban and Community Studies Research Bulletin **#5**.

Cheer, T., R. A. Kearns, et al. (2002). “Housing policy, poverty and discounting health among Pacific peoples in Auckland, New Zealand.” Environment and Planning C: Government and Policy.

Cole, I. and B. Goodchild (2001). “Social mix and the 'balanced community' in British housing policy - a tale of two epochs.” GeoJournal **51**: 351-360.

Dales, R. E., I. Schweitzer, et al. (1994). “Indoor air quality and health: reproducibility of respiratory symptoms and reported home dampness and molds using a self-administered questionnaire.” Indoor Air **4**: 2-7.

Despres, C. (1991). “The meaning of home: Literature review and directions for future research and theoretical development.” Journal of Architectural and Planning Research **8**(2): 96-115.

Diez Roux, A., C. Kiefe, et al. (2001). “Area characteristics and individual-level socioeconomic position indicators in three population-based epidemiologic studies.” Annals of Epidemiology **11**(6): 395-405.

Dunn, J. R. (1998). Social inequality, population health and housing towards a social geography of health. Geography. Burnaby, BC, Simon Fraser University.

Dunn, J. R. (2000). “Housing and health inequalities: Review and prospects for research.” Housing Studies **15**(3): 341-366.

Dunn, J. R. (2002a). “Housing and inequalities in health: a study of socioeconomic dimensions of housing and self reported health from a survey of Vancouver residents.” Journal of Epidemiology and Community Health **56**: 671-681.

Dunn, James R. (2002b). A Population Health Approach to Housing: Towards a Research Framework.. Ottawa: Canada Mortgage and Housing Corporation and the National Housing Research Committee.

Dunn, J. R. and M. V. Hayes (1999). "Toward a lexicon of population health." Canadian Journal of Public Health **90**(S1): S7-S10.

Dunn, J. R. and M. V. Hayes (2000). "Social inequality, population health and housing in two Vancouver neighbourhoods." Social Science and Medicine **51**(4): 73-97.

Eberle, M., D. Kraus, et al. (2001). Homelessness - Causes & Effects: The relationship between homelessness and the health, social services and criminal justice systems - A review of the literature - Volume 1. Vancouver, British Columbia Ministry of Social Development and Economic Security and BC Housing Management Commission**:** 51.

Ellaway, A., S. Macintyre, et al. (2001). "Perceptions of place and health in socially contrasting neighbourhoods." Urban Studies **38**(12): 2299-2316.

Evans, R. G., M. L. Barer, et al., Eds. (1994). Why are Some People Healthy and Others Not? The determinants of health of populations. New York, Aldine DeGruyter.

Evans, J., S. Hyndman, et al. (2000). "An epidemiological study of the relative importance of damp housing in relation to adult health." Journal of Epidemiology and Community Health **54**: 677-686.

Eyles, J. D. (1987). "Housing advertisements as signs: locality creation and meaning-systems." Geographiska Annaler **69(B)**(2): 93-105.

Gravelle, H. (1998). "How much of the relation between population mortality and unequal distribution of income is statistical artefact?" British Medical Journal **316**(January 31): 382-385.

Green, L. and M. Kreuter (1991). Health Promotion Planning: An Educational and Environmental Approach. Toronto, Mayfield.

Griffin, J., R. Fuhrer, et al. (2002). "The importance of low control at work and home on depression and anxiety: do these effects vary by social class?" Social Science and Medicine **54**(5): 783-198.

Haan, M., G. A. Kaplan, et al. (1987). "Poverty and health: Prospective evidence from the Alameda County Study." American Journal of Epidemiology **126**(6): 989-998.

Harvey, D. (1973). Social Justice and the City. Oxford, Blackwell.

Hayes, M. V., L. T. Foster, et al. (1994). The Determinants of Population Health: A Critical Assessment. Victoria, BC, University of Victoria, Western Geographical Series No. 29.

Hiscock, R., A. Kearns, et al. (2001). "Ontological security and psycho-social benefits from the home: qualitative evidence on issues of tenure." Housing, Theory and Society **18**(1): 50-66.

Hulchanski, J.D. (2001). "A tale of two Canadas: homeowners getting richer, renters getting poorer, income and wealth trends in Toronto, Montreal and Vancouver, 1984 and 1999." Centre for Urban and Community Studies Research Bulletin **#2**(August): 5.

Hwang. S.W. (2002). Is homelessness hazardous to your health? Obstacles to the demonstration of a causal relationship. Canadian Journal of Public Health, 93(6):407-10.

Hwang, S.W., and Bugeja, A.L. (2000). "Barriers to appropriate diabetes management among homeless persons in Toronto". Canadian Medical Association Journal, 163:161-5.

Hwang, S., E. Fuller-Thomson, et al. (1999). Housing and Population Health: A Review of the Literature. Ottawa, Canada Mortgage and Housing Corporation.

Hwang, S.W., O'Connell, J.J., Lebow, J.M., Bierer, M.F., Orav, E.J., Brennan, T.A. (2001). Health care utilization among homeless adults prior to death. Journal of Health Care for the Poor and Underserved, **12**: 50-8.

Karasek, R. and T. Theorell (1990). Healthy Work: Stress, Productivity, and the Reconstruction of Working Life. New York, Basic Books.

Kawachi, I., B. P. Kennedy, et al. (1999). "Social capital and self-rated health: A contextual analysis." American Journal of Public Health **89**(8): 1187-1193.

Kawachi, I. and B. P. Kennedy (2003). The Health of Nations: Why Inequality is Harmful to Your Health. New York, The New Press.

Lynch, J. and G. Kaplan (1997). "Understanding how inequality in the distribution of income affects health." Journal of Health Psychology **2**(3): 297-314.

Macintyre, S., A. Ellaway, et al. (1998). "Do housing tenure and car access predict health because they are simply markers of income, or self-esteem? A Scottish study." Journal of Epidemiology and Community Health **52**(10): 657-664.

Macintyre, S., A. Ellaway, et al. (2003 (in press)). "What features of the home and the area might help to explain observed relationships between housing tenure and health? Evidence from the west of Scotland." Health and Place.

Macintyre, S., R. Hiscock, et al. (2001). "Housing tenure and car access: further exploration of the nature of their relations with health in a UK setting." Journal of Epidemiology Community Health **55**: 330-331.

Maclennan, D. and More, A. (1999). "Evidence, what evidence? The foundations for housing policy." Public Money and Management **January-March**: 17-23.

National Academy of Science (2000). Clearing The Air: Asthma and Indoor Air Exposures, NAS Press, Washington DC.

Nettleton, S. and R. Burrows (1998). "Mortgage debt, insecure home ownership and health: An exploratory analysis." Sociology of Health and Illness **20**(5): 731-758.

Ostrove, J. M., P. Feldman, et al. (1999). "Relations among socioeconomic status indicators and health for African-Americans and Whites." Journal of Health Psychology **4**(4): 451-463.

Sapolsky, R. (1998). Why Zebras Don't Get Ulcers. New York, W.H. Freeman & Co.

Sapolsky, R. (2001). A Primate's Memoir. New York, Scribner.

Selye, H. (1956). The Stress of Life. New York, McGraw-Hill.

Shively, C. (1998). "Social subordination stress, behavior, and central monoaminergic function in female cynomolgus monkeys." Biological Psychiatry **44**(9): 882-891.

Smith, S. G. (1994). "The psychological construction of home life." Journal of Environmental Psychology **14**: 125-136.

Taylor, A. (2001). City tenants to be forced out, relocated. The Toronto Star. Toronto.

Thomson, H., M. Petticrew, et al. (2001). "Health effects of housing improvement: systematic review of intervention studies." British Medical Journal **323**: 187-190.

Vischer, J. (1986). "The complexity of designing for social mix. An evaluation of site-planning principles." Journal of Arch Plan Res **3**: 15-31.

Waitzman, N. J. and K. R. Smith (1998). "Phantom of the area: Poverty area residence and mortality in the United States." American Journal of Public Health **88**(6): 973-976.

Wilkinson, R. (1996). Unhealthy societies: The afflictions of inequality. London, UK, Routledge.

Wilkinson, R. G. (1994). "Divided we fall. The poor pay the price of increased social inequalities with their health." British Medical Journal **308**: 1113-1114.

Wilkinson, R. G. (1994). "The epidemiological transition: From material scarcity to social disadvantage?" Daedalus **123**(4): 61-78.