

GUEST EDITORIAL

Rural Health Research: Are We Beyond the Crossroads?

Judith C. Kulig

The purpose of this inaugural issue on rural health research is to provide a forum for Canadians to identify critical topics in rural health research. The publication of this issue of the Journal is another sign of the maturing of the field of rural health research in Canada. Rural health research has been slow to emerge and be recognized as a separate entity although individuals have been identified as experts in the area.

The lack of formal attention to rural health research in Canada is surprising given the large geographic area of the country that is predominantly rural and the significant number of individuals in rural, remote, and isolated areas. Specifically identifying the number of people in such locales is complicated by the uncertainty of how to define “rural” and “remote,” as noted throughout the papers in this issue. In addition, other terms such as “northern” and “isolated” come into play when one describes the populations that live in non-urban areas. For the sake of being inclusive, multiple terms are often used to describe rural and remote areas and populations, and thus the percentage of Canada’s rural population varies from 22% to 38% (du Plessis, Beshiri, Bollman, & Clemenson, 2001). It behoves researchers who are conducting studies with rural people to question current definitions and to reflect on the technical and social meaning of the terms (Pitblado, in this issue). This will help us to “nail the Jell-O to the tree,” or clearly identify what we are studying, among which population. This is essential given the need to generate information that can be used by rural peoples in the development of local initiatives and by decision-makers who are encouraged to create rural-specific policies but often lack the knowledge base to do so.

In a recent article deliberating on the state of rural health research in Canada, Pong (2000) notes that despite the challenges associated with conducting such research, including the isolation of individuals in various institutions across the country and the usual challenges in obtaining funding, rural health research has a strong foundation in this country. In order to address rural health research, we need to have individuals prepared to do so. There are university-based research centres devoted to

exploring rural and remote health issues, such as the Centre for Rural and Northern Health, a conjoint research centre at Lakehead and Laurentian universities (<http://laurentian.ca/cranhr/>), as well as the British Columbia Rural and Remote Health Research Institute at the University of Northern British Columbia (<http://www.unbc.ca/rural-health/>) and the Institute of Agricultural Rural and Environmental Health at the University of Saskatchewan (<http://iareh.usask.ca/>). Such centres have provided capacity-building opportunities for rural and remote communities and for the development of the next generation of rural health researchers.

Other initiatives that are underway or ongoing will also assist in the development of rural health researchers. The University of Saskatchewan has two centres funded by the Canadian Institutes of Health Research (CIHR): the Public Health and the Agricultural Rural Ecosystem graduate training program (<http://iareh.usask.ca/trainingprograms.php>) and the Canadian Centre for Health and Safety in Agriculture, which also includes training opportunities for graduate students interested in pursuing rural health research issues (<http://www.cihr-irsc.gc.ca/e/25196.html>). Laurentian University is awaiting formal approval of its interdisciplinary PhD program in rural and northern health (<http://laurentian.ca/personnel/ENGLISH/eEmploymentHealth.pdf>), which will also provide opportunities for students to develop the skills necessary to conduct rural health research.

Other forms of infrastructure are also needed in order to develop and pursue a rural health research agenda. At the national level, the Office of Rural Health (<http://www.hc-sc.gc.ca/english/ruralhealth/>) was established to assist the federal government in applying a rural lens to policies and programs throughout Canada. The CIHR has supported rural, remote, and northern research specifically through its Institute of Aboriginal Peoples' Health, which has carried out activities such as dialogue sessions on northern health research (<http://www.cihr-irsc.gc.ca/e/25228.html>) and has sponsored strategic funding opportunities for research on relevant issues within rural, remote, and northern areas. Other infrastructure in Canada is provided through the recent founding of the Canadian Society for Rural Health Research (<http://crhrs-scrsr.usask.ca/eng/index.php>), whose mission is "to facilitate research and knowledge translation aimed at understanding and promoting the health of people living in rural and remote Canada" (<http://crhrs-scrsr.usask.ca/eng/aboutus/mission.php>). A combination of all the educational resources and infrastructure noted here will continue to advance rural health research in Canada.

The background to rural health research noted above provides the context within which the papers for this issue were submitted.

Interestingly, but not surprisingly, the majority of papers focused on health human resource issues. The concerns over the availability and preparation of nursing manpower for rural and remote areas are grounded in available information, which notes 62.3 registered nurses per 10,000 population in rural and small-town Canada, compared to 42.9 RNs per 10,000 population in urban Canada (Canadian Institute for Health Information, 2002). Simply stated, a number of rural areas will need health human resource manpower, nurses being only one example, for the foreseeable future. The papers in this issue may assist decision-makers in setting policies and developing programs to address concerns about the shortage of health human resource professionals. For example, Stewart and colleagues provide a comprehensive account of the survey methodology related to the recently completed national study on rural and remote nursing practice (Macleod, Kulig, Stewart, Pitblado, & Knock, 2004). Their paper includes details regarding the primary work settings and work and community satisfaction of rural and remote nurses across Canada. Andrews and colleagues augment this information with further data from the national study by focusing on those RNs who work alone, profiling the benefits and challenges of this work. The third paper from the national study, by Pitblado and colleagues, examines the internal migration patterns of rural and remote nurses and notes that migration may be more important than retirement, suggesting the need for further examination. Tilleczeck et al.'s paper on manpower issues addresses the delivery of continuing education to nurse practitioners, documenting the challenges in providing education to practitioners and concluding that face-to-face modalities are preferred although not always possible. The final paper on manpower, by Minore et al., focuses on nursing turnover within Aboriginal communities and its negative effects on health services and on clients and families.

There were far fewer submissions addressing clinical issues within rural areas. The papers included in this issue by Caldwell et al. and Bowman et al. discuss experiences with health conditions and related health care, noting the challenges for rural people. Finally, MacLeod and Zimmer's paper examines the complexity of conducting action research with rural nurses in their home communities due to the difficulty of separating nurses' personal and professional lives. These authors call for researchers to reconsider key concepts such as empowerment in action research when working in rural communities.

The invited pieces published in this issue address several specific aspects related to rural health research. In his Discourse, Hartley discusses US experiences with rural health research, placing this special issue in a broader, international context. Like Canada, the United States has struggled with key definitions and has advanced a rural health research agenda

that focuses on policy interventions. Factors that have positively influenced rural health research in the United States are elaborated upon, with suggestions for what may be helpful in Canada. In the Designer's Corner, Pitblado identifies the challenges of defining terms such as "rural" and "remote." His discussion provides ample opportunity for reflection on how these terms should be defined by researchers in order to draw conclusions about their meaning.

Morgan et al., in the Happenings section, describe a recently funded CIHR New Emerging Team devoted to dementia care in rural Saskatchewan, an important example of capacity-building both for future researchers and for stronger community members. The Translating Research contribution by Racher and Annis focuses on knowledge translation in the context of their recently completed participatory action research project related to the determinants of health. The authors describe a variety of means through which the findings were disseminated in order to ensure inclusivity among the participating communities. Finally, the book reviews in this volume focus on issues (the importance of place on health, school shootings) and method (community-based research) that are directly or indirectly linked to rural communities.

This special issue provides an opportunity to document the growth of rural health research in Canada. With the expected increase in human capacity and a subsequent increase in research on a full range of relevant topics, other special issues in this and other journals will be needed in the future. Furthermore, it is anticipated that such issues will include research that has been conducted with rural people as partners in identifying their issues and concerns and subsequently their solutions. It would appear that when considering rural health research, we have moved beyond the crossroads!

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Discourse

Rural Health Research: Building Capacity and Influencing Policy in the United States and Canada

David Hartley

The majority of health services research in the United States has been deeply enmeshed in the financing of health care, which may partly explain the limited exchange between researchers in the United States and those in countries with very different funding systems. Rural health research, on the other hand, has been concerned more with access, regardless of how services are funded, and should offer more opportunities for international exchange. Rural health research means different things to different folks. Those accustomed to thinking about research in terms of randomized clinical trials, or at least in terms of a quasi-experimental design, in which an intervention is assessed for its effect on outcomes, may be surprised to learn of the large body of funded research that makes little or no use of such methods. The former approach to health services research is not primarily concerned with the geography of the patients or clinicians. If there is any acknowledgement that geography may have some influence on outcomes, it is addressed by including a dichotomous urban-rural variable in a multivariate analysis. The primary question in such studies concerns the clinical intervention, not the place.

In contrast, much of the rural health research currently funded in the United States is undertaken not to discover effective clinical interventions but to discover effective policy interventions. Those who labour in this vineyard have fashioned their research portfolios to address how rural is different, why rural is different, and, in most cases, whether the differences merit a policy intervention.

In a recent publication (Hartley, 2004), I argue that rural health research is a field that has come into maturity in the United States, as evidenced by the existence of its own journal (for the past 14 years) as well as two sentinel publications that have served to establish and to some

extent define the field (Ricketts, 1999; US Congress, Office of Technology Assessment, 1990). I also argue that the field has been dominated throughout much of its history by the study of access to care, especially hospital care and primary care.

A common approach to this study has been to document urban-rural differences in terms of utilization, or in ratios of services or providers to population (or, more recently, in terms of quality), and then claim an inequity and call for a policy intervention in the form of increased federal funding directed towards resolving the documented inequity. This approach was evident in the two sentinel publications just mentioned, as well as the publication of proceedings of a 1987 conference setting the rural health services research agenda (HSR, 1989), and to a lesser extent in the reprise of that conference, held in 2000 (Mueller, 2002). Both of the latter publications set the tone for the involvement of practitioners and policy-makers in the development and execution of the proposed research agendas.

This direct approach has been quite successful in terms of bringing applied research to bear on policy-making. The success of rural health research in the United States can be attributed to three factors. The first is the federal Office of Rural Health Policy (ORHP), established in 1987 with funding and authority to support a number of rural health research centres. The 4-year competitive grants to these centres have enabled them to establish a portfolio of research projects in one or more areas and to hire junior researchers with some assurance that funding will continue long enough for these recruits to develop their own research agendas. The research agendas of all currently funded rural health research centres can be found in *Rural Health Research in Progress* (www.rural-health.org).

The second factor in this success has been the role of the National Rural Health Association (NRHA) in bridging the gap between research and practice. This organization was formed in 1978 with the merger of two organizations representing rural hospitals and rural primary care. Seeking to create a “big tent” to accommodate a number of constituencies, the NRHA was able to attract clinicians, administrators, government employees, and academics. In such an organization, rural health researchers have found an effective professional body where they can present their research findings and network with funders, policy-makers, practitioners, and other researchers. The NRHA has played a role in posing research questions, advocating for research funding, and lobbying on behalf of rural residents and rural communities, using research findings to support their lobbying efforts.

The third factor in the success of rural health research in the United States has been the development of “issue networks” (Mueller, 1997; Peterson, 1993; Ricketts, 2002) consisting of many of the same con-

stituents who are active in the NRHA but who have networked and collaborated to bring about policy initiatives on specific issues such as rural hospitals, Medicare changes, rural health network development, and the rural workforce. These networks typically include representatives of federal and sometimes state agencies, advocacy and professional groups, consultants, and clinicians, in addition to researchers. They have helped to alert funders to issues that need further research, ensuring funding for policy-relevant research and an eager audience for the findings. The history of rural hospital policy is an excellent example of the evolution and influence of an issue network.

As the field of policy-relevant rural health services research has developed, the problem of defining “rural” has been a perennial issue, as noted in another column in this special issue of the Journal. In the United States, the definition has been determined by federal programs whose policies include definitions, as well as by the definitions and limitations inherent in large national data sets such as the Area Resource File (www.arfsys.com). Researchers have relied heavily on such county-level data, which can be used with the Rural-Urban Continuum codes and Urban Influence codes, both developed by the Economic Research Service and both based on county population and adjacency to metro counties. Experienced rural health researchers in the United States have generally agreed that there is no single best definitional approach and that different definitions and rurality scales are appropriate for different research questions. For example, the *Health United States 2001 Urban and Rural Chartbook*, which presents population health indicators measured at the county level, aggregates counties into a five-category continuum (derived from the Rural Urban Continuum codes), revealing a U-shaped pattern that shows suburban counties to be healthier than both urban and rural counties (Eberhardt, Ingram, & Makuc, 2001).

Closely related to the issue of definitions is the problem of data sets based on national surveys, for which the rural sample may be too small for statistical power or for which the geographic identifier is not made available to researchers for fear that identifying a rural survey respondent in a county will compromise that person’s privacy.

Methodologically, for much of its history the field of rural health research has made extensive use of descriptive quantitative methods, qualitative methods — especially case studies — and geographic methods that have also been largely descriptive. In defining an issue and creating an evidence base for a policy intervention, these three approaches have been effective, using large national data sets to quantify a disparity in access, funding, or health status, supplementing that approach with the detailed and personal stories gleaned from qualitative approaches, and

sometimes using maps to illustrate the extent of a problem or to identify specific regions where a policy intervention is more desperately needed.

While this approach has been effective in the context of policy relevance, it has been somewhat unsatisfying for researchers trained in econometrics or epidemiology. When the primary audience for one's research is other academics and the venue is publication in peer-reviewed journals, sophisticated analytic techniques can be employed, refined, and appreciated. When the audience is the practitioners, advocates, bureaucrats, and policy-makers of the rural health networks, methodological subtleties may actually impede communication. As a result, a significant volume of rural health services research does not find its way into peer-reviewed journals. This is partially explained by the need for researchers to deliver a product to a funder (a final report) and move on to the next funded project, but it is also explained by the fact that many of these studies are descriptive rather than analytic, do not involve hypothesis testing, and are not theoretically based. To some extent, researchers (and their academic institutions) may have to choose between traditional academic success and the satisfaction of seeing their findings put to use in policy formation.

There is hope, however, for those who long for the methodological gymnastics we learned in graduate school. The field is ready to move beyond describing differences in access. With the publication of *Quality Through Collaboration: The Future of Rural Health* (Institute of Medicine, 2005), a new agenda is emerging. The report has several themes, including quality improvement, human resources, financing, and information technology, but two larger themes are pervasive: that rural health systems can achieve better quality than urban systems, and that providers, funders, patients, and researchers must undergo a paradigm shift from a system based on patient encounters to a system based on population health.

The first of these broader themes will demand methodologies capable of measuring the organizational or system factors that enable rural providers to achieve the best outcomes, especially in the treatment of chronic illness, and separating severity or patient-level risk from these system-level constructs. Those researchers who are engaged in the measurement of quality of care in the rural environment have already noted the additional difficulties that must be addressed in this area, such as establishing statistically reliable measures for small-volume practitioners, and the lack of adequate data documenting medical encounters in rural settings, due in part to the cost of health information technology (Moscovice & Rosenblatt, 2000).

The second of these broad themes may be of greater interest to Canadian researchers, most of whom seem to have made the paradigm shift to population health somewhere between the publication of the

Lalonde report (Lalonde, 1974) and the publication of *Why Are Some People Healthy and Others Not?* (Evans, Barer, & Marmor, 1994). A leading rural health researcher in the United States recently noted that, after 30 years of intensive investment in improved access in his state, the recipients of those investments remain at the bottom in terms of health status (Ricketts, 2002).

As with the quality issue, one of the challenges of applying population health approaches to rural populations is the small-denominator problem — too few cases or incidences for statistical robustness. Even in the *Urban and Rural Chartbook* described above, the two categories of rural counties had to be combined for robust regional estimates of prevalence. The *Chartbook* presents estimates for four geographical regions of the United States, finding significant differences between Northeastern, Southern, Midwestern, and Western regions on a variety of health-status indicators. Responding to regionally diverse behavioural risk factors is a challenge, both conceptually and methodologically, for rural health researchers. Elsewhere I argue that these differences represent a “rural culture” that varies from one region, or perhaps one community, to the next (Hartley, 2004). Most now agree that the study of the determinants of health status must include individual health behaviours, socio-economic factors, and other environmental factors. While many health services researchers in the United States continue to focus their studies on what goes on in hospitals and physicians’ offices, or the financing of those encounters, it is my hope that rural health researchers are inching towards a greater interest in these ecological variables. Making the conceptual leap from medical outcomes to healthy populations requires a methodological leap from descriptive and multivariate approaches to hierarchical modelling, so as to capture the effects of individual characteristics — some of which predispose individuals towards specific behaviours — but also to capture the ecological effects of community-level variables, including cultural factors that may influence behaviours, environmental risk factors such as water and air quality, and socio-economic variables measured at the community level, including social capital and community median income and education.

So does this successful history offer lessons for Canadian rural health researchers? It would be easy for me to recommend the formation of an office of rural health policy, a national rural health association, and issue networks, a formula that has led to success in the United States. But it seems that Canada is well on its way to developing a similar structure. I see evidence of a strong commitment to building a national cadre of rural health researchers in Canada with the formation of an Office of Rural Health within Health Canada in 1998, and the series of conferences over the past several years that have brought together researchers

to share their work and to collaborate on building a future for the field. The founding of the Canadian Rural Health Research Society at the 2002 conference in Halifax, and its support by the Canadian Institute of Health Research, are further indications of a maturing field. Perhaps even stronger evidence is offered by efforts within the CIHR to ensure that rural health is addressed by asking all 13 institutes to support rural health research announcements, and by the strategic initiative in Northern and Rural Health, with a clearly stated intent of building university-based research teams and building research infrastructure. If I might offer a small suggestion, these grants might be more effective at building infrastructure if they were structured to involve two or three research projects concurrently, allowing several members of the team to function as Principal Investigators. That approach has worked well with the US centres funded by the ORHP.

Although I am less informed about issue networks in Canada, in the United States these have been driven, to a large extent, by the vagaries of our quaint health-care funding labyrinth. The details of who gets subsidies, grants, cost-based reimbursement, or help in recruiting clinicians and who does not have established a clear link between policy expertise and significant funding streams. That is, to a large extent, the link that has motivated providers, consultants, researchers, and policy-makers to collaborate. An issue network is most likely to emerge where research has the ability to influence the allocation of substantial resources. The consumers of research value timely, relevant information. Researchers who can step out of the glacial academic pace of knowledge creation to deliver focused products on short notice can be valuable members of such networks.

Conclusion

While not offering a brilliant new agenda for rural health research and the development of rural health services research capacity in Canada, this Discourse has, I hope, served to affirm the great strides that have been made over the past 5 years, and to assure those who care about the field that it is on the right track. I have suggested that issue networks can be effective in creating a research agenda, securing research funding, and ensuring that findings are put to good use. Yet, while the non-academic members of an issue network may be satisfied with descriptive approaches (reporting the average number of beans per pod), understanding the complex factors leading to geographic disparities in population health calls for more advanced methods, and the training of researchers in such methods. While there are many other rural health issues worthy of investigation, and perhaps sufficiently salient to support

an issue network, I believe the area of population health may be particularly fruitful for Canadian researchers, and may also foster international collaboration.

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Résumé

Les infirmières autorisées exerçant seules dans les régions rurales et éloignées du Canada

**Mary Ellen Andrews, Norma J. Stewart,
J. Roger Pitblado, Debra G. Morgan,
Dorothy Forbes et Carl D'Arcy**

Ce document examine les données démographiques sur les infirmières autorisées (IA) qui exercent seules dans les régions rurales et éloignées du Canada, leurs lieux de travail, ainsi que les avantages et les défis présentés par cette situation d'emploi unique. Les données sont tirées d'une enquête d'envergure nationale, une des quatre grandes approches utilisées pour mener le projet *The Nature of Nursing Practice in Rural and Remote Canada (La pratique infirmière en régions éloignées et rurales du Canada)*. Sur l'échantillon total de l'enquête, 412 infirmières (11,5 %) étaient employées comme seules infirmières autorisées dans leur milieu de travail. Les variables d'intérêts sont notamment le niveau d'instruction, le milieu d'emploi et la répartition régionale des lieux de travail. Une analyse des prédicteurs de la satisfaction au travail confirme les résultats de recherches antérieures soulignant l'importance de la formation continue et du contact direct avec des collègues. Les résultats de cette analyse pourraient aider les pouvoirs publics à prendre des décisions relatives à l'emploi des IA dans les régions rurales et éloignées du Canada.

Mots clés : rurales, éloignées, infirmières, instruction, satisfaction au travail

Registered Nurses Working Alone in Rural and Remote Canada

**Mary Ellen Andrews, Norma J. Stewart,
J. Roger Pitblado, Debra G. Morgan,
Dorothy Forbes, and Carl D'Arcy**

This paper describes the demographics of Registered Nurses (RNs) who work alone in rural and remote Canada, their workplaces, and the benefits and challenges of this unique nursing employment situation. Data presented are from a national survey, one of 4 principal approaches used in conducting the project *The Nature of Nursing Practice in Rural and Remote Canada*. Of the total survey sample, 412 nurses (11.5 %) were employed as the only RN in their work setting. Variables of interest included level of education, employment setting, and regional distribution of workplaces. An exploration of predictors of work satisfaction confirmed previous research findings with respect to the importance of continuing education and face-to-face contact with colleagues. Findings from this analysis may inform policy decisions regarding the employment of RNs in rural and remote Canada.

Keywords: rural, remote, nurses, education, job satisfaction

Introduction

Nursing is a profession that offers opportunities to practise in a diversity of settings. Each nursing workplace presents unique challenges, requires a specific set of skills and knowledge, and offers an array of personal and professional rewards that combine to create work satisfaction and professional merit. The diversity of workplace settings increases exponentially in terms of the range of urban to rural and remote settings spanning the country. These work situations can vary from hundreds of registered nurses (RNs) employed by a large hospital to one RN working alone as the sole provider of nursing services to a specific population.

A national survey from the multi-method project *The Nature of Nursing Practice in Rural and Remote Canada* (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004) provided the data for this analysis (Stewart et al., 2005). The subsample of the survey data set used for the present analysis was derived from responses to the question “At your primary workplace how many RN positions (in full time equivalents) are there including yourself?” This paper will describe the demographics, primary work setting, employers, and predictors of work satisfaction of

RNs who reported working alone. Predictor variables included the RNs' personal characteristics, work characteristics, perceptions of their work-lives, and characteristics of the communities in which they practised.

Literature Review

Historical Perspective

Presentation of the history of nursing practice in early Canada is beyond the scope of this paper; however, it is important to provide some background in order to set the context for nursing practice in rural and remote settings. Historically, nursing care in Canada was provided by both laywomen and trained nurses, most often working alone (McPherson, 1996). Rural nursing, practised by highly respected and highly visible nurses working independently, was the staple in health-care services during the early development of this nation (Rennie, Baird-Crooks, Remus, & Engel, 2000). Nurses visited clients in their homes to provide care to the ill and dying, as well as offering midwifery and communicable disease services (Allemang, 1985). Progression of our health-care system towards centralized hospital care led to a reduction in the number of rural nurses and in the number of their nursing responsibilities. However, the community visibility of the rural nurse has been an enduring feature of health care in such environments.

The history of nursing in remote settings such as northern Canada also has at its roots the practice of RNs working alone. Nurses employed by the federal government and the provinces are historically documented as working alone in an expanded scope of practice (Meijer Drees & McBain, 2001; Waldram, Herring, & Young, 1995). Waldram and colleagues, writing on the history of Aboriginal health care in Canada, note that remote nurses were identified as being highly visible in their communities and that sometimes this visibility was accentuated by cultural differences, as in the case of Caucasian RNs working in an Aboriginal community. In investigating the role of RNs practising in northern Saskatchewan communities from 1930 to 1950, Meijer Drees and McBain found that nurses experienced varying degrees of geographical and professional isolation.

The Current Context

In 2000 there were 399 communities in Canada where nursing care was provided by a "Sole RN" (Canadian Institute for Health Information [CIHI], 2002, p. 39). These positions are reported to exist within community health agencies (Leipert, 1999), rural hospitals (MacLeod, 1998), and outpost nursing stations (Tarlier, Johnson, & Whyte, 2003). RNs are commonly known to work alone in rural and remote communities,

employed in home care, industrial settings, small integrated rural clinics, physician offices, long-term-care facilities, or other locations where they are the only health-care provider (MacLeod, Browne, & Leipert, 1998). Conditions under which RNs are employed to work alone are not well known. Further analysis of solitary practice by RNs may involve exploration of regulatory requirements (e.g., provincial occupational health and safety regulatory requirements such as those under the *Mines Act*), population-based provincial economic factors (e.g., number of rural community health positions), and federal or provincial policy mandates regarding health-care provision (e.g., size of a rural or remote community population as an indicator for government health personnel requirements).

Rural and remote nursing practice has been understood to involve a unique set of practice characteristics (MacLeod et al., 1998). There exists a potential for these practice characteristics to be magnified, in either a positive or a negative direction, which could result in an increased level of personal and professional strain on RNs who work alone. Nursing research has not specifically addressed working alone in the context of professional nursing issues, although research reports do suggest the potential for increased challenges (e.g., limited rural-specific educational preparation) (Kenny & Duckett, 2003). Exploration of rural and remote nursing practice research both nationally and internationally has been limited (CIHI, 2002; MacLeod et al., 2004). A literature review of rural and remote Canadian nursing practice identified issues related to defining the practice roles of nurses (Vukic & Keddy, 2002) and work setting and environmental and clinical issues (MacLeod et al., 1998).

Practice Issues in Rural and Remote Nursing

Challenges in rural and remote nursing have also been stated to include requests for health information/advice from community members outside of the workplace and outside of working hours (Leipert & Ruetter, 1998), barriers to continuing education, limited resources, the “generalist” knowledge base, and the enormity of professional responsibility in these practice settings (MacLeod, 1998). Practising in isolation as an RN may preclude interaction with other nurses or health-care professionals, further increasing the sense of responsibility perceived by rural and remote RNs. Kulig et al. (2003) suggest that the responsibilities of Canadian rural or remote nurses have not been adequately supported by relevant educational programs to prepare nurses for the generalist roles inherent in non-urban settings.

The nursing literature has paid limited attention to discussions of employment characteristics of the rural or remote RN. Davis and Dries (1993) found that rural RNs in the United States had decreased access

to full-time positions outside of the hospital setting, little access to public health positions, and increased access to half-time jobs or those of fewer hours due to the financial restraints of rural employers. They also report that obtaining vacation relief in rural areas is perceived as problematic, and suggest that RNs employed as the only nurse in an agency experience increased difficulty securing time off from work. A recent Canadian report (CIHI, 2002) shows that older nurses in rural areas and small towns are employed full-time more often than their younger colleagues, and that younger nurses more often report having more than one employer.

Contrasting the challenges of working in a rural or remote location, nursing research has documented the personal and professional benefits ascribed to these practice settings. Leipert (1999) found that nurses felt they made a difference within their communities and perceived greater support from nursing colleagues when working in the north. Hegney, McCarthy, Rogers-Clark, and Gorman (2002) report the main reasons for practising in rural or remote settings in Australia as: positive occupational or personal experiences in the rural setting, family connection to a rural/remote location, appeal of the rural lifestyle, availability of employment, and the autonomy inherent in rural and remote nursing practice. Although some of these areas of rural and remote nursing have been explored in Canada (MacLeod et al., 2004), more research is needed to describe nursing practice and settings where nurses work alone.

Work Satisfaction

Measures of work satisfaction enable organizations to assess the morale of the nursing workforce, investigate factors that are both positively and negatively related to work satisfaction, and assist in recruitment and retention efforts. Predictor variables used in previous research on work satisfaction have included age, education, gender, personal ability to deal with stress (referred to as hardiness), autonomy, pay, occupation and organization type, control over work hours, organization of nursing care, and management style (Stamps, 1997). However, there appears to be no set list of predictor variables consistent in the research (Stamps).

Research on work satisfaction among rural and remote RNs is limited. The literature that is available suggests a high level of work satisfaction among rural RNs in Australia (Hegney & McCarthy, 2000), rural nurse practitioners and midwives in the United States (Keith, Coburn, & Mahoney, 1998), and rural long-term-care nurses in the United States (Coward et al., 1995). Sardell (1996) describes the role of professional clinical networks in supporting health-care providers who work with the poor in areas where medical services are scarce. These supportive and educative networks have served to increase workplace satisfaction as well

as retention and recruitment. Sardell's preliminary findings support the need for further research, according to the author, in order to compare workplaces with and without formal support networks.

The Study

This paper examines some of the issues surrounding nurses working alone in rural and remote Canada. The data examined are from a larger national sample of rural and remote nurses. The national survey received ethics approval from the University of Saskatchewan's Behavioural Research Ethics Board. Canadian provincial and territorial nursing associations assisted with the mailout of the survey questionnaire, either by addressing and mailing it in order to ensure anonymity, or by releasing the names and addresses with a contract to ensure confidentiality. More details on the method of the national survey can be found in Stewart et al. (2005).

Content of the Questionnaire

The content domains of the questionnaire were demographic (Who are rural and remote nurses?), characteristics of the work environment and nursing practice roles (Where do nurses work and what do they do?), context of practice (community, educational, and interdisciplinary supports for practice), and issues related to nurse worklife (work satisfaction, safety, health, and career plans). English- and French-language questionnaires were developed for this study.

Measures Analyzed

Three demographic variables (age, gender, and nursing education) and one work characteristic variable (employment status) were compared across the total sample (inclusive of the sample of RNs working alone) and with the Registered Nurses Database (RNDB) population data on nurses in rural and small-town settings in Canada (CIHI, 2002). The workplace settings and employers identified by the participants were recoded to reflect groupings whereby the largest categorical sampling could be presented and analyzed (e.g., mental health centre; corrections and addictions were grouped due to the small numbers of respondents in each work setting).

The Index of Work Satisfaction (IWS) scale developed by Stamps (1997) was modified and embedded in the questionnaire. The total score from the scale in the survey was used as the dependent variable to measure work satisfaction among RNs working alone. The 30-item modified scale included six subscales that measured autonomy, pay, organizational policies, professional status, nurse-to-nurse interactions, and

nurse-physician interactions. Each subscale had five questions and used a seven-point Likert scale for responses. The modified IWS had a coefficient alpha of .87, which was consistent with the reliability reported in previous studies that used this measure, where alphas ranged from .82 to .91 (Stamps).

Three subscales from the standard Job Content Questionnaire (Karasek, 1985) were included in the survey: the five-item scale of psychological demands ($\alpha = .76$), the three-item scale of decision authority ($\alpha = .68$), and the six-item scale for skill discretion ($\alpha = .74$). Karasek and Theorell (1990) report alphas in the range of .61 to .81. The decision latitude score is created with the combined scales of skill discretion (independent decisions for the use of skills) and decision authority (prescribed ability to make decisions regarding structure or function of work elements). The theoretical basis for the Job Content Questionnaire is the "demand control model" (Karasek & Theorell), which explores the relationship between occupational work stressors and the psychological response of workers.

Data Collection

The questionnaire was mailed to a random sample of rural nurses (stratified by province), all nurses registered in the territories, and all nurses who indicated on their annual registration form that their workplace was a nursing station or outpost. Data collection used a modified version of Dillman's (2000) Tailored Design Method. A total of 3,933 rural and remote nurses completed and returned the questionnaire, resulting in a response rate of 68%.

Working Alone Subsample

The subsample representing RNs who work alone was derived from responses to the question ($n = 3,585$) "At your primary workplace how many RN positions (in full time equivalents) are there including yourself?" Participants were included in this analysis if their response to the question indicated one or fewer nursing positions in their workplace. These criteria resulted in a subsample of 412 (11.5%) participants from all provinces and territories. A limitation of the sampling procedure is the possible inclusion of participants in a job-share situation, whereby one RN may work alongside another.

Analysis

The analysis was conducted using the SPSS Version 12 statistical application program. In addition to descriptive statistics, multiple linear regression analysis was used to examine predictors of work satisfaction. Potential predictors were at the level of the individual RN (age, gender,

and nursing education), the workplace (presence of a support network of colleagues, having face-to-face contact with colleagues, availability of the equipment necessary to provide care, nurses as first health-care contact in their work community, and having more than one nursing position), and the community (population of home community, community accessible only by plane, and frequency of being asked for advice outside of the workplace). In addition, predictors were selected on the basis of whether they reflected the individual RN's perceptions of his or her worklife (perception of role as advanced practice nurse, perception of barriers to continuing education, psychological demands, and decision latitude). The sample size decreased in the regression analysis, from 412 to 304, as respondents with missing values for the variables were removed. Power analysis, given the large sample size for the regression analysis ($n = 304$), was calculated using .01 level of significance returning a power of .99.

Table 1 *Demographic and Work Characteristics of RNs Working Alone, Compared to Total Sample and RN Database^a*

		Working Alone ($n = 412$) % (n)	Total Sample ($N = 3,933$) % (N)	CIHI (2002) ($N = 41,502$) % (N)
Gender				
Female		95.6 (394)	94.8 (3,722)	95.6 (39,694)
Male		4.4 (18)	5.2 (203)	4.4 (1,808)
Highest nursing education				
Diploma		70.5 287)	72.6 (2,825)	81.4 (33,788)
Degree		29.0 118)	26.0 (1,012)	18.0 (7,451)
Post-graduate degree		.5 (2)	1.3 (52)	.6 (263)
Employment status				
% Full-time	Yes	45.5 (185)	50.7 (1,983)	49.6 (20,599)
	No	54.5 (222)	49.3 (1,928)	
% Part-time	Yes	36.6 (149)	32.8 (1,281)	50.3 (20,894)
	No	63.4 (258)	67.2 (2,630)	
% More than one nursing position	Yes	26.8 (110)	20.8 (814)	16.4 (6,808)
	No	73.2 (300)	79.2 (3,099)	
^a Data reported for RNs from rural and small towns for the year 2000 (CIHI, 2002).				

Table 2 *Employer of RNs by Number of RNs in Workplace*

Employer	Number of RNs in Workplace in Full-Time Equivalents			
	≤ 1 RN^a % (n)	> 1 to ≤ 6 RNs % (n)	> 6 RNs % (n)	Total Sample RNs % (n)
Provincial government	36.9 (144)	48.1 (703)	64.1 (982)	54.0 (1,829)
Local health board/municipality	30.9 (121)	30.6 (448)	42.6 (423)	29.3 (992)
Private for-profit business	15.9 (62)	2.2 (73)	1.7 (26)	4.8 (161)
Federal government	4.6 (18)	8.7 (127)	4.1 (63)	6.1 (208)
Tribal council/band government	5.9 (23)	6.4 (93)	1.6 (25)	4.2 (141)
Other	5.9 (23)	1.3 (19)	0.8 (12)	1.6 (54)
Total	100 (391)	100 (1,463)	100 (1,531)	100 (3,385)

^a ≤ 1 RN represents RNs working alone.

Table 3 Primary Work Setting of RNs Working Alone by Number of RNs in Workplace

Work setting	Number of RNs in Workplace in Full-Time Equivalents			
	≤ 1 RN^a % (n)	> 1 to ≤ 6 RNs % (n)	> 6 RNs % (n)	Total Sample RNs % (n)
Community health/public health agency	19.9 (81)	14.5 (221)	6.0 (97)	11.2 (399)
Outpost/nursing station/health centre	19.4 (79)	24.2 (370)	4.1 (67)	14.5 (516)
Home-care agency	12.8 (52)	10.0 (152)	4.1 (67)	7.6 (271)
Nursing home/long-term-care facility	11.5 (47)	19.1 (292)	10.8 (175)	14.4 (514)
Physician's office/family practice unit	9.8 (40)	1.4 (21)	0.2 (3)	1.8 (64)
Private business/self-employed	7.1 (29)	1.1 (17)	0.1 (1)	1.3 (47)
General hospital/air ambulance/ dialysis unit	4.2 (17)	15.7 (239)	63.2 (1,027)	36.0 (1,283)
Educational institution/association/ government	3.4 (14)	2.3 (35)	1.6 (26)	2.1 (75)
Mental health centre/corrections or addictions facility	2.5 (10)	1.9 (29)	1.5 (25)	1.8 (64)
Other	9.6 (39)	9.8 (150)	8.5 (138)	9.2 (327)
Total	100 (408)	100 (1,526)	100 (1,626)	100 (3,560)
^a ≤ 1 RN represents RNs working alone.				

Table 4 Number of RNs in Workplace by Work Satisfaction Predictor Variables

Variables	Number of RNs in Workplace in Full-Time Equivalents				χ^2	<i>p</i>
	≤1	> 1				
<i>Workplace characteristics</i>						
Colleague support network to provide consultation and/or support	Yes	91.0	88.2	2.8	.095	
	No <i>n</i>	9.0 409	11.8 3,149			
Face-to-face contact with colleagues	Yes	55.7	75.7	73.6	.000*	
	No <i>n</i>	44.3 406	24.3 3,104			
Availability of equipment to provide care	Yes	76.1	71.3	3.7	.055*	
	No <i>n</i>	23.9 364	28.7 3,085			
Nurses first health-care contact in community	Yes	52.0	49.4	1.0	.329	
	No <i>n</i>	48.0 408	50.6 3,526			
Currently have more than one nursing position	Yes	26.8	20.1	10.1	.001*	
	No <i>n</i>	73.2 410	79.9 3,156			

<i>Community characteristics</i>						
Community accessible only by plane	Yes No <i>n</i>	10.5 89.5 411	10.6 89.4 3,164	0.0		.953
Population of work community	200 or less 201–500 501–1,000 1,001–2,500 2,501–5,000 5,001–10,000 10,001 or more <i>n</i>	8.0 15.5 16.0 20.4 15.0 11.2 13.8 412	1.3 5.5 10.7 19.9 19.6 18.8 24.0 3,173	177.5		.000*
Frequently asked for advice outside of work	Yes No <i>n</i>	85.3 14.7 401	78.2 21.8 3,062	10.8		.001*
<i>Perception of worklife</i>						
Perceived role as advanced practice nurse	Yes No <i>n</i>	35.9 64.1 412	34.7 65.3 3,173	0.2		.624
Perceive barriers to accessing continuing education	Yes No <i>n</i>	63.5 36.5 406	66.8 33.2 3,523	1.7		.188
Notes: Ns differ across categories due to non-response. Figures in cells are percentages within columns. * Statistically significant.						

Results

Personal and Work Characteristics of RNs Working Alone

The mean age of RNs working alone ($M = 47.5$ years, $n = 408$) was higher than the total sample population ($M = 45.0$, $N = 3,886$) and higher than the RNDB total population of RNs ($M = 42.9$, $N = 41,502$) living in rural and small-town Canada in 2000 (CIHI, 2002). Table 1 compares the percentage of RNs working alone to the total survey sample and Canadian Institute for Health Information (CIHI) data on gender, education, and employment status. The percentages of men and women in the samples are similar across the three data sets. RNs who worked alone had attained a slightly higher level of nursing education than the total sample, which was higher than the RN education level reported by CIHI. The employment status of RNs working alone was comparable to the total sample and the CIHI data for percentages of nurses working full time. A considerably smaller percentage of RNs in the total sample as well as the RNs working alone were employed part time, compared to the CIHI data. RNs who worked alone reported having a higher percentage of multiple nursing positions than the total sample, and the total sample had a higher percentage than the CIHI data.

RN position groupings, represented in Tables 2 and 3, were determined by using the total sample where the mode was equal to one and the median number of RNs in a workplace was six. Overall, the most frequent employers (Table 2) were provincial governments and local health boards, regardless of the number of full-time-equivalent (FTE) RN positions in a workplace. However, RNs working alone had a higher percentage practising in private for-profit or business settings (e.g., self-employed or employed in industry). Table 3 presents the subsample by work setting and FTE RN positions. Most solitary RN positions were reported in community health/public health and outpost nursing stations. When the number of RN positions increases from ≤ 1 to >1 to ≤ 6 , the predominant employment setting remains outpost/nursing stations/health centres; however, the second-largest setting is combined nursing home/long-term-care facility. Consistent with the RNDB data (CIHI, 2002), when the number of RNs in FTE positions reaches > 6 , hospitals are revealed as the largest employer of RNs in rural and remote Canada, followed by long-term-care facilities and community health/public health agencies.

Table 4 presents descriptive data contrasting the RNs who worked alone to those who worked in settings with more than one FTE nursing position. It identifies no significant difference in responses to questions regarding workplace characteristics regardless of the number of RNs in the workplace; however, face-to-face contact with colleagues was less fre-

quent for RNs working alone. Percentages of RNs working alone who reported having the equipment necessary to provide care were higher than for the comparison group with more nurses. A higher percentage of nurses working alone were employed in more than one position, as indicated in Table 1.

Residing in a community accessible only by plane was not significantly different for RNs working alone and RNs working in settings with more than one FTE nursing position. A larger percentage of RNs working alone lived in communities with a population between 1,001 and 2,500. When the population rose above 2,501 the percentage of RNs working alone decreased. Lastly, Table 4 indicates that RNs working alone were more often solicited for advice outside of the workplace than RNs in settings with more than one FTE RN. Percentages reported under worklife perceptions reveal similar responses in the two groups regarding barriers to continuing education and viewing their work role as advanced practice nurse.

Work Satisfaction

Table 5 presents the regression analysis predicting work satisfaction for RNs who worked alone. In the model, six of the 15 independent variables entered were significant predictors of work satisfaction, accounting for 30% of the variance in job satisfaction, $F(15, 288) = 9.68, p < 0.001$. The only significant personal factor in the model was level of nursing education. The results suggest a higher level of work satisfaction among RNs educated at the diploma level than RNs with one or more degrees. The workplace characteristics with a statistically significant positive relationship to work satisfaction were ability to have face-to-face contact with colleagues and availability of the equipment needed to provide care (both characteristics were lower for nurses working alone). Community characteristic variables were not statistically significant. The RNs' perceptions of their worklife resulted in three significant factors related to work satisfaction: barriers to continuing education and psychological demands had significant negative relationships with work satisfaction, whereas decision latitude had a significant positive relationship.

Discussion

The purpose of the present analysis of 412 RNs working alone in rural and remote Canada was to describe this subsample from the national survey and to examine predictors of work satisfaction that may be useful in health human resource planning. The RNDB (CIHI, 2002) focuses on the community level (i.e., the sole RN serving a community), while this presentation of data is related to RNs working alone in a diversity of

Table 5 Multiple Regression Predictors of Work Satisfaction (n = 304)

Variables	B	SEB	β	p*
Personal characteristics				
Age	.11	.12	.05	.375
Female ^a	3.86	5.62	.03	.493
Diploma (DP) ^a	6.66	2.59	.13	.011*
Workplace characteristics				
Colleague support network ^a	4.68	4.10	.06	.256
Collegial contact face-to-face (FF) ^a	6.30	2.42	.14	.010*
Equipment needed is available (EN) ^a	8.43	2.34	.18	.000*
More than one nursing position ^a	-2.21	2.48	-.04	.372
Nurses first health-care contact ^a	-.61	2.48	-.01	.805
Community characteristics				
Community accessible only by plane ^a	6.69	4.16	.09	.109
Size of population	.50	.73	.04	.488
Asked for advice when not at work ^a	-4.45	3.24	-.07	.171
Perceptions of worklife				
Perceived role as advanced practice nurse ^a	-.67	2.73	-.01	.806
Fewer barriers to continuing education (BE) ^a	-8.50	2.49	-.18	.001*
Psychological demands (PD)	-.84	.19	-.22	.000*
Decision latitude (DL)	.80	.12	.35	.000*
Constant = 96.8, $p < .001$ R squared = .34 Adjusted R square = .30 Work satisfaction: Model $F(15, 288) = 9.68, p < .001$ $Y = -8.5 \text{ BE} + 8.4 \text{ EN} + 6.7 \text{ DP} + 6.3 \text{ FF} - .84 \text{ PD} + .8 \text{ DL}$ ^a Variables are dummy coded (1 = yes, 0 = no). * Statistically significant.				

work settings. Working alone was not found to be synonymous with employment in a small community.

The demographic and employment data from the working-alone subsample are similar to those in the full sample and are comparable to rural data from the RNDB analysis (CIHI, 2002). Present concerns regarding an aging rural and remote workforce, however, are accentuated in the working-alone subsample, whose average age is 47.5 years, compared to 42.9 years in the RNDB data. The potential for the RNs working alone to retire 5 years earlier than those in the full sample has implications for recruitment of rural and remote nurses, and for the

future provision of health-care services to populations served by RNs who work alone.

Of the RNs in the sample, 27% reported having more than one nursing position. Again, the RNDB (CIHI, 2002) analysis reports different results, identifying only 16.4% of RNs with multiple employers. These RNs are also stated to be younger than those employed full time in one position. It is plausible that full-time employment is more difficult to secure in rural locations. Although the present study did not analyze factors associated with multiple employment, future investigations into the rationale for part-time and multiple employment might be useful in describing the challenges or benefits of employment for novice RNs in rural and remote settings in general, as well as workplaces where nurses work alone.

Canada has a wide diversity of settings in which RNs work alone. Equally diverse are the employers of these RNs, although such positions are most often identified as primary care or primary health care. In the literature as well, rural and remote nurses are reported as holding community health or outpost nursing positions (Tarlier et al., 2003; Vukic & Keddy, 2002). One difficulty with assessing the work setting from the data is the current usage of the term community health centre, versus nursing station, to denote facilities that are nurse-managed clinics in rural and remote settings. Further analysis is needed to examine work settings by work characteristics, to allow for clarification of the categorization of the settings in which RNs practise.

Predictors of work satisfaction included individual characteristics, workplace characteristics, and perceptions of worklife. Surprisingly, the community variables selected in this regard were not statistically significant. The individual characteristics of age and gender were non-significant predictors of job satisfaction, whereas nursing education at the diploma level versus at a degree level was found to be a significant predictor of job satisfaction. Yet more RNs working alone had a degree than did RNs in the total sample or RNs in the RNDB data (CIHI, 2002). Further analysis is needed to examine the effect of education in predicting work satisfaction for RNs working alone; such analysis might include an examination of those workplace characteristics that require higher levels of education.

RNs working alone were more satisfied with their work if they had face-to-face contact with colleagues and access to the equipment they needed to provide care. Face-to-face contact with colleagues (not necessarily RNs) was a significant predictor of work satisfaction. Collegial support did not have a significant impact on work satisfaction. Over 90% of RNs in the subsample indicated that collegial support was provided; therefore, *type* of contact with colleagues, such as the ability to converse

face-to-face, supports Sardell's (1996) finding that collegial support affects job satisfaction. Efforts to maximize face-to-face collegial contact among RNs working alone could result in increased work satisfaction and retention of RNs in these types of nursing situations.

RNs in rural and remote communities are commonly asked for advice outside of work (MacLeod et al., 1998). Although a large percentage of the RNs working alone reported being asked for advice outside of the work setting, this had no significant effect on work satisfaction. This finding, combined with population size and accessibility of the community as non-significant predictors of work satisfaction, suggests that nurses inherently understand that, when employed in small communities, they are expected to give advice outside of work.

Among RNs working alone, 64% perceived barriers to their participation in continuing education, and this perception of barriers had a significant *negative* relationship with work satisfaction, which suggests that increasing access to continuing education could be an important way to increase work satisfaction. Additionally, increasing access to continuing education may serve to improve the delivery of health care in rural and remote Canada, where 52% of RNs working alone reported nurses as the first health-care contact in their workplace communities.

The multiple barriers to continuing nursing education for rural and remote nurses include the obvious challenge of great geographical distances between the work setting and educational institutions. Kulig et al. (2003) identify recent developments in Canadian nursing education and offer recommendations for the delivery of continuing educational resources to rural and remote RNs, as well as for basic nursing education. They express the belief that education specific to rural and remote nursing requires ongoing development. They also indicate that work satisfaction is a key factor in the retention of nurses in such work settings.

For RNs working alone, greater decision latitude and lower psychological demands were significant predictors of work satisfaction. Psychological demands are associated with workload; therefore, large workloads have a significant negative correlation with work satisfaction. Karasek and Theorell (1990) suggest that job strain results from situations of high demand and low decision latitude. Decision latitude as a significant predictor suggests that RNs working alone perceive that they are in a position to exercise the discretion necessary to make decisions, organize their work, and use their skills. It is important that this significant inverse relationship between work satisfaction and psychological demands be relayed to employers of nurses who work alone. High psychological (job) strain may be related to the nurses' high degree of responsibility and the closeness of their relationship with their patients and communities.

Conclusion

This initial national exploration of RNs who work alone in rural and remote Canada describes the diversity of the country's rural and remote nursing workplaces and employers. The analysis suggests two general points that have the potential to affect policy. First, nurses who work alone are significantly older than other nurses practising in rural and remote settings. Retirement of this cohort of nurses will require special attention with respect to the orientation of replacement nurses, in order to ensure continuity of care. Second, characteristics of the work environment are important to job satisfaction. Face-to-face contact with colleagues, adequate medical equipment, minimal barriers to continuing education, and greater decision latitude result in increased job satisfaction and are important focus areas for employers regarding recruitment and retention of nurses who work alone.

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Authors' Note

This research was supported by funding or in-kind support from: Canadian Health Services Research Foundation, Canadian Institutes of Health Research, Nursing Research Fund, Alberta Heritage Foundation for Medical Research, Michael Smith Foundation for Health Research, Nova Scotia Health Research Foundation, Ontario Ministry of Health and Long-Term Care, Saskatchewan Industry and Resources, British Columbia Rural and Remote Health Research Institute of the

University of Northern British Columbia, Canadian Institute for Health Information, Government of Nunavut, and Canada's 12 provincial and territorial registered nurses associations.

The authors thank the Co-principal Investigators, Martha MacLeod and Judith Kulig; the Principal Decision Maker, Marion Knock; and the Co-investigators and Advisory Team Members from across Canada. They extend a special thank you to all Canadian nurses who work alone and took time from their busy lives to complete the survey.

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Résumé

L'éducation sur le diabète en milieu rural : génère-t-elle des résultats?

Ann Bowman et Donna Epp

Cette étude transversale effectuée par voie d'enquête par correspondance a pour but d'évaluer les résultats de l'éducation sur le diabète, des soins et du soutien dispensés dans deux cliniques rurales du Manitoba, au Canada. Soixante dix huit répondants atteints de diabète de type deux, dont 51 personnes fréquentant les cliniques rurales et 27 qui n'en fréquentaient aucune (*âge moyen* = 68,5), ont été comparés sur les plans suivants : caractéristiques démographiques; sensibilisation et connaissance du diabète; efficacité de l'autogestion de la maladie; attitudes et comportements; qualité de vie; satisfaction quant aux soins; et utilisation des services de santé. Les personnes fréquentant les cliniques avaient plus de connaissances sur le diabète ($P < 0,001$), affichaient des taux d'autogestion efficace plus élevés ($P < 0,051$), et éprouvaient une plus grande satisfaction quant aux soins reçus ($P < 0,001$), comparativement aux personnes qui ne fréquentaient pas les cliniques. Par ailleurs, une éducation plus accrue ne générait pas nécessairement de meilleures connaissances sur le diabète, ni de meilleurs comportements et attitudes. Une fréquentation des cliniques et une interaction soutenante avec les professionnels de la santé et les pairs peuvent aider les diabétiques de type deux à acquérir la confiance et les stratégies de rechange nécessaires pour gérer les problèmes de santé liés à cette maladie. Toutefois, une approche plus traditionnelle à l'éducation sur le diabète et aux soins associés favoriserait davantage l'atteinte des objectifs ciblés.

Mots clés : évaluation, rural, éducation sur le diabète

Rural Diabetes Education: Does It Make a Difference?

Ann Bowman and Donna Epp

This cross-sectional study using a mailed survey evaluated outcomes of diabetes education, care, and support provided at 2 clinics in rural Manitoba, Canada. Seventy-eight respondents with type 2 diabetes, including 51 rural clinic attenders and 27 non-attenders (mean age = 68.5), were compared regarding demographic characteristics; diabetes education and knowledge; diabetes self-management efficacy, attitudes, and behaviours; quality of life; satisfaction with care; and health-care utilization. Attenders had more diabetes education ($P < .001$), higher self-management efficacy scores ($P < .051$), and greater satisfaction with diabetes care ($P < .001$) than non attenders, but more education did not translate into greater diabetes-related knowledge, attitudes, or behaviours. While clinic attendance and supportive interaction with health professionals and peers may help equip people with type 2 diabetes with the confidence and alternative strategies to handle diabetes-related health problems, a more standard approach to diabetes education and care could improve the achievement of desired outcomes.

Keywords: evaluation, rural, diabetes mellitus, diabetes education

Introduction

Type 2 diabetes mellitus has reached epidemic proportions, affecting 6% of individuals age 45 to 64 and 11% of people 65 years or older (Harris, 1998). Population studies suggest that the true prevalence of diabetes may exceed 7% (Dunstan et al., 2002; Leiter et al., 2001). Concerns about the epidemic stem from the high human and economic costs of diabetes and its complications: diabetes-related health-care expenditures in Canada in 1998 were estimated at between \$4.76 and \$5.23 billion (Dawson, Gomes, Gerstein, Blanchard, & Kahler, 2002).

Research has found that intensive diabetes management and support for people with type 2 diabetes can delay the onset and reduce the progression of diabetes complications, as well as reduce the onset of diabetes per se (Eriksson & Lindgarde, 1991; Knowler et al., 2002; Pan et al., 1997; Tuomilehto et al., 2001). Thus, ongoing diabetes education, support for self-care, and regular monitoring are requisite to reducing the personal and social impact of the disease.

While there is consensus on the benefits of intensive diabetes management, there has been little comprehensive evaluation of the usual care

received by people with type 2 diabetes living in rural areas, and the outcomes of such care. This gap in evaluation research is serious because of the scarcity of resources, limited access to specialists, and possible lack of standardization in diabetes program delivery in rural areas. The purpose of this study was to evaluate outcomes of diabetes care in two communities in rural Manitoba, Canada, served by the Marquette Regional Health Authority (MRHA).

Diabetes Education Clinics

The target communities for the study are similar with respect to demographics, economic bases, resources, and health-care access. Diabetes education in these communities has been provided primarily by two diabetes clinics (Site 1 and Site 2) for approximately 20 years. These two clinics are the only rural diabetes clinics in Manitoba. Other than through these clinics and those in urban settings, diabetes education in Manitoba is available on an itinerant basis through diabetes outreach from urban centres, or through local health professionals. Occupational and physical therapists from the nearest urban centre, approximately 100 kilometres away, attend the clinics on an itinerant basis only. There has been higher client attendance at Site 1 (40–60) than at Site 2 (15–20). In addition, physicians are salaried at Site 1 and use fee-for-service billing at Site 2.

Bi-monthly diabetes care at the rural clinics has included foot inspection; assessment of weight and blood pressure; blood and urine tests; and physician follow-up. Monthly 1-hour nurse-led education sessions have been held on topics pertinent to diabetes management. A standardized program has not been implemented.

Clients with diabetes typically attend the diabetes clinic when scheduled for a physician visit for routine diabetes monitoring. However, attendance at educational sessions need not be associated with medical tests or physician follow-up. Thus, opportunities for supportive peer interaction as well as education have been regularly available. Education sessions have been routinely advertised through local newspapers, posters, and word-of-mouth. No formal recall system has been used.

In 1997 the MRHA assumed responsibility for the administration of health care and for providing health-care services from Manitoba Health (MH). Given that the region has had a higher incidence and prevalence of diabetes than the provincial rate (5.7/1,000 and 68.01/1,000 vs. 5.3/1,000 and 59.35/1,000), and given that the hospitalization rate for cardiovascular disease and stroke among persons with diabetes is more than five times greater than that for those without diabetes, the MRHA gives high priority to its responsibility to people with diabetes. It has been acknowledged that decisions concerning services for people with

diabetes in these communities should be based on research evidence (Epidemiology Unit and Diabetes Unit, Public Health Branch, Manitoba Health, 1997; Marquette Regional Health Authority, WESTARC Group, 1998).

With the involvement of a steering committee comprising representatives of the communities served by the MRHA and nurses and physicians from each clinic, we attempted to provide an evidence-based answer to the question of whether the two rural diabetes clinics have, under actual conditions, made a difference in diabetes-related health outcomes and health-care utilization among people with type 2 diabetes.

Literature Review

Prerequisite to successful diabetes self-management and diabetes-related problem-solving is knowledge about the disease and effective coping strategies. Yet only 35% of people with diabetes have attended a class or program on diabetes at some point during the course of their disease; in addition, at least half of those with diabetes have deficits of knowledge and skills, and less than half of those with type 2 diabetes achieve ideal glycemic control (American Diabetes Association, 2000; Clement, 1995; Harris, Coonrod, & Betschart, 1994).

Unfortunately as well, outcomes of diabetes programs have not been well substantiated. Research on the effectiveness of diabetes education and management approaches has not been comprehensive in nature. Typically, it has been limited by its focus on cognitive or physiological outcomes. It has also been limited by its use of intensive interventions delivered under ideal conditions (Corabian & Harstall, 2001; Fain, Nettles, Funnell, & Charron, 1999; Glasgow, 1999a, 1999b; McLeod, 1998; Mulcahy, 1999; Norris, Engelgau, & Narayan, 2001). Research has also inadequately examined the efficacy and effectiveness of educational programs for long-term adherence, quality of life (QoL), morbidity and mortality outcomes, and health-care utilization (Brown, 1988, 1990; Fain et al.; Glasgow, 1999a, 1999b; Norris et al.; Padgett, Mumford, Hynes, & Carter, 1988).

Deficiencies in research on diabetes education and care have arisen from: lack of description of the representativeness of subjects and interventions; variability in types of interventions studied; use of interventions designed for ideal conditions with ideal resources; inconsistent and insufficient follow-up; and lack of use of validated, reliable measures. Deficiencies have also stemmed from minimal attention to variables such as risk reduction, lifestyle change, coping behaviours, self-efficacy, psychosocial functioning, and general QoL (Corabian & Harstall, 2001; Fain et

al., 1999; Glasgow, Toobert, & Hampson, 1994; McLeod, 1998; Mulcahy, 1999; Norris et al., 2001).

In addition, research findings concerning the outcomes of diabetes programs have not been consistent. Outcomes have varied by the nature of the intervention, the length of training, and the nature and length of follow-up (Corabian & Harstall, 2001). Overall, however, there appears to be consensus on the need to shift towards an outcomes-driven diabetes-care paradigm to achieve relevancy, efficiency, and effectiveness in the coming decades. Research must examine which types of programs, or which aspects of those programs, best promote ongoing self-management, for which types of patients. It should evaluate the cognitive and physiological outcomes of care and education, as well as the extent to which programs reach their target audience, achieve attitudinal and behavioural change, influence perceptions regarding QoL, and affect health-care utilization. Finally, research must examine how to achieve high-quality outcomes under actual conditions.

Research Questions

This study posed three research questions: 1. *Do diabetes clinic attenders (Group A) and non-attenders (Group NA) differ with respect to demographic characteristics; diabetes education and knowledge; diabetes self-management efficacy, attitudes, and behaviours; QoL; and satisfaction with care?* 2. *Do Group A and Group NA differ in their utilization of health and medical services (emergency room visits, hospital admissions, physician and specialist visits)?* 3. *Do Group A and Group NA differ in terms of annual diabetes-related physiological measures from 1997 to 2000 on retrospective chart audit (to be reported separately).*

Method

Design and Procedure

Approval from the Brandon University Ethics Committee and the Manitoba Health Information Privacy Committee was obtained prior to the study. A cross-sectional design using self-administered mailed surveys was used. Each mailing included a survey, covering letters from MH and the MRHA, a consent form, a lottery ballot form and a stamped envelope for its return to MH, and a self-addressed stamped envelope for return of the completed survey and the consent form. A second mailing was made 10 days after the first. A retrospective chart audit of diabetes-related health parameters for consenting respondents and MH service-utilization data (1997–2001) was also conducted and will be reported separately.

Provincial health personnel brokered the study. A sample of personal health insurance numbers (PHINS) of people with diabetes was computer-generated from the Provincial Diabetes Registry using postal codes for communities within the catchment areas of Sites 1 and 2. Registration of PHINS on the Diabetes Registry occurs with ≥ 2 physician visits within a 2-year period for diabetes, or ≥ 1 hospitalization(s) for diabetes, using the International Classification of Diseases, Ninth Revision, diagnostic code 250. PHINS were cross-referenced with death records and postal codes for institutional dwellings. The sample consisted of 278 PHINS. Only those with *type 2* diabetes were asked to complete surveys.

A trained research assistant collected physiological data. Data were entered into a database in the epidemiology department of a large university using double-entry procedures. The Statistical Package for Social Sciences (SPSS) 12.0 was used for data analysis (SPSS, 2003).

Measures

The survey comprised subsets of questions from existing scales with established reliability and validity. It was reviewed and modified at several points by the MRHA steering committee for content and face validity. It was also reviewed by an expert in diabetes survey development and by five diabetes educators, for content validity, organization, wording, format, and length. Revisions involved simplification of wording and a reduction of response options to improve response potential. Following approval from the Brandon University Ethics Committee, the survey was piloted with 10 persons with diabetes and revisions were incorporated. The readability level of the survey was Grade 10 (McLaughlin, 1969).

The survey addressed (1) demographic characteristics, and (2) knowledge, behaviour, attitudes, quality of life, and medical-service utilization concerning diabetes. For ease of comparison, subscale scores were transformed to a 0–100 scale where possible. Higher scores indicate more education and knowledge; better self-management efficacy, attitudes, and behaviours; greater perceived understanding of diabetes self-management and satisfaction with diabetes care; higher QoL; and more perceived Problem Areas In Diabetes (PAID). The purpose, source, number, and type of questions, as well as reliability scores of the survey subscales obtained in this study, are summarized in Table 1.

Knowledge about diabetes was measured using questions adapted from the Canadian Diabetes Association's Portfolio for Diabetes Education Services Self-Assessment and Recognition Program (Canadian Diabetes Association [CDA], Diabetes Educator Section, 1996).

Table 1 *Measurement tools*

Focus of assessment and type of questions	Tool	Number	Reliability Cronbach's alpha
1. Knowledge of diabetes, its causation, and self-management principles	Portfolio for Diabetes Education Services Self-Assessment and Recognition Program	17 multiple choice	.68
2. <i>Diabetes self-management</i>	Ipswich Diabetes Self-management Survey		
Attitudes		7	.32
Efficacy		5	.50
Behaviour		8	.23
3. <i>Diabetes-related</i>	Diabetes Care Profile		
Education		4 – Yes/no	.362
Understanding		10 – Likert scale	.850
Affect (problem areas)		20 – Likert scale	.947
Health-care satisfaction		4 – Likert scale	.779
Quality of life		12 – Likert scale and yes/no	.774
4. Assess QoL at present and in 5 years	Cantrill's Ladder of Life	2 (rank order)	
5. <i>Health-care utilization for diabetes</i>			
Family doctor visit		1	
Diabetes specialist visit		1	
Eye doctor visit		1	
6. <i>Health-care utilization for diabetes/heart disease</i>			
24-hour hospital stay		1	
ER visit		1	
Confined to bed for symptoms related to diabetes		1	
7. Diabetes education	Investigator developed	10 – Yes/no	.735

Diabetes self-management attitudes, efficacy, and behaviours. These variables were measured using questions from the *Ipswich Diabetes Self-Management Survey* (McLeod, 1997), a composite measure based on questions from established scales that had good reliability and validity scores

drawn from existing scales (ATT39 [Dunn, Smart, Beeney, & Turtle, 1986]; QoL [Tupling, Web, Harris, & Sulway, 1981]; and Health Belief Scale [Harris, Linn, Skyler, & Sandifer, 1988]). Ipswich scale test-retest reliability was 0.82; internal consistency was 0.72.

Diabetes Care Profile (DCP). This measure consists of five subscales from the Michigan Diabetes Research and Training Center that collectively assess social and psychological factors related to having and managing diabetes (Fitzgerald et al., 1996). Cronbach's alphas of individual DCP scales were reported as ranging from .60 to .95 in one study and from .66 to .94 in another (Fitzgerald et al.). Subscales discriminated among patients with different disease severity levels and correlated with hemoglobin A₁C (Hgb A₁C) levels among individuals with diabetes and has predictive validity regarding glycemic control (Anderson, Fitzgerald, Wisdom, Davis, & Hiss, 1997). DCP subscales address: (a) receipt of basic education regarding diabetes, (b) beliefs regarding diabetes management, (c) perceptions of currently experienced problem areas in life associated with having diabetes (Joslin Diabetes Center, 2000), (d) satisfaction with diabetes care, and (e) QoL (Ware, Kosinski, & Keller, 1995).

QoL was also assessed using Cantrill's Self-Anchoring Scale (Cantrill, 1963). Respondents are asked to rate which step on the "ladder of life" they stand, keeping their health in mind. Respondents are asked to rate their QoL 5 years ago, currently, and 5 years hence.

Health-care utilization. Respondents were asked how many times in the previous year they had visited their physician, a diabetes specialist, and/or an eye or foot specialist. Using a five-point Likert scale (0 = no visits, 5 = more than 10 visits), respondents were asked *how many times* in the previous year they (1) had been admitted to hospital for a 24-hour stay for diabetes or a heart problem, (2) had used the ER for diabetes or a heart problem, (3) had been confined to bed due to diabetes-related symptoms.

Results

Sample Characteristics

Seventy-eight surveys were returned (response rate 28.1%); 51 respondents were in Group A (65%) and 27 were in Group NA; 38 Group As (74.5%) attended Site 1 and 13 attended Site 2. Respondents ranged in age from 43 to 89 years ($SD = 11.3$). The mean age for Group A was 69.6 years, versus 66.5 years for Group NA, but the differences were not statistically significant (NS). The mean age for Site 1 respondents was higher (71.7; $SD = 10.7$) than that for Site 2 respondents (63.5; $SD = 11.6$) (Mann-Whitney $U = -2.142$, $P = .03$). There were more female

($n = 48$) than male ($n = 30$) respondents ($\chi^2 = 4.154$; $df = 1$, $P = .04$) but no differences by gender.

The majority (89.7%) of respondents were Caucasian. Most (65.4%) were married or living with a partner, while 21.8% were widowed and 12.8% were never married/divorced. Approximately half (53.3%) of the respondents had at least some high-school education. Over half (56.2%) had a total annual household income of less than \$25,000. Nearly half (44.9%) were retired, while 20.5% were working and 34.7% were unemployed.

There was somewhat higher mean medication use among women (14.1; $SD = 4.1$) than among men (4.0; $SD = 3.3$) (Mann-Whitney $U = -1.744$, $P = .08$). However, there were no differences in total drugs used by attendance status or site. There was also no difference for the number of comorbid diseases between groups, but a greater proportion of Group A ($n = 8$; 15.7%) than Group NA respondents ($n = 0$) had thyroid disease (Mann-Whitney $U = -2.158$, $P = .03$).

Table 2 *Diabetes Profile by Clinic Attendance*

Variable	Group A	Group NA	Total
<i>Self-report BMI (2002)</i>	$n = 49$	$n = 27$	$n = 76$
Range	13.9–51.8	22.3–40.3	13.9–51.8
Mean (SD)	29.5 (6.4)	29.3 (4.4)	29.4 (5.7)
<i>Complications</i>	$n = 50$	$n = 27$	$n = 78$
Nephropathy	7 (14.0)	3 (11.5)	10 (13.2)
Retinopathy	11 (21.6)	6 (22.2)	17 (21.8)
Neuropathy	22 (43.1)	9 (33.3)	31 (39.7)
<i>Duration of diabetes</i>	$n = 48$	$n = 27$	$n = 75$
Range (years)	2.0–37.0	1.0–56.0	1.0–56.0
Mean (SD)	13.2 (9.3)	12.0 (11.5)	12.8 (10.1)
<i>Diabetes treatment</i>	$n = 51$	$n = 27$	$n = 78$
Insulin	6 (11.8)	3 (11.1)	9 (11.5)
Pills	32 (62.7)	17 (63.0)	49 (62.8)
Insulin and pills	4 (7.8)	1 (3.7)	5 (6.4)
Exercise	30 (58.8)	17 (63.0)	47 (60.3)
Nutrition	39 (76.5)	16 (59.3)	55 (70.5)
None	3 (5.9)	0 (0.0)	3 (3.8)
<i>Smoke</i>	$n = 51$	$n = 27$	$n = 78$
Never	24 (47.1)	9 (33.3)	33 (42.3)
Ever	22 (43.1)	12 (44.4)	34 (43.6)
Current	5 (9.8)	6 (22.2)	11 (14.1)

Diabetes-specific characteristics of respondents are summarized in Table 2. No between-group differences were found for BMI, diabetes duration, smoking status, or number of diabetes complications. While not significantly different between groups, mean BMI for all groups was in the high-risk category for developing health problems ($\text{BMI} \geq 30.0$) (CDA, Clinical Practice Guidelines Expert Committee, 2003). Also, nearly half of the respondents had ≥ 1 diabetes complication, and a greater proportion of Group NA than Group A had no diabetes-related complications (NS). Site 2 respondents were more often prescribed pills for diabetes than Site 1 respondents (Mann-Whitney $U = -1.791$, $P = .049$). Also, although smoking status did not differ by group, differences by gender were found: 80.0% of men versus 43.8% of women had ever smoked (Mann-Whitney $U = -3.132$, $P = .002$); and 23.3% of men versus 6.3% of women currently smoked (Mann-Whitney $U = -2.181$, $P = .029$).

Survey Results

Table 3 summarizes DCP subscale scores, scores for diabetes knowledge, and scores for QoL.

Mean DCP education scores were significantly higher for Group A than for Group NA (Mann-Whitney $U = -5.585$, $P < .001$), but not by clinic site. Proportionately more Group A than Group NA respondents had received exercise education ($\chi^2 = 3.354$, $df = 1$, $P = .067$) (NS).

To determine the extent of diabetes education received by respondents, questions about receipt of diabetes-specific education, *in addition* to DCP education questions, were posed, including whether respondents had received education regarding diabetes and over-the-counter medication use, coping with stress, managing diabetes when ill or when traveling, and skin care. Mean scores were higher for Group A than for Group NA (53.8, $SD = 27.3$; 39.6, $SD = 26.1$, respectively), approaching statistical significance (Mann-Whitney $U = -1.904$, $P = .057$). Mean scores at Site 1 (52.2; $SD = 28.5$) differed from those at Site 2 (57.7; $SD = 24.9$).

DCP education, understanding, and PAID scores did not differ by group status, although PAID scores were somewhat higher for Group A than for Group NA. PAID scores differed by age level (Kruskal-Wallis $\chi^2 = 19.160$, $df = 3$, $P < .001$), with the highest scores among respondents 43 to 59 years (26.0; $SD = 26.3$) compared to those aged 60 to 69 (12.5; $SD = 20.5$), 70 to 79 (10.8; $SD = 9.0$), or 80 or older (7.5; $SD = 10.3$). Mean PAID scores were also higher for women than for men (Mann-Whitney $U = -2.603$, $P = .009$). In addition, DCP Satisfaction with care was significantly higher in Group A than Group NA (Mann-Whitney $U = -3.646$, $P < .001$).

Table 3 *Survey Subscale Scores by Clinic Attendance*

Tool	Group A (<i>n</i> = 51) <i>M</i> (<i>SD</i>)	Group NA (<i>n</i> = 27) <i>M</i> (<i>SD</i>)	Total <i>M</i> (<i>SD</i>)
Knowledge (<i>N</i> = 78)	48.9 (13.9)	45.6 (14.9)	48.3 (14.3)
DCP Education (<i>N</i> = 78)	**84.3 (18.0)	56.5 (29.1)	74.7 (26.0)
DCP Understanding (<i>N</i> = 74)	53.9 (18.2)	53.4 (21.3)	53.8 (19.2)
DCP PAID Scale (<i>N</i> = 78)	15.8 (16.8)	10.5 (12.3)	14.0 (15.5)
DCP Satisfaction (<i>N</i> = 67)	**73.3 (13.1)	58.9 (12.6)	68.6 (14.6)
DCP QoL (<i>N</i> = 62)	62.6 (19.0)	65.8 (20.5)	63.7 (19.4)
QoL (<i>N</i> = 71)			
5 years ago	7.3 (1.9)	7.2 (2.6)	7.3 (2.1)
Present	6.5 (1.9)	6.8 (1.7)	6.6 (1.8)
5 years from now	*5.8 (2.5)	6.6 (2.3)	6.1 (2.5)
Ipswich Efficacy (<i>N</i> = 78)	*64.5 (6.4)	55.9 (18.5)	61.5 (21.8)
Ipswich Attitude (<i>N</i> = 57)	62.6 (15.9)	66.2 (18.3)	64.0 (16.8)
Ipswich Behaviours (<i>N</i> = 57)	55.3 (12.7)	57.8 (16.8)	56.3 (14.3)
* $P < .10$; ** $P < .005$			

Mean DCP QoL scores did not differ by clinic or attendance status. Cantrill's Self-Anchoring Ladder QoL scores revealed that both Group A and Group NA respondents rated their mean QoL 5 years previously as higher (7.3/10) than at present (6.7/10); while not statistically significant, mean perceived QoL 5 years hence was somewhat higher in Group NA than in Group A ($M = 6.6$ vs. $M = 5.8$) (Mann-Whitney $U = -1.827$, $P = .068$).

Of the Ipswich efficacy, attitudinal, and behavioural subscales, only self-efficacy scores were found to differ by group: Group A had higher self-efficacy scores than Group NA ($M = 64.5$, $SD = 6.4$, vs. $M = 55.9$, $SD = 18.5$) (Mann-Whitney $U = -1.953$, $P = .051$).

Tables 4 and 5 summarize health-care utilization results. Small numbers of both Group A and Group NA respondents had seen a podiatrist in the previous year, and proportionately more Group As had seen an endocrinologist ($P = .107$) (NS). Approximately one third of respondents had not seen an eye doctor. With data grouped to compare zero visits with one to three visits and four or more visits, a greater proportion of respondents at Site 2 than at Site 1 had seen an eye doctor (Mann-Whitney U Z = -1.774, $P = .076$) or a podiatrist (Mann-Whitney U Z = -2.215, $P = .027$).

The small number of respondents who utilized hospital and ER services precluded the use of other than descriptive statistics. With regard to ER visits for all causes (data not shown), 67.4% of Group A and 54.2% of

Table 4 *Health-Care Utilization by Clinic Attendance*

	Group A (<i>N</i> = 51) <i>M</i> (<i>SD</i>)	Group NA (<i>N</i> = 27) <i>M</i> (<i>SD</i>)	Total (<i>N</i> = 78) <i>M</i> (<i>SD</i>)
<i>Local doctor visit</i>			
None	1 (2.0)	0 (0.0)	1 (1.3)
1–3	15 (29.4)	6 (22.2)	21 (26.9)
4–6	15 (29.4)	9 (33.3)	24 (30.8)
7–10	8 (15.7)	10 (37.0)	18 (23.1)
> 10	12 (23.5)	2 (7.4)	14 (17.9)
<i>Endocrinologist visit</i>			
None	38 (74.5)	24 (88.9)	62 (79.5)
1–3	7 (13.7)	3 (11.1)	10 (12.8)
4–6	2 (3.9)	0 (0.0)	2 (2.6)
7–10	2 (3.9)	0 (0.0)	2 (2.6)
> 10	2 (3.9)	0 (0.0)	2 (2.6)
<i>Eye doctor visit</i>			
None	17 (33.3)	8 (29.6)	25 (32.1)
1–3	30 (58.8)	17 (63.0)	47 (60.3)
4–6	4 (7.8)	0 (0.0)	4 (5.1)
7–10	0 (0.0)	2 (7.4)	2 (2.6)
> 10	0 (0.0)	0 (0.0)	0 (0.0)
<i>Podiatrist visit</i>			
None	42 (82.4)	20 (74.1)	62 (79.5)
1–3	5 (9.8)	2 (7.4)	7 (9.0)
4–6	4 (7.8)	4 (14.8)	8 (10.3)
7–10	0 (0.0)	0 (0.0)	0 (0.0)
> 10	0 (0.0)	1 (3.7)	1 (1.3)

Table 5 *Health-Care Utilization for Diabetes or Heart Disease by Attendance Status*

	Group A (N = 51) n (%)	Group NA (N = 27) n (%)	Total (N = 78) n (%)
<i>≥ 24-hour hospital admission</i>	10 (19.6)	5 (18.5)	15 (19.2)
None	0 (0.0)	1 (4.0)	1 (1.3)
1–3	8 (15.7)	3 (11.0)	11 (14.1)
4–6	1 (2.0)	2 (7.0)	3 (3.9)
7–10	0 (0.0)	0 (0.0)	0 (0.0)
> 10	1 (2.0)	0 (0.0)	1 (1.3)
<i>ER visit</i>	5 (10.0)	5 (18.5)	11 (14.1)
None	0 (0.0)	1 (3.7)	1 (1.3)
1–3	4 (8.0)	3 (11.1)	10 (1.4)
4–6	1 (2.0)	2 (7.4)	3 (3.9)
7–10	0 (0.0)	0 (0.0)	0 (0.0)
> 10	0 (0.0)	0 (0.0)	0 (0.0)
<i>Bedridden</i>	6 (11.8)	4 (14.8)	10 (12.8)
None	41 (80.4)	21 (77.8)	62 (79.5)
< 1 week	4 (7.8)	2 (7.4)	6 (7.7)
1–2 weeks	1 (2.0)	1 (3.7)	2 (2.6)
3 weeks–1 month	0 (0.0)	0 (0.0)	0 (0.0)
> 1 month	1 (2.0)	1 (3.7)	2 (2.6)
Note: Totals reflect unavailable attendance status; data were unavailable for some respondents.			

Group NA had no ER visits in the previous year, while 27.9% of Group A and 45.8% of Group NA had one to three visits. Approximately twice the proportion of Group NA compared to Group A had used the ER for diabetes or heart problems. Among attenders, a smaller proportion of those at Site 1 than at Site 2 used such services. The descriptive data also revealed a greater proportion of respondents in Group A (64%) than in Group NA (59.3%) had no hospital admissions in the previous year *for any condition*. Among those who had four or more admissions, 6% were Group As and 11.1% were Group NAs. Those hospitalized for diabetes or heart problems included larger proportions of Group NA than Group A and Site 2 than Site 1 respondents. Among Group As, 80% had one to three admissions, versus 60% of Group NAs, while 20% of Group As versus 40% of Group NAs had at least four admissions.

Confinement to bed for diabetes/heart problems was slightly higher among Group NA and Site 2 respondents. Inferences are not possible given the low numbers of respondents.

Discussion

This exploratory study arose out of a need identified by the Marquette Regional Health Authority and physicians and staff of rural diabetes clinics for evaluation data upon which to make decisions about the provision of diabetes care and education. Collaborative evaluation projects, such as this, that bring researchers and other stakeholders together, essentially shift the emphasis in evaluation from specific research questions to the identification of meaningful information that may provide direction for planning and the use of resources. In this respect, the study achieved its purpose. A wide range of information about the outcomes of diabetes education and care for rural-dwelling Manitobans with type 2 diabetes was collected. The study provided data on the nature of individuals who utilize rural clinic services for diabetes, and enabled an estimation of the reach of the clinics to their target population. It also provided information on the efficiency and effectiveness of rural diabetes care and education through its comparison of individuals who do and do not use the services of the two clinics.

Descriptive statistics revealed that clinic attenders may have been more inclined to attend due to their greater prevalence of comorbid diseases and diabetes complications, longer duration of diabetes, use of more diabetes medications, and more problem areas in diabetes. Such factors, individually or collectively, could prompt the use of diabetes services. They are also reflective of the prevailing medical model of care, which directs attention and resources to individuals identified as having visible or recurrent health problems, or an evident deterioration in health status. This may suggest that proactive diabetes health-promotion and disease-prevention approaches may be underutilized in these communities.

The diabetes clinics appear to have provided valued services to community members with type 2 diabetes. Clinic attenders received more diabetes education, were more satisfied with the diabetes care they received, and had higher perceived self-management efficacy than non-attenders. Receiving information directly from health professionals, and having that information both reinforced by health professionals and endorsed as important by friends and other clients with diabetes, may be important in developing efficacy for self-management. Opportunities for receiving feedback, having wrong beliefs corrected, and having diabetes-related experiences examined at education sessions is also likely to have a positive effect on one's understanding of diabetes as a disease and, perhaps, aspects of its management. García and Suárez (1996) found that continuing interactive education through support groups improved patient coping and improved feelings of independence; this said, their respondents did not differ with regard to self-management attitudes or

behaviours. Irvine and Mitchell (1992) found that even intensive diabetes education did little to alter behaviour.

Interestingly, PAID scores were highest among the youngest respondents. Additional analysis revealed that among respondents under 65 years (35.3% As; 33.3% NAs) PAID scores were much higher for Group A than Group NA ($M = 16$ and 26 , respectively). This suggests that clinic attendance among younger people may be driven by perceptions of ill health or difficulty with disease management. As well, older individuals may, because of their advancing age, have different expectations regarding their health. Alternatively, younger respondents may have been stimulated to attend through physician referral to clinic education, or, because they are generally more active, may have sought health advice and care in order to address their ill health.

It is also notable that, generally speaking, clinic attenders had received both more basic diabetes education and diabetes education covering a wider array of diabetes-relevant topics than non-attenders. This did not, however, translate to greater knowledge among clinic attenders. This finding may be explained by one or more of the following factors: a low "dose" of education received by attenders, insufficient reinforcement, time elapsed since attending, slightly older age and potential recall problems, literacy problems, or qualities of the instrument used to measure knowledge. Regular reinforcement of education could potentially alleviate this problem.

QoL scores were higher among participants in this study than those documented for people with type 2 diabetes (Ware, Snow, Kosinski, & Gandek, 1993). This finding may be attributable to the fact that the present participants were all rural-dwelling elderly, who may experience less stress and depression, and may have higher levels of physical activity, than urban-dwelling individuals with diabetes. With respect to QoL, the findings, although not statistically significant, also suggest that QoL 5 years hence tends to be rated lower in clinic attenders than in non-attenders, perhaps reflecting a somewhat more pessimistic view of the future. This could be accounted for by an interaction among factors more descriptive of attenders than non-attenders. Perceptions regarding future QoL among people with type 2 diabetes should be considered in future evaluation studies.

In terms of health-care utilization, non-attenders tended to use the ER (for all reasons) more than attenders (approximately 2:1) and had increased short-stay hospital utilization (for all conditions). García and Suárez (1996) found that continuing interactive education through support groups reduced hospital and ER admissions. The supportive nature of the clinics may have had a similar effect in this study.

Only a small proportion of ER visits and hospital stays was found to be related specifically to diabetes or heart problems. Further, no differences were found between groups with regard to the number of bedridden days in the previous year as a result of diabetes. Although the data were self-reported and the numbers of respondents small, the findings are encouraging. It may be that attenders, because of their diabetes education and care (and despite their being somewhat frailer than non-attenders), were equipped with both the alternative strategies and the self-confidence needed to handle emergent health problems that otherwise could have led to greater ER use and short hospitalizations.

A difference was also noted in the utilization of endocrinologists. Proportionately more clinic attenders had used this service. Given the advances being made in information about diabetes and its treatment, such referrals are essential as a preventative measure for all people with diabetes, at least on an intermittent basis.

Limitations

A major limitation of this study was its low response rate (28.1%). This, and the restriction of the evaluation to rural diabetes education, limits the generalizability of the findings. The low response rate may be attributable to several factors, including the advanced age of respondents and the fact that the survey was mailed during the summer, the peak season for travelling or, among those rural-dwellers remaining at home, for engaging in farming activities. Although a raffle for cash prizes was used to enhance response, this proved ineffective. Still, about one third of the respondents were non-attenders — an adequate number of individuals not reached by the clinics to allow for preliminary assessment of the efficiency and effectiveness of such services, and to permit comparisons on key variables between those who do and do not attend the clinics.

This study had other weaknesses that, while acknowledged, are not easily addressed. Limitations include those related to use of printed surveys and self-report data. Response bias, illiteracy, and poor recall could have affected both the response rate and the findings. Although the survey drew items from measures with established reliability and validity, and although the items were reviewed, simplified, and piloted, the potential for these problems remains. Another limitation was the higher number of female respondents, possibly a result of female survival advantage. At the same time, since the proportion of women to men between groups did not differ, study comparisons should not have been adversely affected.

Implications for Nursing

These data suggest that rural diabetes education has a positive effect on knowledge and management self-efficacy and a related small but positive

effect on the use of medical services. Planned opportunities for supportive peer interaction may have contributed to these effects. The findings also suggest that individuals who attend diabetes clinics may do so in part because of the combined effect of factors that point to challenged health status. While individuals with health challenges require diabetes care and support, a shift by providers from a medical paradigm perspective towards a health promotion approach could positively affect disease onset and progression among those at risk; a health promotion approach should be adopted by rural diabetes education programs. Further, similarity in diabetes knowledge among respondents may be related to the lack of standardization in educational programming in these rural education clinics. Standardized diabetes education programs should positively influence knowledge acquisition and diabetes-related attitudes among individuals who attend rural diabetes clinics.

A prospective study by Ryan, Todd, Estey, Cook, and Pick (2002) found that improvements in diabetes knowledge as well as diabetes behaviours (foot care and blood-glucose monitoring) occurred among participants in a formal education program delivered by a team of health professionals. Tankova, Dakovska, and Koev (2004) also found a decrease in depression, a significant increase in QoL, and improvement in glycemic control of participants 1 and 2 years after delivery of a structured education program. Further, a meta-analysis has revealed that interventions that include face-to-face delivery, a cognitive reframing teaching method, and exercise content are more likely to improve glycemic control than programs that do not involve these strategies (Ellis et al., 2004). Since glycemic control is related to higher health-related QoL (Wikblad, Leksell, & Wibell, 1996), structure, or standardization of programming, takes on greater significance.

Finally, since non-attenders had less efficacy for self-management despite similar knowledge, opportunities for supportive interaction with educators and peers should be made available at times and venues designed to attract non-attenders. Qualitative comments provided by non-attenders suggest that some of these individuals are in the workforce and perceive they cannot take time off work to attend education sessions.

This study considered a comprehensive set of variables essential to health-evaluation research. While evaluation studies frequently address several of these variables, this study gathered information on a large number of relevant parameters (e.g., cognitive, affective, behavioural, physiological, and program reach). The findings reveal that rural diabetes education *does* make a difference in the lives and health of people with type 2 diabetes, but the magnitude of this difference can be improved. Comprehensive prospective evaluation and follow-up of attenders and non-attenders of diabetes care and education programs can provide the

data necessary to produce needed improvements in self-care and in health-related quality of life.

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Authors' Note

This evaluation study was funded by a grant from the Canadian Diabetes Association in honour of G. M. Murray.

The authors would like to acknowledge the contributions of Glenda Isaak, RN, BScN, Research Assistant, who gathered data and assisted with manuscript review.

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Résumé

La vie des femmes rurales après un infarctus du myocarde

Patricia Caldwell, Heather M. Arthur
et Elizabeth Rideout

Cette étude examine les influences de la ruralité sur la vie des femmes qui ont subi un infarctus du myocarde (IM). Utilisant une approche ethnographique critique, les chercheuses ont analysé des entrevues en profondeur réalisées auprès de 12 femmes vivant dans le Sud-Ouest de l'Ontario, au Canada. Ces entrevues visaient à identifier les liens entre l'expérience de ces femmes et les forces sociales, politiques et culturelles associées à la ruralité. L'analyse des données a révélé quatre thèmes : la *réticence*, caractérisée par une tendance à minimiser l'inquiétude et à accepter la vie après un IM; le *jeu d'aiguillage vers d'autres services*, ou les défis associés à l'identification des soins tertiaires; l'*esprit d'initiative* relativement à la gestion de leur propre convalescence; et les *relations*, dans le cadre desquelles les professionnels et les établissements de santé ruraux prennent une grande valeur. Les résultats offrent de l'information pertinente pour les infirmières œuvrant en milieux ruraux et urbains, et au chevet de femmes survivantes d'un IM, tout en jetant une base pour l'élaboration et le maintien de soins post-IM culturellement appropriés.

Mots clés : rural, infarctus du myocarde, femmes

Lives of Rural Women After Myocardial Infarction

Patricia Caldwell, Heather M. Arthur,
and Elizabeth Rideout

This study examines the influences of rurality on the lives of women post-myocardial infarction (MI). Using a critical ethnographic approach, the researchers analyze in-depth interviews with 12 women from southwestern Ontario, Canada, for the ways in which their experiences were related to social, political, and cultural forces associated with rurality. Data analysis revealed 4 themes: *reticence*, characterized by a tendency to minimize worry and accept one's life post-MI; *referral games*, or the challenges associated with accessing tertiary care; *resourcefulness* in managing one's recovery; and *relationships*, with rural health professionals and institutions being highly valued. The findings have relevance for nurses in both rural and urban settings who care for women post-MI and form a basis for supporting and building culturally specific post-MI care.

Keywords: rural, myocardial infarction, women, critical ethnography

Background

Ischemic heart disease (IHD) is the leading cause of death among Canadian women (Heart and Stroke Foundation of Canada, 1999). Although the numbers of women who experience myocardial infarction (MI) have been on the increase, mortality rates are decreasing (Heart and Stroke Foundation of Canada). These trends have been attributed to, respectively, an increased number of aging women in the population and advances in treatment (Chan & Young, 1999). Should these trends continue as expected, more women will return home to their rural and urban communities to recover after MI.

Knowledge about rural cardiac issues is sparse at best, although recent Canadian data identify the existence of rural-urban differences (Naylor & Slaughter, 1999). Specifically, rural women have been found to have higher age- and gender-specific hospitalization rates for MI than urban women (Chan & Young, 1999). In the Ontario Health Survey, rural women were more likely than urban women to self-report three or more cardiac risk factors (Shin, Jaglal, Slaughter, & Iron, 1999). Evidence suggesting that rural women are at risk for cardiac events continues to mount, yet rural women lack visibility in cardiac-related research.

Rural Culture

Health research has tended to draw research problems and populations from urban environments, leaving questions about the relevance of the findings for those who live in rural communities. The diversity among rural women precludes generalizations about their lives, yet the commonalities arising from their geographic context arguably distinguish them as a cultural group. According to Van Maanen and Barley (as quoted in Thomas, 1993, p. 12), "culture can be understood as a set of solutions devised by a group of people to meet specific problems posed by situations they face in common." For rural women, these commonalities include threats to the rural way of life, fragmentation of traditional social structures, and dominance of centralized urban systems (Troughton, 1999). The challenge of defining a general rural culture (Ramp, 1999) is further complicated by a lack of consensus on the definition of rural. In this study we use the Organization for Economic Cooperation and Development (OECD) definition, according to which a rural community has a population density of fewer than 150 people per square kilometre (Canadian Rural Information Service, 2002).

With respect to health care, indicators that have been proposed to quantify and capture the essence of rurality include the existence and proximity of a local hospital; proximity of a referral center; access to a family doctor, specialists, diagnostic services, and ambulance services; weather conditions (Kralj, 2000); perception of distances; and willingness to seek care (Porter, 1998). However, despite these efforts to define rurality, a rural person is more than the sum of proposed rural indicators.

Literature Review

There is a worldwide tendency to view heart disease as a predominantly male problem. This distorted image is reinforced by the number of studies with all-male populations and the number of studies in which the small numbers of female participants preclude the drawing of firm conclusions about women in general (Beery, 1995). Most cardiac study populations have been recruited from urban centres, and some studies have included only those women who reside within city limits. Similarly, many studies of women's recovery from MI have drawn their samples from those who have accessed resources such as cardiac rehabilitation programs or support groups located in cities, thereby failing to identify issues in the lives of women who lack access to such resources.

A number of issues have been reported in qualitative studies with urban women post-MI. These include early return to domestic tasks and nurturing roles (Boogaard, 1984; Johnson & Morse, 1990; MacKenzie, 1993), stress related to resumption of traditional roles (Helpard &

Meagher-Stewart, 1998; Lisk & Grau, 1999), and reluctance to ask for or accept help upon returning home (Benson, Arthur, & Rideout, 1997). In some cases urban women have initiated and developed their own support networks (Helpard & Meagher-Stewart; Jackson et al., 2000) while attending to the well-being of others (Sutherland & Jensen, 2000).

With regard to the experience of rural women, Tobin (1996) reports that women living within a 60-mile radius of a tertiary centre in Newfoundland, Canada, took charge of their own recovery, with little reliance on health professionals, and did not consistently adopt recommended post-MI lifestyle changes. It can be speculated that these findings are related to rurality. No studies were found that specifically focused on rural women's recovery from MI.

Research Questions

Rural women have been marginalized in studies of post-MI life, and the role played by rurality in shaping women's recovery from MI remains unexplored. The primary question guiding this study was: *How does rurality influence the lives of women after MI?* Secondary questions were: *What does their rural existence mean for women? What recovery and life choices do women have after MI? What choices do women make after MI, and what do they view as influencing those choices? What formal and informal structures influence women's lives, and in what ways?*

Methods

The approach chosen for the study was critical ethnography. This approach was chosen so that the researchers could move beyond rural women's descriptions of post-MI events and invite reflection on the influences that gave rise to their collective experiences in order to generate possibilities for change (Thomas, 1993).

Ethical approval was received from the Research Ethics Board of the associated university. Study questions were derived from rurality indicators relating to actual and perceived access, environmental factors, and health-seeking behaviour. The women were viewed as expert "knowers"; hence their perceptions about the physical environment, social norms and relationships, community structures, supports, and practices were probed.

The study was based on a convenience sample drawn from communities in rural southwestern Ontario, Canada. Key informants and gatekeepers were given a letter outlining the research and a poster providing contact information. Recruitment was carried out through word of mouth and distribution of the poster by nurses involved in cardiac teaching programs, rural physicians, and a rural hospital. Potential participants

contacted the researchers via a toll-free phone line or gave permission to a key informant for the researchers to contact them.

The primary data-collection technique was in-depth semi-structured interviewing. Of the 12 participants, 11 were interviewed two or three times, each providing up to 4 hours of data. One woman died prior to follow-up; however, her interview was reviewed with her daughter, who had been present during the interview. At the request of the participants, all but one of the interviews took place in their homes. The interviews were audiotaped and transcribed verbatim and then re-read while tapes were being played to ensure that all written words and phrases accurately represented the dialogue (Easton, McComish, & Greenberg, 2000). Detailed fieldnotes were made immediately following the interviews. Sandelowski's (1993) guidance on member checking was adhered to so that any revised comments during the second or third interview became new data to be analyzed. After 12 women were interviewed and no new themes were being identified, recruitment was suspended.

Additional fieldwork approaches included the following: accompanying a participant and her family on a fundraising walk, attending nurse-directed post-MI educational sessions at two rural outpatient sites, interviewing rural staff-nurse patient educators caring for post-MI rural women, and holding discussions with two rural physicians. The researchers also reviewed rural newspapers, post-MI educational literature, a letter from a participant, a reflective book written by a rural woman post-MI, and e-mails from rural women with cardiac histories. These additional data sources proved valuable in question formulation and triangulation of data sources (Patton, 1999).

During the interviews the women were initially asked to describe their experiences during and following the heart attack. Questions were formulated to explore links between previously identified rurality concepts and the narratives. Sample questions included: Tell me about the distances you had to travel to get to care following your heart attack. What was that like for you? How do you think that living here affects the care and choices you had/decisions you made after your heart attack? How do you think your experiences might be the same or different from a woman living in the city? Constant attention was paid to the occurrence of "cultural rhetoric" (Thomas, 1993, p. 40), whereby superficial descriptions are offered or data seem contradictory. In such cases, the questions were reformulated and additional data sources employed to examine the issue. For instance, when referral became a repetitive focus, referral processes were investigated during a group patient-education session, interviews with physicians, and follow-up interviews with participants.

Participants

Women who met the following criteria were eligible to participate in the study: diagnosed with MI, living in a rural community as defined by the OECD, living in southwestern Ontario, able to speak English, and available for one-on-one audiotaped interview(s). All participants were initially cared for in one of four rural hospitals in the study region. At the time of the first interview, six women were in their first year post-MI, four were in their second year, one was 4 years post-MI, and one had been diagnosed recently but the exact time of MI could not be established. The participants ranged in age from 43 to 80 years. Of the five women under 60 years of age, two were on disability pension because of cardiac damage, one had returned to homemaking, and two had returned to work outside the home. Seven women were married or in common-law relationships and five were widows. One woman had a university education, five had a high-school education, and six had not completed high school.

Analysis

Manual line-by-line analysis and coding of the transcribed interviews were conducted and data from other sources were reviewed. Data analysis was guided by a return to the research questions (Becker, 1996; Miles & Huberman, 1994) and by maintaining a critical stance (Thomas, 1993). Initial coding consisted of identifying data chunks from each narrative and additional data sources that related to the pre-identified rurality concepts. Secondary coding was guided by the critical approach outlined by Thomas: data chunks were scrutinized to determine whether and how the women were influenced or affected by the beliefs, social structures, and/or processes they identified, thus perpetuating the status quo. A list of codes was kept in order to track data. A search for cross-interview, cross-data linkages and negative cases was undertaken to identify narrative themes. As part of an audit trail, continuous self-reflection about the researchers' influence on data and analysis decisions was recorded in a journal, fieldnotes, and memos (Miles & Huberman).

Findings

The researchers identified four themes describing the influence of rurality on the choices and challenges that shaped the lives of the 12 post-MI women. These were *reticence*, *referral games*, *resourcefulness*, and *relationships*.

Reticence

The women accepted post-MI events and circumstances with few questions. This may have worked to their disadvantage in terms of accessing

resources that could have affected their recovery. They were hesitant about being the focus of attention, asking questions, requesting help, and raising issues; they considered themselves fortunate to have survived and to have access to what they viewed as life-saving treatment. Uncomfortable focusing on themselves, the women placed the spotlight on others. They did not expect their lives to be different post-MI:

I think rural women are uncomfortable asking for help, because...rural women are women who are very strong and able to stand on their own... They tend to do everything, and I think after they've had a heart attack...it really affects them... We are supposed to hold everything together. I think they feel inadequate after a heart attack. I know I felt inadequate...for a long time.

A feeling that the context of their lives was not understood in urban treatment centres contributed to a silencing of their voice. One woman who had driven to a rehabilitation facility on the advice of a friend explained why she decided to reject rehabilitative care:

The doctor was saying it's better to exercise, drop everything else, exercise, exercise, exercise, but what this woman [in the class] was trying to say is, How do I do that when I have three kids at home? And teenagers that were running her ragged, and she had a job, and they were actually on a farm and she had all this stuff to do. And I thought, he doesn't understand. It's not easy for us to say to our families, "You know what you are all making for your supper for the next month? I am going to do nothing but jog, jog, walk, walk." It didn't take much for me not to go back.

For all participants, living in a rural community meant one had to accept the fact that some services would not be available nearby, and the women and their families were not keen to challenge that reality:

Patients and their families know there are waiting lists and think if they make a fuss they might not get what they need. They feel threatened by the system. They know it is jam-packed, so they do what they are asked and don't complain.

Referral Games

At some point in their post-MI care, all participants were referred to a service outside their local community. One woman used the phrase "referral game," implying that there were rules, players, and the possibility of winning or losing with regard to accessing a particular service. For the most part, the women were silent players in the referral game. They waited in the local hospital while their physician negotiated their referral to a tertiary centre. They viewed their rural physician as having no choice

but to play the referral game, and expressed the belief that the physician viewed this system as flawed but functional. The perception that referral would be more successful if the patient remained in hospital was conveyed by the daughter of the elderly participant who had died:

Her doctor said to me, "The next time I have a patient who needs a lot of work-up or an angiogram, I won't discharge them." You can get things done if you stay in hospital.

The women were commonly transported to and from the referral centre by family members. They were unclear about how decisions were made regarding the mode of transport to referral appointments. Since many referred services were as far as a 2½-hour drive from their homes, the participants found travel to be stressful, especially in the face of poor weather and their fear of another cardiac event. One woman had driven 2 hours for angioplasty, only to discover that

It was a big screw-up. They were supposed to send an ambulance to transfer me there because I had a heart attack but the local hospital said, "No, just get someone to drive you there." So my husband took the day off work and drove me. Then, when I got there, those people jumped all over my hospital because they said I should have been in an ambulance.

Some women were confused as to how the flow of information and follow-up needs were managed between their rural and urban physicians. Some of the variation in practices could be attributed to different practitioners and referral sites, but the process was not transparent and was not always understood by the women or their families.

The participants did not always feel they were being treated respectfully by health-care providers at the referral sites. One woman sensed that she, her husband, and her rural health-care providers were judged negatively at a referral site, which left the couple feeling alone, alienated, and frightened:

They just felt we were country bumpkins. Even my husband...got treated that way. Even the rural nurse felt that they think we are stupid or something because we come from the country and we don't comprehend what's going on. And meanwhile she is one of the most knowledgeable nurses you can get.

Resourcefulness

There were many examples of women turning to themselves as resources to fill gaps created from living in a rural place. They tended to "make do" with what they had and take initiative to problem-solve when faced with challenges. While reticence was manifested in hesitancy to ask, resource-

fulness was the option when women were uncertain about what to do, whom to ask, and what to ask for. Some women viewed self-sufficiency as their civic responsibility, both because this would help control health-care costs and because they did not believe that others could or should meet their needs. Consequently, several women would not ask health-care professionals for advice they thought could be easily obtained from knowledgeable friends or from television:

I was always taught, from little on, [to] do it yourself. As a matter of fact, my aunt used to say, "When you can fill your bag of potatoes yourself, don't wait for the Lord to do it."

In the absence of structured and individualized post-MI exercise programs, the women found their own ways to meet what they deemed to be their exercise needs, including buying and using a home treadmill. Those who had been advised to increase their physical activity found it difficult to incorporate exercise routines into their lives. They approached exercise tentatively and experimented with increasing their activity with minimal or no guidance. For many, walking in rural areas presented logistical challenges in terms of terrain and social support. They feared that if they experienced difficulty or an emergency while walking, they would be unable to get help.

Relationships

The women valued their relationships with their families, rural health professionals, and institutions. However the value women placed on these relationships also served to limit the demands women would make on them. For many, these linkages were important resources over the months that followed the MI. None felt they would have received better care or would have had a different outcome had they lived in an urban area. On the contrary, they found it reassuring to be close to home and cared for by people who knew them, their families, and/or their communities; this was where they wanted to be when they perceived their lives were in danger.

Here, it's so different. Your doctor knows you and remembers you, remembers what you had. You go to the doctor in the city — he takes your number on a piece of paper basically... Here, it is just the people from around here and they get to know you and know your family and know that you have children...it's different.

Confident that if more care was needed the rural professionals would provide it, the women seldom made requests or complained about their lives. All of the women felt they could see their rural physician or access

emergency care in the local hospital whenever necessary. In this sense rurality was viewed as a positive force.

Women who had friends and were connected with neighbours in their rural community pre-MI benefited from these connections post-MI. This was true for both newcomers and those who had lived all or most of their lives in the same location. Three women who were relatively new to their communities did not have local connections pre-MI, and because their cardiac status limited their activity they were unable to establish social contacts post-MI. Like most of the other participants, the newcomers expressed a desire to form long-term relationships with women in similar situations, but did not envision how this could happen in their communities.

Discussion

While limited access to specialists, diagnostic services, and referral services, due partly to poor weather conditions, is consistent with proposed rurality indicators (Humphreys, 1998; Kralj, 2000; Leduc, 1997) and rural challenges (Health Canada, 1996), its qualitative impact on women's post-MI lives has not been previously documented. In contrast to the results of other studies (Humphreys; Johnson, Weinert, & Richardson, 1998; Kralj; Schreffler, 1996; Weinert & Boik, 1995), the participants in this study did not identify physical distance from their local hospital or physician as problematic in terms of emergency or follow-up care; consistent with the findings reported by Pierce (2001), they viewed distance as an unalterable fact of rural life.

In the post-hospital phase, rurality limited the participants' referral to, awareness of, and access to full cardiac rehabilitation. Low referral rates to and participation in cardiac rehabilitation have been reported for rural women and men (King, Humen, Smith, Phan, & Teo, 2001), yet accumulated evidence supports structured exercise rehabilitation (Jolliffe, Rees, Thompson, Oldridge, & Ebrahim, 2003). Therefore, rural women appear to be at a disadvantage compared to their urban counterparts, in spite of their resourcefulness. Women's self-reliance and resourcefulness in managing their post-MI recovery has been noted previously (Fleury, Kimbrell, & Kruszewski, 1995; Helpard & Meagher-Stewart, 1998; Jackson et al., 2000; Sutherland & Jensen, 2000; Tobin, 1996) and are consistent with rural women's particular tendency towards self-reliance (Bushy, 1993; Viens, 1997). Although self-care is frequently advocated by health professionals, its promotion in rural settings, where services are scarce, may serve to limit wellness potential and ease the demand for rehabilitation services, thus protecting an under-resourced system and leaving the status quo unchallenged, with rural women the grateful

recipients of services from a centralized but patchwork health system.

The participants' resumption of their traditional nurturing and domestic roles is consistent with the findings of previous studies (Benson et al., 1997; MacKenzie, 1993; Sutherland & Jensen, 2000). However, it was fuelled by a sense of being fortunate to have survived MI, to have access to rural health care, and to have access to any form of tertiary care. This gratitude served to create a culture of reticence, with the women choosing not to challenge a system they viewed as having saved their lives and not to place increased demands on that system. This reticence is consistent with the reported tendency of rural women to keep their worries to themselves (Health Canada, 1996; Viens, 1997) and may be a feature of traditional androcentric rural cultures that leave women with little formal authority or voice (Bushy, 1993; Health Canada). Inherent in such behaviour is an inability to recognize or articulate issues that impact on one's recovery, or to envision alternatives, and thus the danger that the women will leave it to others to set the terms for their recovery.

To varying degrees, the interviews became a process of "conscientization" (Freire, 1970), as the women began to examine their relationships and their options and to ask questions about their recovery, the availability of resources, and the needs of women like themselves. All of the women viewed their participation in the study as a means of effecting change. For this process to continue, rural women must be informed of the evidence on which best practices are founded. This knowledge would promote their self-advocacy and, from the bottom up, support their valued rural health institutions in developing more equitable and transparent post-MI processes and supports. Rural issues will not be considered within provincial health systems, which are subject to the competing interests of urban populations and lobby groups, unless policy-makers and professional leaders include rural women in the creation, evaluation, and reshaping of policies and practices relating to post-MI care.

The promotion of rural nursing practice, and specifically clinical leadership in rural nursing (MacLeod, 1999), can serve to educate players in the health system in culturally sensitive cardiac care. Possible avenues for clinical leaders to consider when addressing women's post-MI needs include collaborative efforts to establish patient- and family-centred protocols and policies regarding transportation to referral sites, information-sharing paths between rural health-care providers and referral sources, monitoring of women once they return home to their communities, and links with cardiac rehabilitation programs. The development of professional networks of rural nurses for the identification, promotion, and support of best practices for post-MI care could help nurses advocate for change and increase the visibility of MI as an issue among rural women. Research to develop cardiac rehabilitation specifically for the rural

context and research focused on tailoring the referral process to the needs of rural women and their families would further support cardiac care in rural communities.

Limitations

Given the diversity of rural regions and the adoption of the OECD definition of rural, the extent to which the present findings can be generalized to other rural women is unknown. This study drew from a diverse sample of rural women. There are indications that rural men also experience challenges to recovery from MI, and their inclusion in future studies may help to increase our knowledge about rural cardiac care. Because rurality remains an elusive concept, it is also possible that the present findings are a function of gender versus rurality, or some combination of the two factors. Clarity with regard to gender and rurality influences may be enhanced if future studies were to compare the experiences, challenges, and choices of rural and urban women and men following MI.

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Résumé

**Repenser les notions d'émancipation
et d'autonomie en recherche-action :
Leçons apprises dans trois petits hôpitaux
en région rurale**

Martha L. P. MacLeod et Lela V. Zimmer

La recherche-action a pour principal but d'aboutir à des changements sociaux qui auront été portés, dans une large mesure, par les participants et les participantes au projet. Elle repose sur deux grandes hypothèses. D'abord, le fait de prendre part à la démarche de recherche inciterait les participants à devenir des acteurs informés au sein de leur environnement personnel, professionnel ou social, leur procurant par le fait même un sentiment de pouvoir et d'autonomie. Ensuite, les enseignements et le sentiment d'émancipation découlant de cette participation seraient porteurs d'action. La validité de ces hypothèses a été remise en cause au cours d'un projet de recherche-action de type interprétatif mené dans trois petits hôpitaux situés en région rurale au nord de la Colombie-Britannique, au Canada. L'analyse des problèmes survenus au cours du projet met en lumière les rapports interdépendants entre vie professionnelle et vie sociale chez les infirmières. Ce constat oblige à repenser les moyens par lesquels les infirmières évoluant dans ce milieu peuvent parvenir à un certain degré d'autonomie et d'émancipation.

Mots clés : recherche-action, région rurale, infirmières, Canada

Rethinking Emancipation and Empowerment in Action Research: Lessons from Small Rural Hospitals

Martha L. P. MacLeod and Lela V. Zimmer

A primary goal of action research is social change that is driven largely by the research participants. A major assumption is that through the research process, participants are enabled to take knowledgeable action in their personal, work, or community environments, and that through this action they experience empowerment. Another is that action becomes possible as a result of enlightenment and emancipation through participation in the research. These assumptions were called into question during the course of an interpretive action research study conducted with nurses employed in 3 small rural hospitals in northern British Columbia, Canada. Examination of the issues that emerged during the study illuminates the ways in which nurses' professional and community lives are intertwined. This interconnection provoked a re-examination of how empowerment and emancipation can be realized by nurses in small rural hospitals.

Keywords: action research, rural, nursing practice, Canada

Introduction

Action research in its various iterations is increasingly being used in the development of nursing practice and community health initiatives (Binnie & Titchen, 1999; Royal Society of Canada, 1995; Stringer & Genat, 2004; Wuest & Merritt-Gray, 1997). It has been described as a family of research methodologies that pursue action and research outcomes simultaneously (Dick, 1999), as research that involves participants as partners at one or more of its stages, and as research that contributes to both practical and theoretical developments. One of its precepts is that action and change occur during the research process, with action generally undertaken by the participants, facilitated by those whose role is primarily that of researcher (Stringer & Genat). Through active participation in research on issues that lead to personal, organizational, practice, and/or community change, there is an understanding that action research is emancipatory in nature.

Undertaking action research is rarely straightforward (Meyer, 1993; Reason, 1994; Reason & Bradbury, 2001; Wuest & Merritt-Gray, 1997). The very fact of joint action by researchers and participants through iterative and reflexive processes lends unpredictability to the endeavour

(Binnie & Titchen, 1999; Wuest & Merritt-Gray). Accounts of various types of action research illuminate issues and problems in its use in health-care settings (e.g., Binnie & Titchen; Hagey, 1997; Williamson & Prosser, 2002; Wuest & Merritt-Gray). With few exceptions (e.g., Wuest & Merritt-Gray), these accounts refer to practices within urban settings; issues encountered in doing action research in small rural health facilities remain largely unexamined. With the continuing need for researchers to engage effectively and respectfully in ways that advance health care in rural and remote communities (Lyons & Gardner, 2001), it is important that issues in conducting action research with rural and remote nurses be better understood.

This paper examines the assumptions of emancipation and empowerment in action research in the context of rural nursing practice. The reflection arises from an action research study undertaken with nurses in small rural hospitals concerning their nursing practice and the development of strategies in caring for increasingly diverse patient populations (MacLeod, 1998, 1999). In the course of the study, the nurses said that the researchers had captured their experiences and the nature of their practice accurately and well. They consciously and knowingly declined to take substantive action themselves to change their practice settings, but at the same time asked the researchers to take their story forward to policy-makers and decision-makers in order to effect change. Their decision caused us to re-examine the assumptions underlying action research, particularly their implications in the context of small rural facilities.

Action Research and Its Assumptions

Action research has evolved from and within several different disciplines, for several different purposes; hence various forms have different ontological, epistemological, and disciplinary commitments. All forms of action research, however, encompass systematic inquiry, reflection, learning, and action. All have a goal of social change, be it at a local or a systemic level, driven, to a greater or lesser extent, by the research participants. Explicit attention is paid to power relations within the research endeavour and to the realities of the participants. There is an inherent ethical commitment to improvement and change that is enlightening or emancipatory and may be empowering.

Although usage varies within action research literature, the term *enlighten* generally means to free from prejudice or constrained ways of thinking and acting; *emancipation* refers to actions or reflections that free participants from restraint or oppression, especially social or political restraint; and *empower*, as defined in *The Canadian Oxford Dictionary*, means to "provide with the means, opportunity, etc. necessary for inde-

pendence, self-assertion, etc.” (Barber, 1998). The ways in which these assumptions of enlightenment, emancipation, empowerment, and action leading to change are borne out in practice vary amongst the different approaches to action research.

Hart and Bond (1996) argue that awareness of the different types of action research helps researchers to maintain a consistent focus within an action research process. Although Hart and Bond themselves, Holter and Schwartz-Barcott (1993), and McKernan (1991) offer typologies of action research, these are discrete categorizations with limited focus. Hart and Bond acknowledge the dynamic context of action research, developing their typology specifically for practitioners in health and social care. In these typologies, emancipation and empowerment are allocated to a discrete category (Holter & Schwartz-Barcott; McKernan) or towards the end of a continuum (Hart & Bond). Selener’s (1997) typology provides a different perspective, one in which the assumptions of emancipation and empowerment can be seen in each of the categories. Selener’s delineation arises specifically from the historical and contextual origins of the different approaches.

Selener (1997) suggests that action research has arisen in four iterations: community development, organizations, education (which has broadened to professional practice in several social service and health fields), and participatory research with farmers:

1. Participatory research in community development. In this tradition, concepts of critical thinking, critical consciousness, “conscientization,” and empowerment are central, and explicit attention is given to overcoming oppression as a means of shifting social, political, and economic structural power relations (Fals Borda, 1992; Freire, 1970; Maguire, 1987). While social change is directed at a long-term shifting of power relations in community and societal structures, it is accomplished in the short term through practical problem-posing and problem-solving activities at the local level. There is explicit collective attention to overcoming oppression, with a view to liberation and emancipation (Hall, 1984). Importantly, the focus of attention is the collective, with emancipation being more societal than personal in nature.
2. Action research in organizations. The disciplines of social psychology (Lewin, 1946), organizational sociology (e.g., Whyte, 1991), and organizational development (e.g., Argyris & Schön, 1996; Schön, 1983; Stringer, 1999; Stringer & Genat, 2004) have developed action research as a tool for organizational change and development in a variety of management and social- and health-service settings. This form of action research aims to achieve simultaneous problem-

solving, participant learning, and scientific-knowledge generation. Concepts of developmental change, reflection, experiential learning, and organizational learning are inherent in this form of action research, which seeks to make social systems and organizations more effective and efficient through humanistic and consensus-oriented approaches. The ways in which organizational forms and actions can oppress ways of thinking and engaging in change are attended to (e.g., Argyris & Schön), with a view to enhancing individuals' and work groups' awareness of actions or their theories-in-use, in order to humanize and emancipate the organization, its programs, and its workplace environments. The goal is an enlightened organization.

3. Action research in professional practice. Selener (1997) delineates action research in professional practice as a movement originating in the field of education, which has become a broader movement of action research in professional practice. The central assumption is that practitioners will engage in more effective practices if they are actively involved in activities that require them to become researchers and change agents in their own work environments. Central concepts are collaborative inquiry, dialogue, and critical reflection leading to action. While there are some in this movement (e.g., Carr & Kemmis, 1986) who draw on critical social theory and count individual and collective emancipation among the goals, there are others (e.g., Heron, 1985, 1996; Reason, 1994) who focus more on the development among individual practitioners of the "skills of reflective practice" and the development of individual awareness (Centre for Action Research in Professional Practice, 2004). The goal is for professionals to better do what they do by undergoing a form of personal emancipation. Although collaborative inquiry and cooperative action are hallmarks of this approach, the focus is on individual reflection and action rather than directly on the collective. The goal is personal empowerment.
4. Participatory technology development. Selener (1997) suggests that participatory research with farmers is an alternative to the traditional, top-down transfer of technology in agriculture. In this form of action research, collaboration between scientists and farmers occurs in the generation, testing, and evaluation of technologies for improved farming practices. Enlightenment is described in terms of learning about new ways to achieve goals, and empowerment in terms of the knowledgeable adoption of technology.

Underlying all these forms of action research are assumptions about the nature of individual and/or collective agency that will result in empowerment and/or emancipation. There is an assumption that if done

well, the research will enable participants to become aware of constraints on their action, and, through enlightenment, see new possibilities for “being” or for action. It is further assumed that once possibilities are seen and understood, and participants are sufficiently empowered, they can and will find ways of taking knowledgeable action to change their personal, work, or community practices. Individuals or groups will seek to better their individual lives, their workplaces, or their communities, and in so doing become emancipated. These assumptions were not borne out as expected in our study with nurses in small rural hospitals.

Research With Nurses in Small Rural Hospitals

The Hospitals and Their Communities

The study was carried out in hospitals in three resource-based towns in northern British Columbia, Canada, each with a population of less than 5,000 and located more than 2 hours by road from an urban centre (du Plessis, Beshiri, Bollman, & Clemenson, 2002). At the time of the study, each 12- to 16-bed hospital had two nurses on each shift. On any one shift, there could be a baby born, one or more motor vehicle accidents, and patients coming in for minor emergencies or as outpatients for treatments such as with bronchodilators or antibiotics. The acute-care inpatient population was similarly varied, from patients receiving psychiatric crisis response care to patients receiving palliative care, not to mention the extended-care residents for whom the hospital was home. The nurses were required to competently care for a wide variety of patients who, in urban facilities, would be receiving care from specialized teams of nurses and other health-care professionals.

The Study

This interpretive action research study drew largely on a research approach developed to examine the nature of everyday practice in nursing (MacLeod, 1996), coupled with approaches to action research with practitioners (e.g., Carr & Kemmis, 1986). The directors of nursing at the three hospitals identified the focus of the research and invited the first author to undertake the study with them, with the enthusiastic support of the general-duty nurses, in order to address three questions: *What does it mean to care for diverse patient populations? What facilitates and hinders nurses' developing expertise in the care of increasingly diverse patient populations? What strategies are likely to be effective in increasing the flexibility and responsiveness of nurses' practice in very small hospitals?*

Following ethical approval from the University of Northern British Columbia Research Ethics Committee, the study was undertaken in five stages: (1) interviewing and shadowing 24 of the 60 registered and

licensed practical nurses working in the three hospitals; (2) undertaking a hermeneutic interpretation with transcribed interviews and field notes and developing preliminary themes; (3) confirming, changing, and extending the themes with individual nurses and the directors of nursing; (4) developing the constitutive pattern “we’re it” and the action plan at a 2-day meeting with participating general-duty nurses; and (5) implementing the action plan. The methods are described in detail in MacLeod (1998).

During stage 4, nine participating registered nurses, three from each hospital, discussed the preliminary themes and issues and identified the central pattern of their work. They settled upon the phrase “we’re it” to depict their experience of being nurses in these small rural hospitals. Themes centred around the demands of handling complex situations with little backup and few resources, the impact of distance on their practice and learning, and the centrality to their practice of being in and of a small community (see MacLeod, 1998). The nurses identified ways in which their practice and the development of their expertise were facilitated or hindered. Then they looked at where they might focus any actions.

Issues in Practice: Areas for Action Strategies?

The nurses identified four factors that helped or hindered the development of their practice: teamwork, decision supports, education, and administrative and clinical support. Although they identified actions that they and their colleagues could take to partially address these issues, they noted how the issues were largely organizational and structural in character.

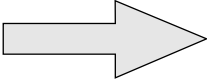
Teamwork. In these small hospitals, the two nurses who made up each shift were the only personnel in the facility between 5 p.m. and 8 a.m. The ways in which the two nurses worked as a team, and in conjunction with the physicians, significantly affected the quality of care they could give and the ways in which their own abilities could be mobilized. The nurses spoke of situations that went well because they were paired on the shift with a nurse whose expertise complemented their own, so they were able to pool their knowledge and skills. At other times — for example, when very junior nurses were paired — they felt their collective lack of knowledge hindered the quality of care they could give. They had no one readily at hand to help fill in their knowledge gaps. While the directors of nursing did what they could to staff the hospital with well-matched pairs, the collective-agreement terms governing work rotations and the small pool of nurses limited what they could achieve.

Communication was a central issue in nurses' working relationships with physicians. Although many nurses discussed situations of working smoothly as a team with physicians, they also described many situations characterized by a lack of respect and support for the nurses' knowledge, skills, and practice. The nurses identified many possible reasons for difficulties with physicians, including differences in education and experience; high turnover of physicians and/or nurses, leading to difficulties in knowing and trusting each others' judgements; differing expectations amongst physicians; and differences in the status of nurses and physicians within the community.

Decision supports. At the time of the study, there were few practice guidelines available to the nurses. For example, there was wide variation within and among the hospitals as to how independently nurses could initiate minor treatment. There were few decision supports promoting consistency in the primary-care activities that made up much of the nursing practice in the emergency room. The nurses spoke of "that frenzy of no consistency here..." and of orienting new nurses — "this is how I do it, when you work with so and so they're going to be doing it differently, so pick and choose what you like to do and go fly at it." The variability of practice created conflicts among nurses, and between physicians and nurses. In order to create supports for the more independent practice that the nurses were required to assume, particularly when physicians were not readily available, professional practice changes were needed. For example, in order to adequately support the daily practices of treating minor conditions and dispensing small amounts of pain medications at night in communities without a pharmacy, changes were needed in hospital, regional, and professional association policies, as well as in provincial regulations.

Education. While the nurses thought that relevant basic education was critical, as was accessible continuing education in such topics as advanced cardiac life support and neonatal resuscitation, education itself was not as large an issue as anticipated. Nurses did talk about the need to have "knowledge in their fingertips," and how difficult that was to achieve in rural facilities. They said they would like more education, including opportunities to travel to regional and provincial centres. Far more important for them, however, were workplace supports for using their knowledge and incorporating it into the fabric of their practice. The nurses talked about learning new approaches to patient care through reading, courses, meetings, or workshops, or from locum physicians. They spoke of many instances where they had identified a problem in practice, and where, by themselves or with a small group, investigated it and attempted to make changes (see MacLeod, 1998). The directors of

Table 1 *Taking Action?*

Thoughts when planning research	We expected that the research would	We found that
Issues and problems are not known but likely can be addressed by focusing on: • nurses' practice issues • education • local, fixable systems	• illuminate practice and experience • raise awareness	• most significant issues were systemic and organizational • actions to change systems would be risky for nurses 
	• engage nurses in action • begin to resolve/address issues • result in better practice and empowered nurses	• nurses decided to stay at the level of illumination, opting to raise awareness more broadly • nurses did not take direct action • researchers took action at nurses' request

nursing usually applauded these efforts, but for a variety of reasons were seldom able to put in place the structural and organizational supports needed to maintain the innovations.

Administrative and clinical support. The directors of nursing said how difficult it was to achieve economies of scale in small facilities, including achieving appropriate levels of local management and leadership. During the study and shortly afterwards, all three hospitals underwent leadership changes as part of a new regional structure. The strongest call from nurses in the study was for on-site clinical leadership by a person, working directly with nurses and sanctioned by both the organization and the nurses, to provide continuity and coordination of care, as well as to facilitate practice standards. They asked for “somebody to back us up one way or the other,” to make sure that clinical decisions were enacted consistently and to hold staff accountable for implementing agreed-upon practice changes.

Taking Action: Changing Practice?

Initially, the directors of nursing and the researchers had expected that the action would come in the form of initiating new practices, protocols, or educational endeavours within the workplace itself. We held this assumption on the basis of initial discussions and support for the project by the hospital boards, the hospital administration, and the nurses themselves. It was expected that the research, by illuminating everyday nursing practice, would help to empower the nurses to engage in specific actions within their workplaces. The focus of action changed when the nurses identified the priority to be enhanced organizational and structural supports — areas in which they had no immediate or direct influence (Table 1).

The research illuminated previously hidden or taken-for-granted aspects of everyday practice. The nurses said they also gained new insight into their practice. They were enlightened about their work and their work situation. As one nurse said, “You’re seeing yourself in a mirror by looking at it, so then all of a sudden you might have more [ways to act].”

Despite their new awareness, the nurses declined to focus their efforts on ward-based actions. Among the nine nurses who engaged in the planning session were informal leaders from each of the hospitals, who said they had repeatedly tried to implement change but, without the required structural supports at the hospital and regional levels, the changes were always transient and limited. Importantly, the nurses said that they were not inclined to continue to work on “band aid” solutions of implementing local actions when they saw that, over time, these had not changed the continuing issues in their worklives: “It hasn’t been fixed in 16 years of working.” At the same time, the nurses took some small actions

as a direct result of the research. For example, the nurses in one facility returned to their hospital following the group discussion and were able to coherently name their need for clinical leadership to their administrator. In moving from one facility to another, the first author shared information about money- and time-saving autoclaving practices in one hospital that were subsequently investigated and implemented by individual nurses in another. The nurses found coming together for conversation during the planning meeting to be helpful for sharing ideas and making new professional connections. Nevertheless, they declined to generate and systematically test any action strategies that might improve the flexibility and responsiveness of care, something they had outlined as a research goal.

The nurses stated that in order for change to happen, others needed to understand their practice. Much of their work continued to be taken for granted and unrecognized in their communities and organizations. Changes were needed at the organizational and structural level, including the education of decision-makers about the nurses' everyday world of work: "First of all we have to educate the administrator into what the nurse does. But there has to be some structural basis... The weakest linkage is organization, clinical leadership policies... [We need] to identify how we see ourselves as nurses, because they probably don't see us that well."

The nurses instructed the researchers to tell their story to the hospital boards (now the regional board), to the local communities, to the ministry of health, and to the broader professional community. As one nurse said, "Somebody coming in and talking to administration may make them see us from a different point of view, because we can't get them to see us." They wanted the researchers to present the findings to their employers, communities, and planners. As a result, the researchers engaged in discussions with managers and policy-makers across northern British Columbia and throughout the province. The findings were included in provincial health human resource planning and regional nursing strategic planning, and formed the impetus for a national study of the nature of rural and remote nursing practice (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004).

Despite the fact that they gained awareness about their practice through the research, the nurses in these small hospitals did not believe that changes they might initiate would be successful over the long term. Some had tried for years to make changes that were not sustained. They felt that the problems were deep-seated, requiring systemic and organizational action, and that it would not be prudent for them to act. Although the nurses became enlightened, it cannot be said that they became emancipated or empowered: direct action by the nurses was not forthcoming.

Revisiting Assumptions

Although making change in organizations always carries a degree of personal and professional risk, we became aware during the course of this research that system-directed actions in small hospitals can be particularly risky. The literature on action research in organizations and professional practice tends to treat action as non-problematic — as something that, with sufficient enlightenment, persistence, and the right approach, is possible (Reason, 1994, 1998; Stringer & Genat, 2004). In our study we did not find this to be the case.

Action

The personal nature of small communities permeates the everyday actions and practices of the nurses; it is sometimes enabling and sometimes constraining. In small communities, nurses know and are known by community members. This provides them with a unique understanding that enables them to tailor their practices to the people who arrive for care — to give what they name as “more personal care.” At the same time, it can cause difficulties in professional and working relationships. As one director of nursing said, “There’s no way you can speak to people and not be personal in a small community or a small hospital.”

Nurses in small communities not only face co-workers or patients at work, but they face them as neighbours as well. In one small community in the study area, some residents wished to change garbage pick-up policy. Many community members signed a petition, which they presented to the village council. The garbage collector, who was also a member of the community, went to several of those who signed the petition asking why they were not happy with his work. Even though the petition was about policy, not performance, the garbage collector personalized the issue. At least one of the people he had contacted feared that the garbage collector would “hold it against her that she signed that petition,” and that his feelings would last for years.

While such personal accountability is positive, it can also inhibit action. This is also the case in small hospitals, when one nurse hesitates to speak to another about her performance because her husband is the first nurse’s boss: “There’s all kinds of issues about families, about somebody’s daughter who is engaged to somebody else’s son, or married to somebody’s cousin.” In a small community, actions in one area of life frequently impact directly on another. Even though positive community collective action and organizational change take place in these small communities, the nurses are very careful about where and when they rock the boat. They have more to lose than their jobs.

Enlightenment

By telling their stories and having their practice reflected back to them in words that resonated but were beyond their own, the nurses gained a new appreciation of their work, were able to better articulate their practice, and gained insight into what helped or hindered it. It was at this point of newly seeing the organizational and structural constraints to their practice that the nurses declined to take local action. They told the researchers that we had heard them correctly and had accurately reflected the realities of their everyday work in our interpretations and reports. Through our “getting it right,” the nurses came to see the researchers as trusted allies. The nurses asked us, as credible outsiders, to take their story forward to policy-makers and decision-makers, to seek broader change. Through the researchers, the nurses felt their voices could be heard. We did not face the same risks as the nurses and their directors of nursing, risks that come with being integrally involved in small communities and small health-care organizations.

Emancipation

Underlying the implementation of personal, organizational, and social change in action research is the understanding that people individually or collectively are oppressed. Hospitals have long been seen as bureaucratic environments in which nurses’ practices are constrained or oppressed in some ways. Small hospitals are no exception. In these small hospitals, the nurses’ responsibility, authority, and autonomy frequently were neither in congruence nor supported. As a result, the nurses experienced an onerous burden of responsibility in their everyday work (MacLeod, 1999). They spoke of many frustrating situations, where they had to act without sufficient policy or practice backup because there were no other options if patients were to receive care. The nurses were well aware of the oppressiveness within their own work situation, but it would be difficult to describe them as oppressed people overall. In their own towns, they were leaders of community health initiatives as well as leaders in school and sports activities. As nurses, they were well respected for their knowledge and skills. Even within their own facilities, the nurses were able to find ways to be creative in their practice and improve the care for their patients, at least on their own shifts. They were frustrated in trying to make more systemic or lasting change within the hospital. The nurses may have been oppressed — but only in a portion of their lives.

Empowerment

In deciding whether to engage in action, the nurses said they had to consider more than just taking on another project. Because of the character

of change needed, they were faced with making choices about their worklives and their lives as community members. In the hospitals at the time, persistent difficulties with leadership and organizational structure meant that the nurses' burden of responsibility was not acknowledged or relieved by supports needed for nursing authority and autonomous practice. Fostering empowerment in this context was difficult for both nurses and their nursing managers. Unlike large urban settings, where hospital work and community life are clearly separate, in small communities the two are intertwined. The gains for the nurses needed to be considerable in order to outweigh the risks of some actions. The nurses could have a lot to lose as neighbours and as community members if they were to take the kind of actions needed to make systemic and organizational change.

Action Research in Small Hospitals: Fulfilling an Emancipatory Intent

Perhaps the most important lesson that we learned about action research during this study is the effect of the small community context on how we might fulfil an emancipatory intent. In order to achieve empowerment and social change that is emancipatory, the focus of action and the ability of the participants to take that action must be congruent. If the barrier to improving nursing care and engaging in more responsive practice within a supportive environment is individual nurses' lack of knowledge, then the agency for action may more appropriately rest with the individual, or the team. However, if the barrier is organizational or structural, such as the lack of clinical leadership in facilitating practice that integrates that knowledge, then agency needs to rest elsewhere. Action on the part of the organization, the administration, or the board, or a collective action to change inherent power relations, is called for. In small communities, actions in work environments cannot be understood in isolation. Just as the hospital is in and of the community, so are the nurses. Actions that may be prudent for nurses to take in a larger organization or community may not be so in a small community. For changes to successfully occur within rural and remote health-care organizations, they need to be in keeping with the ways that change is possible within their communities.

When nurses engage in examining their taken-for-granted practices and the relational nature of their ongoing work, there is an opportunity to see new possibilities. In action research with professionals, the goal of increased awareness and enhanced personal learning is sometimes seen as a sufficient outcome, with the assumption that changed practice will follow increased awareness (e.g., Carson & Sumara, 1997). In working with health-care professionals in small communities, it is incumbent

upon researchers to ensure that their expectations and willingness to act remain in concert with the kind of agency required in that situation. Researchers may find themselves with different-from-anticipated roles to play. One such role may be to develop “spaces for conversation and dialogue” (Smits, 1997, p. 293), both at the local level and beyond — spaces that will enable actions that are inherently and ultimately empowering for rural nurses and their practice.

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Authors' Note

Funding for this project was provided by the British Columbia Health Research Foundation.

The authors would like to thank Donna Bentham and Vanessa Archibald for their valuable assistance, and are indebted to the nurses of the small hospitals who so willingly and thoughtfully engaged in this study.

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Résumé

**Les effets du roulement du personnel infirmier
sur la continuité des soins
dans les communautés autochtones isolées**

**Bruce Minore, Margaret Boone, Mae Katt, Peggy Kinch,
Stephen Birch et Christopher Mushquash**

Nombre de communautés autochtones du Nord canadien éprouvent des difficultés à recruter et à retenir un personnel infirmier compétent et doivent s'en remettre à des infirmières d'urgence pour des services à court terme. Ces dernières ne sont souvent pas préparées pour les tâches exigeantes inhérentes à ce type de pratique. Cette étude examine les conséquences du roulement du personnel infirmier sur la continuité des soins dispensés aux résidents de trois communautés objibways, situées dans le Nord de l'Ontario. Les résultats sont fondés sur l'examen de 135 dossiers de bénéficiaires atteints de cancer, du diabète et de troubles de santé mentale, ainsi que sur des entrevues réalisées auprès de 30 professionnelles et paraprofessionnelles soignantes oeuvrant dans les communautés. L'étude a démontré que le roulement du personnel infirmier influe sur la communication, la gestion des médicaments et la diversité des services offerts. Il entraîne également des problèmes à l'échelle des suivis, un désengagement de la part des clients, l'aggravement des maladies et un fardeau supplémentaire pour la famille et les membres de la communautés, obligés à dispenser des soins.

Mots clés : recrutement

The Effects of Nursing Turnover on Continuity of Care in Isolated First Nation Communities

**Bruce Minore, Margaret Boone, Mae Katt, Peggy Kinch,
Stephen Birch, and Christopher Mushquash**

Many of Canada's northern First Nation communities experience difficulty recruiting and retaining appropriate nursing staff and must rely on relief nurses for short-term coverage. The latter often are not adequately prepared for the demanding nature of the practice. This study examined the consequences of nursing turnover on the continuity of care provided to residents of three Ojibway communities in northern Ontario. The findings are based on a review of 135 charts of oncology, diabetes, and mental health clients, and on interviews with 30 professional and paraprofessional health-care providers who served the communities. Nursing turnover is shown to detrimentally affect communications, medications management, and the range of services offered; it also results in compromised follow-up, client disengagement, illness exacerbation, and an added burden of care for family and community members.

Keywords: Aboriginal health, northern nursing practice, recruitment

Introduction

Despite being in constant recruitment mode for nurses, local Aboriginal health authorities and Health Canada's First Nations and Inuit Health Branch have a hard time filling the funded positions available in northern First Nation communities. The isolation of these communities makes it difficult to attract nurses willing to commit to spending reasonable periods of time working there. Moreover, the turnover rate is high among those nurses who do come (Lemchuck-Favel & Jock, 2004). As a result, recruiters are forced to rely on a rotation of agency nurses, who often lack northern nursing experience, to provide coverage for a few weeks at a time. In some instances this health workforce instability contributes to sporadic and inconsistent care for community members (Dignan, 1998). This paper reports results from a study conducted in three northern Ontario Ojibway communities, where nurse staffing deficits — shortages, turnover, and inadequate preparation — were found to seriously compromise the continuity of care provided to clients.

The three Shibogama First Nation communities involved in the study are small and remote, with 341, 411, and 507 residents respectively,

located between 350 and 450 kilometres from the region's health service centre, Sioux Lookout (population 5,336). They are accessible only by air. As is the case for similar communities across Canada, the principal primary-care providers are nurses. Each place has a nursing station, staffed by two or three nurses (when all positions are filled), who work with a rotation of physicians who fly in for 1 week each month, as well as local people trained to provide specific services, such as the Community Health Representatives and mental health workers. While striving towards an interdisciplinary-team model of care, the system remains heavily nurse-centred and nurse-dependent. Consequently, changes in the nursing complement affect client care quickly and significantly.

Research Questions

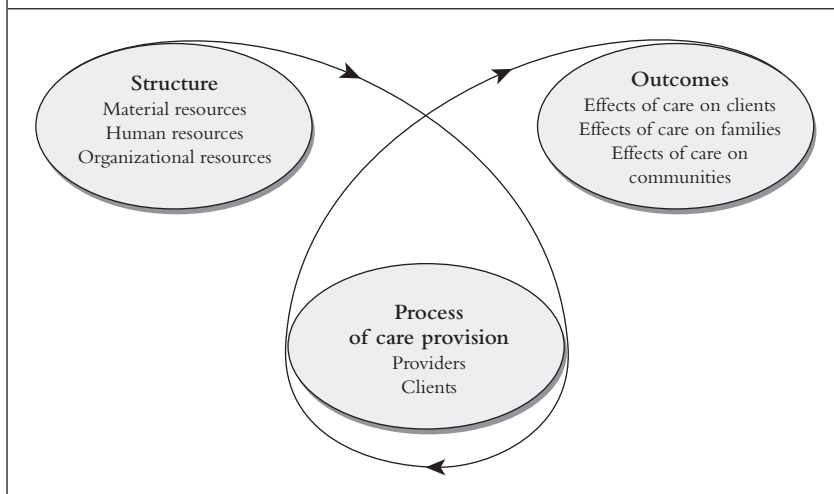
The nursing-workforce findings reported here come from a broader study of continuity of care in these communities. The definition of *continuity in the process of care* adopted for the study was "the likelihood that consumers will receive needed health services, in a proper sequence and within an appropriate interval of time" (Nutting, Shorr, & Burkhalter, 1981, p. 286). The objective was to provide the Shibogama First Nations Council and the First Nations and Inuit Health Branch with an evidentiary basis for program and human resource allocation decisions by addressing several interrelated questions: (1) *What, if any, disruptions occur in providing care, and why?* (2) *What effect does any lack of continuity have on client outcomes?* (3) *What are the impacts (human costs) of such a lack of continuity on patients, their families, and their communities?* (4) *How can the health system support communities and care providers in order to achieve better continuity of care?* In order to distinguish between disease-specific and systems issues affecting continuity of care, the study focused on three pathologies of critical concern: oncology, diabetes, and mental health.

An overall framework for quality care assessment, which is applicable to assessing continuity, is set out in Donabedian (1988). It classifies information into three categories: structure, process, and outcomes. *Structure* refers to the attributes of the care setting (material resources, human resources, and organizational structure). *Process* considers what is actually done in the delivery of care (by both providers and recipients). *Outcomes* are the effects of care on health status (individual and population). Figure 1 illustrates the interlinked nature of Donabedian's categories.

Literature Review

The nature of nursing in Aboriginal communities requires a complex array of clinical skills (MacLeod, Browne, & Leipert, 1998; Silverman, Goodine, Ladouceur, & Quinn, 2001), as well as cultural awareness

Figure 1 *Framework for Analyzing Continuity in the Process of Care (Donabedian's Framework)*



(Browne & Fiske, 2001). The nurse must establish and maintain responsive relationships with community members (Tarlier, Johnson, & Whyte, 2003), built on respect (Browne, 1995) and trust. Although this trust cannot be measured, it is essential for a nurse to function effectively in outpost settings (Vukic & Keddy, 2002). The imperatives of one's profession spill over into one's personal life (Canitz, 1991; Gregory, 1992; Scott, 1991) to a greater extent than would be the case in most other practice settings. Such high expectations and demands make it hard to retain nurses in the north and difficult to recruit replacements with the requisite experience.

There is longstanding evidence of problems associated with recruiting and retaining appropriate nursing resources for northern Ontario's First Nation communities (Lillington, 1997; Scott McKay Bain Health Panel, 1989), which continue to the present (Minore, Boone, & Hill, 2004). Little attention has been given to the effects of nursing turnover in the region on continuity of care, although it has been noted that reliance on an ever-changing stream of physicians who lack awareness of cross-cultural care adversely affects compliance, and thus client outcomes (Wilson, Krefting, Sutcliffe, & Van Bussel, 1994; Young, 1995).

Methodology

The study was initiated at the request of the Shibogama Health Program by the First Nations and Inuit Health Branch, Health Canada's depart-

ment responsible for the delivery of health services on reserve, and by researchers based at two Ontario universities. Permission to conduct the study was given by the Chiefs of the Shibogama First Nations Council, with an understanding that the findings would be shared with the communities prior to their general release (a meeting with community members took place in August 2003). The protocols were developed by the research team, which included two senior nurse administrators of Aboriginal heritage, in collaboration with members of the Health Program staff. Data collection involved two complementary methods: a systematic review of 135 client charts, and in-depth, semi-structured interviews with 30 health-care providers serving the three communities.

Clients' charts are a key source of information on the process of care. Pathology-specific tools, designed to give a holistic assessment of the health system's response to clients, were developed by the research team to capture information along several dimensions: time sequence; actions taken by provider category in assessing, diagnosing, developing, and implementing treatment plans; and evaluation. The clinical guidelines for First Nations and Inuit Health Branch personnel were used to benchmark ideal care, supplemented by information from the Northwestern Ontario Regional Cancer Centre and the Shibogama Health Program, which helped to clarify actual practice and hence tailor the tools to fit the situation. For example, although medical diagnoses could be used in the case of oncology and diabetes patients, those experiencing mental health deviations are seldom assessed or diagnosed by a psychiatrist. Consequently, the mental health diagnostic component was based on the North American Nursing Diagnoses Taxonomy (McFarland & McFarland, 1997), which best reflected the nature of most clinical assessments but did not exclude from the sample cases where a DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*) diagnosis had been made by a physician. To determine the face validity of the instruments, the Shibogama Nursing Program Supervisor tested them on several non-subject cases in Kingfisher Lake First Nation. This process identified a number of areas requiring improvement. Substantially revised, the tools were re-tested on non-subject cases from Wunnumin Lake First Nation and found to be acceptable.

A name blind screening of client charts held at the nursing stations flagged 208 diabetes, oncology, or mental health cases. A random sample of 135 charts, stratified by principal diagnoses, was drawn. It included 38 oncology, 47 diabetes, and 50 mental health clients. The chart review was conducted by a nurse familiar with the charting procedures used in nursing stations as a result of her long experience practising in various northern First Nation communities. Before any information was given to her, nursing station staff contacted the individuals whose records had

been selected, informed them of the purpose of the study, and obtained their signed permission to release the information. Client names were masked before the charts were submitted for review. The retrospective review tracked each client's pathology-related interactions with the health-care system over the previous 5 years.

The second source of data was in-depth individual interviews with members of the interdisciplinary health-care teams serving the communities, both resident and visiting professionals and local paraprofessionals. All those providing services during the period of data collection were invited to participate; as a result, the respondents included short- and long-term members of the teams and every discipline present. Thirty people were interviewed, a number sufficient to achieve information saturation (Jackson, 2002; Leininger, 1985). Since it was recognized that some paraprofessionals would be more comfortable speaking their native language, a bilingual (Oji-Cree/English) person with a background in mental health sciences was hired and specifically trained to carry out the interviews. The interviews conducted in Oji-Cree were translated prior to transcription. The five questions selected for use in the in-depth interviews were linked to the research questions but informed and made more specific by issues raised in the chart review. Each was framed in an open-ended format accompanied by probes, and interviewees were encouraged to respond at length. For example, they were asked: *What, if any, disruptions occur in cancer, diabetes, and mental health care?* This type of key informant interviewing provides what Geertz (1973) describes as a "thick description" (p. 3) of social phenomena.

The two data sources complement one another. For example, while charts show that information does follow clients home after they receive care in Sioux Lookout, the timeliness of the flow can be problematic. The interviews helped to explain why, and to describe the consequences. Liberal use is made of direct quotes from key informant interviews in this paper. There are two reasons for using the respondents' own words: first, this method best captures the tone of their comments, and second, it ensures that their views are reflected accurately.

Donabedian's (1988) categories (depicted in Figure 1) were used for what Patton (1990) refers to as *sensitizing concepts* to organize the chart review and interview data. "The inductive application of sensitizing concepts is to examine how the concept is manifest in a particular setting or among a particular group of people" (Patton, p. 391). The analysis followed inductive procedures whereby the volume of information collected was reduced by focusing on recurring concepts and their interrelationships (Morse & Field, 1995). To enhance reliability, the chart data were coded by the nurse members of the researcher team, independently of one another; their coding was then compared and consensually vali-

dated. The data were sorted by pathology and each client's case identified by community of residence, age, and gender. Through tracking of the stages in the process of care on a case-by-case basis, disruptions and the resulting effects on client outcomes were noted under emergent themes and later compiled with all cases in the specific pathology, then grouped according to Donabedian's categories. Similarly, both nurse and non-nurse members of the team analyzed the interview transcripts separately and then collectively to achieve consensus. The nature, cause, and effects of discontinuities in care explored in the interviews were then ordered according to Donabedian's domains of structure, process, and outcome.

Responses from paraprofessionals who were also community residents underscore a limitation of the study. Specifically, they spoke about their experiences as both providers and *recipients* of care. Generally, however, the clients' voices were not heard directly; adhering to the principles of participatory action research, client interviews were not incorporated into the research design because of locally identified concerns and the preferences of the community partners.

Findings

When pathology-specific comparisons were made, distinct differences in the continuity of care became apparent. Oncology patients and those with diabetes received appropriate care in a timely manner to a far greater extent than did those experiencing mental health deviations. Care for the latter group was poor. The differences are largely attributable to the nature and quality of the referral and support programs for the three conditions that are available outside the communities. Staffing problems at the local level did not affect one client group more than the others; they bedevil the delivery of all care.

Structure

Collectively the core elements of a health system's *structure* — material resources, human resources, and organization — create amenities of care that influence variable degrees of access and variable degrees in the quality of care received. Human resources are of principal interest for the present paper. Attracting health professionals to work in the Shibogama communities is a chronic problem that, at the time of the study, had turned acute, despite the health authority's reputation as a good employer (Hiebert, Angees, Young, & O'Neil, 2001). One community had 42 nurses in and out over a 1-year period. Another reported having 12 nurses arrive during the summer months for "10 days each, 7 days each," with predictable results. They "start something, leave it, nobody else picks it up, so there's awful continuity." The turnover also affects

Table 1 *Effects of Staffing Turnover*

Structure (nursing human resources)

Recruitment
Turnover
Orientation
Preparation
Communication

Process

Focus on acute care
Compromised follow-up
Medication management
Client trust
Holistic assessments
Cultural awareness

Outcomes

Client disengagement
Illness exacerbation
Family stress
Community coping

others in the system. For example, support staff must continually orient new nurses to various procedures, such as arranging for an emergency medical evacuation. Compounding the nursing shortfall, the communities relied on locums for physician coverage; frequently, a different doctor arrived each month.

Ideally, because of the independent nature of northern practice, the nurses should be prepared in primary care and community nursing, preferably with several years' experience. Finding such individuals is not always possible, however. So, "although they are good nurses," one long-time practitioner said, the agency nurses who came were often ill prepared because they "had never been in the north, had never been trained to be in the north, had never been oriented on how to work in the north...so it certainly does have an impact." It takes time to become familiar with the system of care, the clientele, and the community. "A lot of relief nurses just come up here and do the [nursing station] drop-ins. That's such a minimal part of the job, and yet it takes up their time because they don't know how to do the job." Immunization, chronic care, health promotion, and prevention programs all "get put on the shelf."

One organizational element of the structure that combines with nursing turnover to affect continuity of care is the management of client information within the communities. At issue is the number of files that are maintained. One nurse summarized the problem: "We have charts, we have med files, we have referral files, we have physician's files, nursing notes...how in the world do you keep track of what's going on?" If, for example, a patient needs to return for a follow-up visit in a week, it is not sufficient to add a note to the nursing chart and tell the patient. "The chances of you getting that person to return in 1 week are very, very low." Not only is the client likely to forget, but the note may be overlooked in a chart that is already several inches thick. "The follow-up stuff leaves in the head of the person who [saw the patient] in the first place, and if it isn't clearly communicated to the next nurse, then it just sort of falls by the wayside." Moreover, the system of keeping multiple records itself was seen as inherently flawed because new nurses have to know where and how to look for information.

Process

As defined by Donabedian (1988), *process* considers what is actually done in the delivery of care by both providers and recipients. In the present case, decisions by both are often influenced by the health human resource reality with which they must contend.

Nursing shortages place pressure on the range of services offered, for example. The chart review showed that the oncology clients in the sample (all female) were identified through routine Pap screening at the well-women clinics held in the communities. However, these clinics are cancelled when the nursing station is especially understaffed. Similarly, in a community functioning without a mental health worker, the nurses were called upon to provide counselling, leading one to comment, "Sometimes there's time for that and sometimes there isn't." The focus is on maintaining acute-care coverage; chronic care and public health programs do not receive the attention they warrant. "They look after the sore ear and the sore throat...but the person with diabetes or whatever, their follow-ups get kind of shoved aside." A full-time nurse would be more inclined to find the person who is being followed once a month for their diabetes, to remind them that they need to come to the clinic if they happen to miss an appointment. That is not likely to happen when nurses do not know the individuals involved or where they might be found.

Reliance on short-term relief nurses adversely affects continuity, in several ways. Nurses may miss critical signs, particularly among mental health clients: "A relief nurse...never has a total handle on the high-risk people...who should be questioned further on their mental health status,

[so] some things go out the door.” Lack of knowledge about procedures can also undermine patient care. Temporary nurses will administer medications, but may not order refills because they are unfamiliar with the system for pharmacy orders. One nurse reported returning from vacation to find 68 people whose medications had been used up and not replaced (which normally takes 2 weeks). Moreover, relief nurses are not in the communities long enough to establish rapport with their clients. Both males and females resist submitting to examinations that would require them to expose intimate parts of their bodies to strangers. For example, respondents noted a reluctance on the part of women to have Pap smears done by nurses they did not know: “They’re not keen on being exposed to a new face every time.” Browne and Fiske (2001) made a similar observation in a British Columbia setting. A Community Health Representative emphasized the point of familiarity: “I find actually what determines if they’ll come or not is who is calling them in and what was said when [they] called them in.”

The continual change in nurses means that patients must tell and retell their story. They may see a different person every visit, with each one asking them the same questions. Speaking about her own experiences, a local Community Health Representative said, “Sometimes there’s a new nurse here and I have to sit and talk, talk.” The detrimental effect of mental health clients having to expose their psyche to one person after another was noted with concern. People tire of having to repeatedly recount their symptoms and history and, frustrated, sometimes simply stop going to the nursing station for follow-up. Client disengagement in reaction to such experiences underscores the link between the *process* and *outcome* factors affecting continuity of care.

Cultural awareness emerges as a critical barrier for relief nurses. Often they are “in cultural shock to begin with.” They may then proceed to make social errors that impede effective communication with their patients; for example, not knowing “the smallest things like [avoiding] eye contact with elders.” In other instances the failure is the result of ignorance about clients’ lifestyle. One nurse told of a frustrated relief nurse whose client, an elderly diabetic, had not followed her advice to bathe his infected foot three times a day and stay off it as much as possible. “Well, why didn’t you follow through?” the relief nurse demanded, seemingly unaware of the fact that this person had to haul water from the lake and cut wood to heat it, before he could bathe his foot as she had recommended.

Outcomes

Broadly defined *outcomes* are the effects of care on clients, their families, and their communities. Obviously, such outcomes can derive from

various sources; for example, specific courses of treatment can be measured in changed health status for clients. The present study, however, sought to identify outcomes that are rooted in the system of care itself, rather than specific regimens of care. Nursing turnover, a systemic phenomenon, affects clients and their families directly in ways that are felt by the communities as a whole.

Respondents identified multiple ways in which clients' care may be compromised by the need to deal with an ever-changing nursing workforce. As indicated above, clients may avoid contact with unfamiliar care providers entirely, or, alternatively, discharge themselves from care when confronted with the continual arrival of new faces. In either case, their reluctance to seek help "may cause an exacerbation of their condition." Moreover, unsatisfactory experiences may result in "an unwillingness to be cooperative with health-care providers in the future." As well, the staff-shortage-driven need to focus on acute care, at the expense of all other health domains, serves to place the onus for managing their well-being on the clients, many of whom lack the required knowledge. With reference to diabetes patients, one person said, "Staff turnover [means] it falls back on patients to take more responsibility for their own diet, their own care." In sum, one nurse argued that the staffing instability creates "the potential for increased morbidity and mortality."

Like the concentric circles that ripple out when a stone is dropped into a pond, the effects of poor client care spread first to the family and then to the community. Family members who feel that their relative is not receiving adequate treatment become frustrated, angry, and disillusioned. "If you have a family member that is going through [bad experiences due to systemic problems], then you're going to be trying to deal with exacerbated symptoms and not be able to get support from the health-care system because your family member doesn't want you to do that." The problems compound to the point where they overwhelm family members. Speaking of a diabetes patient's refusal to return to care, a nurse said, "It simply leads to a deterioration of their condition, which then leads to a greater burden on the family." The combined effect of client disengagement from the system and restrictions that can be imposed on the range of community-based services offered at times when nursing coverage is limited is that "families burn out, and then...the community burns out" trying to help them.

Workforce instability can translate into poor outcomes for individuals, families, and communities. However, the consequences cited above could be tempered through the adoption of best practice models for holistic assessment and the requirement that these be followed by all providers serving the communities, even those who are there only for brief periods.

Discussion

While nursing turnover will likely continue to be problematic in these First Nation communities and others like them across Canada's provincial and territorial north, there are potential remedies for some of the worst consequences. For example, in situations where coverage can be maintained only through a series of short-term agency placements, it would be best if the same nurses rotated in and out of a given community. This is being tried to some extent, but could be adopted more widely (Minore et al., 2004). In a word, this strategy would breed *familiarity*: nurses who are familiar with the community, practices within the local health system, and patients; and patients who are familiar with, and likely more comfortable with, their nurses. The resulting reciprocal knowledge should serve to reduce some of the systemic and interpersonal communication barriers that currently disrupt care. If same-site rotations are not feasible, nurses going north for even the briefest time should receive proper orientation in advance; this orientation should cover the nature of the practice they will encounter, the essentials of culturally competent care, and particulars about the specific community they are about to join.

Changes in the way things are done at a community level would alleviate some of the problems created by the nursing situation. Some suggestions are simple and should be relatively easy to implement. If, for example, responsibility for monitoring prescription renewals were assigned to the nursing station's paraprofessional staff, the latter could remind nurses when reorders are required, so that the pharmacy delays identified by respondents would not occur. Another idea, more complex and perhaps harder to implement, holds the promise of reducing one significant effect of nursing workforce instability. At present, the nursing station is the principal conduit for health information in and out of the communities, but this is often disrupted by staff changes. However, the exchange of information related to health prevention and promotion activities need not depend on the participation of nurses. The Community Health Representatives and other paraprofessionals are responsible for implementing much of the community-based programming in areas where there are national strategies, related, for instance, to diabetes and tobacco use. Therefore, fostering a direct connection between those overseeing the programs at a regional level and those working locally would alleviate some of the communication breakdowns.

Conclusion

Nursing human resource issues emerge as both an underlying source of gaps in service and an overarching area of policy concern. Shortages,

turnover, and inadequate preparation among nurses recruited to northern First Nations affect continuity across the entire continuum of care. Health promotion and illness prevention activities are displaced by the pressure from acute treatment demands, while follow-up care is frequently impaired by communication breakdowns attributable to the staffing situation. Although the nursing workforce shortfall is likely to continue, certain strategies could reduce its impact. First, in instances where short-term placements are necessary to ensure coverage, a system allowing the same group of nurses to rotate in and out of a given community would be ideal. Second, no matter how brief their assignment, all nurses who go north must be properly oriented to the practice, culture, and particular community. Third, system-level accommodations should be made to maximize the contribution of paraprofessional staff from the communities; usually they are knowledgeable, competent, and the most stable component of the health-care team.

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Authors' Note

The authors wish to acknowledge the contribution of the organizations that provided financial support for the research on which this paper is based: the Canadian Health Services Research Foundation; First Nations and Inuit Health Branch, Health Canada; and the Ontario Ministry of Health and Long-Term Care. The results and conclusions are the authors' alone; no official endorsement by these organizations is intended or should be inferred.

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Résumé

**Pour travailler et étudier :
la migration interne des infirmières
rurales du Canada**

**J. Roger Pitblado, Jennifer M. Medves
et Norma J. Stewart**

S'appuyant sur la *Base de données sur les infirmières autorisées* et sur un récent sondage pancanadien, cette étude s'est penchée sur les tendances relatives à la migration interne des I.A. rurales qui ont fait leurs études au Canada. Les taux de migration interprovinciaux, variant de 11 % à 27 % selon la base de données utilisée, cache des variations beaucoup plus grandes quant aux taux de mouvement à l'intérieur des provinces, lesquels sont particulièrement pertinents en ce qui a trait à la prestation de services infirmiers dans les communautés rurales et éloignées. Parmi les effectifs infirmiers, ceux qui ont tendance à migrer sont les femmes, celles plus âgées, celles travaillant dans des dispensaires et celles vivant dans des communautés éloignées. La majorité des I.A. qui ont migré en raison de la poursuite d'études après l'obtention de leur diplôme de base ne retournent pas dans la région où elles ont originalement été accréditées. Des études ciblées portant sur la migration doivent être menées pour bien cerner les tendances précises et les variables associées à de tels mouvements, dans le but d'évaluer, de façon plus efficace, les politiques de recrutement et de rétention et d'améliorer l'ensemble de nos modèles de planification des ressources humaines œuvrant dans le domaine de la santé.

Mots clés : migration interne, planification des ressources humaines œuvrant dans le domaine de la santé

For Work and For School: Internal Migration of Canada's Rural Nurses

**J. Roger Pitblado, Jennifer M. Medves,
and Norma J. Stewart**

Using data from the Registered Nurses Database and a recently conducted national survey, this study examined the internal migration patterns of Canadian-educated rural RNs. Inter-provincial migration rates, ranging from 11% to 27% depending on the database used, mask much wider variations in sub-provincial movement rates, which are particularly relevant when considering the provision of nursing services in rural and remote communities. Rural RNs are more likely to migrate if they are female, older, working in nursing stations, and living in remote communities. A majority of RNs whose migration is associated with going to school after their initial nursing education do not return to the jurisdiction where they were first registered. Targeted migration studies are needed to fully understand both the detailed patterns and the predictors of such movements in order to better assess recruitment and retention policies and to enhance our overall health human resources planning models.

Keywords: internal migration, schooling, employment, health human resources planning

Introduction

“Having the right people with the right skills in the right place at the right time to provide the right services to the right people” (Birch, 2002, p. 109) is the goal of health human resources planning (HHRP). Of these elements, the present paper focuses on “place” in the context of registered nurses (RNs). More specifically, this study presents the results of empirical analyses of the principal internal migration patterns of Canada's rural RNs. The focus is on nurses who attained their first level of nursing education in Canada and whose migration involves provinces and territories — that is, inter-provincial or inter-jurisdictional migration.

Given reports of past, present, and future shortages of nurses (Ryten, 1997, 2002), it is clear that we still do not have HHRP “right.” Debates continue as to whether we are oversupplied or undersupplied with health-care providers while creating new or variations of existing forecasting models, none of which seems to work particularly well (O'Brien-Pallas, 2002; Pong, 1997). On the other hand, significant progress is being made, particularly in articulating the capabilities and limitations of those

models (Birch, 2002; Tomblin Murphy, 2002). This is being done as forecasting and planning is increasingly “seen as a continuous quality-improvement process that is updated regularly” (O’Brien-Pallas, p. 7).

One element of our HHRP models that is not well described is migration. In many discussions, RN migration is equated with emigration and/or immigration — that is, international migration. Ryten (2002) speculates that emigration during the 1990s, particularly to the United States, was substantial. But neither her data nor the work undertaken by the Canadian Institute for Health Information (CIHI) can adequately determine actual rates of out-migration. Immigration information is much more readily available, as the majority of RNs employed in Canada identify on their annual registration forms the province or territory (or country, if from outside Canada) where they attained their initial nursing education. “Since 1998, the proportion of foreign graduates in the Canadian RN workforce has remained between 6 and 7%” (Canadian Institute for Health Information [CIHI], 2003). But without figures for both immigration and emigration the overall net migration rate will continue to be a subject of debate. Based on interviews with 51 baccalaureate nurse graduates from St. Francis Xavier University in Nova Scotia, Gillis, Jackson, and Beiswanger (2004) report that “although a number of the graduates had migrated to the United States for employment, the majority returned to Canada” (p. 104).

For Canada’s rural nurses, there are no published accounts that accurately enumerate emigration rates; and less than 4% of this country’s rural RNs were educated outside the country (CIHI, 2002). While emigration and immigration for this group of nurses may not be totally inconsequential, it is likely that internal migration (inter-provincial and intra-provincial or intra-territorial mobility) is of much more significance for HHRP.

Internal migration is explicitly recognized as a major component of RN recruitment and retention in some provinces. For example, “Historically, BC has relied on net immigration and inter-provincial migration for about half of its nursing workforce. In other words, we have trained only about half of the nurses needed for our health system” (Ministry of Health and Ministry Responsible for Seniors of B.C., 2000). Even in that report, unfortunately, the migration (including immigration) discussions do not deal explicitly with problems in the rural and remote nursing workforce.

Across the country, there is an information gap when it comes to migration in general and internal migration in particular (Dussault et al., 2001). No surveys of Canadian RNs exist that focus explicitly on inter- or intra-provincial migration. The most recent discussion of the mobility of nurses in Canada is that provided by Baumann, Blythe, Kolotylo,

and Underwood (2004). Bauamann et al. offer an excellent review of some of the databases (including their limitations) that can be used to analyze the internal migration patterns of Canadian nurses. They also provide a useful summary of inter-jurisdictional mobility patterns of RNs (as well as licensed practical nurses and registered psychiatric nurses) in comparison with the internal migration patterns of the general population. However, their analysis is limited to an examination of aggregated statistical information and therefore their discussion of the migration barriers, challenges, and motivations is drawn from analyses of the general population (rather than nurses specifically), local studies with small numbers of participant nurses, and ecological suppositions that are not based on the responses or views of individual nurses. The Baumann et al. work does not provide any information on the mobility patterns of rural nurses, as it was not designed to do so.

The purpose of the present study was to explore some of the internal migration patterns of Canadian-educated, rural RNs. This was done using two sets of data, neither of which was designed specifically for analyses of migration. The first was the Registered Nurses Database (RNDB), the most frequently cited national database used in Canada to portray internal migration patterns of RNs (Baumann et al., 2004; CIHI, 2002, 2003); the second is from a self-report survey instrument that was administered to a sample of rural RNs throughout Canada. The latter is referred to in this paper as "the survey." The RNDB was used to identify provincial or territorial sources and destinations of RN migrants and to examine correlates of migration within the limits of that administrative database. The survey was used to determine how often rural RNs move, and why — to seek work or for schooling. It contains one possible migration event for work, but for schooling the possible migration events include various levels of nursing education (diploma, baccalaureate, master's, or doctorate) and non-nursing university education (baccalaureate, master's, or doctorate).

Methods

Defining Rural

The term "rural" used in this study is the area of Canada described by Statistics Canada as "rural and small town." It includes those communities with core populations of less than 10,000, whereas urban centres are referred to as census metropolitan areas or census agglomerations. In the RNDB analyses, rural communities have been subdivided into four categories of metropolitan influenced zones (MIZ) based on commuting flow patterns. The four categories are: Strong MIZ, Moderate MIZ, Weak MIZ, and No MIZ. These zones identify the rural community's proxim-

ity to an urban centre, with Strong MIZ being the closest and No MIZ the furthest away. These terms are used and defined in many Statistics Canada publications and are summarized in du Plessis, Beshiri, Bollman, and Clemenson (2001).

Registered Nurses Database

The RNDB is a collation of provincial and territorial RN registration information compiled annually by the CIHI. Based on the definition outlined above, 41,502 of the 232,412 RNs employed in nursing in Canada in the year 2000 were identified as rural (CIHI, 2002). For the present study, the number of rural RNs was reduced to 40,036 by excluding RNs whose entry to practice or initial nursing education was outside of Canada or not stated, and who did not explicitly provide any of the following pieces of information: sex, age, place of graduation, place of registration, highest nursing education, full-time/part-time employment status, place of work, primary responsibility, or position. Definitions, categories, and associated limitations of these RNDB variables are described in detail by the CIHI (2002, 2003). Also excluded were those RNs who could not be located within any of the MIZ categories.

RNs in Canada do not have unique registration numbers at the national level. At the present time, if an RN migrates it is impossible to follow that individual from province to province or identify movements within a province or territory — that is, from community to community. As a consequence, migration patterns using the RNDB are estimated by comparing place of graduation with place of registration. Thus, a mover or migrant is an RN whose place of graduation and place of registration are different. In this paper, aggregate migration patterns are summarized by province and territory as well as by census division (CD). CDs are the equivalent of counties or districts in many provinces or administrative units constructed for the purpose of disseminating census information. To further analyze the characteristics of migrant and non-migrant RNs, binary logistic regression analysis was performed using the SPSS statistical package. This analysis was undertaken in order to generate odds ratios that would allow us to compare the simultaneous influences of the RNDB variables or correlates of migration.

The Nature of Nursing Practice in Rural and Remote Canada: A National Survey

Virtually all migration studies suffer from the fact that administrative databases, such as the RNDB, rarely include information about possible moves between two or more events or time periods, and even more rarely record the reasons for those moves. In the context of these two methodological issues, a unique opportunity to supplement our knowledge about the

migration patterns of Canada's rural RNs was afforded by the availability of data derived from questionnaires administered to a sample of nurses across Canada through the National Survey ("the survey"), a component of The Nature of Nursing Practice in Rural and Remote Canada study (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004).

The details of the data-gathering protocols of the survey and initial demographic and workplace profiles are provided by Stewart et al. elsewhere in this issue of the *CJNR*. Administered in 2001 and 2002, the questionnaire elicited responses to many of the complex dimensions of rural nursing practice: demographics, employment issues, community context, roles, satisfaction, health, work environment, practice supports, and career plans. Only a minute part of the data is used here, with the following two principal characteristics of note.

First, the questionnaire was administered to a sample of RNs who were randomly selected from the rural and small-town (i.e., the same "rural" as described above for the RNDB) areas of each province. In addition, with the collaboration of the professional nursing associations of each province and territory, the questionnaire was sent to: (1) the total population of Canadian RNs who indicated on their registration forms that their primary workplace was a nursing station or outpost setting, and (2) all RNs registered in the territories. A total of 3,933 valid questionnaires were completed, making for a 68% response rate.

Second, in the context of this paper, the survey gathered information on a number of key career milestones by asking a series of *what, when, where* questions. The nurses were asked these three questions in terms of their nursing and non-nursing (university-level) education. While this information could not provide for an analysis of employment mobility (Hiscott, 1998), it allowed for the assessment of geographic mobility in greater detail than the information elicited by the RNDB.

For each respondent to the survey, a chronology of educational attainment milestones was created and then ended with a "work milestone" — that is, the nurse's current place of residence/registration. Each of the milestones in these chronologies was characterized by province/territory of occurrence. Thus, "for work" migration patterns similar to those of the RNDB could be determined by comparing the location where initial nursing education was attained with current location. In addition, "for school" migration patterns could be determined by following the location or locations of the attainment of either or both nursing-level and non-nursing-level educational milestones. An examination of the educational components of these milestone chronologies also allowed us to determine whether return migration occurred.

The unique milestone patterns were labelled using a string of symbols — for nursing education: Dn – diploma, Bn – baccalaureate, Mn –

master's, and Pn – PhD; and for non-nursing university (i.e., “other”) education: Bo – baccalaureate, Mo – master's, and Po – PhD. An equivalent string of provincial/territorial locations where these events took place was also constructed for each of the nurses, with an appended symbol for current location.

To illustrate, the educational career pathway DnBnBo indicates that the nurse earned, in chronological order, a diploma in nursing, a baccalaureate in nursing, and a baccalaureate in a non-nursing subject. The survey data for this hypothetical case might indicate that the diploma and degrees were earned in Newfoundland and Labrador, Nova Scotia, and Nova Scotia, respectively. If the nurse is now working in Newfoundland and Labrador, migration occurred for schooling purposes (i.e., from Newfoundland and Labrador to Nova Scotia) and a return migration to Newfoundland and Labrador occurred for work. Our data cannot account for many of the intervening complexities of migration. In this example the RN may have returned to Newfoundland and Labrador for work, or may have gone to another province/territory for work, between her times in Nova Scotia. Nor does the survey provide information about the delivery method (e.g., by correspondence or Internet) of the various education milestones that would not have required internal migration.

A subset of 3,460 nurses from the total of 3,933 RNs in the survey was used for this migration study. Respondents were excluded if any of the *what, when, where* milestone questions were left unanswered. They were also excluded if their initial nursing education was not attained in Canada. This provided some degree of comparability with the analysis of the RNDB data. Nurses who were initially educated in Canada but received additional nursing or non-nursing education outside the country were included. As this is the first exploratory examination of the survey data in terms of migration patterns, no multivariate analyses have yet been attempted. However, as this section of the study has relied on a relatively small number of cases, we have provided 95% confidence intervals for proportional estimates, where appropriate. These have been calculated using the rigorous estimation procedures described in detail by Newcombe (1998). Confidence intervals are not provided with the RNDB estimates, as those proportions are derived from the statistical population of all Canadian-educated rural RNs.

Ethics Reviews

The overall study, *The Nature of Nursing Practice in Rural and Remote Canada*, and its component parts were conducted following review and approval by the ethics committees of Laurentian University, the University of Saskatchewan, the University of Northern British Columbia, and the

University of Lethbridge. In addition, data from the RNDB were made available only after the study had been reviewed by the CIHI's Privacy and Confidentiality Committee.

Results

RNDB – “For Work”

Transition matrices, cross-tabulating province where RNs received their initial nursing education by province or territory of current registration, highlight overall inter-jurisdictional retention and migration patterns (Table 1) and the resulting composition of provincial and territorial rural RN workforces (Table 2).

Saskatchewan is the province least able to retain the RNs who were educated there. In the year 2000, of all the rural RNs who were nursing in Canada and whose initial nursing education had been attained in Saskatchewan, only 77.3% were still in the province (Table 1). The remaining 22.7% of Saskatchewan-educated RNs were located in other

Table 1 *Retention and Migration: Proportions (%) of Canadian-Educated Rural RNs by Province of Graduation and Current Province/Territory of Registration*

		Province/Territory of Registration											
		NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	TR	Totals
Province of Graduation	NL	86.8	0.4	3.8	0.5	0.1	2.8	0.6	0.2	1.9	1.3	1.6	100.0
	PE		85.9	5.5	2.3		2.3	0.3	0.5	1.8	1.3		100.0
	NS		2.0	87.2	2.3	0.1	3.9	0.5	0.3	1.7	1.4	0.6	100.0
	NB		1.5	5.7	83.9	3.3	2.9	0.5	0.1	0.5	1.2	0.4	100.0
	QC		<0.1	0.4	0.5	95.7	2.2	0.1	0.1	0.3	0.6	0.1	100.0
	ON		0.1	0.9	0.3	1.0	90.7	0.8	0.5	2.2	2.8	0.7	100.0
	MB		0.1	0.8	0.1	0.1	4.0	80.1	5.0	4.7	4.4	0.7	100.0
	SK		0.1	0.3	0.1	0.2	1.1	3.3	77.3	11.5	5.4	0.7	100.0
	AB		0.1	0.6	0.2		1.6	1.0	5.0	79.6	10.9	1.0	100.0
	BC		<0.1	0.8	1.0		2.1	0.8	1.3	7.0	86.0	1.0	100.0

Source: RNDB (2000).

Notes: Row percentages may not add up to exactly 100% due to rounding. Because of small numbers, the territories (TR) have been combined for province of registration and have not been included as a location of graduation.

Table 2 Provincial Composition: Proportions (%) of Canadian-Educated Rural RNs in Current Province/Territory of Registration by Source Province of Graduation

		Province/Territory of Registration										
		NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	TR
Province of Graduation	NL	100.0	1.8	2.9	0.5	<0.1	0.5	0.5	0.2	1.0	0.9	12.8
	PE		74.2	0.8	0.5		0.1	<0.1	0.1	0.2	0.2	
	NS		10.6	83.0	2.9	<0.1	0.8	0.5	0.3	1.0	1.2	5.8
	NB		7.2	4.7	90.1	0.7	0.5	0.4	0.1	0.3	0.9	3.3
	QC		0.7	1.6	2.5	97.9	1.9	0.4	0.2	0.8	2.2	3.3
	ON		3.6	4.2	1.9	1.2	94.2	3.7	2.3	6.7	11.6	35.5
	MB		0.7	0.8	0.2	<0.1	0.9	88.4	5.2	3.2	4.1	7.9
	SK		0.4	0.3	0.1	0.1	0.3	3.8	83.4	8.1	5.2	8.3
	AB		0.7	0.9	0.4		0.5	1.6	7.3	75.3	14.1	14.9
	BC		0.2	0.6	1.0		0.4	0.7	1.0	3.6	59.7	8.3
Totals		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: RNDB (2000).

Notes: Row percentages may not add up to exactly 100% due to rounding. Because of small numbers, the territories (TR) have been combined for province of registration and have not been included as a location of graduation.

provinces, primarily in Alberta or British Columbia, or in the territories. By contrast, Quebec had the highest retention proportion (95.7%). Quebec-educated RNs who did move were most likely to have moved to Ontario. Retention proportions for the other provinces ranged from 79.6% (Alberta) to 90.7% (Ontario). As a corollary, provincial migration proportions ranged from the low of 4.3% for Quebec to the high of 22.7% for Saskatchewan. Overall, using the RNDB 2000 data, 11.8% of Canada's rural RN workforce has migrated at least once from the province where they attained their initial nursing education to a province or territory where they are now practising.

The consequences of combined retention and migration are shown (Table 2) by examining the resulting makeup of provincial and territorial workforces in terms of where RNs received their initial nursing education. Newfoundland and Labrador is the province least likely to attract RNs from other provinces. In the year 2000, no RN educated in another province worked in rural Newfoundland and Labrador. Quebec was very similar. With only a small migration flow into that province, 97.9% of the rural RN workforce was made up of Quebec-educated RNs. The other

extreme is found in British Columbia. There, only 59.7% of the rural RN workforce received their initial nursing education in the province; 40.3% were initially educated in nursing elsewhere in Canada.

The provision of nursing education in the territories is very recent, and there are still no programs in the Yukon; Aurora College (Northwest Territories) has graduated nurses only since 1996; and the first class of nurses from the Nunavut Arctic College in Iqaluit graduated in 2003. Thus, the territories are the most dependent areas of Canada in terms of the need to attract nurses who were educated in other jurisdictions. As indicated in Table 2, the nursing workforce in the territories depends heavily on attracting RNs from Ontario (35.5%), Alberta (14.9%), and Newfoundland and Labrador (12.8%).

The transition matrices (Tables 1 and 2) for rural RNs are similar in construction to those found elsewhere for all Canadian nurses (Baumann et al., 2004; CIHI, 2002, 2003). These cross-tabulations provide useful overviews of the migration streams of Canadian nurses, but they mask the considerable regional variations that exist, especially within provinces. Some of the more complex migration patterns are illustrated in Figure 1.

Figure 1 *Census Division Proportions of Rural RNs Whose Initial Nursing Education Was Attained in a Different Province or Territory*

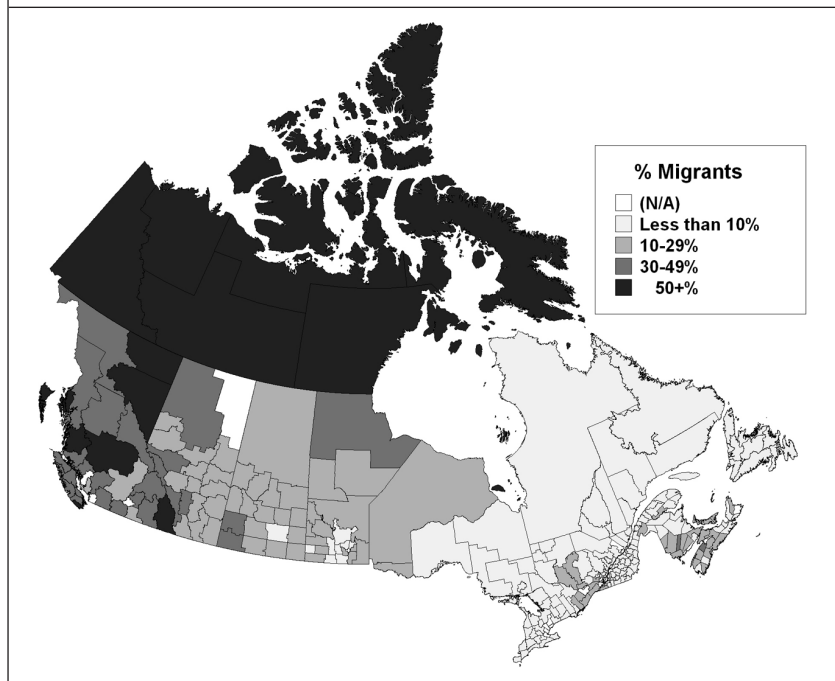


Table 3 *Odds Ratios for Internal Migration of Rural RNs by Selected Correlates*

Correlates of Internal Migration	% Migrants	Odds Ratio	95% CI
<i>Sex</i>			
Male	7.2	1.00	
Female	12.0	1.25*	1.14–0.38
<i>Age group (years)</i>			
< 25	2.6	1.00	
25–34	7.7	0.81*	0.72–0.91
35–44	10.8	1.22*	1.10–1.35
45–54	13.3	1.55*	1.40–1.72
55+	18.8	2.41*	2.15–2.71
<i>Highest nursing education</i>			
Diploma	11.0	1.00	
Baccalaureate	14.9	0.97	0.86–1.09
Graduate degree (MA/PhD)	24.0	1.52*	1.23–1.88
<i>Full-time/part-time employment</i>			
Part-time	10.8	1.00	
Full-time	12.7	1.03*	1.00–1.07
<i>Place of work</i>			
Hospital	10.6	1.00	
Nursing station	34.4	2.43*	2.02–2.93
Nursing home/long-term care	10.4	0.68*	0.63–0.75
Home care/community health centre	14.1	0.85*	0.78–0.92
Education/association/government	17.8	1.09	0.92–1.29
Other	12.8	0.91	0.82–1.02
<i>Primary responsibility</i>			
Direct care	11.9	1.00	
Administration	10.8	0.65*	0.54–0.79
Teaching/education	18.2	1.34*	1.08–1.67
Research	11.1	1.28	0.81–2.00
<i>Position</i>			
Manager	14.5	1.00	
Staff/community nurse	11.7	1.14*	1.07–1.22
Other	10.1	0.71*	0.65–0.78
<i>Metropolitan Influenced Zone</i>			
Strong MIZ	8.4	1.00	
Moderate MIZ	10.1	0.84*	0.79–0.89
Weak MIZ	15.4	1.31*	1.24–1.38
No MIZ	16.5	1.34*	1.21–1.49

* Significant difference from reference category ($P \leq 0.05$)

Source: RNDB (2000).

Note: The reference category for each correlate is identified with an odds ratio equal to 1.0.

For each census division, this map identifies the proportions of rural RNs who graduated from a different province. The map and a careful examination of Tables 1 and 2 highlight the three major migration flow patterns of Canadian-educated RNs working in rural and small-town areas of the country: most moves are to provinces immediately adjacent to the province of graduation; also common are moves to the large "magnet" provinces of Ontario, Alberta, and British Columbia; and finally, as particularly evident in Figure 1, there is a very strong overall east-to-west flow of Canada's rural RNs.

The relative influences of potential predictors or correlates of internal migration for all of Canada's locally educated, rural RNs are summarized in Table 3. This table is based on the limited number of characteristics that are available from the RNDB. While just under 12% of these nurses migrated from one province/territory to another at some point since their initial nursing education, the proportions vary considerably, from a low of 2.6% for young RNs (under 25 years of age) to a high of 34.4% for those RNs who indicated that their place of work was a nursing station (either outpost or clinic). The characteristics of those RNs with a higher likelihood of having migrated are identified with statistically significant (shown with an asterisk) odds ratios with values greater than one. For example, when taking into consideration the remaining correlates: RNs whose place of work is a nursing station are 2.43 times more likely to migrate than hospital RNs; and joining migration flows increases with age, with RNs who are 55 years of age and older 2.41 times more likely to have migrated than the youngest (under 25) age group of RNs. Those RNs less likely to participate in inter-provincial movement include those who work in nursing-home or long-term-care settings and those whose primary responsibility is characterized as administration.

National Survey – "For Work and For School"

The smaller but more detailed dataset from the survey suggests that Canadian-educated rural RNs may be a much more mobile population than indicated by the RNDB. Using the methods previously outlined, 26 unique career-milestone events and 353 unique geographical patterns were generated for the 3,460 nurses in the survey whose initial entry to nursing education was undertaken in Canada. Table 4 summarizes the most predominant of these milestone patterns. To avoid the over-emphasis of the migration patterns that percentages may give, especially when small numbers are involved, the table itself contains only the raw counts.

The majority of RNs working in Canada hold a diploma or a baccalaureate in nursing, and no other university-level degree in nursing or a non-nursing subject. As well, an increasing proportion of RNs whose

Table 4 *Types and Numbers of Internal Migration Moves of 3,460 Canadian-Educated Rural RNs by Career Milestone Patterns*

Milestone Patterns ^a	N	Migration for Work	Migration for School					
			Diploma in Nursing – Nursing Baccalaureate		Nursing Baccalaureate – Nursing Master's or Doctorate		Non-nursing Degrees	
			Migrants	Return	Migrants	Return	Migrants	Return
Dn	2,466	576						
Bn	442	132						
DnBn	352	125	104	33			5	1
DnBo	41	16					0	
BoDn	37	16						
BoBn	21	11						
DnBnMn	17	9	3	1	9	2		
DnBnMo	16	7	6	1	0		8	2
BnMo	12	5					5	1
DnBoBn	10	5	1	0			1	1
Other ^b	46	21	5	2	8	2	5	0
Totals	3,460	923	119	37	17	4	24	5

^a The symbols used for the career milestone patterns are as follows: for nursing-level education – Dn diploma, Bn baccalaureate, Mn master's or doctorate; for other non-nursing education – Bo baccalaureate, Mo master's or doctorate.

^b In addition to those specified in this table, there were 16 "Other" milestone patterns, each with fewer than 10 RNs.
Source: National Survey, The Nature of Nursing Practice in Rural and Remote Canada Study.

initial nursing education was diploma-level have earned a baccalaureate in nursing, but again, with no additional non-nursing university education. This sample of rural RNs is no exception. What is different is that the mobility rates of these nurses are far greater than those reported elsewhere using the RNDB. For the three groups of nurses just identified, the rates of internal migration are: diploma in nursing 23.4% (95% CI: 21.7, 25.1), baccalaureate in nursing 29.9% (95% CI: 25.8, 34.3), and diploma plus baccalaureate in nursing 35.5% (95% CI: 30.7, 40.6). A total of 923 of the 3,460 (26.7%, 95% CI: 25.2, 28.2) RNs in this sample currently work in a different province/territory from the one where they first earned their nursing credentials. And the mobility rates of these nurses tends to increase with increasing levels of education, both nursing and non-nursing.

Another major component of the internal migration patterns of rural RNs, as illustrated in Table 4, is the fact that substantial numbers of these nurses move inter-provincially to attain higher levels of both nursing and non-nursing education. And many do not return. For example, 29.5% (104 of 352) of the RNs who earned both a diploma and a baccalaureate in nursing, but no other nursing or non-nursing degree, migrated to study for their baccalaureate. Less than a third (33 of 104) of those nurses are now working in the province where they earned their diploma. Overall, only 31.1% (37 of 119) of the RNs who migrated to earn a baccalaureate in nursing after receiving their diploma returned. Although the numbers are small, these return rates decrease even further when nurses migrate for graduate work in nursing (23.5%) or for non-nursing degrees (20.8%).

Discussion

With few exceptions, inter-provincial migration patterns of the general population of Canada have persisted over many decades. The so-called have-not provinces (those in the Atlantic area, Manitoba, and Saskatchewan) have been net losers, while the so-called have provinces of Ontario, Alberta, and British Columbia have had net gains of inter-provincial migrants (Liaw & Qi, 2004; Vachon & Vaillancourt, 1999; with additional reviews in Baumann et al., 2004). Quebec is a special case, as it is a have province that "has endured a net loss of inter-provincial migrants every year since at least the late 1960s" (Liaw & Qi, p. 169). The inter-provincial migration patterns of Canada's rural RNs may mirror those of the general population. Analyses of this potential correlation have not yet been done. Nor have there been analyses of whether the inter-provincial migration flows of other health-care providers (physicians, occupational therapists, etc.) follow similar patterns.

The provinces best able to retain high proportions ($\geq 90\%$) of locally educated rural RNs are Quebec and Ontario. Saskatchewan is least able to retain RNs who were initially educated there (77%). Most other provinces have lost from 12% to 20% of their graduates. Most migrants from Newfoundland and Labrador and Prince Edward Island relocate in Nova Scotia, with Ontario being their secondary destination. Ontario is the primary destination of graduates from Nova Scotia and New Brunswick, although adjacent provinces receive a significant proportion of RNs migrating from Nova Scotia and New Brunswick.

Very few RNs educated in Quebec participate in inter-provincial migration, but those who do are most likely to relocate in Ontario or British Columbia and, to a lesser extent, in New Brunswick. But Quebec is also a major destination province for nurses educated in New Brunswick. Similarly, Ontario-educated rural RNs are less likely to migrate. Those who do migrate differ significantly from most other provincial migrants in that they tend not to relocate in an adjacent province. While a small number of Ontario graduates do move to Quebec, most migrant RNs first educated in Ontario move to Alberta or British Columbia. Rural RNs in the western provinces continue to move further westward until they reach the Pacific Ocean. The majority of B.C.-educated rural RNs who participate in the migration stream relocate in Alberta, with Ontario being their second-most-common destination.

Annual rates of migration for Canadian-educated rural RNs cannot be computed in a reliable manner at this time. However, our analysis of the RNDB indicates that the overall inter-provincial rate is 11.8%. A similar figure of 13.3% has been reported (Baumann et al., 2004; CIHI, 2003) for all Canadian RN graduates working in Canada — that is, both urban and rural. These figures are close to half of the overall migration rate (26.7%) that we have computed using the survey data. This may be due to the fact that the survey has a greater proportion of nursing station/outpost and territorial nurses than the general population of rural RNs. As well, the survey may contain higher proportions of nurses from the Weak and No MIZ regions of Canada, who, we have shown, have a higher likelihood of migrating. But the survey may also be capturing mobility patterns that administrative databases such as the RNDB are unable to pick up, as the latter figure is closer to some of the migration rates that Baumann et al. include in their literature review, which are based on smaller datasets than the RNDB.

It is apparent that attaining graduate-level nursing education tends to lead to higher proportions of migrants. RNs with master's or doctoral levels of nursing education are 1.52 times more likely to have migrated than RNs whose highest level of education is a diploma in nursing. The

results of our logistic regression analysis (Table 3) also highlight the relatively more dynamic aspects of migration in those areas of Canada that are least influenced by large urban centres. An RN working in a nursing station is almost two and a half times as likely to have migrated as an RN working in a hospital. As well, RNs living in Weak and No MIZ zones of the country (i.e., the most remote) are significantly more mobile (OR: 1.3) than rural RNs living in areas adjacent to metropolitan areas. Rural hospitals tend to be located in Strong and Moderate MIZ zones, while nursing stations are more commonly found in Weak or No MIZ zones. RNs in Moderate MIZ areas are less likely to migrate (OR: 0.68). It is possible that these nurses are located in small towns that have reasonable services yet are not far from large, full-service communities. But this is speculation at this time and will require much more detailed analyses.

Somewhat surprising is the apparent contradiction in terms of teaching activity. While the activity or primary responsibility of teaching/education is significantly associated with a higher proportion of migrants compared to direct-care RNs, the place of work does not necessarily reflect the same pattern. Although the place-of-work category of Education/Association/Government has a higher proportion (17.8%) of migrants than Hospital (10.6%), there is no statistically significant difference in the odds ratio. This may be due to the fact that we have collapsed the numerous place-of-work and primary-responsibility categories of the RNDB.

Because we do not have surveys in Canada that were specifically designed to examine why individual RNs migrate, we hypothesize that their reasons for migrating are similar to those of the general population or we make educated guesses about those reasons. Baumann et al. (2004) list a number of possible barriers, challenges, and motivations regarding internal migration. It may be logical to assume that these apply to Canada's RNs. But the factors that they list are derived from studies or reports that did not specifically ask nurses themselves about these factors or from migration studies that did not specifically target nurses, and certainly not rural RNs in Canada. Consequently, Baumann et al. are careful to preface the factors they list using words such as "can act as" or "researchers suggested that." Some of these factors may have very little or no influence at all. For example, full-time employment is one of the factors that may motivate nurses to move between jurisdictions. But how does this operate? Is it that RNs who are employed part-time migrate to gain full-time employment? Our analysis of more than forty thousand Canadian-educated rural RNs in the RNDB suggests otherwise. While the difference between full-time and part-time employment as correlates of internal migration is relatively small, it was the full-time RNs who

were more likely to migrate (OR 1.03). Migration-specific studies will be required to sort out this and other factors of mobility directly.

Migration associated with attaining higher qualifications, in both nursing and non-nursing subjects, is also an area that needs further study, and will require data that are not specifically included in the RNDB. In our analysis of the survey data, slightly less than 5% of the RNs moved to another province to earn higher qualifications. That may be considered a small and perhaps inconsequential proportion. But the striking message that the analysis carries is the fact few RNs who migrate for school return. With “the demand for increased skills and qualifications, experienced in virtually every profession” and being felt by registered nurses across Canada (CIHI, 2002), it is likely that more and more of our rural RNs will see a need to attain higher levels of education. If the pattern that we have observed in the survey is characteristic, then inter-provincial migration might increase with losses experienced by the source jurisdictions if there is low return migration. Studies of the supply of nurses, recruitment and retention, and university enrolment projections and programming may have to consider this factor more seriously than has been the case in the past.

In addition to the need for migration-specific studies, a fuller understanding of the flows of migrating RNs could be gained through routine data-gathering programs that already exist. Statistics Canada now collects migration information through the Census. But even custom tabulations focusing on nurses would be available only for 5-year intervals. A better solution would be enhancement of the annual compilations of the RNDB, through the assignment of a national unique identifier for each RN in Canada; by ensuring that a sub-provincial geographic locator (e.g., 6-character postal code or census subdivision identifier) is included for the residence and/or primary workplace of each RN; and perhaps through descriptors of the nurses’ workplaces. Many of these suggestions have been proposed in the past (Baumann et al., 2004; CIHI, 2001, 2002, 2003) but have not been implemented. Without them we will not be able to examine the more detailed characteristics of nurse migration, particularly the features of rural-urban migration that play a significant part in the dynamics of the Canadian population (Rothwell, Bollman, Tremblay, & Marshall, 2002). With these and possibly other enhancements to the RNDB, we will have a better chance of addressing Birch’s (2002) “right people with the right skills in the right place at the right time” issues of HHRP.

As a result of their very careful, detailed analyses of the age cohorts of our RNs, again using the RNDB, O’Brien-Pallas, Alksnis, and Wang (2003) predict that with a typical retirement age of 65 years “Canada is projected to lose 29,746 RNs aged 50 or older to retirement or death by

2006, a total equivalent to 13% of the nursing workforce in 2001” (p. iv). With overall internal migration rates in the 10% to 30% range or higher, some areas of Canada, particularly small and vulnerable rural communities, mobility may be even more important than retirement with respect to the loss of nursing-care providers. There, the losses consist of not only health-care providers but also community members who directly contribute to the social and economic well-being and therefore the sustainability of those communities.

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Authors' Note

This analysis was part of the national project The Nature of Nursing Practice in Rural and Remote Canada (ruralnursing.unbc.ca), funded by the Canadian Health Services Research Foundation and third-party co-sponsors. The project was undertaken with the enthusiastic moral and in-kind support of the provincial and territorial nursing associations. Additional funding and in-kind support were provided by the Canadian Institute for Health Information. From the latter institution, we would like to acknowledge the invaluable assistance received from Francine Anne Roy, Paul Sajan, and Jill Strachan.

We would like to acknowledge the assistance of the anonymous reviewers of an earlier draft of this paper. Their constructive criticisms and recommendations were greatly appreciated.

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Résumé

Un portrait des infirmières autorisées dans les régions rurales et éloignées du Canada

**Norma J. Stewart, Carl D'Arcy, J. Roger Pitblado,
Debra G. Morgan, Dorothy Forbes, Gail Remus,
Barbara Smith, Mary Ellen Andrews, Julie Kosteniuk,
Judith C. Kulig, and Martha L. P. MacLeod**

La recherche sur les questions relatives à la pratique infirmière dans les régions rurales et éloignées du Canada est très limitée. Ce rapport décrit la méthodologie et les premiers résultats d'une étude approfondie sur les infirmières autorisées (IA) qui exercent leur profession en dehors des aires de migration alternantes des grands centres urbains. Cette étude visait à déterminer qui dispense les soins infirmiers dans les régions rurales et éloignées du Canada; la nature et l'envergure de la pratique infirmière; la satisfaction professionnelle des infirmières et le soutien dont elles bénéficient au sein de la communauté et de leur profession. L'étude a été effectuée par voie de questionnaire envoyé par la poste avec suivi constant; les données ont été collectées à partir d'un échantillonnage aléatoire stratifié des infirmières autorisées des régions rurales et de toutes les infirmières autorisées qui travaillent dans les Territoires du Nord et les postes (régions) isolés. L'analyse est fondée sur des comparaisons régionales des données démographiques et du cadre de travail principal ainsi que sur des comparaisons provinciales des niveaux de satisfaction par rapport au travail et à la collectivité. L'étude s'inscrit dans le cadre d'un projet multiméthodes plus large visant à informer les pouvoirs publics sur la pratique des soins infirmiers dans les régions rurales du Canada.

Mots clés : rurales, éloignées, infirmières, satisfaction professionnelle, satisfaction au sein de la communauté.

A Profile of Registered Nurses in Rural and Remote Canada

**Norma J. Stewart, Carl D'Arcy, J. Roger Pitblado,
Debra G. Morgan, Dorothy Forbes, Gail Remus,
Barbara Smith, Mary Ellen Andrews, Julie Kosteniuk,
Judith C. Kulig, and Martha L. P. MacLeod**

Research on nursing practice issues in rural and remote areas of Canada is very limited. This report describes the method and initial results of a comprehensive survey of registered nurses (RNs) practising outside the commuting zones of large urban centres, designed to determine: who practises nursing in rural and remote Canada; the nature and scope of their nursing practice; and their satisfaction with their work, community, and practice supports. Using a mailed questionnaire with persistent follow-up, the data-collection frame included a stratified random sample of rural RNs and the full population of RNs who worked in the northern territories and outpost ("remote") settings. The analyses focus on regional comparisons of demographics and primary work settings and on provincial comparisons of satisfaction levels related to work and community. The survey is part of a larger multi-method project intended to inform policy on rural nursing practice in Canada.

Keywords: rural, remote, nurses, job satisfaction, community satisfaction

Recently there has been considerable interest in health human resources in general, and nursing services in particular, but most of the Canadian research on the latter has focused on urban workplaces (Baumann et al., 2001). Here, we describe the methods and initial results from a national survey of registered nurses (RNs) in rural and remote work settings across Canada.

The survey sought to describe: who practices nursing in rural and remote areas of Canada; the nature and scope of nursing practice in these areas; and the nurses' satisfaction with their workplace, their communities, and their educational and interdisciplinary supports. Since this was the first nation-wide survey of Canadian RNs working in rural and remote settings, we wanted to include a broad range of questions related to the individual nurse, his or her worklife, and the community context. The survey is part of a larger study titled *The Nature of Nursing Practice in Rural and Remote Canada* (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004).

Methods

This section outlines the development of the questionnaire, the sampling frame, and the survey method. Ethics approval for the survey was received from the University of Saskatchewan's Behavioural Research Ethics Board.

Questionnaire Development

The original questionnaire was developed in relation to issues identified in previous research in Australia (Hegney, Pearson, & McCarthy, 1997), Canada (MacLeod, 1998; Remus, Smith, & Schissel, 2000), and the United States (Dunkin, Juhl, Stratton, Geller, & Ludtke, 1992). It was an iterative process involving nine revisions of the English version, translation into French, and a revision of the French translation. The content domains were demographic, characteristics of the work environment and nursing practice roles, the context of practice (community, educational, and interdisciplinary supports for practice), and issues related to nursing worklife (e.g., work satisfaction, safety, health, and career plans). The framework for selection of the content was based on the individual nurse, the workplace, the community, and the interaction (person-environment fit) between the individual nurse and the workplace, community, and supports for practice.

Content Validity Process

The initial set of questionnaire items was derived from the experience of the research team and from the literature, using, where possible, scales with satisfactory psychometric properties. Although each embedded scale had a theoretical orientation in its original design, the objective here was to include a comprehensive set of questions that could be used to examine issues relevant to rural and remote nursing practice from a variety of perspectives. Since much of the previous research and theory on nursing worklife had focused on urban environments (e.g., Baumann et al., 2001), the inclusion of community as a major concept in the framework was intended to capture the issue of "being in and of the community" (MacLeod, 1998, p. 5), which shapes practice in a way not found in urban settings.

Content validation began with a review of items first by the Survey Investigator Team and Principal Investigators from the larger project (authors) and then by the full survey Advisory Team of 39 investigators and decision-makers, who participated in the process over the Internet through a national listserv developed for the larger project. The objective of the content validity assessment was to determine whether the range of questionnaire items would provide a valid description of the nature of

nursing practice in rural and remote Canada. Since there was no gold standard available for this purpose, the expert judgement of researchers, advisors, and nurses practising in rural and remote Canada was used to determine validity.

Content validity was further evaluated by piloting the seventh version of the questionnaire with a convenience sample of RNs who were currently or had recently been working in rural or remote areas delivering primary acute care, community care, home care, or long-term care. Questionnaires with attached evaluation forms were mailed to nurse administrators, along with written instructions for the respondents to complete the questionnaire as if they were study participants, and then provide written evaluative comments related to the relevance of the content to their practice, questionnaire format, time to complete, clarity, and overall reaction to the questionnaire. The nurse administrators contacted 49 RNs who met the study criteria, 33 of whom returned the questionnaire and the evaluation. Most comments were positive (55% favourable, 12% very favourable) or neutral (12%); 67% of the pilot sample said the questions were relevant to their clinical practice in rural and remote areas. Comments on the survey instrument were used to revise the questionnaire in two more iterations, with each stage reviewed by the research team and advisors, until consensus was reached that the content of the questionnaire would provide a valid description of the nature of rural and remote nursing practice in Canada.

The content validity phase of the study was completed prior to translation of the questionnaire into French. After an official translator had completed the translation, a final review was conducted to check for consistency of meaning in both languages. Eleven bilingual nurses were contacted through the investigator and the advisory team. These nurses completed the questionnaire as if they were study participants, with their review focusing on clarity and word choice. One participant had extensive experience in translating examinations for the Canadian Nurses Association (CNA); in this instance, the CNA procedure was followed, whereby the reviewer had access to both the English and French versions of the questionnaire. All reviews were examined by the survey team members and the original translator before the French version was finalized.

Linkage to RN Database

The demographics and employment sections of the questionnaire were derived from the categories of the Registered Nurses Database (RNDB) compiled by the Canadian Institute for Health Information (CIHI). The RNDB variables were developed from the information on the registration forms of all provincial and territorial nursing associations in Canada.

The first report (Canadian Institute for Health Information [CIHI], 2002) from the larger project (MacLeod et al., 2004) used RNDB data from the year 2000. In the questionnaire, some minor changes in wording were made based on comments by rural nurses who served as content experts. Also, we included several items that are not in the RNDB analysis (CIHI, 2002), about the licence to practice as an RN, including a list of all provinces and territories of current registration; many nurses who work in remote areas do contract work in several provinces and territories, which entails different registrations for their respective workplaces.

Embedded Scales

A Community Satisfaction Scale (Henderson-Betkus & MacLeod, 2003) was embedded in the questionnaire. The scale had 11 items plus an overall community satisfaction item. Since the overall community satisfaction item was not independent of the 11-item scale, this item was included as a potential alternative to the scale, similar to the approach described in Stamps (1997) using the Index of Work Satisfaction (IWS). The Community section of the questionnaire also included items (e.g., distance to the nearest basic referral centre and advanced referral centre) that may be used to construct two rurality indexes from the literature: the MSU [Montana State University] Rurality Index (Weinert & Boik, 1995) and the General Practice Rurality Index for Canada (Leduc, 1997). We included an open-ended question to elicit the RNs' own definitions of rurality and remoteness.

The seven-point IWS developed by Stamps (1997) was adapted for this study with some changes in wording to fit the experience of rural nurses. These changes were based on language used in a study with nurses in rural North Dakota (Dunkin, Stratton, Harris, Juhl, & Geller, 1994) and the comments made during the content validity phase of the present study. We examined the variable *importance* with an open-ended question (What is the most important thing to you about your nursing position?), which differs from the approach to importance used by both Stamps and the Dunkin research group. The practising rural nurses who evaluated the paired comparison method used by Stamps found it complex and difficult to do reliably. The method used by Dunkin et al. (1992) had a *satisfaction* question and an *importance* question for each item of the questionnaire. We were concerned that this procedure could lead to confounding of the two concepts. Therefore, we decided to explore *importance* in a separate question and ask for only the most important job characteristic.

The IWS was also modified by restricting each subscale to five items, based on the factor loadings in the studies reported by Stamps (1997).

The rationale for this was to reduce the length of our questionnaire while preserving its reliability. We did not use Stamps' subscale on Task Requirements because this concept overlapped with a subscale of the Job Content Questionnaire used in the survey. The 30-item modified IWS in the questionnaire is followed by the single item "Overall, I am very satisfied with my job" developed by Dunkin, Stratton, and Juhl (reported in Stamps). They found that the correlation between the single item and the original full-scale IWS was over .80, which they suggest reinforced "the structural integrity of the IWS" (Stamps, pp. 278–279).

The Job Content Questionnaire (Karasek & Theorell, 1990) has been widely used across many job categories. We selected three subscales (15 items in total): psychological demands, skill discretion, and decision authority. The latter two subscales may be summed to give an indicator of decision latitude. Job strain is defined by a quotient of demands over latitude. Job strain has been correlated with workplace stress and health.

Other embedded scales were a widely used health status measure, the SF-12 (Ware, Kosinski, & Keller, 1996), which is a short version of the SF-36, and the four-item version of the 14-item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). These standardized scales were included to make comparisons across professions as well as within the profession of nursing in different contexts.

A questionnaire developed for a survey of rural and urban RNs in Saskatchewan (Remus et al., 2000) provided questions on scheduling, benefits, the work environment, continuing education, and career plans. The section on nursing knowledge adapted questions from an Australian study with rural nurses (Hegney et al., 1997). The definition of violence and related questions came from an international study of nurses in hospitals (Giovannetti, Shamian, Ball, Duncan, & Mallidou, 2001). Questions on distress related to aggressive behaviour were adapted from a study of residents in long-term-care settings (Middleton, Stewart, & Richardson, 1999).

An indicator of retention (i.e., intent to leave) was included from previous research in North Dakota (Dunkin et al., 1994). An open-ended question related to recruitment was: What was your reason for accepting your present position? Sections of the questionnaire that drew more heavily on the experience of the investigative team were those on advanced practice nursing and interdisciplinary supports.

Development of Sampling Frame

Each of the 12 provincial and territorial nursing associations provided assistance by giving us access to their databases of nurses licensed to practise in their jurisdiction. Anonymity and confidentiality were protected. The only geographical information that these databases provide is the

home address, including postal code, of each RN. Although there are limitations to the use of postal codes for sampling (Pitblado & Pong, 1999), registration information collected by nursing associations provided no available alternative to identify rural nurses in their workplaces.

The sampling frame was developed to include: (1) a *stratified* (by province) *random sample* representing "rural" nurses in all provinces of Canada, (2) *all* nurses who identified "nursing station (outpost/nurse clinic)" as their primary work setting, and (3) *all* nurses who work in the territories of Canada.

In this study, the definition of "rural" is that provided by Statistics Canada and equated with the term "rural and small town Canada" (Bollman & Biggs, 1992; du Plessis, Beshiri, Bollman, & Clemenson, 2001), which includes the population living outside the commuting zones of large urban centres having a core population of 10,000 or more (du Plessis et al.; Statistics Canada, 1997). An overview of general demographic and workplace characteristics comparing rural and urban RNs, based on this definition of rural, can be found in CIHI (2002).

Nurses working in outpost settings and/or registered with nursing associations in the Yukon and Northwest Territories (the latter association includes Nunavut) were identified as the "remote" sample. Some of these nurses may have worked in a community with a population larger than 10,000, and thus not "rural" as strictly defined, but still have considered themselves "remote" due to their northern location.

Procedure for Sampling

The investigators provided each of the 10 provincial nursing associations with a computer file (developed by J. R. Pitblado) containing all the rural postal codes for their province and the sample size that would provide sufficient representation for 95% confidence in results for that province. For this level of confidence to be achieved, we initially assumed that the rural-to-urban ratio of RNs would match the rural-to-urban ratio of the general population (Pitblado & Pong, 1999). Later, we were able to verify that this level of confidence had been achieved, by comparing the number of responses to the statistical population of rural RNs for each province and territory (CIHI, 2002).

The custom files, using the October 1999 postal-code conversion file prepared by Statistics Canada (1999), were created because there is no direct linkage between the characters of a postal code and "rural and small town Canada." It should be noted that researchers in Canada can no longer equate rural with a postal code that contains a second character of "0," as has been done in the past (Wilkins, 1993). This is especially the case for national surveys, because in some provinces all or many of the "0" postal codes have been eliminated. Discussion on the use of postal

codes in health and health human resources research in Canada can be found elsewhere (du Plessis et al., 2001; Ng, Wilkins, & Perras, 1993; Ng, Wilkins, Polek, & Adams, 1997; Pitblado & Pong, 1999).

Mail Survey Procedures

In the interests of anonymity, some nursing associations did not release names and addresses of members to contact for research purposes, while other associations did release members' names and addresses for research purposes with a contract to protect confidentiality. Given contact restraints, a mail questionnaire was deemed to be the best means of treating all provincial and territorial RNs equally.

We used a modification of Dillman's (2000) Tailored Method for the mail survey. The cornerstones of the Dillman method are personalization and persistent follow-up. Full personalization was not possible for some regions, but persistent follow-up by mail was done for all. We did not use a pre-survey letter to encourage response, nor did we use registered mail or telephone follow-up. However, the larger project was announced in provincial and territorial newsletters.

The survey covering letter was printed on the project's letterhead, with the logos of both the University of Saskatchewan and the larger project. It described participation in the survey, why and how the addressee had been selected, the usefulness of the study, and confidentiality of response, as well as expressing appreciation for participation and willingness to answer questions. The letter was signed by hand.

In the case of those provinces and territories that retained survey names and address files, we provided (by courier) sealed mail-out packages to which the association affixed mailing labels. In the case of provinces that supplied name/address files to the research team, personalized letters were generated and inserted in the survey packages. For both survey streams, the initial mail-out packages were signed by both lead authors (NS and CD). The follow-up letter that went to all respondents and the covering letter in the final mail-out package were similarly signed. All other correspondence with participants was signed by one or both of the lead authors.

The survey covering letter contained a telephone number with explicit permission for participants to phone collect if they had any questions or concerns about the study. Early in the data-collection period, it became apparent that many RNs were living in a rural setting and commuting to a large urban centre. To facilitate communication regarding eligibility for the survey, we set up two toll-free telephone lines, one in each official language, and provided e-mail and fax contact information for the survey team. Some 400 nurses contacted the research team concerning the survey.

The survey involved the following mailings: (a) an initial package in a manila envelope, (b) a signed follow-up thank you/reminder letter (2 weeks later), (c) a second package to non-respondents (2 weeks after the follow-up letter), and (d) a third package in a white envelope with coloured attention stickers (1 month after the second replacement package). All questionnaire mail-out packages contained a covering letter, the questionnaire, a self-addressed stamped envelope for returning the completed questionnaire, and a pencil with the name of the study printed on it as a token of appreciation. All mail-out packages had return addresses and were stamped with the correct postage. Both the mail-out envelope and the return envelope had a tracking number so that the team could track response/non-response for future mailings. A tracking database kept a record of all mailings and returns.

Data Management

Returned questionnaires were checked for inclusion criteria. Duplicate returns were deleted, as were returns from ineligible respondents such as nurses who lived in a rural community but worked in an urban setting and nurses who were no longer practising (retired for more than 6 months, on long-term disability, etc.). Eligible questionnaires were entered into a database program and 10% of questionnaires were double-entered to monitor and reduce data-entry error. Inconsistencies between entries for the same case were resolved by checking the original questionnaire. Comments were entered verbatim. French comments were translated into English prior to data entry. A SPSS system file was created for the survey data set. Data editing consisted of frequency runs to check for errant and strange values and logical inconsistencies, which were checked against the original questionnaire and resolved.

Registration-List Issues

During the survey, issues emerged from the nature of the registration lists kept by the nursing associations that could have affected the response rate. Individual nurses can be registered in more than one jurisdiction, and there is no unique identifier for an RN in Canada. In addition, the registration lists contained names of people who had retired, moved out of the country, were on extended disability leave, or had moved from the listed address. This variable quality of the registration files of the provincial and territorial nursing associations from which we derived our sample made it difficult to calculate the response rate. Not all of those to whom we mailed a questionnaire met the inclusion criteria. It was unclear whether non-responders were actual "refusals"; some could have moved and left no forwarding address.

Results

Response Rates

The initial mail-out to the target sample went to 7,065 RNs throughout Canada. There were only 153 explicit refusals. For 1,114 mailings, the address was incorrect, there was duplicate registration, or the RN was deceased. A total of 169 RNs completed the questionnaire but were ineligible because they had retired, were on long-term disability, or lived in a rural area but worked in an urban centre. Correcting for ineligible respondents, address changes, and duplicate registration, we calculated that there were 5,782 eligible respondents. We received 3,933 completed questionnaires, for a response rate of 68% (3,933/5,782).

The response rates by province and territory were generally consistent with the overall rate of 68%: British Columbia 71.3%; Alberta 73.8%; Saskatchewan 80.3%; Manitoba 71.6%; Ontario (French 56.3%, English 68.7%); Quebec (French 67.2%; English 66.7%); New Brunswick (French 65.6%, English 63.2%); Nova Scotia 76.7%; Prince Edward Island 63.8%; Newfoundland 67.6%; Yukon Territory 70.2%; and Northwest and Nunavut territories 57.1%. RNs from the latter territories belong to the same nursing association; their lower response rate was likely related to problems with the association database that became apparent during the study. Data collection took place from October 2001 to July 2002.

Characteristics of Nurses Working in Rural and Remote Settings

The respondents represented all regions of Canada. Table 1 provides an overview of gender and age by region of residence. At the bottom of Table 1, comparisons are made with data from the RNDB (CIHI, 2002). There was considerable variation in the proportions of male and female RNs across the country (see regional pattern in Table 1). On a provincial/territorial basis, the percentage of male RNs ranged from 1.7% in Prince Edward Island to 8.2% in Yukon Territory to 16.4% in Quebec (provincial data are available from the authors on request). In the other provinces and territories the percentage of male RNs ranged from 2.6% to 5.4%. On the national level, 94.8% of the RNs were female (RNDB = 95.2%) and 5.2% male (RNDB = 4.4%).

Table 1 also illustrates an aging RN workforce in rural and remote Canada. The largest groups of RNs were those between the ages of 45 and 54 (34.9%) and between the ages of 35 and 44 (31.9%). Almost 20% were between 25 and 34; 11.7% were 55 or older. Only 1.9% of RNs were under 25 years of age. There was more regional variation in the younger and older ranges than in the middle range, from 35 to 54. For example, in the two westernmost provinces (BC/AB), only 12.1% of

Table 1 Gender and Age by Region of Residence (N = 3,933)

	Gender (n = 3,925) ^a				Age (n = 3,886) ^a													
	Female		Male	Total	<25		25-34		35-44		45-54		55-64		> 64			
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)		
Atlantic	1,084	(96.9)	35	(3.1)	1,119	(28.5)	13	(1.2)	210	(18.8)	381	(34.0)	362	(32.3)	137	(12.2)	7	(0.6)
Quebec	315	(83.6)	62	(16.4)	377	(9.6)	12	(3.2)	61	(16.1)	111	(29.4)	143	(37.8)	46	(12.2)	2	(0.5)
Ontario	349	(94.8)	19	(5.2)	368	(9.4)	3	(0.8)	60	(16.3)	102	(27.7)	146	(39.7)	51	(13.9)	2	(0.5)
Territories	425	(94.4)	25	(5.6)	450	(11.5)	3	(0.7)	90	(19.9)	149	(33.0)	148	(32.7)	52	(11.5)	3	(0.7)
Manitoba/ Saskatchewan	795	(96.0)	33	(4.0)	828	(21.1)	4	(0.5)	103	(12.4)	233	(28.1)	322	(38.8)	144	(17.4)	13	(1.6)
Alberta/ British Columbia	754	(96.3)	29	(3.7)	783	(19.9)	11	(1.4)	95	(12.1)	216	(27.5)	304	(38.7)	135	(17.2)	12	(1.5)
Total	3,722	(94.8)	203	(5.2)	3,925	(100.0)	46	(1.2)	619	(15.7)	1,192	(30.3)	1,425	(36.2)	565	(14.4)	39	(1.0)
R/ST RNI ^b %	95.2 ^c		4.4				1.9 ^d		19.6		31.9		34.9		11.7		0.0	

^a Does not sum to total sample size due to missing values.

^b R/ST = rural and small town. The data in this row are from CIHI (2002).

^c Ibid., p. 73.

^d Ibid., p. 92, Table 3.0a.

^a Does not sum to total sample size due to missing values.^b R/ST = rural and small town. The data in this row are from CIHI (2002).^c Ibid., p. 73.^d Ibid., p. 92, Table 3.0a.

nurses were in the 25-to-34 age range (10.1% in BC alone), compared to 18.8% in the Atlantic provinces (26.7% in Newfoundland). The reverse pattern was found in the 55-to-64 age range, with the four western provinces having the highest proportion (SK/MB 17.4%, BC/AB 17.2%, SK 19.6%). The Atlantic provinces and Quebec had 12.2% of RNs in the 55-to-64 age range, which was the lowest proportion by region (the lowest by province was New Brunswick, at 7.0%). Comparison with the RNDB data (CIHI, 2002) indicates that 16.9% of respondents were under 35 years of age, compared to 21.5% in the population. In the present survey, 15.4% of RNs were over 55, while 11.7% of RNs in the RNDB analysis were in this age group.

The education of rural and remote RNs by region is reported in Table 2. Nurses were asked to describe their educational background in full. Diploma preparation was reported by 79.6% (Territories) to 90.6% (SK/MB) in the six regions of the country (85% in total). Table 2 includes all educational preparation, rather than highest education in nursing as reported in the RNDB analysis for the year 2000 (diploma 81.4% in Canada; CIHI, 2002, p. 69). In the present survey, a diploma was the highest attained nursing education (not including Advanced Practice Nursing certificates) for 72.7% of RNs.

There was considerable regional variation in baccalaureate nursing education, ranging from 17% (SK/MN) to 41% (Territories). The total survey sample with a baccalaureate in nursing was 27% (Table 2), compared to 26% when calculated as the highest education in nursing (RNDB = 18%; CIHI, 2002, p. 69). In addition, 4.5% of RNs had a bachelor's degree in another field. In the Territories there were more RNs with a master's degree in nursing (3.3%) and in non-nursing (3.3%) than in other regions of the country. Advanced practice nursing was most highly represented in the Territories (11.5%), compared to a range from 2.1% (Atlantic) to 8.7% (Ontario) in the provinces.

Overall, the sample was representative of the larger population as indicated by comparison of demographic patterns with the RNDB (CIHI, 2002). This attests to the external validity of the survey and supports generalization of findings.

Reliability of Embedded Scales

The internal consistency reliability was replicated for scales that were embedded in the questionnaire. In the present study, the 11-item Community Satisfaction Scale had a coefficient alpha of .88, compared to .84 in the original study (Henderson-Betkus & MacLeod, 2003). The modified IWS (reduced to five-item subscales) maintained acceptable reliability (compared to other studies reported in Stamps, 1997) for the six subscales used in this study: (1) Pay subscale alpha = .90 (other

Table 2 Education by Region of Residence (N = 3,933)

	Atlantic <i>n</i> = 1,119 <i>n</i> (%)	Quebec <i>n</i> = 378 <i>n</i> (%)	Ontario <i>n</i> = 368 <i>n</i> (%)	Territories <i>n</i> = 451 <i>n</i> (%)	Manitoba / Saskatchewan <i>n</i> = 829 <i>n</i> (%)	Alberta / BC <i>n</i> = 784 <i>n</i> (%)	Total <i>n</i> (%)
Nursing							
Diploma	919 (82.1)	310 (82.0)	318 (86.4)	359 (79.6)	751 (90.6)	683 (87.1)	3,340 (85.0)
Bachelor's	322 (28.8)	87 (23.0)	98 (26.6)	185 (41.0)	141 (17.0)	226 (28.8)	1,059 (27.0)
Master's	13 (1.2)	3 (0.8)	8 (2.2)	15 (3.3)	6 (0.7)	7 (0.9)	52 (1.3)
Advanced Practice Nursing ^a	23 (2.1)	28 (7.4)	32 (8.7)	52 (11.5)	41 (4.9)	57 (7.3)	233 (5.9)
CNA Certification	23 (2.1)		8 (2.2)	11 (2.4)	9 (1.1)	16 (2.0)	67 (1.7)
Outpost Certification	6 (0.5)		19 (5.2)	26 (5.8)	34 (4.1)	20 (2.6)	105 (2.7)
Non-nursing							
Bachelor's	38 (3.4)	26 (6.9)	23 (6.3)	39 (8.6)	26 (3.1)	26 (3.3)	178 (4.5)
Master's	12 (1.1)	9 (2.4)	4 (1.1)	15 (3.3)	5 (0.6)	13 (1.7)	58 (1.5)

Notes: May not sum to total sample size owing to missing values. Education was either completed or in progress.
 Nurses with doctoral degrees accounted for .02% of this sample (*n* = 8); 1.1% of nurses (*n* = 44) indicated RPN diploma.
^a Nurse Practitioner or Clinical Nurse Specialist.

studies = .83 -.88), (2) Autonomy alpha = .66 (other studies = .69 -.76), (3) Organizational Policies alpha = .76 (other studies = .65 -.83), (4) Professional Status alpha = .62 (other studies = .29 -.76), (5) Nurse-Nurse Interaction alpha = .77 (other studies = .71), and (6) Nurse-Physician Interaction alpha = .77 (other studies = .81 -.84). The overall 30-item scale alpha coefficient was .87, consistent with the original range from .82 to .91 reported in previous studies (Stamps).

We included three subscales from the Job Content Questionnaire (Karasek & Theorell, 1990): (1) Psychological Demands (five-item alpha = .76 from present survey), (2) Skill Discretion (six-item alpha = .74), and (3) Decision Authority (three-item alpha = .68). The variable Decision Latitude (Skill Discretion + Decision Authority) had an alpha of .80 and the alpha for the overall Job Strain variable (Psychological Demands/Decision Latitude) was .75. The original alphas (Karasek & Theorell) ranged from .61 to .81.

The current survey alpha for the four-item Perceived Stress Scale was .83, compared to .72 in the original research reported by Cohen et al. (1983). The SF-12 measure of health status had an alpha of .88 in the present study, compared to original alphas of .76 and .77 (Ware et al., 1996). In general, the alphas for the embedded scales are comparable to or better than alphas for these scales in other studies, which attests to the quality of the data.

The replication of internal consistency reliability reported here has been conducted based on the composite survey results from the English and French questionnaires (after translation of French results to English). Further reliability testing, including test-retest reliability, could be conducted on the French questionnaires separate from the English questionnaires.

Primary Work Setting

Table 3 provides data on the work setting of rural and remote nurses. Acute care was the primary work setting with the largest proportion of nurses overall: 39% worked in general hospitals, air ambulance, and dialysis. An additional 5.3% of respondents worked in an integrated facility, which combined acute and long-term care, while 13.7% worked primarily in long-term care, including rehabilitation and nursing homes. The outpost group of nurses (13.5%) worked in a nursing station or nurse clinic with no physician on site. Community-based nurses worked in home care (7.2%) or a community health/public health agency (10.6%). Table 3 outlines the additional work settings of mental health (1.8%), physician's office (1.7%), industry (1.3%), and 2% in settings outside direct care such as education, government, and nursing associations. The "other" category listed includes multiple work settings and

Table 3 *Primary Work Setting by Region of Residence (N = 3,933)*

	Atlantic <i>n</i> = 1,111 <i>n</i> (%)	Quebec <i>n</i> = 376 <i>n</i> (%)	Ontario <i>n</i> = 363 <i>n</i> (%)	Territories <i>n</i> = 449 <i>n</i> (%)	Manitoba / Saskatchewan <i>n</i> = 825 <i>n</i> (%)	Alberta / BC <i>n</i> = 781 <i>n</i> (%)	Row Total <i>n</i> (%)
General hospital/ air ambulance/dialysis	510 (45.9)	125 (33.2)	127 (35.0)	186 (41.4)	271 (32.8)	303 (38.8)	1,522 (39.0)
Mental health centre/ corrections/addiction	25 (2.3)	5 (1.3)	6 (1.7)	9 (2.0)	12 (1.5)	14 (1.8)	71 (1.8)
Outpost/nursing station	36 (3.2)	93 (24.7)	81 (22.3)	115 (25.6)	104 (12.6)	98 (12.5)	527 (13.5)
Nursing home/ long-term-care facility	167 (15.0)	53 (14.1)	39 (10.7)	24 (5.3)	144 (17.5)	109 (14.0)	536 (13.7)
Home care	83 (7.5)	16 (4.3)	25 (6.9)	21 (4.7)	67 (8.1)	71 (9.1)	283 (7.2)
Community health agency/ public health	129 (11.6)	25 (6.6)	34 (9.4)	37 (8.2)	79 (9.6)	108 (13.8)	412 (10.6)
Business/private/industry	14 (1.3)	9 (2.4)	6 (1.7)	6 (1.3)	5 (0.6)	10 (1.3)	51 (1.3)
Integrated facility (acute and long-term)	61 (5.5)	21 (5.6)	5 (1.4)	7 (1.6)	86 (10.4)	26 (3.3)	206 (5.3)
Physician's office/ family practice unit	22 (2.0)	2 (0.5)	18 (5.0)	9 (2.0)	10 (1.2)	6 (0.8)	67 (1.7)
Education/association/ government	17 (1.5)	4 (1.1)	8 (2.2)	23 (5.1)	15 (1.8)	10 (1.3)	77 (2.0)
Other	47 (4.2)	23 (6.1)	13 (3.6)	12 (2.7)	32 (3.9)	26 (3.3)	153 (3.9)

Note: May not sum to total sample size owing to missing values.

idiosyncratic settings such as parish nurse, military clinic, regional position, laboratory, disability management, offshore, or not-for-profit organization.

Work Satisfaction

Table 4 presents an overview of work satisfaction for rural and remote nurses, according to their province or territory of residence. Mean scores of overall work satisfaction clustered at the low end for nurses residing in Quebec, New Brunswick, and Newfoundland. In comparison, nurses living in British Columbia and Alberta reported higher mean scores of work satisfaction than nurses living in the other provinces. Approximately 27% to 30% of nurses in Quebec, New Brunswick, and Newfoundland fell below the 20th percentile in the work-satisfaction score, compared with approximately 13.5% in British Columbia and Alberta. Of the six

Table 4 Overall Work Satisfaction and Pay Subscale Scores by Province/Territory of Residence (N = 3,933)

	<i>n</i> ^a	Overall Work Satisfaction^b Mean (SD)	< 20th Percentile (%)	> 80th Percentile (%)	Pay^c M (SD)
NL	319	4.49 (0.70)	27.0	10.0	2.76 (1.41)
PE	163	4.69 (0.68)	17.8	18.4	3.16 (1.33)
NS	338	4.80 (0.71)	16.6	24.6	4.28 (1.47)
NB	250	4.47 (0.72)	28.8	10.4	3.48 (1.38)
QC	362	4.44 (0.67)	30.4	9.4	3.72 (1.39)
ON	350	4.73 (0.80)	21.4	23.4	3.74 (1.54)
MB	377	4.65 (0.74)	22.0	17.2	3.36 (1.53)
SK	427	4.77 (0.72)	16.2	21.8	3.70 (1.53)
AB	411	4.93 (0.73)	13.6	32.8	5.15 (1.35)
BC	350	4.94 (0.73)	13.4	30.3	4.87 (1.45)
YT	160	4.78 (0.84)	19.4	25.0	3.99 (1.64)
NT/NU	267	4.86 (0.75)	15.0	28.1	4.17 (1.51)
Total	3,774	4.72 (0.75)	20.0	20.0	3.92 (1.61)

^a May not sum to total sample size owing to missing values.

^b Range: 2–7. Quartiles: 1st 4.23, 2nd 4.77, 3rd 5.23, 4th 7.00.

^c Range: 1–7. Quartiles: 1st 2.60, 2nd 4.00, 3rd 5.20, 4th 7.00.

subscale components that made up the IWS, analysis of variance indicated that the variations in pay subscale mean scores corresponded most closely to variations in overall work satisfaction. Compared with nurses residing in other provinces, nurses living in Alberta reported significantly higher satisfaction with pay, while Newfoundland nurses reported the lowest satisfaction with pay.

Community Satisfaction

The scores on the 11-item Community Satisfaction Scale are presented in Table 5. Nurses living in Quebec and Nunavut/Northwest Territories had mean scores indicating the lowest community satisfaction. Nurses in Prince Edward Island reported the highest community satisfaction in the country. Approximately 24% to 27% of nurses in Nunavut/Northwest Territories and Quebec fell below the 20th percentile in the community-satisfaction score, compared to 9% in Prince Edward Island.

Table 5 Community Satisfaction Scores by Province/Territory of Residence (N = 3,933)

	<i>n</i> ^a	Community Satisfaction ^b Mean (SD)	<20th Percentile (%)	> 80th Percentile (%)
NL	324	39.6 (7.08)	17.9	19.8
PE	165	42.1 (7.14)	8.5	30.9
NS	343	39.8 (6.85)	15.2	19.5
NB	259	39.1 (7.18)	14.3	14.7
QC	360	37.4 (7.62)	26.7	15.6
ON	353	40.3 (8.04)	17.6	27.2
MB	373	39.1 (8.16)	19.8	20.1
SK	428	39.5 (7.34)	16.4	21.7
AB	411	40.0 (7.69)	15.3	23.4
BC	352	40.0 (7.33)	18.2	24.1
YT	170	39.0 (7.24)	15.3	17.6
NT/NU	275	38.1 (7.54)	23.6	13.8
Total	3,813	39.4 (7.54)	20.0	20.0

^a May not sum to total sample size owing to missing values.

^b Range: 11–55. Quartiles: 1st 35.0, 2nd 40.0, 3rd 44.0, 4th 55.0.

Discussion

We have described the methodology and initial results of a unique survey of rural and remote nurses from all provinces and territories in Canada, with data collected in both English and French. The results presented here are a small part of this comprehensive survey, focusing on the demographic characteristics of RNs practising in rural and remote areas, their work settings, and their satisfaction with their worklife and their community. Questionnaire scale-reliability results suggest that the data are of good quality. The content validity process used in the development of the questionnaire provided evidence that the items were relevant to nursing practice in rural and remote Canada.

The survey response rate of 68% was very good for a mailed questionnaire of this type. Many RNs wrote detailed comments in addition to the structured responses. The Dillman (2000) approach, particularly persistent follow-up, made a substantial improvement in the response rate, from under 50% after the initial mailing. The cost of repeated mailings yielded the important benefit of more representative data. Access to the databases of all the nursing associations in the country was important for generalization of findings. However, future survey research and health human resource planning would benefit from a unique identifier for each RN in Canada. In the northern territories in particular, where RNs from other jurisdictions may come to work for periods of time, we had difficulty tracking RNs who had multiple registrations.

Nursing databases in Canada have been developed by the provincial/territorial nursing associations based on the annual registration information gathered when RNs apply for renewal of licensure. The only indicator of "rural" on the current registration forms is the home address. Even though use of the postal code has limitations for sampling, future research would benefit from registration data with postal-code information on primary workplace as an identifier of rural nurses. The data are submitted to CIHI on an annual basis for national publication. In 2002 a special issue of CIHI's annual publication, *Supply and Distribution of Registered Nurses in Rural and Small Town Canada*, was developed by Pitblado and colleagues from the overall project, *The Nature of Nursing Practice in Rural and Remote Canada*, in consultation with CIHI staff. The rural/urban distinctions in this CIHI report were based on the postal code of residence from the provincial/territorial nursing association data linked to the Statistics Canada definition of "rural and small town Canada" (du Plessis et al., 2001). We recommend that rural/urban indicators such as these be included in future reports at the national level, in the interests of rural research and health human resource planning.

Comparison of the survey sample data (2001–02) with the RNDB population data of RNs who registered in 2000 (CIHI, 2002) revealed that the survey was representative of RNs in rural and small-town Canada. While there are some differences in numbers (e.g., the survey sample was slightly older), the basic demographic and work profiles were similar; they illustrate the same themes (e.g., an aging workforce). No comparable data are available from CIHI for RNs registered in 2002 because the rural and small-town distinction was not made in the report for that year (CIHI, 2003).

The higher proportion of survey RNs with a baccalaureate in nursing can be attributed to the over-sampling of “remote” RNs, which was done because the numbers of RNs in the territories and outpost settings are relatively small. In the survey, 41.0% of rural RNs from the territories had a baccalaureate in nursing, compared to 17.0% to 28.8% in other regions. A similar pattern is evident in the RNDB analysis (CIHI, 2002, p. 46). While 23.8% of urban nurses Canada-wide had a nursing baccalaureate, compared to 18.0% of rural nurses, and most provinces were in the same direction (urban>rural), the pattern was reversed (rural>urban) in New Brunswick and the territories. The need for more education was a theme in the open-ended comments from survey participants, particularly those in remote settings. In the documentary analysis for the larger project (Kulig et al., 2003), we found that education should be more closely matched with the nature of nursing practice in these areas.

The primary work settings of RNs varied. The largest proportion of rural RNs worked in institutions: acute care (39.0%), long-term care (13.7%), and integrated facilities (which combine acute and long-term care) (5.3%). Another 18.8% worked in the community: home care (7.2%) and public health (10.6%). In remote areas, 13.5% of RNs worked in an outpost or nursing station where advanced practice nursing is required. However, only 8.6% of the sample had specific education for advanced practice nursing or outpost certification. The categorization of work settings is somewhat imprecise because there is some regional variation in labels (e.g., integrated facilities do not exist in every province/territory) and some settings could be community-based or institution-based (e.g., mental health). Comparison with the RNDB (CIHI, 2002, p. 48) again revealed that the survey had a representative sample. In 2000, there were 60.9% of rural nurses working in hospitals, 16.3% in long-term care, 4.9% in home care, and 12.7% in community health. Only 1.0% of RNs were in outpost settings, which was the basis for our decision to over-sample this group in the survey, to elicit meaningful data from remote nurses in order to guide policy development (Kulig, Nahachewsky, Thomlinson, MacLeod, & Curran, 2004).

Average satisfaction levels for both work and community were on the positive side of the scales. In the case of work satisfaction, the national mean of 4.72 is just under 5, which represents the descriptor for “mildly agree” on the seven-point scale. Regional comparisons are consistent with a range of means, from 4.44 (Quebec) to 4.93 (Alberta). A subsequent analysis at the subscale level revealed that most variability could be accounted for by the “pay” subscale, with nine provinces falling below the neutral midpoint of 4 in the dissatisfaction end of the subscale. The highest satisfaction with pay was found, not surprisingly, in the provinces with the highest pay scales (Alberta and British Columbia). Although there is a growing literature on job satisfaction, there is much variability in measurement, so it is difficult to compare results across rural settings and between rural and urban settings. However, a study from the United States that used the earlier version of the IWS (Coward et al., 1995) found no differences in job satisfaction between rural and urban nurses in long-term-care settings. An Australian study that demonstrated a relationship between job satisfaction (measured by the IWS) and intention to stay in nursing (Cowin, 2002) found that professional status was the most important aspect of job satisfaction overall, and pay was important to young nurses who were making the transition from student to registered nurse, but not to experienced nurses.

In terms of community satisfaction, the results presented here are comparable to those of a study with public health nurses in British Columbia (Henderson-Betkus & MacLeod, 2003). The reported scores represented a moderate level of community satisfaction.

In conclusion, the method for sampling rural RNs and the survey design yielding a 68% response rate contribute to a national survey data set with high external validity that can be used for evidence-based decision-making and policy development related to nursing practice in rural and remote settings in all regions of Canada. The questionnaire that was developed in English and French has satisfactory content validity and internal consistency reliability of embedded scales.

The profile of rural and remote RNs confirms that this is an aging group and health human resource plans are needed to recruit younger nurses in order to ensure sustainability of the workforce. Educational initiatives should target the specific needs of nurses working in a variety of rural and remote settings. Although these nurses report some satisfaction with both work and community, overall satisfaction levels could be raised if specific improvements were made, particularly in the area of educational and interdisciplinary support for practice. In the present analysis, pay was identified as a significant contributor to work satisfaction. Subsequent reports will focus on a variety of issues that could inform policy for rural and remote nurses.

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Authors' Note

This research was supported by funding or in-kind support from: Canadian Health Services Research Foundation, Canadian Institutes of Health Research, The Nursing Research Fund, Alberta Heritage Foundation for Medical Research, Michael Smith Foundation for Health Research, Nova Scotia Health Research Foundation, Ontario Ministry of Health and Long-Term Care, Saskatchewan Industry and Resources,

British Columbia Rural and Remote Health Research Institute of the University of Northern British Columbia, Canadian Institute for Health Information, Government of Nunavut, and the 12 provincial and territorial professional registered nurses' associations. First Nations Inuit Health Branch, Health Canada, provided financial support for the development of the questionnaire in English and French.

We thank the Survey Project Coordinator, Michelle Cholowsky, and the overall project Coordinator, Donna Bentham. Content experts for questionnaire development included co-investigators from the larger project: Kathy Banks, Ginette Lazure, Ruth Martin-Misener, Jennifer Medves, Michel Morton, Carolyn Vogt, Lela Zimmer, and the Principal Decision-Maker, Marian Knock. We also thank Gisèle Piché, Murielle Cormier, and Randall Kehrig for assisting with the French translation of the questionnaire and the translation back to English for data entry. We are grateful to the following research and clerical assistants at the University of Saskatchewan: Gwen Russell, Fawn Nielson, and Freda Elash. We appreciate the input from Advisory Team members in all provinces and territories at all stages of the project. Finally, we thank the rural and remote nurses from across Canada who took the time from their busy lives to complete the survey.

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Résumé

**Les innovations et les enjeux
en matière de prestation de la formation
continue aux infirmières praticiennes
des communautés rurales et du Nord**

Kate Tilleczek, Raymond Pong et Suzanne Caty

Ce document traite de la nécessité de fournir aux infirmières praticiennes des régions rurales la formation à distance considérée comme essentielle pour mettre à jour leurs qualifications professionnelles acquises. La méthode de prestation des cours est un élément crucial de leur succès. Les auteurs présentent et décrivent la méthode de prestation novatrice du Programme ontarien de formation des infirmières praticiennes en milieu rural, depuis l'évaluation initiale des besoins jusqu'à la mise en œuvre du programme et l'étude d'évaluation. Chaque étude repose sur un modèle de recherche utilisant plusieurs méthodes d'analyse. Les personnes interrogées ont montré une préférence pour les modalités virtuelles perçues comme étant limitées par des obstacles. Ces obstacles ont par la suite été pris en compte dans le projet pilote. Les infirmières des régions rurales reconnaissaient les avantages offerts par les technologies de l'information. La mise en œuvre a été pondérée de façon efficace en fonction de multiples modes de prestation en ligne des cours et de l'utilisation de la pédagogie constructiviste. Les résultats de ces études montrent qu'il existe encore de nombreux défis à relever en ce qui concerne la prestation de la formation continue aux infirmières praticiennes des communautés rurales et du Nord.

Mots clés : infirmières praticiennes, formation à distance, régions rurales et éloignées.

Innovations and Issues in the Delivery of Continuing Education to Nurse Practitioners in Rural and Northern Communities

Kate Tilleczek, Raymond Pong, and Suzanne Caty

This paper addresses the need to provide rural nurse practitioners (NPs) with the distance education that is considered vital to the upgrading of their professional skills. The method of delivering the courses is a critical aspect of their success. The authors trace and describe the innovative delivery of the Rural Ontario Nurse Practitioner Continuing Education Initiative, from the initial needs assessment study through to the implementation and evaluation study. In each study, a multi-method action research model was used. The respondents showed a preference for face-to-face modalities that were perceived to be constrained by barriers. These barriers were subsequently addressed by the pilot project. Those living in rural areas recognized the benefits of information technologies. Implementation was effectively weighted on multiple modes of online course delivery and the use of constructivist pedagogy. The findings suggest that the delivery of continuing education to rural and remote NPs is still wrought with challenges.

Keywords: nurse practitioners, distance education, learning modalities, rural and remote

Introduction

Several recent reports (e.g., Health Services Restructuring Commission, 1999; Nursing Task Force, 1999, 2001) have recommended greater use of nurse practitioners (NPs) in the health-care system of the province of Ontario, Canada. NPs play a particularly important role in rural, northern, and remote communities because of chronic shortages of physicians and inadequate access to primary health care. In response to service needs, from 1998 to 2002 approximately 400 new NP positions were created with funding from the Ontario Ministry of Health and Long-Term Care (MOHLTC). Many of these positions were in northern Ontario and other rural areas (Government of Ontario, 1998, 2000a, 2000b). This response followed the 1994 launch of an NP initiative (Ontario Ministry of Health and Long-Term Care, 1994) that addressed both the education and employment needs of NPs in Ontario. In 1995 the Council of Ontario University Programs in Nursing (COUPN)

began offering the Primary Health Care Nurse Practitioner Education Program via distance education.

Continuing education is an important issue for NPs working in rural, northern, and remote communities. The need for NPs to maintain or enhance their skills and knowledge is particularly critical in smaller or more remote communities where NPs tend to work fairly independently and see patients with diverse health problems. Continuing education programs may also help in the recruitment and retention of health-care providers, including NPs in rural and remote communities, by reducing the sense of isolation (Pong, Rowe, Ryan, & Mulloy, 1995). Continuing education for NPs in rural, northern, and remote practice settings requires special attention, for two reasons. First, their continuing education needs may differ from those of their urban counterparts because of their special practice environments. Second, different delivery approaches may have to be used to bring continuing education programs to NPs in non-urban settings. This paper reports on both aspects, and is based on findings from two separate studies of NP continuing education in rural and northern Ontario. The research findings reported here are from a needs assessment and an evaluation. We emphasize the innovative aspects of a continuing education pilot project, one of which is the melding of research with course development and modes of delivery.

The findings of previous studies suggest that continuing education has a positive impact on NP practice (Atkin, Hirst, Lunt, & Parker, 1994; Ferrel, 1988; Merservy & Manson, 1987; Peden, Rose, & Smith, 1990). However, little is known about the continuing education needs of rural NPs. Research from the United Kingdom (English National Board, 1991; Greenlaugh & Douglas, 1999; Shepherd, 1992) has identified general issues in the delivery of NP continuing education: needs analysis as an essential part of the development of programs, the need for program designers to ensure that education is pertinent and of high quality, and the need for staff development to encompass assessment of prior learning.

According to Sheperd (1995), the most suitable forms of continuing education are those that are flexible, encompass blocks of study, and are of short duration; practitioners state that these blocks of study should be scheduled well in advance, to allow for planning. Similarly, Andrusyszyn, Cragg, and Humbert (2001) and Andrusyszyn, van Soren, Spence, Goldenbner, and DiCenso (1999) found preferences for distance education methods to be related to learning styles, content, and individual learning goals; they also found convenience, self-direction, and timing to be important. Ontario NPs have identified print-based methods as the most favourable and audiotape as the least favourable (Andrusyszyn et al., 2001).

NPs in Ontario have expressed the greatest satisfaction, and the greatest familiarity, with face-to-face delivery approaches. However, dramatic increases in comfort level with computer usage and teleconference technologies — so long as technical support is available — have also been reported. Consideration should be given to using a mixture of methods, attending to specific content, learners' characteristics, and available technologies (Andrusyszyn et al., 2001; Wambach et al., 1999). Further recommendations for delivery include packaging courses into separate modules that are directly related to current practice situations (Atkin et al., 1994) and ensuring technical support and reliability before implementation (Jarrett, Wainright, & Lewis, 1997). In a recent Ontario study (IBM Business Consulting Services, 2003), NPs were asked to comment on what was included as part of their ongoing/continuing education in the preceding year. Almost all NPs (96%) indicated that lectures, conferences, and/or clinical presentations had been included; 86% indicated other education materials; 80% indicated clinical practice guidelines; and 67% indicated small-group learning, traineeships, and workshops. However, only 18% indicated distance courses or evening courses and 29% indicated chart audit with feedback on performance. Thus, fluency with mixed methods but lack of access to continuing education courses is apparent.

Further, Wambaugh et al. (1999) suggest an approach to NP instructional technology based on the concept of constructivism — a learning philosophy that focuses on the ways in which individuals come to understand course materials. This approach adheres to pedagogical principles such as learner-directed education and relevancy. The idea of networking to enhance and support rural education has also been documented. Hemman, McClendon, and Lightfoot (1995) report that collaboration and shared resources enhance distance education in rural areas. In the case of rural nurses in Australia, a preceptorship model of support has been found to enhance continuing education through empowerment and mentorship (Dusmohamed & Guscott, 1998). Also, a general system of infrastructure and technical support has been found to be useful to NPs in reaching disadvantaged consumers in rural and remote Australia (Hovenga, Hovel, Klotz, & Robbins, 1998). Similarly, Betty and Tiliczek (2002) report that a critical learner support system can emerge over the course of rural continuing education implementation that provides a range of technical support to learners. The literature clearly shows that delivery of continuing education should be tied to current practice contexts and that both referral patterns and the daily practice activities of NPs can help to determine needs (Way, Jones, Baskerville, & Busing, 2001).

A number of studies describe the nursing practice environments of northern and rural Ontario and suggest that rural communities face special challenges. There are rural-urban differences in health status, service utilization, and behaviour (Badgely, 1991; Mansfield, Wilson, Kobrinski, & Mitchell, 1999; Pampalon, 1991; Pitblado & Pong, 1995) — for example, a very high prevalence of heart disease in northeastern Ontario (Sahai et al., 2000), a high prevalence of certain types of cancer among farmers (Fair, 1992) and miners, high rates of diabetes and respiratory and infectious diseases in many Aboriginal communities, and short life expectancy and high infant mortality in rural and small communities (Wilkin, 1992).

In summary, the literature suggests that delivery of NP continuing education in non-urban areas should focus on the realities of the rural practice environment, and may require a mixture of delivery methods and constructivist pedagogies with an emphasis on relevant content areas, learner characteristics, and available technologies; it may also require the delivery of courses in the form of modules, within a technical support system.

The primary objective of this paper is to report on innovative aspects of a continuing education pilot project for rural, northern, and remote Ontario NPs. The focus is on the ways in which the pilot project melded the literature and research findings to develop and deliver continuing education courses. We will also report on an evaluation study that assessed the outcomes of the pilot project. Our focus will be the rural challenges of implementing and delivering courses, and the lessons learned in the process. Issues relating to course content and delivery will be addressed in a future research article.

Methods and Findings

We will now report on the design, method, and main findings of the needs assessment, the development of continuing education courses, and the evaluation of the pilot project. This section is intended as an overview of the research design and the multiple methods used by the investigative team. For detailed research methodologies, see Caty, Tilleczek, Pong, Michel, and Lemieux (2002) and Tilleczek, Caty, Russell, Pong, and Rukholm (2004).

There is no universally accepted definition of “rural” (Pong & Pitblado, 2001), but this study used the Statistics Canada definition: communities of fewer than 10,000 inhabitants located outside the commuting zones of Census Metropolitan Areas (with populations of 100,000 or more) and Census Agglomerations (with populations of 10,000–99,999). For the purposes of this study, “northern” refers to those regions that are

officially designated as “northern Ontario” by the provincial government. Although some northern Ontario communities, such as Sault Ste. Marie, Sudbury, and Thunder Bay, are small cities, they have been included in the study because they are fairly isolated geographically, have experienced shortages of physicians and other health-care resources, and may not have ready access to continuing education. For the purposes of the study, northern Ontario communities are designated as “rural” if they are outside the five main urban centres of North Bay, Sault Ste. Marie, Sudbury, Thunder Bay, and Timmins and are accessible by road. “Remote” refers to very small and isolated communities, most of which are located in northern Ontario areas inaccessible by road.

The term NP is used to cover three categories of RNs: those with a College of Nurses of Ontario Extended Class (EC) certificate of registration, those (without EC registration) working in an expanded role or under some medical directives in primary-care settings, and those (without EC registration) working as staff nurses in First Nations health centres funded by Health Canada. Nurses in the latter two categories, though not designated as NPs, often function in that capacity.

Needs Assessment

Design. In order to reach all RNs who met the operational definition of NP and were working in rural and northern regions of Ontario, a complex process was undertaken to construct a sampling frame. Five sources of names and addresses of RNs were used to generate a list of potential participants: the database of CRaNHR’s NP Multi-year Tracking Study ($n = 353$), the 2001 College of Nurses of Ontario database of RNs with EC registration ($n = 415$), the year 2000 membership list of the Nurse Practitioner Association of Ontario ($n = 691$), the Northeastern Ontario Medical Education Corporation list of RNs working in nursing stations funded by the MOHLTC ($n = 34$), and the Health Canada First Nations and Inuit Health Programs (FNIHP) ($n = 115$). The final number of potential participants in the survey was 472, after duplicated names had been eliminated.

A questionnaire was developed by CRaNHR researchers in consultation with COUPN NP coordinators. A pilot test of the draft instrument was conducted with three practising NPs for content validity and readability. The final questionnaire comprised 28 questions, both close-ended and open-ended. It was mailed to individuals and the FNIHP contact persons for distribution. Approval was secured from Laurentian University’s Research Ethics Board.

There are some limitations to the study that may affect the generalizability of the findings. First, the research team did not have access to the actual names and addresses of the RNs working in FNIHP-funded agen-

cies and relied upon third-party willingness to distribute the questionnaire. Only half of the FNIHP agencies responded to the request to help distribute it, and questionnaires were not received from all the agencies that did agree to help. Therefore, it is possible that not all RNs working in remote areas had an opportunity to participate in the study.

Second, the definition of rural southern Ontario was rather restrictive and therefore excluded the participation of those from communities with a population of more than 10,000 but still living far from an urban centre. As the analysis of filtered-out respondents has shown, these NPs were also interested in continuing education.

Findings. Nearly one half ($n = 227$) of the questionnaires were returned. If only those with known addresses are considered, the return rate was 54% ($n = 192$). The return rate for participants with a known southern Ontario address was 55% ($n = 117$) and with a known northern Ontario address 52% ($n = 75$). For questionnaires distributed through the FNIHP contact persons, the rate of return was 30% ($n = 35$). Questionnaires were received from 11 of 17 FNIHP-funded agencies that had agreed to take part in the survey.

Of the 227 questionnaires that were returned, 146 (64%) were suitable for analysis; 72 were from respondents in northern Ontario with a known address, 38 were from southern Ontario respondents with a known address, and 36 were from RNs in FNIHP-funded agencies.

Seventy-five percent ($n = 109$) of the respondents resided in northern Ontario, with 46% practising in rural communities, 27% in urban communities, and 27% in remote communities. Twenty-five percent ($n = 36$) of the respondents practised in a rural southern Ontario community. Eighty-five (59%) of the respondents practised as RNs (ECs), 32 (22%) as RNs in FNIHP-funded health agencies, and 27 (19%) as RNs in an expanded role or under medical directives.

Within these regions, 80% of the southern Ontario respondents resided in communities with a population of 50,000 or less. Ninety-five percent were practising at the time of the survey and 61% were RNs with EC designation. Because the Statistics Canada definition of "rural" has been adopted in this project, input from RNs who were practising in these southern Ontario communities had to be forfeited. Some of the respondents stated that they wished they could have participated in the survey, as continuing education was not available to them.

Respondents were also asked to report on continuing education activities in which they had participated in the previous 2 years and their preferences in relation to delivery modalities. The most frequently mentioned modalities (86%, $n = 502$) were face-to-face approaches such as workshops, conferences, seminars, and lectures. Other modalities (14%, $n = 84$) included teleconferences, print-based courses, Internet courses,

CD-ROM-based activities, videoconferences, and audiotapes. Ninety-five percent ($n = 138$) of respondents stated that continuing education was either "very important" or "extremely important" to them. The mean rating on a scale from 1 to 5 (5 = extremely important) was 4.79 ($SD = 0.5$). However, access to continuing education was rated as less than optimal. Respondents rated the frequency with which they encountered each of 14 main barriers to access. Four of the barriers were identified by more than three quarters of the respondents, with the two most important being "distance to travel" and "expense of travel." It is worth noting that most respondents had access to computers (91%) and the Internet (71%), which suggests the feasibility of offering online courses.

There were statistically significant differences between regions with respect to issues concerning delivery of continuing education. For example, for those in northern Ontario, 89% ($n = 97$) stated that distance to travel was a significant barrier to access; in southern Ontario, the proportion was 78% ($n = 28$). Table 1 shows regional differences for six issues. It is worth noting that the respondents who had no computer access were all located in remote areas in the north.

Table 1 *Barriers to Accessing Continuing Education by Region**

Barrier to Access	Northern Ontario	Rural Southern Ontario
	% Yes (n)	% Yes (n)
Distance to travel	89 (97)	78 (28)
Expense of registration/tuition	73 (80)	83 (30)
Lack of employer-designated funds	66 (72)	78 (28)
Lack of knowledge of continuing education opportunities	66 (72)	53 (19)
Lack of access to a computer	12 (13)	0 (0)
Lack of access to Internet	22 (24)	8 (3)

* Statistically significant at $p < .05$.

Participants were asked to rate, on a scale from 1 to 5, the potential helpfulness of specific continuing education delivery modalities (5 = extremely helpful). Table 2 reports the percentages of respondents who rated each of the 11 modalities as "very helpful" and/or "extremely helpful," as well as the mean score for each modality.

The respondents most frequently reported face-to-face continuing education methods such as seminars, workshops, and conferences as helpful to them. While most respondents had access to computers and the Internet, they reported that live modalities were more helpful. There

were no statistically significant differences between regions with respect to helpfulness for each modality. However, there were statistically significant differences between locations in northern Ontario (see Table 3). While face-to-face modalities (e.g., lectures, conferences, seminars, and workshops) had higher mean “helpfulness” scores in rural and urban areas of northern Ontario, respondents residing in remote areas rated CD-ROM technology and teleconferencing as more helpful.

Table 2 *Helpfulness of Modalities for Accessing Continuing Education Activities*

Barrier to Access	% Saying Helpful ^a	Mean Score ^b (SD)
Workshops	86	4.0 (0.9)
Seminars	85	3.6 (0.9)
Professional conferences (e.g., NPAO)	76	3.2 (0.9)
Print-based course material	76	3.1 (0.9)
Face-to-face lectures	75	3.4 (1.0)
Web-based Internet courses	62	3.6 (1.7)
CD-ROM	59	3.5 (1.7)
Videoconferencing	54	3.5 (1.3)
Networking (listserv, e-mail, meetings)	46	3.2 (1.5)
Computer conferencing	45	3.3 (1.5)
Teleconferencing	41	3.3 (1.0)

^a Sum of “very” or “extremely” helpful.
^b Rating scale from 1 (“not at all helpful”) to 5 (“extremely helpful”).

Table 3 *Significant Mean Differences in “Helpfulness” Scores by Northern Ontario Location*

Modality	Mean Helpfulness Score ^{a*}		
	Rural	Urban	Remote
Face-to-face lectures	4.2*	4.0	3.5*
Professional conferences	4.1	4.5*	3.6*
CD-ROMs	3.0*	3.4	4.2*
Seminars	4.2*	4.3*	3.8*
Workshops	4.4*	4.4*	3.8*
Teleconferencing	3.4*	2.9*	3.6*

^a Rating scale from 1 (“not at all helpful”) to 5 (“extremely helpful”).
^{*}Significant at $p < .05$.

Program Development

Based on the results of the needs assessment, five NP continuing education courses were developed: Fundamentals of Primary Health Care, Persistent Illness, Issues in Mental Health, Pharmacotherapeutics, and Emergency Health Care in Rural Settings. Each of the 8-week courses consisted of eight separate modules, with the exception of the Emergency Health Care in Rural Settings course, which had nine modules. Each module contained a set of expectations and outcomes, a list of assigned readings, and a case-based scenario followed by a set of questions. The courses were designed to be delivered as Web-based courses, through a main access portal supported by the COUPN team. The courses were augmented by an online discussion area for students and instructors (and, in the case of the Fundamentals course, by a weekly teleconference). Quizzes and tests were taken online.

Evaluation

Design. A design using both qualitative (focus groups and open-ended responses) and quantitative (registration forms and module evaluations) data was employed to answer the following research questions: Are students learning what they want and need? Is the method of delivery helping or hindering? What other continuing education activities could be developed?

The use of action research encouraged shared responsibility for the project and input from the NPs, in order to inform the development of the continuing education courses. For example, the Fundamentals course was evaluated before the other courses were delivered, so that the perspectives of the NPs could be brought back to the development team as the project unfolded. Ongoing discussions were held with the COUPN implementation team and CRaNHR researchers, particularly with regard to the research process. Procedures incorporated shared research responsibility. Three strategies were used with regard to data collection: demographic data collected on registration forms, learning assessment data collected throughout the course via an online form transmitted electronically to the researchers, and one focus group per course conducted via teleconference to address the strengths and weaknesses of the course.

Multiple responses were calculated for some variables. This involved the creation of a pooled variable by combining the responses to various questions across all learners and modules. A number of the questions included in the online evaluation questionnaire concerned similar issues. For instance, respondents were asked to rate several items on the helpfulness of the module delivery format in supporting their overall learning,

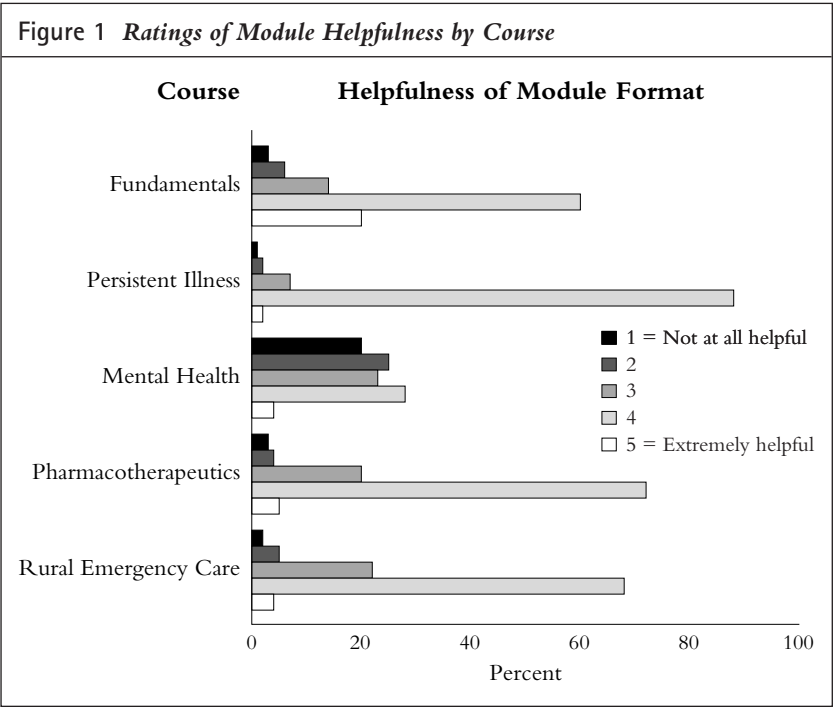
such as (a) cited references, (b) case studies, (c) interactive quizzes, (d) Web sites, (e) end-of-module quiz, and (f) assigned readings. Overall helpfulness was summarized by combining the ratings on related questions over all modules.

Given the small sample size and the need to protect participant confidentiality, regional comparisons were not made on a course-by-course basis. A further limitation was imposed by some missing learning-assessment data. For Fundamentals of Primary Health Care, for example, only four learners completed all of the module evaluations. Also, in each course there were learners with missing data on the evaluation forms and, because of a glitch in the online environment, learners who submitted duplicate evaluations for some modules, since they could not download the module content without completing the online evaluation. The duplication was handled by the CRaNHR team through the deletion of duplicate data. Data were carefully cleaned and cross-checked before analysis. Given these limitations and the fact that the evaluation has been designed to follow the progress of these specific courses, caution should be taken in generalizing the results.

Findings. Thirty-nine participants officially registered for at least one of the five courses and 28 registrants completed individual courses, for an overall completion rate of 73%. The learners were mostly highly experienced RNs who were relatively new to their NP positions and who therefore appreciated the depth and breadth of the course material. These participants reported that the greatest strength of the course was that it increased their knowledge and skills. The majority of learners held the view that the course(s) met their personal learning objectives. Also, the majority of learners passed the courses with an average score of 70% or higher, which was considered to render the courses successful.

The respondents reported that they were able to transfer the knowledge they gained to their practice. For example, although there were differences between courses, the majority of learners rated the course material as applicable to their daily practice. They commented that the experience extended their vision of and confidence in daily practice. They also commented on both the immediate and future significance of the course material to their work.

Learners suggested that the online aspects of the course were excellent, including the interface, design, and technical support. Mixed delivery methods and delivery that was fully supported were important aspects of this project. Learners were also pleased with the melding of online delivery and teleconferencing (in the case of Fundamentals in Primary Health Care) or news groups. Figure 1 illustrates the extent to which learners rated the delivery modes as helpful.



Although there is variability in the ratings across courses, the majority of learners found the module design helpful to their learning. While it is important to consider the sometimes limited computing capacity in rural environments prior to delivery, this evaluation has shown that learners prefer the flexibility provided by online distance learning relative to traditional learning formats. However, learners in rural and remote areas expressed the need for access to reliable telecommunications and the Internet.

Discussion

The primary objective of this paper was to report on the innovative aspects of a rural NP continuing education pilot project related to delivery modalities. One such aspect has been the melding of course design and delivery with research. The development and implementation of the project were informed by both the needs assessment of rural and northern Ontario NPs and the evaluation. The broad definition of NP used in the studies assisted in providing an inclusive picture of the needs of NPs practising in Ontario. However, far fewer NPs have as yet accessed the

continuing education courses than responded to the needs assessment, indicating that the evaluation represents fewer voices than does the needs assessment.

A significant finding is that continuing education is important to NPs in rural and remote communities for maintaining competency, but that access is hampered by a variety of barriers such as travel, cost, and work and family obligations. These issues are also reported in the literature (Rasch & Cogdill, 1999; Sheperd, 1995). Another key finding is that while most respondents had access to computers and the Internet, and while they saw distance education as one means of accessing continuing education, they also valued face-to-face learning and networking. The interest in face-to-face modalities appeared to be constrained by barriers of distance, cost, and personal and work obligations. This paradox has been noted in other studies (Andrusyszyn et al., 1999; Andrusyszyn et al., 2001) and suggests that a range of approaches is needed to ensure accessibility for NPs working in rural and remote areas. Face-to-face encounters were not provided in the pilot project, but weekly teleconferences were seen as a useful substitute. Respondents practising in remote areas of northern Ontario recognized the benefits of information and communication technologies such as CD-ROM and videoconferencing. The use of multiple methods of delivery in the pilot project is a noteworthy innovation, and is consistent with findings from other studies (e.g., Chang et al., 2002; Chapman, 2000; Cole & Ramirez, 1999; Hewitt-Taylor, 2003). A further issue for design and research consideration is the extent to which courses can be provided in variable ways (Andrusyszyn et al., 1999; Andrusyszyn et al., 2001).

A further innovative feature of implementation was the use of the guiding principles of constructivism and learner-directed education, as suggested by other studies (e.g., Wambaugh et al., 1999). Moreover, as suggested by Chapman (2000), the delivery modes used in the project were relevant to rural practice settings and allowed for transference of learning to the rural communities in which the NPs work. Relevant content and delivery were achieved in the pilot project, enhancing the "deep learning" that takes place in a supportive work environment (Delva, Kirby, Knapper, & Birtwhistle, 2002). A challenge for rural communities is to find ways to encourage learners to proactively integrate their practice networks into a support system for learning. This could include suggesting mentors in the practice setting or encouraging connections with other health professionals who are expert in the course content (Betty & Tilleczek, 2002). A sense of being overwhelmed in one's practice setting has been found to be associated with a superficial approach to learning and the perception of barriers to continuing education (Delva et al.).

While rural and remote communities need technology to help overcome distance barriers (Sheppard & Mackintosh, 1998), they often lack the needed technological infrastructure. A critical but understudied issue is the importance of matching delivery modalities to the technical and Internet capabilities of each student and community (Farmer & Richardson, 1997; Hewitt-Taylor, 2003). Students enrolled in a given course may come from many different communities, each with unique access and support capabilities. Therefore, capability should be assessed and secured before delivery is designed or implemented. Technological capability that has been shown to be necessary for success should be part of the prior learning assessments (English National Board, 1991; Greenlaugh & Douglas, 1999; Sheperd, 1992).

In conclusion, the success of the pilot project may be related to the care taken to ensure that course content was of high quality, relevant to learners and to their client groups, and delivered through a supportive online environment. These qualities have also been shown to be linked to successful delivery of continuing education in the literature (e.g., Greenhalgh & Douglas, 1999; Sheperd, 1992) and reflect the kinds of needs reported by rural and northern Ontario NPs. The evaluation of the pilot project further suggests that rural and remote realities and issues should continue to play a role in the design and implementation of continuing education for rural NPs.

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Authors' Note

We gratefully acknowledge the assistance of the Rural and Remote Health Innovations Initiative, Health Canada, through the Council of Ontario University Programs in Nursing, in providing a research grant.

We sincerely thank the participants for sharing their time and insights. We also acknowledge the help of the College of Nurses of Ontario, the Nurse Practitioner Association of Ontario, the First Nations and Inuit Heal Programs, and the Northeastern Ontario Family Medicine Program for providing access to participants.

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Best Practices in Research Methods

So, What Do We Mean by “Rural,” “Remote,” and “Northern”?

J. Roger Pitblado

At the stroke of midnight on December 31, 2000, the residents of the homes dotted along the western shores of Kukagami Lake suddenly became “urban.” Minutes before, they and their neighbours in the unincorporated township of Rathbun had been “rural.” Kukagami Lodge, advertising “northern” and “remote” wilderness experiences for its guests, is now located in one of the 27 largest urban centres in Canada — that is, it is now located within a census metropolitan area. Rathbun Township has been amalgamated into the new City of Greater Sudbury in northern Ontario.

So, what do we mean by the terms “rural,” “remote,” and “northern”? Thankfully, the guest editor for this issue of the *CJNR* has not asked me to answer these questions. Rather, she has invited me to provide some personal reflections on the methodological issues surrounding the defining of these terms in the context of rural health research in Canada.

Over 20 years ago Bosak and Perlman (1982) reviewed 178 articles on rural mental health and sociology, and found that 43% of them did not even include a definition of rural. In discussions on physician practice locations, recruitment, and retention published in the *Journal of Rural Health* between 1993 and 1995, there are wide variations in how rural is defined (Ricketts & Johnson-Webb, 1997). Reviews (Pitblado & Pong, 1999; Williams & Cutchin, 2002) of more recent literature suggest, perhaps overly pessimistically, that there are almost as many definitions of rural as there are researchers (Pong & Pitblado, 2001).

There does, however, seem to be general acceptance of the notion that the approaches to defining rural fall into two categories: technical and social (du Plessis, Beshiri, Bollman, & Clemenson, 2001; Ryan-Nicholls & Racher, 2004). These categories are used below to reflect on some of the difficulties that surround defining rural. As a footnote, the technical approaches are often referred to as “geographical.” While I have also used this terminology in the past, I have substituted the word tech-

nical here because social approaches to defining rural may also be geographical.

Technical Approaches

The location of a hospital, the road that one has to travel to get from one's home to the hospital, and the health region that encompasses that hospital and that road are examples of the "cartographic primitives" of points, lines, and areas. In texts and on maps, these are the devices used most often to construct our definitions of rurality in Canada. Points may be identified by longitude and latitude, lines expressed in terms of distances between points, and areas characterized by their boundaries.

Distances are often used to define rurality, but are not consistent between different groups of health-care providers, or even within the same group. For example, the current president of the Society of Rural Physicians of Canada, expressing distances as travel times, suggests that remote is relatively easy to define: "a place 3 or 4 hours from the next largest community or higher level of care" (Soles, 2004). Other physician colleagues differ on the labels and on the defining limits, which might be "80–400 km," "one to four hours transport in good weather," or "greater than 80 km from a regional centre of more than 50,000 people" (Rourke, 1997). In the context of nurses working for the First Nations and Inuit Health Branch of Health Canada, distances (e.g., 90 kilometres to a physician or other health-care service) are also invoked in the designations of rural (non-isolated) and remote (isolated) communities, with added parameters distinguishing communities that do or do not have scheduled air-transportation services (Kulig et al., 2003).

Detailed explanations of how points (postal codes), lines (commuting activity), and areas (census divisions, census subdivisions, or enumeration areas) can be used to produce measures of the degrees of rurality in Canada can be found in the *Rural and Small Town Canada Analysis Bulletin*, an online publication of Statistics Canada. There, du Plessis et al. (2001) examine the construction of six alternative definitions of rural, including the now less useful approach of referring to individuals as rural if "0" is found as the second character in their postal code. Several of these definitions have been used recently in examining health human resource issues (Canadian Institute for Health Information, 2002) as well as health status (Mitura & Bollman, 2003). But these definitions depend on the drawing of boundaries that have little to do with health and that are established for convenience in reporting national or provincial statistics or for administrative purposes. They produce anomalies, illustrated in the opening paragraph of this paper, that do not correspond with our intuitive sense of what is rural, remote, or northern. As well, the rapidity

in recent years of administrative boundary changes — to census geographical units and health regions — severely hampers our efforts to undertake longitudinal analyses of the health characteristics of rural Canadians.

Similar to rural and remote, defining “north” poses challenges to health researchers. For example, in their discussion of the characteristics of northern nursing practice, Vukic and Keddy (2002) use the 50th parallel to demarcate north-south but give no indication of why that particular line of latitude was chosen. At least two research funding agencies that I am familiar with would have pushed that demarcation line to the 60th parallel, equating north with our three territories. Canada’s north has been delineated using 16 climatic, biotic, and socio-economic indicators (McNiven & Puderer, 2000). I suspect that little use will ever be made of this approach because it does not correspond with everyday language or perceptions. For example, some or most residents of the communities located in the vicinity of the Ontario-Minnesota border in northwestern Ontario might not consider themselves as “south,” but they would be so classified under the McNiven and Puderer scheme. Fundamentally, north is defined with little or no rationale in the rural health literature of Canada.

Social Approaches

“You know that you are rural if there is no Starbucks or Second Cup...you know that you are remote if there is no Tim Hortons.”

The “coffee index of rurality” (Pitblado, 2002) and other indices using similar themes (Soles, 2004) generate a few smiles during conference presentations. But there is a serious side, as these indices are used with the intention of highlighting the fact that points, lines, and areas are merely locators or containers where lives are lived, where place may or may not be considered a determinant of health, where the nature of health-care practice and the nature of community may or may not be inseparable. Beyond the technical, there are the social approaches to defining rural, remote, and northern. At least in theory!

Canadian authors, directly or indirectly basing their work on British author Halfacree’s (1993) proposition of defining rural on the basis of social representation, have set out premises for redefining rural with a focus on sustainability (Troughton, 1999) or the characterization of new rural regions (Douglas, 1999), or have provided a framework for investigating the health of rural Canada (Ryan-Nicholls & Racher, 2004). Williams and Cutchin (2002) argue that to improve care provision for rural societies, as well as research and teaching about them, we should be searching for definitions of rural using Halfacree’s holistic and place-spe-

cific concepts. But no author has actually proposed a specific definition of rural or remote using this approach. It may be overstating the case, but the methodological issue here appears to be that there is no methodology, per se, to critique.

Definitions and Debates

Given the lack of consensus on both technical and social definitions of rural, remote, and northern, where do we go now? Do we give up or keep on trying? Some definitions are clearly needed. For example, as I write these notes, the physicians of Ontario are beginning to vote on a new Ontario Medical Association/government agreement. Many rural physicians will vote for ratification because, among other things, the agreement provides a first-ever rurality gradient incentive that they feel will help recruit and retain physicians in rural parts of that province (Society of Rural Physicians of Canada, 2004). Anyone who uses a secondary database with measures of the health status of Canadians or counts of health-care providers will need to look for some indicator of rural, remote, or northern if they are at all interested in rural health or rural-urban comparisons. Ashton and Bruce (1994) outline the needs for a definition of rural in Atlantic Canada that would allow for the comparability of research findings, the effective delivery of government services, and the capability of providing measures that recognize the complexities and subtle variations between metropolitan and rural communities and among rural communities themselves.

Given these needs, I reject the notion that definitions of rural are irrelevant (Hoggart, 1990) or that seeking such definitions may be a "fool's errand" (Mills, 1998). Nevertheless, and within the specific context of rural health research in Canada, we have not fully examined the advantages and disadvantages of the various technical definitions that have been offered. And we have barely begun to explore the definitions of rural under the rubric of social representation.

With few exceptions, discussions of these definitions for use in Canada are found in in-house publications (the "grey" literature), which are often difficult to locate, or sprinkled throughout a wide variety of national and, particularly, international journals. At a number of business meetings of the newly formed Canadian Rural Health Research Society (Kulig, Minore, & Stewart, 2004), there has been some interest expressed in creating a new publication. Perhaps it is time for a Canadian journal of rural health where, among other things, definitions of "rural" can be developed and fully debated.

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Translating Research

Community Partnerships: Translating Research for Community Development

Frances E. Racher and Robert C. Annis

The foundation of partnerships, the bond that sustains relationships, and the mechanism for community action is open dialogue. Effective dialogue nurtures partnerships, mobilizes citizens, and is ultimately a cornerstone of community development. In a partnership, sharing of information is both fundamental and reciprocal. Partners learn from each other, discover new knowledge, and come to new understandings through their work together. Knowledge transfer can be particularly productive when community members and university researchers partner (Walsh & Annis, 2003) in order to undertake participatory action research (PAR) with a goal of community development, a discussion of which is the focus of this paper.

Participatory Action Research

PAR involves participation in the research by the people “being studied”; inclusion of popular knowledge, personal experiences, and other ways of knowing; focus on empowerment; consciousness-raising; education of and among the participants; and political action (Dickson, 2000). PAR empowers partners through their participation in and control of the research agenda, process, and findings; their critical awareness of the complexities of the problems studied; and their establishment of community change as an outcome. PAR purposely links research with community development and change (Dickson).

Community Development

Community development has been defined as a philosophy, a process, a project, an outcome, and as all four at once. As a philosophy it entails the fundamental belief that people can identify and solve their problems. As a process it supports citizens as they discover their ability to effect change. As a project or as an outcome it involves work with residents to bring about change in their community (English, 2000).

The community development process involves engagement, assessment, planning, implementation, and evaluation. This circular process is often convoluted but is always continuous. Throughout the processes of PAR and community development, products for communication and mobilization are generated and disseminated first within the community and eventually beyond the community, for the purposes of research, practice, and policy. The work of one community becomes a case study with tools and outcomes to be shared with others, translated, and adapted for use.

Knowledge Translation

Knowledge translation encompasses all steps between the creation of knowledge and its application in order to yield beneficial outcomes for society (Canadian Institutes of Health Research, 2004). Knowledge translation may be more commonly understood as knowledge transfer, knowledge exchange, knowledge mobilization, research use, or research implementation (Graham & Logan, 2004). A variety of products of knowledge translation are developed within PAR and within community development projects.

Recently the Rural Development Institute (RDI) at Brandon University in Manitoba has been engaged with two rural communities through the research project Determinants of the Health of Rural Populations and Communities, funded by the Social Sciences and Humanities Research Council of Canada. Several products (as italicized below) were developed through dialogue with community committees in order to share knowledge at various stages in the project. Community advisory committees with input from RDI researchers developed processes, strategies, and products to achieve their goals and priorities throughout the project. In time, meetings of the committees extended beyond the involvement of RDI, as community members enhanced their ability to move their project forward.

During the engagement phase, information about the emerging project was shared through *organizational meetings*, *newsletters*, and *Web sites*, as well as *news releases* issued to local newspapers. These strategies were employed at all stages in the project. Concurrently, researchers and student interns conducted *literature reviews* and compiled an *annotated bibliography* on rural community health and a *database of publications and reports* on rural health and related topics. The database was linked to the RDI Web site, and partners, among others, can search for useful material at <http://www.brandonu.ca/ris/risweb.isa>

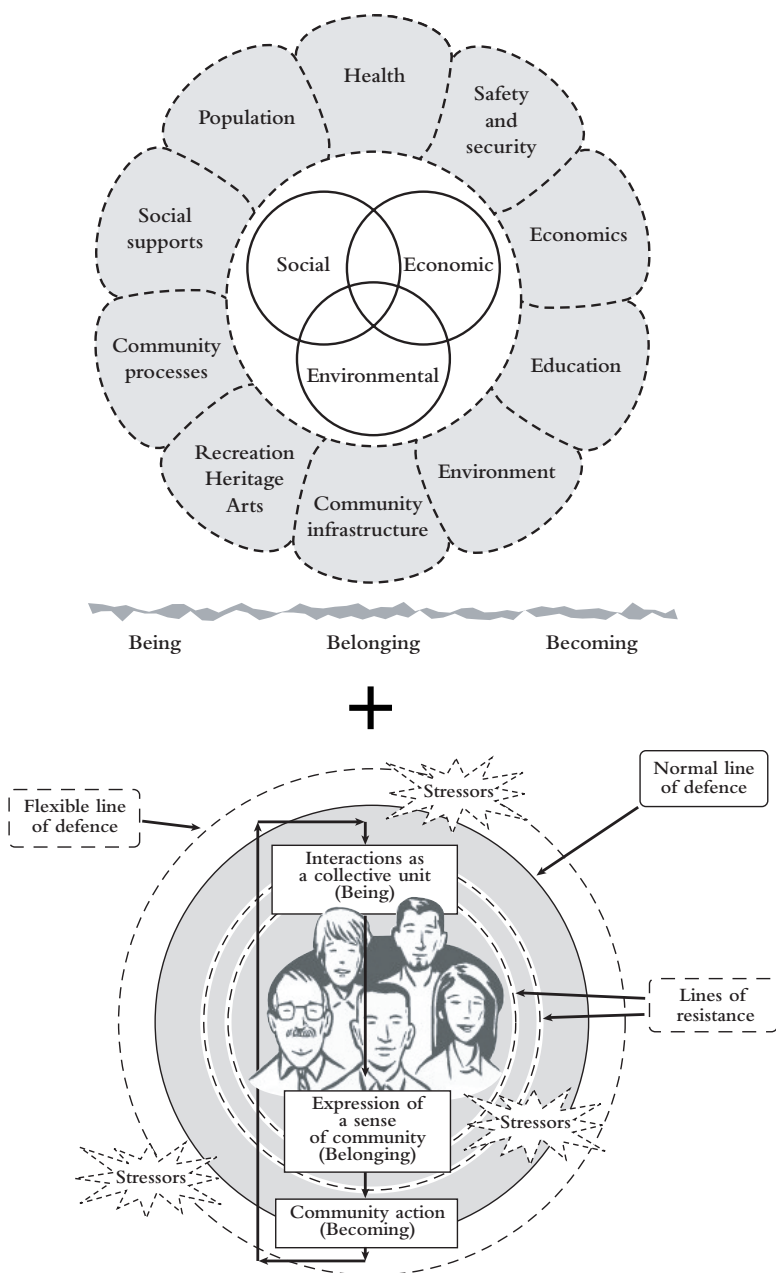
To facilitate the assessment stage, and indeed the PAR work in general, a *community assessment guide* was drafted and distributed to com-

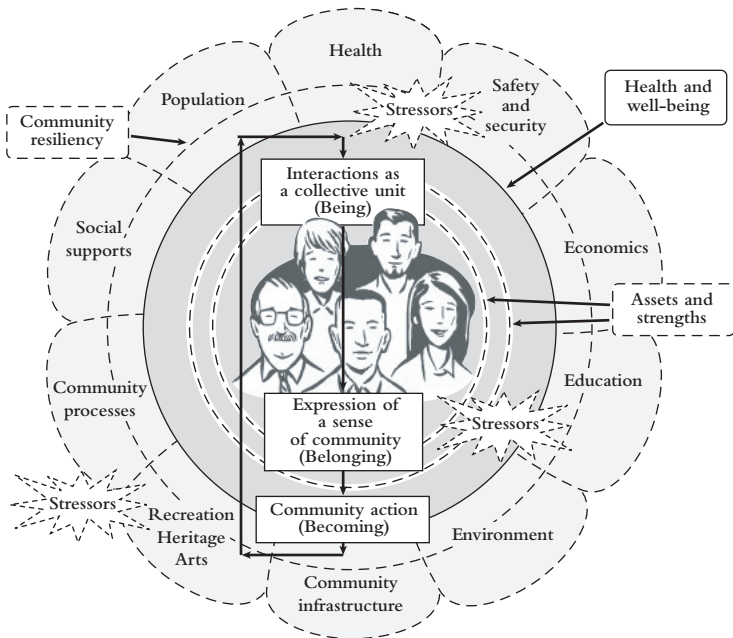
mittees within each community (Annis, Racher, & Beattie, 2004). Rural residents participated in a series of *focus groups* to share their thoughts on “What is a rural community?” and “What makes a rural community healthy?” Later, they met in a *workshop* to build a *framework* for assessing the health and well-being of rural communities. A *working paper*, later developed for *publication* (Ryan-Nicholls & Racher, 2004), included information on frameworks and indicators to prepare rural residents to participate in the workshop. The *community assessment guide* is based on the framework and selected indicators generated in the focus groups and workshop. Community members tested the usefulness of the guide; their knowledge and learning were incorporated into its next iteration, *Rural Community Health and Well-Being: A Guide to Action*, which is soon to be published and made available on the RDI Web site (www.brandonu.ca/rdi).

Community planning was ongoing throughout each project, and residents came together to discuss the current status of their communities and their vision for the future. Community data collected via secondary analysis of existing data and primary analysis of data from a community survey were documented in preliminary reports that would become chapters in the *community report*. (Useful facts as well as project updates were shared with residents through *community newsletters* designed for knowledge transfer; those for Shoal Lake and Virden, Manitoba, are available at http://www.brandonu.ca/rdi/SSHRC Website/sshrc_communities.htm) These reports are useful for planning and implementing community action well into the future. They are available on the RDI *Web site*, with *links* to the communities and related sites. Along with many of the knowledge transfer products, these reports are extremely useful for evaluating the project and may be written into the evaluation plan.

Although not included in the Shoal Lake and Virden projects, *town hall meetings* constitute an important forum and community process. At such events knowledge translation is reciprocal, as residents present their own interpretations of the findings and their perspectives related to future planning. They may include *poster sessions* on “What is a rural community?” and “What makes a rural community healthy?” Knowledge was transferred beyond the community when these posters and related *academic papers* (Ramsey, Annis, & Everitt, 2001) were presented at rural, community development, and health *conferences* (Racher & Everitt, 2004) and *summer institutes* (Gibson, Ramsey, Annis, & Everitt, 2004; Pachkowski, Racher, & Everitt, 2004). Information at every stage of the project was shared through *news releases*, *newsletters published by partnering organizations and non-academic journals*, and *local newspapers*. *Celebrations* at different stages of the project, at committee, organizational, and community levels, served as a means of knowledge transfer.

Figure 1 *Community Health Action Model:
A Model for Knowledge Translation and Action*





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Source: Adapted from Neuman (1995) and Kulig (1999).

Throughout the project, a key to knowledge transfer was the iterative development of a *framework*, which evolved into a *model* with input from research partners, community members, university researchers, students, and others. Figure 1 illustrates the development of the Community Health Action Model. The categories of the framework, or petals of the flower, were generated by workshop participants. Residents focused on assets and strengths. They came to understand community resiliency and found resonance in the terms *being*, *belonging*, and *becoming*. They also began to see the importance of the community coming together and creating a common vision before moving on to action. The three pivotal components of Kulig's (1999) Revised Community Resiliency Model, interactions experienced as a collective unit, expressions of a sense of community, and community action, were incorporated into the Community Health Action Model. A feedback loop was added, along with lines of defence and resistance, and stressors from the Neuman

Systems Model (Neuman, 1995). Community members interpreted the normal lines of defence as community health and well-being, the flexible line of defence as community resiliency, and the lines of resistance as community assets and strengths. The use of the model in the published guide has extended the community's learning process and will extend knowledge transfer beyond the initial project communities.

Conclusion

Reciprocal knowledge acquisition and translation of knowledge are pivotal to community partnerships, and especially to community-university partnerships that use PAR as a way of contributing to community development. This knowledge transfer happens at every stage of the partnership and the project. Effective dialogue and strategies to support and facilitate that dialogue are essential for effective knowledge transfer. Translating knowledge during and following PAR at the community level requires non-traditional and creative strategies, to build partnerships, sustain relationships, move to action, implement change, and evaluate outputs and outcomes. Effective strategies may be repeated at various stages in the project. With minimal additional effort, communication and mobilization strategies employed within the community can extend knowledge translation to rural, academic, decision-making, and policy communities.

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Authors' Note

This paper is a product of the research project Determinants of the Health of Rural Populations and Communities, funded by a grant from the Social Sciences and Humanities Research Council of Canada (#828–1999–1029).

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Happenings

Dementia Care in Rural and Remote Areas: The First Year of a CIHR New Emerging Team

**Debra G. Morgan, Norma J. Stewart,
Margaret Crossley, Carl D'Arcy, Jay Biem,
Andrew Kirk, and Dorothy Forbes**

The Canadian Institutes of Health Research (CIHR) New Emerging Team (NET) program was designed to provide 5 years of support for the creation of new teams or the development of existing teams of investigators conducting collaborative multidisciplinary research in identified areas of focus. A NET group at the University of Saskatchewan was funded under the Cognitive Impairment in Aging focus for a project titled Strategies to Improve the Care of Persons with Dementia in Rural and Remote Areas. In this article we describe the research program developed by the team and implemented during the first year of our mandate.

Background

The prevalence of dementia in Canada is projected to double in the next 30 years (Canadian Study of Health and Aging Working Group, 1994). With 24% of Canadian seniors living in rural areas (Health Canada, 2001), there is a growing need for specialized dementia services and personnel. The availability, accessibility, and acceptability of services are critical factors in rural health care. Obstacles include low population density, long distances to travel, and lack of personnel with advanced training (Levin & Hanson, 2001). Data on dementia care in rural Canada are limited, but consistent themes in the available research include lack of adequate assessment services, shortage of specialized personnel and programs, and the need for caregiver education and support (Morgan, Semchuk, Stewart, & D'Arcy, 2002a, 2002b; Sarchuk & Wiebe, 1992).

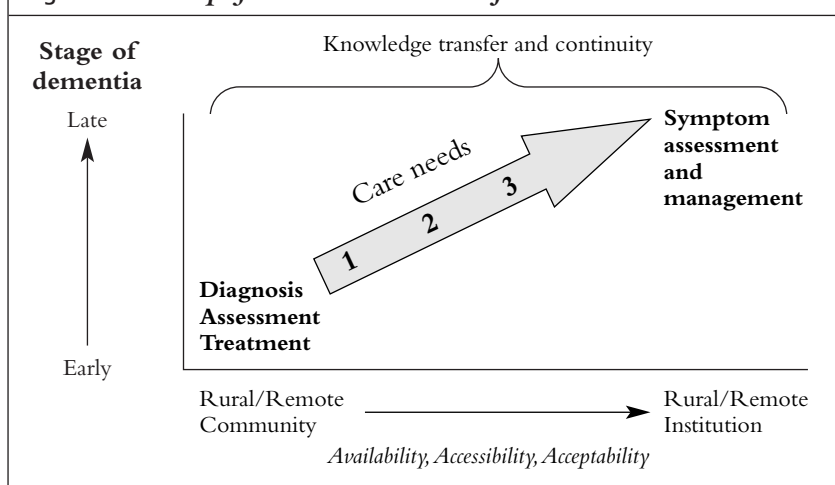
The New Emerging Team Program: Criteria for Funding

NET applicants must demonstrate that the team brings added value that would not be possible if individual components were carried out as a series of isolated studies. Proposals must demonstrate that the integrated research program crosses at least two of the four CIHR themes, provide a plan to recruit new investigators, offer interdisciplinary training for graduate and postdoctoral trainees, and demonstrate the ability of the team to secure other funding. Teams must consist of three to six investigators at the outset, with the expectation that new team members will join in the first 3 years. At least two team members must have an established track record. Our initial team comprised six investigators representing four disciplines (nursing, psychology, medicine, and sociology/population health) and encompassed three CIHR themes (clinical, health services/health systems, and health of populations). Each member contributes a unique set of clinical and research skills to the team. The grant includes funding for New Investigator, doctoral, and postdoctoral awards.

Our NET Proposal

Our proposal included three “core” studies, aimed at: (a) improving the *availability* of specialized personnel and services providing assessment and management of dementia, (b) improving the *accessibility* of programs supporting formal and informal caregivers of persons with dementia, and (c) improving the *acceptability* of services for persons with dementia and their caregivers. Figure 1 provides a conceptual context in which to place

Figure 1 *Concept for the Three Core Projects*



the core projects, which address care needs from early-stage to late-stage dementia. Overarching goals are knowledge transfer; continuity of care; and improved availability, accessibility, and acceptability of health-care services. During the first year of funding, three new co-investigators and six students have joined the team, enriching the multidisciplinary environment and extending the scope of research being conducted under the NET umbrella.

Rural Dementia NET Research Projects: Core Studies

1. Rural Memory Clinic and Telehealth Evaluation. This project involves the implementation and evaluation of a new Rural and Remote Memory Clinic aimed at improving access to assessment, diagnosis, and management of early-stage dementia. During the first 6 months of the project, team members held consultation meetings with care providers in all 14 rural and remote telehealth sites in Saskatchewan, to get feedback on memory clinic plans prior to implementation. Six of these sites are located in remote northern communities with primarily Aboriginal populations. We visited four of these northern communities again at the end of year one. Telehealth is used for pre-clinic assessment several weeks prior to a full-day clinic in a tertiary-care centre (Saskatoon). Patients are seen by a neurologist, a neuropsychologist, a geriatrician, and a neuroradiologist, after which a team case conference is held and a treatment plan developed. Follow-up assessments alternate between in-person and telehealth visits. Outcomes for patient, family, and local care providers are being evaluated.
2. Rural and Remote Dwelling Individuals with Alzheimer Disease: Prevalence and Utilization of Health-Care Services. This study examines characteristics of persons with and without dementia, and the impact of rural versus urban location on health-service use, using Statistics Canada data from the Canadian Community Health Survey.
3. Evaluation of a Dementia-Care Distance Education Program for Nursing Aides Employed in Rural Nursing Homes and Home-Care Agencies. We will evaluate the content and delivery format of a correspondence course developed by the Alzheimer Society of Saskatchewan.

Related Projects Developed by New NET Members

The neuroradiologist who has joined our team has external funding to evaluate magnetic resonance spectroscopy (MRS) in improving the accuracy of diagnosis and prognosis of mild cognitive impairment and Alzheimer disease. Memory clinic patients will undergo MRS on in-

person follow-up visits. A doctoral candidate in geography is exploring the impact of telehealth technology on health-care providers and will use the Geographic Information System to map clinic data. Because the consultation meetings held with northern providers revealed many barriers to accessing dementia services by northern seniors, a graduate student in Community Health and Epidemiology is exploring these issues. The lack of culturally appropriate neuropsychological instruments presents a challenge in detecting cognitive impairment and dementia in older Aboriginal adults. A doctoral student in psychology is modifying several existing assessment tools in collaboration with Aboriginal partners in Saskatoon and northern communities. Registered nurses' perceptions of issues in providing care to residents with dementia in northern institutions and communities is the focus of a doctoral student in nursing.

Several other studies have been undertaken by the NET group, all of them linked to the memory clinic. We are conducting a 5-year retrospective review of neurology and geriatric assessment unit medical records to examine referral patterns and clinical data on patients referred for assessment of possible dementia. Before opening the clinic we conducted a baseline telephone and mail survey of physician and non-physician providers in rural and northern Saskatchewan to examine community resources for dementia, provider exposure to clients with dementia, confidence in managing dementia, and continuing education priorities. A physiotherapy student has conducted a comprehensive literature review on gait and movement abnormalities in various forms of dementia, which was developed into a manuscript and has formed the basis of a protocol for assessing gait in clinic patients. Information on gait patterns has the potential to contribute to clinical care by distinguishing diagnostic subgroups in the early stages of the illness. A psychology graduate student has conducted a review of recent literature on diagnostic criteria for the major dementias and has developed a user-friendly manual to assist the memory clinic clinicians with the diagnosis.

The NET Effect

At the time of writing, our team has been working together for 1 year. Much effort has gone into launching the initial studies, as well as planning new projects that have emerged from the synergy of the multidisciplinary group. Despite the potential challenges of team research (e.g., scheduling difficulties, communication issues, diverse viewpoints to be reconciled, unequal pay-off for investigators), the benefits of working within a multidisciplinary environment are already evident. Team members have prepared 10 abstracts for conference presentation, three graduate students have been awarded external scholarships, and three

investigators have applied for external operating funds. The opportunity to travel to rural and northern communities to meet with local care providers regarding the memory clinic has been critical in developing the relationships required for successful research partnerships. By visiting these communities early in the research process, we were able to identify feasibility issues and address them in the study design before implementing the project. We expect continued productivity as our research program develops.

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Authors' Note

The initial New Emerging Team has been expanded since originally funded. New team co-investigators are: Lesley McBain (Sessional Lecturer, Department of Geography), Sheri Harder (Assistant Professor, Department of Medical Imaging), and Jenny Basran (Assistant Professor and Head, Department of Geriatrics).

We would like to acknowledge the funding partners who are supporting this research: CIHR Institute of Aging, CIHR Institute of Health Services and Policy Research, CIHR Rural and Northern Health Initiative, Saskatchewan Health Research Foundation, Alzheimer Society of Saskatchewan, and University of Saskatchewan. Travel support has been provided by Northern Medical Services (Saskatchewan).

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Book Reviews

Rampage: The Social Roots of School Shootings

**Katherine S. Newman, Cybelle Fox, David J. Harding,
Jal Mehta, and Wendy Roth**
Cambridge, MA: Basic Books, 2004. 388 pp.
ISBN 0-465-05103-0

Reviewed by Ruth Grant Kalischuk

The stark cover of Katherine Newman and colleagues' *Rampage: The Social Roots of School Shootings*, with the word "rampage" in bold red and a picture of a person in obvious distress, shockingly announces the serious subject of this timely and provocative book.

Responding to a congressional call from the National Academy of Sciences, Newman, a Harvard sociologist, and four doctoral students offer a new theory to explain the social roots of school rampage shootings, a new genre of violence that has attracted boys exclusively. Rampage shootings, unlike revenge killings, are defined "by the fact that they involve attacks on multiple parties, selected almost at random.... These explosions are attacks on whole institutions — schools, pecking orders among youth, and communities as a whole. Shooters choose schools as the site for the rampage because they are the heart and soul of public life in small towns" (p. 15). The authors maintain that the roots of school shootings are deeply embedded within predominately rural communities. Small towns, known for strong ties that span generations, are often the spawning ground for school rampage shootings. Such violence exposes the vulnerable, dark side of ordinary life in smaller communities. School rampage shootings terrify us because they challenge our most cherished and firmly held beliefs about childhood, home, and safety in our local communities.

The authors depart from traditional explanations of this rare and complex phenomenon. This scholarly work is based on a study that involved 163 interviews with residents of two American communities devastated by school rampage shootings. The book is organized into three parts. Part 1 sets the stage in terms of understanding these violent explosions and the school shooters who engage in deadly activities. Through detailed vignettes, the reader is able to gain a sense of the central characters in the book; the authors leave little to the imagination in describing the deadly deeds. Further enriching the book, with clarity and precision, Newman and colleagues present a broad social perspective based on

input from a variety of important sources: the shooters, families, friends, students, teachers, administrators, lawyers, court officials, psychologists, media personnel, and congregational members. Stepping beyond current knowledge in the field, the authors clearly and succinctly articulate how popular explanations such as mental illness, family problems, bullying, gun availability, and living within a culture of violence fail to account for rampage shootings that leave individuals, families, and communities forever changed.

Part 2 provides the contextual backdrop integral to any understanding of school rampage shootings. The authors describe how the “dark side of organizations” (p. 79) (e.g., schools) inadvertently promote “structural secrecy” (p. 80), which subsequently allows school shootings to fall under the radar screen. Moreover, they expose the underbelly of social capital, commonly viewed as an asset, especially within rural communities. They describe how the narratives of rural people often obscure severe problems that are festering just below the surface. The authors also stress the importance of understanding the stranglehold of current adolescent culture, and hence the reasons why youths do not tell others about what they know in relation to planned violence.

Part 3 addresses the blame and forgiveness that invariably follow school shootings, as well as the many and varied difficulties that survivors encounter in picking up the pieces of their shattered lives. For example, the complex issue of ownership of the problem is discussed. Importantly, rejecting a purely psychological standpoint, the authors offer a five-factor theory to explain cases involving the adolescent social hierarchy specific to rampage shootings. It is worth noting that this theory is tested in relation to two data sets, one compiled by the Violence Prevention Division of the (US) National Center for Injury Prevention and the other by the US Secret Service and the US Department of Education.

This well-illustrated book contains photographs of the shooters, victims, parents, and extended family members; these are indeed a powerful addition. Further, an extensive set of figures and tables provides a wealth of critical and relevant information. For example, one table includes data relating to rampage school shootings from 1974 to 2002, both within the United States and abroad. In addition, an extensive appendix details methodological considerations, while a voluminous and comprehensive set of notes provides important background information.

The strength of a theory lies in its usefulness for increasing our collective understanding of a complex phenomenon. In this well-crafted book, the authors increase our understanding of school rampage shootings and subsequently offer prevention and intervention strategies that could significantly reduce the incidence of such tragedies. Sobering as the thought may be, Newman and colleagues remind us that “we are all

implicated” (p. 270) in that “we help to recreate a culture that embraces a narrow, often destructive definition of masculinity” (p. 270). Although they assert that it is impossible to predict rampage shootings, they emphasize the importance of a multifaceted approach, including policy options such as restricting the number of media personnel visiting schools in the aftermath of a rampage, educating educators about trauma, and instituting short- and long-term counselling for victims of such violence. They also discuss prevention strategies such as using School Resource Officers to assist with early disclosure and encouraging youths to report threats of violence to adults who can help. The authors underscore the importance of individuals, families, and communities working together to ameliorate this socially created and deadly form of violence.

Rampage: The Social Roots of School Shootings is a useful resource for a broad readership, including educators and administrators, health and human service professionals, researchers, students, and the general public. Stunningly evocative, it captures the intricacies of a difficult and highly complex subject.

The findings of this needed and insightful inquiry provide hope for a better future within society.

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Neighborhoods and Health

Edited by Ichiro Kawachi and Lisa F. Berkman
New York: Oxford University Press, 2003. 352 pp.
ISBN 0-19-513838-4

Reviewed by Jean N. Groft

The purpose of the comprehensive and thought-provoking book *Neighborhoods and Health* is to promote open discussion about the centuries-old question concerning the influence of places on people's health. The editors present a contemporary examination of the issues, highlighting the need to simultaneously consider multiple levels of aggregation as well as the opportunity to make use of advanced statistical analytical procedures. In view of renewed interest in social determinants of health, widening gaps between the affluent and the poor, and legislative developments in many parts of the world, this text is a timely one indeed.

The book is divided into three sections: the first eight chapters deal with methodological and conceptual approaches to studying the topic; the next three chapters examine neighbourhoods and health outcomes related to infectious diseases, infancy, and asthma; and the final four chapters explore issues such as residential segregation, networks, aging, and public policy. The emphasis on multilevel analysis, theory development, and empirical testing serves to underscore the importance of generating useful and relevant data within an ecological framework that will advance research and policy agendas. The exploration of health issues throughout the life span demonstrates the essential nature of comprehensive and contextual application of neighbourhood research strategies. The intriguing question of whether people with a specific health status "sort" themselves into certain neighbourhoods, or are subject to that health status because of the neighbourhoods in which they live, is one that will engage scholars and practitioners in a fascinating and lengthy pursuit of knowledge that may ultimately lead to improvements in health, provided society is willing to make the necessary investments.

Of the 30 contributors, five are from the United Kingdom and the rest are from the United States (the Harvard School of Public Health is home to 11 authors). A wide range of disciplinary backgrounds is represented in the book, including social epidemiology, medical geography, clinical medicine, urban sociology, policy studies, and educational statistics. Congruent with the current acknowledgement of the importance of interdisciplinary collaboration and exchange, this book is a very good example of a diverse sampling of perspectives. Had contributions been

included from a wider variety of geopolitical jurisdictions, the impact would have been even greater. For example, integration of the significant work being accomplished by Canadian investigators would have added depth to the richness of this text. Addition of the rural and small-town perspective would have enhanced the usefulness and value of the book, and would have opened the discussion to a wider audience. Nevertheless, the issues and challenges raised are fundamental to our understanding of the etiology of health outcomes in many settings.

Although the focus of the book is neighbourhoods, several contributors acknowledge the difficulty inherent in attempting to define the concept. Attempts to differentiate neighbourhoods from communities reflect the early stage of research into the complex, multilayered construct that represents where people live and their health outcomes. Many of the contributors point out that although there is substantial evidence of the independent effects of neighbourhoods on health outcomes, much more remains to be done, not the least of which is to begin consideration of policy responses.

Despite the numerous typographical, syntactical, and grammatical errors in the text, *Neighborhoods and Health* is a valuable and useful resource for students, practitioners, and researchers who are interested in the unravelling and articulation of the relationships between environment and health. The emergence of new research frontiers that enhance the potential for improving outcomes and reducing disparities is sure to challenge and stimulate public health practitioners, researchers, and indeed society for a long time to come.

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Community-Based Participatory Research for Health

Edited by Meredith Minkler and Nina Wallerstein

San Francisco: Jossey-Bass, 2003. 512 pp.

ISBN 0-7879-6457-3

Reviewed by Kara Granzow

In the book *Community-Based Participatory Research for Health*, editors Meredith Minkler and Nina Wallerstein assemble writings significant for would-be and current researchers in the fields of community research and health. This collection demonstrates the intimate connections between social justice and health and calls for methodologies designed to reflect the intricacies of those relationships. Both broad in scope and detailed in its use of case studies (including two on rural health in Chapter 11), this collection functions well as an introduction to community-based participatory research (CBPR) and as a resource for those involved in CBPR. Because studies in rural health often rely on participation with rural communities and community members, the approaches offered in this volume would be useful for community-based efforts towards rural health improvement.

In a general progression from theoretical to more practical issues, the book embraces complicated epistemological concerns, poses difficult questions about the relevance of research and researcher, considers the ethics and the methodological implications of CBPR, and provides realistic strategies for doing CBPR, all the while situating discussions in the context of pertinent case studies. The book's contributors are concerned about what it is that motivates, and what it is that should motivate, research and social change, and about whose interests and goals are being met, and whose interests and goals should be met, by such change. A serious and careful use of this guide will help ensure that CBPR efforts towards social justice are prioritized and realized within health research processes.

The book is divided into seven sections. The first (Chapters 1–3) provides a thorough introduction to the values and goals of CBPR. It outlines the historical development and theoretical orientations of CBPR and offers tips for following through with a CBPR approach. Chapter 2 is particularly helpful to the critical reader, as it dwells on issues such as knowledge, power, and praxis. It is noteworthy that such important issues are not limited to this discussion but emerge frequently throughout the book; this demonstrates a concern with the complexity of the issues and the need to consider them in specific cases. The second section (Chapters 4–6) addresses the issues of “power, trust, and dialogue” in relationships

among researchers, among community members, and within communities. In an exceptional piece, Chávez et al. (Chapter 4) consider the social and historical embeddedness of racist ideology in social change and research efforts, and focus on internalized racism and historical trauma as consequences requiring particular attention in CBPR. Challenging oppression also calls for a questioning of privilege, and Stoecker, in Chapter 5, disputes presumptions of research(er) relevance. Stoecker critiques the roles commonly taken on by researchers in participatory research, and offers a reworking of these roles based on the CBPR prioritization of social change over research, a prioritization held constant throughout this collection.

Use of the term “community” requires debate, and, in recent theoretical writings, attention has been given to deconstructing the concept. CBPR, however, seems to rely on the notion of community as unproblematic. The reader does not get beyond Chapter 6 before the pre-suppositions frequently underlying a preoccupation with community (and with notions such as participation) are addressed. Using findings from a community-based study, the authors reflect on what constitutes community. They discuss the roles of shared demographics and interpersonal relationships in defining community. As is crucial to any consideration of CBPR, this excellent chapter pays mind to frequently ignored issues such as why we think community is innately good and the forms of exclusion we engage in when we advocate for community-based research.

The third section (Chapters 7–9) is concerned with “Identifying Strengths and Selecting Issues with Communities.” Minkler and Hancock (Chapter 7) compile principles useful in deciphering the issues and resources in CBPR, elaborate the utility behind key insights (e.g., “starting with the people”) and methods (e.g., “community asset maps”), and consider how arts-based methods and representations (e.g., “visioning processes”) can be used to highlight community assets and help to bring about change. The reader is exposed to Internet-based tools in Chapter 8 and to an arts-based approach in Chapter 9, with Wang et al.’s impressive description of photovoice.

Part 4 (Chapters 10–13) is dedicated to issues in methodology, ethics, and evaluation, and again features case projects. Chapter 10 convincingly moves a general acceptance of validity and rigour out of CBPR, to replace the terms with “choice points” as relevant criteria for research. Choice points take into account the relational nature of research and, as revamped criteria for evaluating CBPR, present CBPR as a case-specific and change-oriented alternative to both modern and postmodern approaches. Chapters 11, “Methodological and Ethical Considerations in Community-Driven Environmental Justice Research: Two Case Studies

from Rural North Carolina,” 12, “Ethical Challenges in Community Based Participatory Research: A Case Study from the San Francisco Bay Area Disability Community,” and 13, “Issues in Participatory Evaluation,” each demonstrate the particular issues arising in CBPR projects.

Part 5 returns to the problems of power and privilege in CBPR. Specifically concerned with research with and by “diverse” populations, these chapters use approaches such as feminist and Frierian to discuss projects with communities of women (Chapter 14), Cambodian girls in Long Beach (Chapter 15), and members of a transgendered community (Chapter 16). Taking the strength-focused approach advocated throughout the text, these studies work through the dynamics of exclusion and marginalization to offer possibilities for collaborative research across social boundaries and inequalities.

The final chapters of *Community-Based Participatory Research for Health* address CBPR’s action orientation. In Chapter 17, Themba and Minkler expand on frameworks for achieving policy change, and subsequent chapters demonstrate pathways for realizing policy goals through case studies. Chapter 19, for instance, takes an exemplar case in CBPR and delineates how each step in the process was negotiated such that the end result was a change in the work responsibilities, and thus in the health, of hotel room cleaners. This CBPR process is being reproduced elsewhere, and Chapter 19 provides analysis to enable its effective duplication. To further assist readers embarking on CBPR, the editors have provided such useful appendices as basic protocols for CBPR; issues around federal funding patterns and problems; standards for CBPR assessment; “Thirteen Policy Principles for Advancing Collaborative Activity Among and Between Tribal Communities and Surrounding Jurisdictions”; neighbourhood-level indicators of community health; and tools for risk mapping, for creating dialogue in question posing, and for locating outside resources. In addition, many authors refer to external sources such as Web sites.

This volume is intended for those who want to learn about and use CBPR — researchers, academics, students, and community members. It is an accessible text with repetition in some critical ideas (e.g., power differentials) and key issues (e.g., the challenge of limited resources and time for CBPR) mitigated by the use of checklists, external resources, and practical examples. More attention to the assumption of a “liberatory” model of humanity, as well as to the danger of idealizing all things “community-based,” would be a welcome addition. As well, more focus on the limitations or trappings of CBPR might be helpful. Despite several attempts to the contrary (e.g., Chapter 6 and the “lessons learned” in Chapter 15), CBPR is presented as the answer to research-produced oppressions of the past; in so situating this approach and in overlooking

the abuses that inevitably also occur in it, the potential for critical uses of CBPR is somewhat circumscribed.

With its thorough consideration of CBPR, its detailed case studies, and its helpful appendices, Minkler and Wallerstein's book is an excellent resource for CBPR. It is an enjoyable and edifying read, and I highly recommend it.

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