New Approaches to Immigrant Health Assessment

Marie DesMeules, MSc¹

Jenny Gold, MHSc²

Arminee Kazanjian, DrSoc³

Doug Manuel, MD, MSc⁴

Jennifer Payne, MSc⁵

Bilkis Vissandjée, PhD⁶

Sarah McDermott, MHSc²

Yang Mao, PhD⁷

ABSTRACT

While immigrant subgroups may present vulnerabilities in terms of health status, health service use, and social determinants, comprehensive information on their health is lacking. To examine mortality (1980-1998) and health service utilization (1985-2002) patterns in Canadian immigrants, a record linkage pan-Canadian research initiative using immigration and health databases has been undertaken. Preliminary results indicate that overall mortality is low among Canadian immigrants as compared to the general population for most leading causes (thus supporting the notion of "healthy immigrant effect"), with cause-specific exceptions. Moreover, results from British Columbia show that overall physician visits are low for immigrants, but not for all subgroups. Results from Ontario demonstrate a sharp increase in physician claims approximately three months following landing. Future analyses will address the short- and long-term health outcomes of immigrant subgroups, including less common diseases. Results are pertinent to practitioners working with immigrants and can inform immigrant health policy.

La traduction du résumé se trouve à la fin de l'article.

1. Chief, Population Health Assessment Section, Surveillance Risk Assessment Division, Centre for Chronic Disease Prevention and Control, Health Canada, Ottawa, ON
2. Analyst, Population Health Assessment Section, Surveillance Risk Assessment Division, Centre for Chronic Disease Prevention and Control, Health Canada
3. Professor, Faculty of Medicine, University of British Columbia, Vancouver, BC
4. Scientist, Institute for Clinical Evaluative Sciences, Toronto, ON
5. Epidemiologist, Population Health Assessment Section, Surveillance Risk Assessment Division, Centre for Chronic Disease Prevention and Control, Health Canada
6. Associate Professor, School of Nursing Sciences, University of Montreal, Montreal, QC
7. Director, Population Health Assessment Section, Surveillance Risk Assessment Division, Centre for Chronic Disease Prevention and Control, Health Canada

Correspondence: Ms. Marie DesMeules, Chief, Population Health Assessment Section, Surveillance Risk Assessment Division, Centre for Chronic Disease Prevention and Control, Health Canada, 120 Colonnade Road, AL 6702A, Ottawa, ON K1A 0K9, Tel: 613-957-0577, Fax: 613-941-2057, E-mail: marie_desmeules@hc-sc.gc.ca

Immigrants represent a large and increasing segment of the population in Canada. In 2001, over 5 million Canadians (about 18% of the population) were born outside of the country, and approximately 250,000 new immigrants are received each year.^{1,2} However, comprehensive national knowledge on immigrant health and health service utilization is limited. The available studies on health service utilization suggest that recent immigrants are overall "underusers" of the health care system, but whether their lower use reflects societal or cultural barriers or actual reduced levels of need has not been established.³⁻⁵ The health status research suggests that recent immigrants, upon their arrival, are overall as healthy or healthier than their Canadian-born counterparts. Exceptions include infectious diseases which may be more prevalent among immigrant populations.^{3,4}

Explanations for this healthy migrant effect may include selection bias and healthy behaviours, such as low rates of tobacco use, as well as spurious research findings due to study methodological limitations, such as losses to follow-up.^{3,4,6-13} For example, immigrant health outcomes may be spuriously low if information is not available to adjust for factors such as the re-migration of immigrants from Canada to other countries.¹⁰ Another methodological limitation has been the lack of immigrant-specific variables to examine the health patterns of sociodemographic and cultural subgroups.^{10,11,14} Problems specific to survey-based research include the fact that immigrants may be under-represented due to cultural and language barriers.^{3,15}

Key knowledge gaps with respect to immigrant health in Canada include long-term health outcomes, preventable conditions, and chronic disease outcomes, especially among subgroups such as refugee and non-European immigrants.^{3,4} Available studies show that the health of immigrants in Canada may deteriorate in the years following immigration.^{3,4,6,7} There is also some evidence that immigrant subgroups may present significant health disparities. Health status and health service disparities among immigrants may vary by personal characteristics, experiences of migration, and region of origin.^{3,4}

In this context, the linkage of the Canadian immigration databases to health

Figure 1. Standardized mortality ratios (SMR) for leading causes of death in Canada, comparing immigrants to the Canadian general population (1980-98)

administrative databases was identified as a research priority in a recent review of immigrant health in Canada.³ Such research will improve information on the health and health service use of immigrant subgroups by country of origin (especially for non-European immigrants), immigrant class (including refugee, economic, and family-level immigration categories), and temporal changes to the healthy migrant effect. It would also overcome key methodological limitations of past research, such as those associated with survey-based research.^{3,16} The purpose of the collaborative pan-Canadian research initiative on immigrant health and health service utilization currently underway and presented here is to address this research priority and to comprehensively assess the health patterns, risks and disparities of immigrant populations in Canada. Such research can inform multilevel health policies and activities in the area of immigration and health. This paper discusses components of this pan-Canadian research initiative, preliminary results available to date, and directions for research and informed policy.

AREAS OF RESEARCH

This multi-province research initiative on immigrant health and health service utilization addresses knowledge gaps such as chronic diseases and preventable health

conditions. Its overall objectives are to examine patterns of mortality, cancer incidence, hospitalizations, physician claims, prescription medication use, and socio-demographic factors among recent and long-term immigrant populations through national and provincial administrative data sources across selected provinces. These patterns are also compared to those that would be expected in the general or total Canadian population to determine whether disparities in health status and utilization of health care exist among subgroups of immigrants.

The research includes two components – one examining health status and the other examining health services utilization. Each component is based on the linkage of core administrative health databases to data on the Canadian immigration databases made available by Citizenship and Immigration Canada.¹⁶ This method of obtaining administrative health data specific to immigrants has been verified in pilot projects.^{9,17} The immigrant data include information on socio-demographic characteristics, which may in part determine immigrant health in Canada, such as education at landing, intended occupation, country of birth, immigration category (including refugee status), and language skills.^{3,4,16}

The first component of the research is national in scope and links a random sam-

ple of 369,972 immigrants, representative of 20% of immigrants who landed in Canada between 1980 and 1990, to the Canadian Mortality Database and the Canadian Cancer Incidence Database. This component assesses immigrant mortality and cancer incidence over 19 years (until 1998). The health data in the record-linked dataset included 9th International Classification of Disease codes. The mortality analyses focus on preventable causes (and therefore more potential for intervention) such as injury, cardiovascular disease, and infectious diseases. The cancer sites include those preventable through primary and secondary prevention, such as lung and cervical cancer via smoking avoidance and screening, respectively.^{18,19} Key methodological approaches in this component include the validation of residency in Canada using a dichotomous tax filing flag, as well as the stratification of rates by years since immigration to examine changes over time in Canada, and type of immigrant (for example, refugee vs. non-refugee).

The second component links data on immigrants in the largest receiving provinces (i.e., British Columbia, Ontario, Quebec) to physician and drug-claim data and hospital records. While this component of the research is not quite national in scope, it includes approximately 90% of immigrants landing in Canada during the study period, 1985-2000/02. The large number of immigrants in this component allows for the study of a wide range of health services utilization among subgroups. Although the specific health data available through this record linkage vary by province, the linked datasets include information on the type, site, purpose, and time interval of health service use. Where possible, this component examines health service utilization, early detection, and treatment procedures.

KEY ISSUES

Preliminary results from the multi-province research initiative on immigrant health and health service utilization provide specific Canadian information on immigrant mortality, cancer, country of birth as a determinant of health, and health service use. These are described below.

Mortality

The mortality results include estimates for all-cause mortality and leading causes of death in Canada. Figure 1 shows the indirect standardized mortality ratio (SMR) estimates for immigrants compared to the reference Canadian general population (1980-98). Most of the SMR estimates indicated that immigrants in Canada had low mortality compared to the general Canadian population (SMRs <1). This healthy migrant effect was found for all-cause mortality as well as mortality from cardiovascular diseases, accidents, poisoning and violence, respiratory diseases, and diabetes. The healthy migrant effect did not hold for mortality from infectious and parasitic diseases. For these, the SMR estimates (not significantly different from 1) indicated that the overall rates were similar to the Canadian general population, although subgroups may present higher rates.

The results offer evidence that certain factors, such as immigration category and region of birth, determine immigrant health in Canada. Mortality rates were higher among refugees than non-refugees. Although it was found that immigrants from all regions of the world have low all-cause mortality when compared to the Canadian general population, significant differences in rates for immigrants from different regions were observed (Figure 3). Additionally, specific health outcomes may be elevated for immigrants born in certain regions or countries.

Cancer

The cancer results include indirect standardized cancer mortality and incidence estimates for immigrants in Canada. Figure 2 shows SMR estimates for immigrants compared to the general Canadian population for all-site cancer mortality and leading causes of cancer mortality in Canada. Prostate cancer mortality was not estimated, as only a small number of deaths were observed among the immigrants studied. Overall the immigrants presented a healthy migrant effect for mortality from all-site cancer and most cancer sites examined. For non-Hodgkin's lymphoma, however, refugee immigrants presented similar rates to the Canadian population. Although not shown here, cancer incidence for the leading cancers followed similar patterns to those observed for mortality.

Figure 2. Standardized mortality ratios (SMR) for all-cancer sites and leading cancer sites in Canada, comparing immigrants to the Canadian general population (1980-98)

Note: Mortality estimates for prostate cancer are not available as the immigrant data included only a small number of cases.

Figure 3. Standardized mortality ratios (SMR) for all-cause mortality, comparing immigrants by region of birth to the Canadian general population (1980-98)

Health service utilization

The health service utilization results describe patterns of physician utilization among immigrants in Canada, which are presented here for Ontario and British Columbia. Ontario has a sharp increase in physician use three months after the landing date, when health cards are issued (Figure 4). Age-adjusted physician visit rate ratios comparing rates for immigrants

in British Columbia (1995, 1996) to rates for the provincial general population (excluding immigrants in the years 1995 and 1996) show that although overall immigrants visited a physician less often than the province population, this pattern does not hold for all subgroups (Figure 5). Refugees and North African immigrants had similar physician visit rates to the British Columbia population.¹⁷

Figure 4. Time in months from landing date to first physician billing date, Ontario 1992-2000
Note: The cohort examined in this analysis included immigrants having a landing date between January 1, 1992 and December 31, 2000.

Figure 5. Age-adjusted physician visit rate ratios by sex for selected immigrant subgroups (1995, 1996), compared to the British Columbia general population (excluding 1995 and 1996 immigrants)
Source: Kliever E, Kazanjian A. *The Health Status and Medical Services Utilization of Recent Immigrants to Manitoba and British Columbia: A Pilot Study*. Report prepared for Citizenship and Immigration Canada. University of British Columbia, Centre for Health Services and Policy Research, BCOHTA 2001;18. Online at <http://www.chspr.ubc.ca/bcohta/pdf/bcohta18j.pdf>

DIRECTIONS FOR RESEARCH AND POLICY

The results from this research initiative can inform immigration and health policy and guide future research in priority areas.

Research directions

Record linkage is a valuable approach for future research assessing the health of immigrants in Canada. The method optimizes the available national data on immigrants and health, including immigrant-

specific variables that have not been previously studied in the health context. It provides the capacity for the longitudinal analysis of immigrant health outcomes and health service utilization using population-based administrative data sources, and overcoming some of the methodological problems of past research.^{3,4,9-11,14} For example, the immigrant data provided by Citizenship and Immigration Canada used in this study include immigrant-specific variables; therefore, this analysis did not use proxies such as country of birth or family name, which have been used in other studies to distinguish immigrants from non-immigrants in administrative data.^{11,12} Also, as this analysis did not rely on self-reported data from surveys or the active participation of respondents to obtain health data, the problems that may be associated with survey data on immigrants were avoided.

Future research from this multi-province initiative will expand on the assessment of specific health outcomes and health service use among immigrants, especially for socio-economic, demographic, gender, and cultural subgroups. Such research will determine whether some subgroups risk negative health outcomes, possibly for diseases that are less common in Canada. Subgroup analysis is particularly important given that the preliminary findings are consistent with the hypothesis that health outcomes differ by immigrant subgroup, cause, and determinants of health. For example, while the results show that overall physician visits are comparatively low for immigrants in British Columbia, the same pattern was not observed for subgroups such as refugees. Moreover, the results indicate that there are cause-specific exceptions to the healthy migrant effect, including infectious and parasitic diseases and non-Hodgkin's lymphoma. Future research will also address methodological concerns such as losses to follow-up by adjusting for factors such as emigration status. In order to consider the healthy migrant effect and possible variations in health outcomes among recent and long-term immigrants, future research will examine health differentials by time since immigration.

Policy directions – Beyond infectious diseases

Once completed, this immigrant health initiative will provide a broad range of

additional key information on the health and health care utilization of Canadian immigrants. This initiative offers policy-relevant information on the health similarities, advantages, and disparities among immigrants, immigrant subgroups, and Canadians – as well as information on the health status and health service use of immigrants versus their actual health need. Analysis of time after landing to first physician claim by Ontario immigrants specifically demonstrates use of this initiative to assess the impact of immigrant policy, namely the policy decreeing a three-month waiting period for health card eligibility (Figure 4). Further analysis of the impact of this policy could examine adverse health outcomes prior to health card eligibility. This information is particularly helpful to health care providers and administrators who directly supply services to immigrants, and can inform the development of appropriate diversity and gender-sensitive health policies and activities for women, men, and families migrating to Canada. The research can also inform the expansion of national and subnational health policies that address long-term health outcomes and chronic diseases among immigrant populations, as well as social determinants of health.

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RÉSUMÉ

On sait que certains sous-groupes d'immigrants sont relativement plus vulnérables en ce qui a trait à leur état de santé, à leur utilisation des services de santé et à leurs déterminants sociaux, mais on ne possède pas de renseignements exhaustifs sur leur santé. Pour examiner les tendances de la mortalité (1980-1998) et de l'utilisation des services de santé (1985-2002) chez les immigrants au Canada, nous avons mené un projet de recherche pancanadien à l'aide des bases de données sur l'immigration et la santé. Les résultats préliminaires semblent indiquer que la mortalité globale due aux principales causes de décès est plus faible chez les immigrants au Canada que dans la population générale (ce qui renforce la notion d'un « effet de l'immigrant en bonne santé »), à quelques causes près. De plus, les résultats obtenus en Colombie-Britannique montrent que les visites chez le médecin sont relativement peu nombreuses chez les immigrants dans leur ensemble, mais pas dans tous les sous-groupes. Les résultats obtenus en Ontario montrent une forte augmentation des demandes de paiement des médecins environ trois mois après l'établissement. Des analyses poussées devraient porter sur les résultats sanitaires à court et à long terme dans les sous-groupes d'immigrants, y compris pour les maladies moins communes. Leurs résultats intéresseront les praticiens qui travaillent auprès des immigrants et pourraient étayer la politique sanitaire en matière d'immigration.