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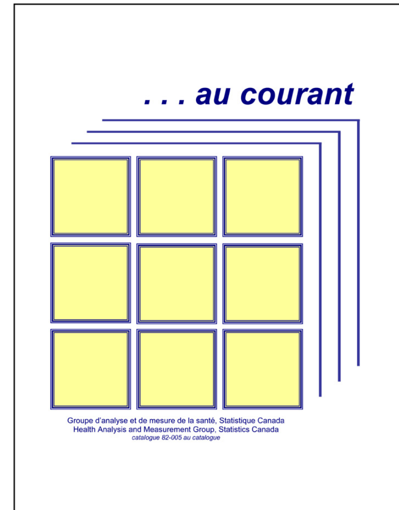

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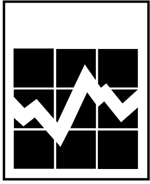

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UP FRONT. . .

Enthusiastic response in PHI field work

We are excited to report that the field work for our research program Population Health Impact of Disease, Injury, and Health Determinants in Canada (PHI) was an unqualified success. Participants in 17 panels held in nine Canadian communities from Vancouver to Halifax came from many different backgrounds and life situations. They expressed appreciation and enthusiasm for being asked to provide their views. Our "in short" article gives an overview of how these panels contributed to the PHI.

The tool we developed for use in these panels has been gaining recognition through presentations over the past year at several international conferences. This tool, which is used to describe functional health, has been officially named CLAMES (Classification and Measurement System of Functional Health).

Our "inside story" reports on another aspect of the PHI: smoking patterns over the past century. This analysis examines the first of several health determinants that will be incorporated into the PHI microsimulation, an integrative tool that will examine "what-if" scenarios for Canadian health policy issues.

Jean-Marie Berthelot, Manager

IN SHORT. . .

Measurement of health state preferences in Canada

Over the past months, we have laid the foundation for quantifying the preferences of Canadians for several hundred health states. Preference scores were elicited from 17 panels of Canadians, each with about 10 participants. Using the standard gamble measurement technique, participants considered how living with certain health states would affect their own lives in terms of usual activities, such as work, school, community participation, or family and social roles.

Detailed and consistent descriptions of health states were developed for the Population Health Impact of Disease, Injury, and Health Determinants in Canada (PHI) to ensure that participants had a common understanding of each state and its impact on functional capacity. These descriptions used a comprehensive classification system, CLAMES, developed for the PHI. CLAMES is based on elements of existing instruments such as the Health Utilities Index, the SF-36 and the EuroQol 5D.

Mean scores from this exercise will be used to reflect the Canadian population's relative preference for each health state as a numeric score on an interval scale from 0 to 100. The preference scores will be combined with epidemiologic data in the PHI to estimate year-equivalents lost to reduced functioning, a measure of the impact of morbidity.

More on this exciting work in forthcoming issues.

Sarah Gorber

HAMG conducts policy-relevant research and quantitative analysis of health and social issues.

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Canada

INSIDE STORY. . .

How times have changed! Canadian smoking patterns in the 20th century

In our last issue, we described the role of microsimulation modeling in our research program Population Health Impact of Disease, Injury, and Health Determinants in Canada. In 2002, HAMG initiated a unique analysis to provide input for this initiative. We established a profile over time for an important behavioral risk factor – the use of cigarettes. Tobacco use is associated with cardiovascular and respiratory diseases, a range of cancers, and numerous other maladies. The age of smoking initiation, cumulative exposure, both in years and amount smoked, and interaction of smoking with other health determinants all contribute to the health risk of smokers.

In the past, trends in age of smoking initiation have been measured using cross-sectional prevalence data; the youngest age group at a given threshold of smoking prevalence reflected the approximate age of the youngest cohort of smokers. This provided a limited measure of smoking initiation because it did not measure average age (or range) at initiation, although it could provide some sense of changes over time.

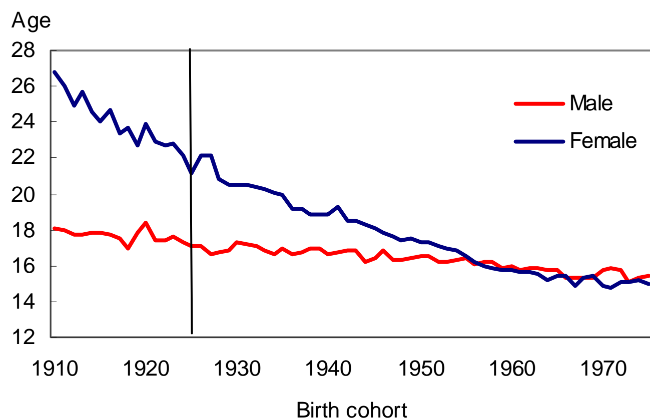
The current analysis integrates data for age at smoking initiation, smoking patterns (ever/never smokers), and number of cigarettes smoked by age and gender from 13 Canadian population-based health surveys (see *Surveys used*). Data for cohorts of individuals born between 1910 and 1985 were combined into a single dataset to analyze changes in smoking behaviour. The availability of multiple datasets contributed to the stability of estimates, particularly for the earlier cohorts.

Smokers are starting earlier

The age of smoking initiation has decreased substantially in subsequent birth cohorts over the past decades (Figure 1). The overall decrease for males was modest compared to that for females. For those born early in the century, males reported smoking at a much earlier age than females. A look at the 1956 cohort shows that the mean age of initiation for females converged with that of males at just over 16, and over the next 20 cohorts, the age of initiation continued to decrease slightly for both males and females. For those born in 1975, both females and males started to smoke, on average, at just over age 15.

Figure 1

Age of smoking initiation (weighted mean), Canada, cohorts born 1910 through 1975



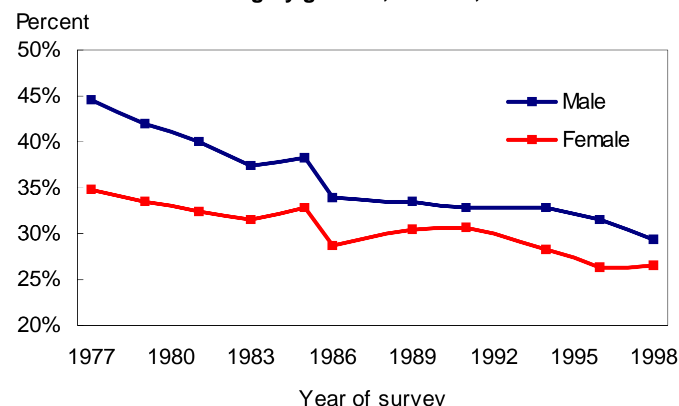
Notes
1. Based on nine surveys (1981, 1983, 1985, 1989, 1991, 1996, 1998, 1999, 2000)
2. Data for cohorts born 1910 through 1925 should be interpreted with caution (see Methods and limitations).

Fewer people are smoking, and the gender gap is closing

Cross-sectional data for ever/never smoking were available from 1977 on. From 1977 to 1998, the proportion of individuals stating that they had never smoked declined from 45% to 38%; the proportion who had smoked but quit (former smokers) increased from 15% to just over 34% (data not shown). The proportion that were current smokers thus declined from 45% and 35% for males and females, respectively, in 1977 to 29% and 27% in 1998. The prevalence of smoking was higher for males than females across the years (Figure 2).

Figure 2

Prevalence of smoking by gender, Canada, 1977 to 1998



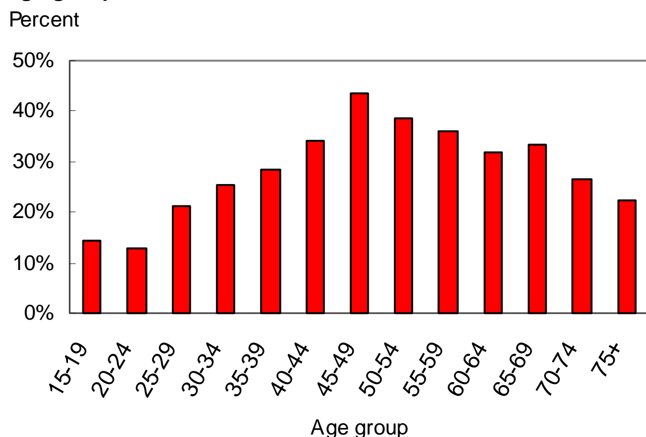
Note: Based on 11 surveys (1977 through 1998)

Smoking peaks in the middle age groups

Among smokers, the pattern of cigarette use by age group was similar across birth cohorts: the proportion of heavy smokers peaked in the middle age groups. For example, in 1998, about 44% of smokers aged 45 to 49 used more than 20 cigarettes per day, compared with less than 29% of those in the youngest (15 to 39 years of age) and oldest (70+) age groups (Figure 3). The youngest and oldest age groups tended to be lighter smokers: over half smoked 15 cigarettes or less per day compared with less than 37% of those aged 45 to 49 (data not shown).

Smoking trends were examined over time (according to the year the survey was conducted). Recent surveys suggest that smokers are using fewer cigarettes on a daily basis. In 1977, less than 43% of smokers stated that they used 15 cigarettes or less per day, and just under 11% used more than 25. By 2000, almost 62% of smokers stated that they used 15 cigarettes or less; just over 5% said they smoked more than 25 per day (data not shown).

Figure 3
Proportion smoking more than 20 cigarettes per day, by age group, Canada, 1998
Percent



In summary: good news and bad news about smoking patterns

This analysis provides a snapshot of changes in smoking behaviour over the past century, using data amalgamated from 13 Canadian surveys. The good news…the proportion of males and females who stated that they were current smokers declined considerably over the years; the proportion labelling themselves as former smokers has increased; and recent birth cohorts are smoking fewer cigarettes than those born earlier in the century. Although prevalence rates vary across birth cohorts, the pattern of use within each cohort is fairly similar, peaking during the middle years.

The bad news…females are now starting to smoke at a much younger age than females born early in the twentieth century. Males are starting at a slightly younger age than in earlier cohorts. In every survey, more males than females stated that they were current smokers, although this gap has closed over time. The most recent survey data suggest that the gender gap for age at initiation and smoking rates is now very modest.

Early initiation of smoking itself provides more opportunity for exposure, and may combine with the effects of other health determinants to increase risk of adverse health outcomes contributing to disability and death. Given the 10 to 20 year latency for cancer, and the approaching entry of baby boom cohorts into age brackets of high risk for cardiovascular diseases and cancers, decreased age of smoking initiation could place added pressure on health care resources over the next decades.

This analysis contributes information about smoking patterns over time to a large integrative framework for population health: the Population Health Impact of Disease, Injury, and Health Determinants in Canada (PHI). The PHI incorporates epidemiologic data about diseases and health determinants with Canadian health state preferences to provide summary measures of population health for decision-makers.

Serge Tanguay, B. Phyllis Will, Karla Nobrega

Surveys used

Survey on Smoking Habits 1977, 1979, 1981, 1983, 1986

General Social Survey 1985, 1991

National Alcohol and Drugs Survey 1989

National Population Health Survey 1994, 1996, 1998

Canadian Tobacco Use Monitoring Survey 1999, 2000

***Serge Tanguay** is a policy analyst in the Policy Research Division of the Population and Public Health Branch, Health Canada. Since obtaining his BSc in computer science from Université du Québec à Hull, he has worked in the health field for 13 years, ten of these at Health Canada. His research interests are community health and environmental health.*

Methods and limitations

The year of the survey and reported age were used to assign individuals to birth cohorts. Each of the 13 surveys essentially asked "Have you ever smoked?" and ten of them asked "At what age did you start smoking?" For age of initiation, the latest cohorts (1976 to 2000) were excluded since some individuals might still start smoking. Cross-sectional ever-smoker rates (the proportion who reported having smoked at any time during their lifetime) were also calculated for males and females within each birth cohort, by five-year age group and survey year.

The strength of this analysis lies in the large, population-based samples. These observations, however, should be considered in the context of the study limitations. The smoking history data are subjective, not externally validated, and are recollected from the past. Information on the earliest cohorts (1910 to 1925) is relatively sparse and should be interpreted with caution. If those who smoked earlier also died earlier, estimated age at initiation would be biased upwards, implying a more dramatic decrease than in reality. This would not, however, account for the substantial gap between males and females.

NEW FROM HAMG. . .

Announcements

Congratulations to our manager, Jean-Marie Berthelot, who recently became an adjunct professor with the Department of Epidemiology and Biostatistics at McGill University.

We have had excellent feedback on the Canadian Population Society's annual meetings at the Congress of the Humanities and Social Sciences in Halifax, Nova Scotia. Russell Wilkins, vice-president, organized this year's meetings. For the agenda and abstracts, see www.canpopsoc.org.

Seminars and presentations

Another busy year of seminars and presentations! HAMG analysts made the following presentations in April, May and June (2003):

*Association francophone pour le savoir (ACFAS), Rimouski, Québec **

Stéphane Tremblay	Does health depend on region?
François Gendron	Health of Canadian communities
Russell Wilkins	Trends in health expectancy by income and education in Canada from 1986 to 1996
Christian Houle	Economic segregation and mortality in Canadian cities

* slides in French

15th Annual Meeting of the International Network on Health Expectancy (REVES), Guadalajara, Mexico

Edward Ng	Trends in health expectancy by neighbourhood income and education in Canada from 1986 to 1996
Sarah Gorber	Developing Canadian health state preference scores (presented by Edward Ng)

Congress of the Humanities and Social Sciences, Halifax, Nova Scotia

Edward Ng	Provincial differences in health expectancy by neighbourhood income and education
Paul James**	The effects of socio-economic status on avoidable mortality in Canada from 1971 to 1996

** former HAMG student associate

2003 Biennial Meeting of the Society for Research in Child Development, Tampa, Florida

Dafna Kohen	Mechanisms of neighbourhood effects for Canadian preschoolers

Institute of Population Health, University of Ottawa, Ottawa, Ontario

Claudia Sanmartin	Access to health care in Canada
Karla Nobrega	Population Health Impact of Disease, Injury, and Health Determinants in Canada

Look for us in September 2003:
Claudia Sanmartin will present "When is waiting for care unacceptable? The views and experiences of Canadians" at the Fifth International Conference on the Scientific Basis of Health Services in Washington (DC).

Jean-Marie Berthelot, Nancy Ross, and Russell Wilkins will speak at the First Health Statistics Data Users Conference, to be held in Ottawa. This conference is a collaboration of Statistics Canada, Health Canada, the Vital Statistics Council for Canada, and CIHI. For more information see http://www.statcan.ca/english/conferences/health2003/index.htm.

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We welcome your comments!
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