

[Home](#) > [Chronic Diseases](#) > [Chronic Diseases and Injuries in Canada](#) > [Volume 32, Supplement 1, 2012](#) > [Abstracts presented at the 7th World Alliance for Risk Factor Surveillance \(WARFS\) Global Conference](#)

## Chronic Diseases and Injuries in Canada

### Volume 32, Supplement 1, 2012, Abstracts presented at the 7th World Alliance for Risk Factor Surveillance (WARFS) Global Conference

#### In this issue

[\[Next Page\]](#)

1. [\*\*Preface to the 7th World Alliance for Risk Factor Surveillance Global Conference Abstracts\*\*](#)  
M. Tracy, B. Choi
2. [\*\*Abstracts presented at the 7th World Alliance for Risk Factor Surveillance \(WARFS\) Global Conference\*\*](#)

[\[Next Page\]](#)

Date Modified: 2012-01-19

[Home](#) > [Chronic Diseases](#) > [Chronic Diseases and Injuries in Canada](#) > [Volume 32, Supplement 1, 2012](#) > [Preface to the 7th World Alliance for Risk Factor Surveillance Global Conference Abstracts](#)

## Chronic Diseases and Injuries in Canada

### Volume 32, Supplement 1, 2012, Abstracts presented at the 7th World Alliance for Risk Factor Surveillance (WARFS) Global Conference

[\[Table of Contents\]](#) [\[Next Page\]](#)

#### Preface to the 7th World Alliance for Risk Factor Surveillance Global Conference Abstracts

The 7th World Alliance for Risk Factor Surveillance (WARFS) Global Conference, hosted by the Public Health Agency of Canada, was held in Toronto, Ontario, Canada, from October 16 to 19, 2011. Previous WARFS conferences were held in [USA](#) (1999), [Finland](#) (2001), [Australia](#) (2003), [Uruguay](#) (2005) and [Italy](#) (2007, 2009).

WARFS is a global working group on surveillance under the [International Union for Health Promotion and Education \(IUHPE\)](#). It supports the development of risk factor surveillance as a tool for evidence-based public health, acknowledging the importance of this source of information to inform, monitor and evaluate disease prevention and health promotion policies and programs. More information on WARFS can be found at: [www.iuhpe.org/?page=497&lang=en](http://www.iuhpe.org/?page=497&lang=en)

The theme of the 2011 Global Conference was the role of surveillance in the promotion of health. The Global Conference had 146 registered participants, making it the second most attended WARFS conference in its history. Over the three days, participants attended oral and poster presentations from 30 countries. The conference would not have been possible without the hard work of the International Scientific Committee<sup>1</sup> and the Local Organizing Committee.<sup>2</sup>

To highlight the importance and the significance of this conference at an international level, *Chronic Diseases and Injuries in Canada (CDIC)* is pleased to publish this supplementary issue, which contains [70 abstracts presented at the 7th WARFS Global Conference](#).

In the spirit of the Global Conference, this collection of abstracts brings together surveillance material on risk factors, chronic diseases, infectious diseases and injuries from around the world. By making these abstracts widely available, CDIC hopes to further the conference objectives through a continued dialogue between those interested in linking risk factor surveillance to health promotion.

Michelle Tracy, MA, Managing Editor, *Chronic Diseases and Injuries in Canada*

Bernard C. K. Choi, PhD, Senior Research Scientist, Public Health Agency of Canada; Chair, Local Organizing Committee, WARFS 2011 Global Conference

## References

### 1. International Scientific Committee

Stefano Campostrini (Co-Chair) - University Ca' Foscari of Venice, Italy

David McQueen (Co-Chair) - International Union for Health Promotion and Education, USA

Thomas Abel - University of Bern, Switzerland

Ali Artaman - Association of Public Health Epidemiologists in Ontario, Canada

Deborah Baldwin - Public Health Agency of Canada, Canada

Lina Balluz - US Centers for Disease Control and Prevention, USA

Susan Bondy - University of Toronto Dalla Lana School of Public Health, Canada

Chee Yeong Chng - Health Promotion Board, Singapore

Bernard Choi - Public Health Agency of Canada, Canada

Sara Debenedetti - International Union for Health Promotion and Education, France

Mary Lou Decou - Canadian Alliance for Regional Risk Factor Surveillance, Canada

Kim Elmslie - Public Health Agency of Canada, Canada

Vivian Lin - International Union for Health Promotion and Education, Australia

Ahalya Mahendra - Public Health Agency of Canada, Canada

Dan Otchere - Canadian Alliance for Regional Risk Factor Surveillance, Canada

Louise Pelletier - Public Health Agency of Canada, Canada

Laura Rosella - Public Health Ontario, Canada

Gamil Shahein - Canadian Alliance for Regional Risk Factor Surveillance, Canada

Sylvie Stachenko - University of Alberta, Canada

Anne Taylor - University of Adelaide, Australia

Juan Zevallos - Americas' Network for Chronic Disease Surveillance, USA

## 2. Local Organizing Committee

---

Bernard Choi (Chair) - Public Health Agency of Canada (Chronic Disease), Canada

Paul Fleiszer (Co-Chair) - Toronto Public Health, Canada

Ruth Sanderson (Co-Chair) - Public Health Ontario, Canada

Randy Adams - Public Health Agency of Canada (Health Promotion), Canada

Ali Artaman - Association of Public Health Epidemiologists in Ontario, Canada

Deborah Baldwin - Public Health Agency of Canada (Chronic Disease), Canada

Susan Bondy - University of Toronto Dalla Lana School of Public Health, Canada

Gregory Butler - Public Health Agency of Canada (Health Promotion), Canada

Denise Canso - Association of Public Health Epidemiologists in Ontario, Canada

Marcel Dubois - Health Canada (First Nations and Inuit Health), Canada

Corey Green - Health Canada (First Nations and Inuit Health), Canada

Judith Lapierre - Public Health Agency of Canada (Health Promotion), Canada

Carly Leggett - CancerCare Manitoba, Canada

Ahalya Mahendra - Public Health Agency of Canada (Regional Office), Canada

Emma Moore - Public Health Agency of Canada (International Affairs), Canada

Adam Probert - Health Canada (Tobacco), Canada

Michelle Policarpio - Public Health Ontario, Canada

Michael Ruta - Nunavut Department of Health and Social Services, Canada

Beth Theis - CancerCare Ontario, Canada

David Wilkinson - Public Health Agency of Canada (Infectious Disease), Canada

Joëlle Zeitouny - Health Canada (Nutrition), Canada

Kate Zhang - Public Health Agency of Canada (Regional Office), Canada

[\[Table of Contents\]](#) [\[Next Page\]](#)

Date Modified: 2012-01-19

Home > Chronic Diseases > Chronic Diseases and Injuries in Canada > Volume 32, Supplement 1, 2012 > Abstracts presented at the 7th World Alliance for Risk Factor Surveillance (WARFS) Global Conference

## Chronic Diseases and Injuries in Canada

### Volume 32, Supplement 1, 2012, Abstracts presented at the 7th World Alliance for Risk Factor Surveillance (WARFS) Global Conference

[\[Previous Page\]](#) [\[Table of Contents\]](#)

#### Sexual behaviour, knowledge and attitude to sex education among pharmacy students at University of Lagos

B. A. Aina, [PhD](#) (1); A. O. Akanji, BPharm (1)

##### Author references

1. Department of Clinical Pharmacy and Biopharmacy, Faculty of Pharmacy, University of Lagos, Lagos, Nigeria

**Correspondence:** Bolajoko Ajoke Aina; Email: [baina@unilag.edu.ng](mailto:baina@unilag.edu.ng)

**Background:** Sex education is a broad term used to describe education about human sexual anatomy, sexual intercourse, contraception and other aspects of human sexual behaviour. Appropriate sexual education can prevent risky sexual behaviour.

**Purpose:** To determine the sexual behaviour and knowledge of pharmacy students and their attitude to sex education.

**Study/Intervention Design:** Cross-sectional and descriptive.

**Methods:** We collected data using a well-structured self-administered questionnaire with a mix of open-ended and closed questions. This was distributed to the students at different levels of study. Statistical analysis was performed using Epi-info software.

**Results:** The sex distribution of the sample was 57.9% female and 42.1% male, and most students were between 20 and 25 years of age. Overall, 97.2% of the respondents had a good knowledge of the definition of sex education. There was no statistically significant difference among students at the different levels in terms of knowledge. A majority (70.8%) had heard of sex education while in secondary school. About 89.0% agreed that abstinence is the best way of protecting against risk of sexual intercourse, and 83.4% agreed that unsafe sex is harmful. Almost half (45.5%) of the respondents had had sex before. Only 31.0% were currently sexually active, with most (80.0%) having sex with either their boyfriend or girlfriend. Only 45.0% of the students usually used a condom or other form of contraceptives, which does not tally with their good knowledge of and attitude toward sex education.

**Conclusion:** Pharmacy students are knowledgeable in terms of sex education, but some do engage in risky sexual behaviour.

**Keywords:** sexual behaviour, sex education, knowledge, attitude, pharmacy student

#### Sexual behaviour, knowledge and attitudes of youth related to HIV/AIDS in Egbeda, Lagos State, Nigeria

B. A. Aina, [PhD](#) (1); C.C. Emenike, [MSc](#) (2)

##### Author references

1. Department of Clinical Pharmacy and Biopharmacy, Faculty of Pharmacy, University of Lagos, Idi Araba Campus, Lagos, Nigeria
2. CLICH Pharmacy, Akowonjo, Lagos, Nigeria

**Correspondence:** Bolajoko Ajoke Aina; Email: [baina@unilag.edu.ng](mailto:baina@unilag.edu.ng)

**Background:** Since youth make up nearly half of the world's population, health risk behaviour among them can result in great morbidity and mortality. Assessing the knowledge and behaviour of youth regarding HIV infection is a step to providing strategies for slowing down the spread of HIV/AIDS.

**Purpose:** To determine the sexual behaviour, knowledge and attitudes of youth in Egbeda related to HIV/AIDS.

**Study/Intervention Design:** Cross-sectional and descriptive.

**Methods:** Data were collected using a well-structured self-administered questionnaire. The study population was students of four private schools. We analyzed data using SPSS software (version 10).

**Results:** Of the 190 students qualified to participate in the study, 182 participated, yielding about a 96% response rate. Over 90% of the students knew the definition of HIV/AIDS. About 84% were knowledgeable about HIV counselling and testing centres but only half knew how HIV is transmitted and prevented. Over 70% of students agreed that abstinence was the most reliable method of prevention against HIV/AIDS; however, about 25% believed that abstinence was either impossible or not practical. Less than 10% had ever done an HIV test. Most of the students had not had sex before; however, a majority of those that had been sexually active did not use condoms.

**Conclusion:** Only about half of the students had good knowledge of HIV transmission and prevention. A majority of the sexually active students were engaging in risky behaviour by not using condoms. Addressing these issues could help prevent the spread of HIV infection among youths.

**Keywords:** youth, sexual behaviour, knowledge, HIV/AIDS

## Demographics and general health status of people with diabetes mellitus in Thailand, 2007

N. Asawarat, MA (1); N. Petcharoen, PhD (1); S. Sensathien, MSc (1); S. Manosontorn, PhD (1)

### Author references

1. Centre of NCD Behavioural Risk Factor Surveillance Information, Bureau of Non-Communicable Diseases, Department of Disease Control, Ministry of Public Health, Nonthaburi Province, Thailand

**Correspondence:** Noppawan Asawarat; Email: [noppawan@health.moph.go.th](mailto:noppawan@health.moph.go.th)

**Background:** In Thailand, diabetes incidence is increasing rapidly. Diabetes is the leading cause of disability-adjusted life years in females (9.0%), whereas it is the seventh such leading cause in males.

**Purpose:** To determine the prevalence of the demographic determinants of diabetes in Thailand.

**Study/Intervention Design:** Population-based cross-sectional survey.

**Methods:** Data came from the 2007 Behavioural Risk Factors of Non-Communicable Diseases and Injuries Survey. We used a stratified three-stage cluster sampling method to obtain 65 542 respondents aged 15 to 74 years. Data were weighted to the respondents' probability of being selected as well as by sex, age, educational level, income, employment status, marital status and general health status. The weights were used to calculate prevalence estimates designed to represent the entire population.

**Results:** Overall prevalence of diabetes was 3.9% (2.6% in men, 5.3% in women). Among age groups, the prevalence of diabetes was highest in those aged 55 to 74 years (11.6%). The prevalence in women aged 35 to 54 years was 5.3%, five times the prevalence among women aged 15 to 34 years. Regarding level of education, diabetes prevalence was highest in those who never attended school (8.7%) and lowest in those with university level education (1.5%). Among income groups, it was highest in the group with no income (5.3%). Employment status results showed that prevalence was highest in people who worked without pay (8.3%). Based on marital status, diabetes prevalence was highest in widowed people (8.5%). Lastly, people who perceived their health status as excellent had the lowest prevalence (0.5%) by self-perceived health status.

**Conclusion:** Higher prevalence of diabetes among people aged 35 to 54 years is important at the macrosocial level because this is usually a productive age group. The differences in diabetes prevalence observed between sex and age groups were dramatic and increased with age. Diabetes prevention and control strategies in Thailand could target older age groups, especially elderly women, as well as low-income and uneducated groups.

**Keywords:** demographics, diabetes mellitus, prevalence, sex

## Trends in sun exposure in a country with high risk of skin cancer

---

O. Baron-Epel, [PhD](#) (1); L. Keinan-Boker, [MD](#), [MPH](#) (1,2); R. Weinstien, [MPH](#) (3); T. Shohat, [MD](#), [MPH](#) (2,4)

### Author references

1. School of Public Health, Faculty of Social Welfare and Health Sciences, University of Haifa, Haifa, Israel
2. Israel Centre for Disease Control, Ministry of Health, Tel Hashomer, Israel
3. Health Promotion Department, Ministry of Health, Jerusalem, Israel
4. Department of Epidemiology and Preventive Medicine, School of Public Health, Sackler Medical Faculty, University of Tel Aviv, Ramat Aviv, Israel

**Correspondence:** Orna Baron-Epel; Email: [ornaepel@research.haifa.ac.il](mailto:ornaepel@research.haifa.ac.il)

**Background:** During the last two decades much effort has been put into lowering levels of skin cancer in Israel because Israel is a sunny country with a large population of light-skinned people at high risk for skin cancer.

**Purpose:** To analyze the changes in sun exposure in the adult Jewish population in Israel from 2004 to 2008.

**Study/Intervention Design:** Telephone surveys.

**Methods:** We analyzed data on self-reported use of sunscreen, exposure to the sun in the summer between 10 a.m. and 4 p.m., and staying in the shade at all times for the years 2004 to 2008. About 6000 respondents participated in the telephone surveys. The data were adjusted for type of skin (light or dark), age, education and sex. Changes in the wording of survey questions over the study period prevent further calculation of trends.

**Results:** Routine use of sunscreen was reported by about 30% of the Jewish population in Israel. About 40% of respondents did not expose themselves to the sun between 10 a.m. and 4 p.m. More women than men used sunscreen routinely. Use of sunscreen decreased between 2004 and 2008, mainly among the younger population (aged 21 to 34 years) and more so among young men. There was no change in reported exposure to the sun between 10 a.m. and 4 p.m.

**Conclusion:** Although much effort has been put into educating the public about the harm of sun exposure, no increase in positive behaviours was reported. This calls for better planned and targeted interventions. In addition, better surveillance of these behaviours is needed.

**Keywords:** sun exposure, surveillance, Israel

## Family and school factors associated with smoking among Brazilian adolescents

---

S. M. Barreto [MD](#), [PhD](#) (1); L. Giatti, [MD](#), [PhD](#) (1); L. Casado, [MSc](#) (2); L. de Moura, [MSc](#) (3); C. Crespo [MSc](#) (4); D. Malta, [MD](#), [PhD](#) (3)

### Author references

1. Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil
2. National Institute of Cancer ([INCA](#)), Rio de Janeiro, RJ, Brazil
3. Brazilian Ministry of Health, Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil
4. Brazilian Institute of Geography and Statistics, Rio de Janeiro, RJ, Brazil

**Correspondence:** Sanhi Maria Barreto; Email: [sbarreto@medicina.ufmg.br](mailto:sbarreto@medicina.ufmg.br)

**Background:** Very few studies have examined the role of school, household and family contexts in youth smoking in middle-income countries.

**Purpose:** To describe smoking exposure among 59 992 high school students and investigate associated factors.

**Study/Intervention Design:** National Survey of School Health, 2009, carried out by the Ministry of Health.

**Methods:** Regular smoking was defined as smoking cigarettes at least once in the past 30 days. Explanatory variables were grouped into categories of sociodemographic characteristics, school context, household context and family rapport, and analyzed using multiple logistic regression.

**Results:** Just over half (53%) of respondents were girls, and 89% were aged 13 to 15 years. Almost one-quarter (24%) had already experimented with cigarettes, 50% of these before age 12. Prevalence of regular smoking was 6.3% (95% CI: 5.87–6.74%), with no sex variation. Smoking was not associated with either the mother's education or number of household assets. Studying at a private school, having the possibility of purchasing cigarettes at school and skipping classes without parents' consent increased the chances of smoking. In the household context, not living with both parents, having smoking parents and being exposed to other people's smoking were positively related to smoking. In the family context, parental unawareness of what the adolescent was doing increased smoking risk, but having meals with the mother one or more days a week and parents' negative reactions to adolescent smoking reduced the chances of smoking.

**Conclusion:** The results reinforce the role of school, household and family contexts in youth smoking behaviours. They help to improve public health policies aimed at preventing smoking and health promotion in adolescents.

**Keywords:** youth smoking, health behaviour, family context, school context

## Use of the Registry for Individual Health Services Delivery (RIPS) for analyzing patterns of chronic diseases and causes of morbidity, 2004 to 2009, Colombia

---

O. Bernal, PhD (1); J. C. Forero, MD (1)

### Author references

1. Faculty of Medicine, Escuela de Gobierno Alberto Lieras Camargo, Universidad de los Andes, Bogotá, Colombia

**Correspondence:** Oscar Bernal; Email: [obernal@uniandes.edu.co](mailto:obernal@uniandes.edu.co)

**Background:** The health care information systems that are used to inform public health policies and surveillance programs in Colombia are fragmented and fail to offer a comprehensive picture.

**Purpose:** To characterize both the occurrence and the patterns of several chronic conditions (ischemic events, diabetes and hypertension) for the period from 2004 to 2009 and to determine the relation of communicable versus non-communicable diseases to the total burden of disease.

**Methods:** We used the database of the Registry for Individual Health Services Delivery (RIPS) to obtain information on diagnoses and causes of disease from 2004 to 2009 based on doctor visits, emergency services and hospitalizations.

**Results:** Hypertension is associated with high rates of doctor visits. Ischemic events and diabetes are associated with high use of emergency as well as in-hospital services. Communicable and non-communicable diseases coexist, with higher prevalence of infectious diseases in the younger age groups and in rural areas of Colombia. Chronic diseases, on the other hand, represent a larger proportion of the total burden of disease in the central region as well as in the older age groups.

**Conclusion:** The RIPS constitutes an important source of information that should be exploited and incorporated in future policy decisions. Given the impact of diabetes on health and on usage of hospital and emergency services, it is important to conduct future studies to evaluate the management of the disease by doctors and patients during the pre-hospitalization stage.

**Keywords:** health systems, chronic disease, information systems, morbidity

## National Health Behaviour Survey in Georgia

---

M. Beruchashvili, MD, PhM (1,2,3); L. Baramidze, MD, PhD (1,2,3)

### Author references

1. Non-Communicable Diseases Department, National Centre for Disease Control and Public Health, Tbilisi, Georgia
2. Faculty of Public Health, State Medical University, Tbilisi, Georgia
3. 2010–2012 Master's Program in Health Promotion, Faculty of Psychology, Department of Health Promotion and Development, University of Bergen, Bergen, Norway

**Correspondence:** M. Beruchashvili; Tel.: +995 532 300329



**Background:** The greatest burden of disease and death in Georgia comes from noncommunicable diseases (NCDs) because of the high prevalence of behavioural risk factors (BRFs), which have not been studied sufficiently. With backing from the World Health Organization (WHO), the National Health Behaviour Survey WHO STEPS was conducted in Georgia in 2010.

**Purpose:** To identify the prevalence and magnitude of BRFs for NCD in Georgia.

**Study/Intervention Design:** National cross-sectional survey.

**Methods:** The WHO STEPwise approach to BRF surveillance for NCDs was used. Through multistage random sampling, 7629 participants of both sexes were selected, aged 19 to 64 years, in 243 clusters; the sample represented 6839 households, with a response rate of 95%. The WHO STEPwise data collection forms were adapted and translated into Georgian before being used.

**Results:** For both sexes, the overall percentage of current smokers was 30.3%, 91.2% of smokers smoked daily and 22.5% of participants had consumed alcohol in the past 12 months. The overall mean number of days of consumption was 4.9 for fruit and 5.8 for vegetables. The rate of low total physical activity (PA) per day (<600 MET) was 21.6%, the mean daily number of minutes of total PA (during work, travel and recreation) was 202.6 and the mean daily number of minutes spent in sedentary activities (excluding sleeping) was 198.9. The percentage of respondents not engaging in vigorous PA was 78.6%; the percentage with no recreation-related PA was 89.3% and the percentage with no work-related PA was 34.4%.

**Conclusion:** High prevalence of BRFs for NCD is very common among the Georgian population.

**Keywords:** non-communicable disease, risk factor, behavioural, surveillance

## Developing an indicator framework for the surveillance of chronic disease in Canada

M. T. Betancourt, MD, MSc (1); K. C. Roberts, MSc (1); E. Driscoll, MSc (1); T.-L. Bennett, MSc (1); L. Pelletier, MD, MPH, FRCPC (1)

### Author references

1. Chronic Disease Surveillance and Monitoring Division, Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Marisol T. Betancourt; Email: [marisol.betancourt@phac-aspc.gc.ca](mailto:marisol.betancourt@phac-aspc.gc.ca)

**Background:** Recognizing that many of the chronic diseases under surveillance by the Public Health Agency of Canada are known to co-occur and share common risk factors, an indicator framework is being developed to identify relevant measures for the surveillance of chronic disease as a whole in Canada.

**Purpose:** To form the foundation for reporting on the state of chronic disease in Canada; to provide a basis for comparing Canadians' health across different regions, between groups (e.g. age, sex, socio-economic status) and over time; and to highlight areas requiring public health attention and action.

**Study/Intervention Design:** Using standard methods, we identified a core set of indicators, including specific measures, for chronic disease surveillance in Canada. National data sources currently available to report on these indicators and data gaps were also identified.

**Methods:** From an extensive environmental scan on national and international health surveillance systems and a ranking completed by two reviewers based on a priori inclusion criteria, we produced a list of potentially relevant indicators and specific measures.

**Results:** The indicator framework presents a set of indicators, organized by a conceptual chronic disease model: "demographic, social and environmental determinants," "behavioural risk and protective factors," "intermediate risk factors," "health outcomes," and "health services/economic impact and tertiary prevention."

**Conclusion:** The draft indicator framework identifies a balanced set of key indicators for the surveillance of chronic disease in Canada. The next steps are to undertake internal and external consultations.

**Keywords:** indicator, chronic disease

## Nutritional surveillance in Quebec

C. Blanchet, MSc (1); P. Lamontagne, RD, MSc (1)

**Author references**

1. Unité de surveillance des maladies chroniques et de leurs déterminants, Institut national de santé publique du Québec, Québec, Quebec, Canada

**Correspondence:** Carole Blanchet; Email: [carole.blanchet@inspq.qc.ca](mailto:carole.blanchet@inspq.qc.ca)

**Background:** Nutritional surveillance is necessary to develop effective public policies and programs in nutrition, to verify trends in eating habits and access to healthy foods, and to gather information on related nutritional and health status. Nutritional surveillance has gradually developed in Quebec over the past few years as part of lifestyle surveillance which, in turn, falls under chronic disease surveillance.

**Purpose:** The development of nutritional surveillance in Quebec is designed to collect and provide essential information for the planning, implementation and evaluation of nutritional programs, policies and interventions.

**Study/Intervention Design:** Development of a surveillance plan.

**Methods:** A multi-thematic surveillance plan was recently developed for chronic diseases and lifestyle, including nutrition. This plan was presented to and accepted by the Ministère de la Santé et des Services sociaux of Quebec.

**Results:** Nutritional surveillance is carried out according to a conceptual framework that includes individual and environmental factors as the main determinants of nutritional health. The individual determinants in the framework include food consumption, nutrient intake, habits and behaviour. They also concern the population's nutritional status, which is verifiable by biochemical and clinical measurements as well as anthropometric and body composition measurements. In terms of environmental factors, the micro-environmental dimension refers to the precise physical locations in which individuals live, study, work or practise recreational activities as well as access to a sufficient amount of food. The macro-environmental dimension refers to government policies or the agri-food industry.

**Conclusion:** Quebec initiatives in the surveillance of the nutritional health status of the population and associated factors meet many needs and are necessary for the prevention and control of most chronic diseases.

**Keywords:** surveillance, nutrition, body weight

## Socio-economic differences and health care access inequalities from a welfare system perspective, Italy, 2007 to 2010

M. Braggion, MSc (1); S. Campostini, PhD (2); G. Bertin, PhD (1)

**Author references**

1. Department of Economics, Università Cà Foscari, Venice, Italy
2. Department of Environmental Sciences, Informatics and Statistics, Università Cà Foscari, Venice, Italy

**Correspondence:** Marco Braggion; Email: [marco.braggion@unive.it](mailto:marco.braggion@unive.it)

**Background:** High- and low-income residents have different probabilities of accessing Italian health care services.

**Purpose:** To investigate the differences in health care access between high- and low-income Italian subjects living in different welfare system areas, using the Italian Behavioural Risk Factor Surveillance (PASSI) survey system.

**Study/Intervention Design:** PASSI survey system for 2007 to 2010 (total number of subjects = 134 494).

**Methods:** To define high- and low-income subjects, we used a proxy that collected the perceived economic status. As examples of health care access, we used the Pap test, mammography screening and a colonoscopy/fecal occult blood exam. Subjects were sampled from every Italian administrative region and subsequently classified into different clusters, defined by different welfare systems. To estimate odds ratios (and 95% CIs) corrected for potential confounders, we used logistic regression, taking into account interactions between outcome and confounders.

**Results:** Perceived socio-economic status is strongly related with access to services and there is an important interaction with different welfare systems (adjusted OR of having / not having undergone a Pap-test for poorest

area vs. better off area = 0.5 [0.4, 0.7] [ $p < 0.001$ ]). The subjects that received a reminder letter to access health-care services have a 3.5 (3.2, 4.0) times higher OR of having undergone a Pap-test in the last three years ( $p < 0.001$ ) than the ones that did not receive the reminder letter.

**Conclusion:** Our study provided evidence of differences in health care access for income classes and welfare systems as well as improvement in health care access using personal communication.

**Keywords:** social determinants, welfare system, health care access

## The Canadian Risk Factor Surveillance Network: outcomes from 3 years

---

G. Butt, RN, PhD (1); J. Algroy, MSc (2); M. L. Decou, MSc (3)

### Author references

1. BC Centre for Disease Control, University of British Columbia, British Columbia, Canada
2. Ontario Ministry of Health and Long-Term Care, Toronto, Ontario, Canada
3. Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Gail Butt; Email: [gail.butt@bccdc.ca](mailto:gail.butt@bccdc.ca)

**Background:** In 2005, a pan-Canadian task group recommended a coordinated approach to chronic disease risk factor surveillance throughout Canada. Subsequent Public Health Agency of Canada-sponsored stakeholder meetings culminated in the creation of the Canadian Alliance for Regional Risk Factor Surveillance (CARRFS) in September 2008. This national network of public health stakeholders works to build capacity for coordinated chronic disease risk factor surveillance.

**Purpose:** To identify CARRFS outcomes from 3 years of operation and areas for future development.

**Study/Intervention Design:** Descriptive retrospective review.

**Methods:** Record review, surveys and interviews were used to identify outcomes. Our analyses included content analysis for qualitative data and descriptive statistical techniques for quantitative data.

**Results:** A network structure evolved composed of the Canadian Coordinating Committee and five working groups (Communications, Tools and Resources, Membership and Publicity, Training, and Environmental Scan Inventory). Membership increased from less than 50 to 466 members. Communication tools developed include an interactive member website, a newsletter, a listserv and published reports on all CARRFS projects. Educational strategies involved a national symposium, regional workshops and bimonthly webinars. Projects to support members and identify areas for future action included a national environmental scan, an international scan, modular case studies, an educational needs assessment and stakeholder interviews.

**Conclusion:** Results informed the network members and sponsors of accomplishments and areas for future development over the next 3 years. A dispersed network is an effective means for public health stakeholders to work together to improve capacity for a coordinated approach to chronic disease risk factor surveillance.

**Keywords:** network, chronic disease, risk factor, surveillance

## Development of a national behaviour risk factor surveillance system: the Singapore experience

---

C.-Y. Chng, MSc (1); A. Prescott, MSc (1); L. Yeo, MPA (1)

### Author references

1. Health Promotion Board, Singapore

**Correspondence:** Chee-Yeong Chng; Email: [chng\\_chee\\_yeong@hpb.gov.sg](mailto:chng_chee_yeong@hpb.gov.sg)

**Background:** To ensure that health promotion programs are guided by quality evidence, the Health Behaviour Surveillance of Singapore (HBSS) was developed to provide closer monitoring of key risk factors.

**Purpose:** The development of the HBSS was aimed at providing ongoing systematic data collection and analysis that tracks changes in trends in health behaviours and signals alerts.

**Methods:** Modelled after the US Behavioral Risk Factor Surveillance System (BRFSS), the HBSS had to be contextualized to the local requirements. A data collection methods (DCM) study was conducted to determine ways to optimize response rates and provide good population coverage. Cognitive testing of the questionnaire was conducted to understand cognition of the questions by Singapore's multi-ethnic population.

**Results:** The DCM study found that a sequential mixed-mode design (telephone followed by face-to-face interviews) was optimal for achieving good population coverage and reasonable response rates. Cognitive testing of the questionnaire highlighted health literacy issues. Questions were modified to simplify sentence constructs and vocabulary, while explanatory probes were included for unfamiliar concepts. Results from the pilot study in early 2010 showed a co-operation rate of 84% among eligible respondents.

**Conclusion:** A mixed-mode approach improved coverage and reduced non-response error. The implicit choice of mode could impact on some variables, and statistical adjustment could be made for mode effects. Although the HBSS allows closer monitoring of health behavioural risk factors at the national level, it will have to adapt to evolving needs.

**Keywords:** surveillance, mixed-mode, methodology

## Building national and international networks to enhance capacity in health-related risk factor surveillance

B. C. K. Choi, PhD (1)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Bernard Choi; Email: [bernard.choi@phac-aspc.gc.ca](mailto:bernard.choi@phac-aspc.gc.ca)

**Background:** A network is a group of people or organizations that are closely connected and that work with each other. There are reasons to build networks and pursue a multidisciplinary approach, such as to resolve a real world problem and to enhance capacity.

**Purpose:** To explore various ways of building networks and teamwork.

**Study/Intervention Design:** Knowledge synthesis.

**Methods:** A systematic, comprehensive literature review was conducted.

**Results:** There are differences in multidisciplinary, interdisciplinary and transdisciplinary approaches, and these terms should not be used interchangeably. To build good teamwork, there are eight themes to consider, as summarized in the acronym "TEAMWORK": team, enthusiasm, accessibility, motivation, workplace, objective, role and kinship. A number of examples are used from health-related risk factor surveillance networks, including the Rapid Risk Factor Surveillance System (RRFSS; Ontario), the Canadian Alliance for Regional Risk Factor Surveillance (CARRFS; Canada), the America's Network for Chronic Disease Surveillance (AMNET; Region of the Americas) and the World Alliance for Risk Factor Surveillance (WARFS; global).

**Conclusion:** National and international surveillance networks are more successful when they integrate some or all of the "TEAMWORK" elements.

**Keywords:** network, multidisciplinary, interdisciplinary, transdisciplinary, teamwork

## Life expectancy (LE) and health-adjusted life expectancy (HALE) in Canada and several Latin American countries: an international collaborative project by AMNET and the Public Health Agency of Canada

B. C. K. Choi, PhD (1,2,3); R. Granero, MD, MHS (2,3,4); A. Lawrynowicz, MD, MPH, MSc (2,5); the AMNET Scientific Committee LE/HALE Project Team\*; D. Latour-Villamil, BSc (1,3); L. Loukine, MSc (1); C. Waters, BSc (1)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada
2. Americas' Network for Chronic Disease Surveillance (AMNET)

3. University of Toronto, Toronto, Ontario, Canada
4. Asociación Cardiovascular Centrooccidental ([ASCARDIO](#)), Barquisimeto, Lara State, Venezuela
5. Instituto Nacional de Epidemiología "Dr. Juan H. Jara", Mar del Plata, Buenos Aires, Argentina

\* **Argentina:** S. Bienaimé Rebec, N. González Casalegno, A. Lawrynowicz, A. Perinetti; **Bolivia:** F. Alcaraz, M. Vasquez Machaca; **Canada:** B. C. K. Choi, M. González; **Colombia:** O. Bernal, A. I. Delgado, C. González, F. O. Mendivelso, M. Rodríguez Bedoya; **Costa Rica:** R. Wong McClure; **Ecuador:** L. Castillo, P. Mogrovejo Jaramillo; **El Salvador:** O. Hernández; **Guatemala:** D. W. Zeceña-Alarcon; **Honduras:** S. E. Diaz, M. G. Romero Andrade; **México:** S. Hernandez, J. C. Medrano Rodríguez; **Paraguay:** G. Gamarra; **Peru:** E. Nuñez; **Venezuela:** R. Granero, J. Chique

**Correspondence:** Bernard Choi; Email: [bernard.choi@phac-aspc.gc.ca](mailto:bernard.choi@phac-aspc.gc.ca)

**Background:** Life expectancy ([LE](#)) and health-adjusted life expectancy ([HALE](#)) are indicators of the health of populations. While [LE](#) encompasses only mortality, [HALE](#) also incorporates information on morbidity. Obtaining these indicators poses a challenge in many Latin American countries, where vital registration systems are sometimes incomplete and morbidity data can be scarce.

**Purpose:** To assess the availability of mortality and morbidity data in several Latin American countries and to produce estimates of [LE](#) and [HALE](#), as well as to compare these estimates with those produced by the World Health Organization ([WHO](#)) and those obtained for Canada.

**Study/Intervention Design:** International collaborative study involving 12 Latin American countries and Canada.

**Methods:** [LE](#) was calculated using the Chiang method, with population and mortality data reported/estimated by sex and 5-year age categories for 18 age groups for the period 2006 to 2008. [HALE](#) for the adult population was calculated using the Sullivan method, with data reported by sex and 13 age groups. The weight adjustment variable was the prevalence of good health in 2007, obtained from self-reported health data.

**Results:** [LE](#) (in years) at birth for 2006 to 2008 was obtained for Colombia (78), Costa Rica (80), Peru (81), Venezuela (75), Guatemala (71), Ecuador (78), Argentina (75) and Canada (82). [HALE](#) at age 20 for the year 2007 was estimated for Colombia (36) and Canada (53) based on available data.

**Conclusion:** It was possible to obtain estimates of [LE](#) using data obtained in 7 of the 12 Latin American countries involved. Estimation of [HALE](#) requires the availability of specific data that are not readily obtainable in some countries.

**Keywords:** empowerment, surveillance, life expectancy, health-adjusted life expectancy, Latin America, Colombia, Peru, Venezuela, Guatemala, Ecuador, Argentina, Costa Rica, Canada

## Linking surveillance systems with policy making and evaluation: examples from Canada

B. C. K. Choi, [PhD](#) (1)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Bernard Choi; Email: [bernard.choi@phac-aspc.gc.ca](mailto:bernard.choi@phac-aspc.gc.ca)

**Background:** In health promotion, a central question is how to enhance effective evidence-informed decision making.

**Purpose:** To examine ways to better link public health surveillance with the development and evaluation of public health policies and programs.

**Study/Intervention Design:** A group of investigators at the federal, provincial and local government level in Canada worked to identify ways to improve the linkage of surveillance to policies and programs. The investigators came from various fields, including chronic disease, infectious disease, health promotion, environmental health, product safety, nutrition and public health surveillance. They included both research scientists and policy makers.

**Methods:** Investigators from the Public Health Agency of Canada, Health Canada and Statistics Canada, as well as provincial and local health authorities, collected stories and examples from their work that were considered to

be able to enhance the effectiveness of using surveillance information so that it leads to public health action. These examples were then grouped into several major approaches.

**Results:** Several ways were identified that can improve the linkage of surveillance to policy and programs: (1) surveillance at the local level, (2) surveillance of high risk groups, (3) surveillance to address policy needs, (4) surveillance to inform policy and programs, and (5) surveillance to evaluate policy. Ample examples are available to illustrate these approaches.

**Conclusion:** New innovative approaches could better link surveillance with health promotion. These examples demonstrate that it is possible for surveillance to have a greater impact on public health policy and program development.

**Keywords:** surveillance, link, policy making, evaluation

## The art of SCIENCE to enhance capacity in the surveillance, prevention and control of chronic diseases

---

B. C. K. Choi, PhD (1)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Bernard Choi; Email: [bernard.choi@phac-aspc.gc.ca](mailto:bernard.choi@phac-aspc.gc.ca)

**Background:** Chronic diseases are now a major public health problem not only in developed countries but also in developing countries. Although chronic diseases are non-communicable at the disease level, they are readily transferable at the risk factor level. With increasing human progress and technological advance, the global epidemic of chronic diseases will become an even bigger threat to public health.

**Purpose:** To outline seven themes for enhancing public health capacity. Although originally developed for chronic diseases, the themes can also be applied to other public health areas.

**Study/Intervention Design:** Literature review and case studies.

**Methods:** Based on consultation with 25 international public health experts, as well as a literature review, ideas and working examples from various countries were collected that could help enhance capacity in chronic disease surveillance, prevention and control. In particular, new non-traditional, innovative ideas and solutions were sought.

**Results:** Ideas and working examples to help enhance capacity in chronic disease surveillance, prevention and control were collected and grouped under seven themes, concisely summarized under the acronym "SCIENCE"—strategy, collaboration, information, education, novelty, communication and evaluation.

**Conclusion:** Several new approaches and ideas being considered in the literature and among experts can help build surveillance capacity.

**Keywords:** strategy, collaboration, information, education, novelty, communication, evaluation

## The Public Health Agency of Canada's project on health-adjusted life expectancy in Canada

---

B. C. K. Choi, PhD (1); PHAC HALE Steering Committee\* (1)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada

\* Committee members: B. C. K. Choi (Chair), E. Driscoll, J. Ellison, X. Jiang, L. Loukine, R. Semenciw, F. Wang, C. Waters, R. Zhang, P. Bakshi, G. Saaltink, C. Yue, W. Luo, H. Orpana, A. Diener, A. Kwan

**Correspondence:** Bernard Choi; Email: [bernard.choi@phac-aspc.gc.ca](mailto:bernard.choi@phac-aspc.gc.ca)

**Background:** The Public Health Agency of Canada (PHAC) reports on health-adjusted life expectancy (HALE) at birth and by income as part of its strategic outcome performance indicators. HALE is a useful indicator that

represents the number of years an individual can expect to live in full health, given current patterns of morbidity and mortality.

**Purpose:** To calculate and report on life expectancy (LE) and HALE for the Canadian population, for those with and without certain chronic diseases (including diabetes, hypertension, and cancer), as well as by income.

**Study/Intervention Design:** Data were from the Canadian Community Health Survey and the Canadian Chronic Disease Surveillance System. The Chiang abridged life table approach was used to calculate LE, and HALE was calculated using the adapted Sullivan method.

**Methods:** LE and HALE were calculated using several approaches. The primary method used compared the LE or HALE of mutually exclusive groups: those with and without a given condition. Other approaches included calculating the anticipated gain in LE/HALE of the population, given that specific diseases were to be eradicated.

**Results:** Diseased subpopulations had lower LE and HALE than did non-diseased populations, as did those with lower (as compared with higher) income. The magnitude of these differences varied by disease: smaller differences were observed for diabetes and hypertension than for cancer.

**Conclusion:** HALE is a useful indicator for monitoring population health status that can be applied in various subpopulations. Implications for data infrastructure, ongoing surveillance and analytical activities will be discussed.

**Keywords:** health-adjusted life expectancy, chronic diseases, life expectancy, surveillance

## Midterm consequences on health of the earthquake of April 6, 2009, in L'Aquila, Italy, as assessed by the behavioural risk factor surveillance system PASSI

V. Cofini (1); V. Minardi (2); G. Diodati (3); N. Mirante (2); C. Mancini (4); A. Carbonelli (1); A. Gigantesco (2); M. O. Trinito (5); E. Tarolla (2); P. D'Argenio (2); S. Salmaso (2); C. Granchelli (3)

### Author references

1. Department of Internal Medicine and Public Health (MISP), University of L'Aquila, L'Aquila, Italy
2. National Centre for Epidemiology, Surveillance and Health Promotion (CNESP), Istituto Superiore di Sanità (ISS), Rome, Italy
3. Local Health Unit "Pescara", Pescara, Italy
4. Local Health Unit "Avezzano-Sulmona-L'Aquila", L'Aquila, Italy
5. Local Health Unit "Rome C", Rome, Italy

**Correspondence:** Vincenza Cofini; Email: [vincenza.cofini@cc.univaq.it](mailto:vincenza.cofini@cc.univaq.it)

**Background:** A year after the earthquake in L'Aquila, local health units of Abruzzo, in collaboration with the University of L'Aquila, the Italian Institute for Health and the Ministry of Health, carried out a survey on midterm health consequences of the earthquake.

**Purpose:** To monitor health-related behaviours and assess the prevalence of symptoms of depression, anxiety and post-traumatic stress disorder (PTSD), with the objective of establishing a knowledge base for better informing public health decisions.

**Study/Intervention Design:** Telephone-based survey of adults aged 18 to 69 years.

**Methods:** Analysis was based on the Behavioural Risk Factor Surveillance System PASSI (operational since 2007). The properly modified PASSI questionnaire was used.

**Results:** Of the 957 residents interviewed (95% response rate), 92% experienced the earthquake. Among those, 5% were injured, 42% lost a loved one, 62% left their home due to damage, 45% reported serious economic losses and only 52% had been able to return home by the time the survey was administered. The earthquake's occurrence resulted in a 6% rise in the prevalence of depression (from 10% to 16%) and also a 20% increase in the prevalence of sedentary behaviour (from 19% to 39%). The prevalence of PTSD was estimated at 4%. With respect to the other risk factors studied, the local community seems to have been able to preserve the pre-earthquake health status, although these conditions are lacking in some cases.

**Conclusion:** The study provides an estimate of non-traumatic consequences of the earthquake, otherwise neglected but financially covered by the National Health Service, and is a useful tool for assessing public health needs in case of disaster.

**Keywords:** Italy survey after earthquake, consequences of the earthquake on health

## Chronic disease burden associated with obesity in Canada

---

S. Dai, MD, PhD (1); D. P. Rao, MSc (1); A. Bienek, MSc (1); C. Robitaille, MSc (1); K. C Roberts, MSc (1); C. Pelletier, MSc (1); F. Wang, MD, MSc (1); L. Pelletier, MD (1)

### Author references

1. Centre for Chronic Disease Prevention and Control, Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Sulan Dai; Email: [sulan.dai@phac-aspc.gc.ca](mailto:sulan.dai@phac-aspc.gc.ca)

**Background:** Obesity is a key contributor to chronic conditions, including hypertension, diabetes and cardiovascular disease (CVD).

**Purpose:** To examine the association between excess body weight and chronic conditions in Canada.

**Study/Intervention Design:** A cross-sectional study using data from the 2007-2009 Canadian Health Measures Survey.

**Methods:** Our study included 5,573 respondents aged 6 to 80 years. Measured body mass index (BMI) was calculated for all respondents and categorized as normal, overweight or obese. Further, the prevalence of measured or self-reported type 2 diabetes, hypertension, respiratory disease, heart disease, musculoskeletal conditions, and cancer was calculated among adult respondents and examined in relation with measured BMI using logistic regression.

**Results:** More than 40% of young Canadians (aged 6 to 39 years) surveyed were either overweight (24.2%, 95% CI: 20.6-27.8) or obese (17.2%, 95% CI: 14.7-19.7). Among those aged 40 to 80 years, 41.3% (95% CI: 38.0-44.7) were overweight and 27.1% (95% CI: 23.0-31.2) obese. Overall, nearly two-thirds of the respondents (64.6%, 95% CI: 61.5-67.8) reported no chronic conditions, whereas 20.9% (95% CI: 18.2-23.6) had one, 9.4% (95% CI: 8.2-10.52) had two and 5.1% (95% CI: 4.6-7.2) had three or more. Canadians who were obese were 3 times more likely (95% CI: 1.8-4.9) to have one or more chronic conditions, including hypertension (OR=2.6, 95% CI: 1.9-3.5), type 2 diabetes (OR=2.5, 95% CI: 1.8-3.5), and CVD (OR=2.2, 95% CI: 1.2-4.0).

**Conclusion:** More than a third of Canadians are living with at least one chronic condition. This risk is doubled in a population with measured overweight or obesity.

**Keywords:** body mass index, overweight, obesity, chronic disease, type 2 diabetes, cardiovascular disease, Canada

## The Manitoba Youth Health Survey Experience: Provincial Collaboration for Risk Factor Surveillance

---

T. Erickson, BComm (1); C. Leggett, MPH (2); Youth Health Survey Working Group (3)

### Author references

1. Interlake Regional Health Authority, Gimli, Manitoba, Canada
2. CancerCare Manitoba, Winnipeg, Manitoba, Canada
3. Partners in Planning for Healthy Living Youth Health Survey Working Group, Winnipeg, Manitoba, Canada

**Correspondence:** Tannis Erickson; Email: [terickson@irha.mb.ca](mailto:terickson@irha.mb.ca)

**Background:** The province of Manitoba spans a large and diverse geographical area. Communities are confronted with varying barriers to health, creating a need for community-specific data on risk factors for chronic disease.

**Purpose:** Partners in Planning for Healthy Living (PPHL) implemented the YHS to provide community-level risk factor data to schools, school divisions and regional health authorities (RHAs) to be used for evidence-based planning.



**Study/Intervention Design:** PPHL and Manitoba RHAs collaborated to develop and implement a provincial, youth-focused risk factor surveillance system.

**Methods:** The YHS (developed and piloted by the Interlake RHA) collected data from Manitoba's youth on chronic disease risk factors (including physical activity, healthy eating, tobacco and substance use, and school connectedness). PPHL supported the administration of the YHS through in-kind human resources, financial support and member expertise.

**Results:** The YHS was administered to students in grades 6 to 12 in more than 400 schools across Manitoba, including First Nations, Francophone and independent schools (n = 46 919). Feedback reports were provided at the school, school division, regional and provincial levels. In addition, numerous local knowledge-exchange activities have begun since the release of these reports.

**Conclusion:** Risk factor surveillance activities of this scope require multilevel leadership and support from diverse partners. Working and learning together allows us to provide relevant community-level data to inform community planning. The completion of the first cycle of the YHS has identified the need to establish a sustainable province-wide risk factor surveillance system.

**Keywords:** surveillance, youth, chronic disease risk factors

## Surveillance data in Italy: the Italian system PASSI

G. Ferrante, MD, MSc (1); V. Possenti, MSc (1); S. Baldissera, MD, MSc (1); N. Bertozzi, MD, MSc (2); G. Carrozzi, MD, MSc (3); B. De Mei, BSc (1); S. Campostrini, PhD (4); P. D'Argenio, MD (1); A. D'Argenzio, MD, MSc (5); P. Fateh-Moghadam, MD, MSc (6); V. Minardi, BSc (1); E. Quarchioni, BSc (1); M. O. Trinito, MD, MSc (7); S. Vasselli, BSc (8); S. Salmaso, BSc (1)

### Author references

1. CNESPS, Istituto Superiore di Sanità, Rome, Italy
2. Local Health Unit (LHU) Cesena, Cesena, Italy
3. LHU Modena, Modena, Italy
4. Ca' Foscari University, Venice, Italy
5. LHU Caserta, Caserta, Italy
6. LHU Trento, Trento, Italy
7. LHU Rome C, Rome, Italy
8. Ministry of Health, Italy

**Correspondence:** Gianluigi Ferrante; Email: [gianluigi.ferrante@iss.it](mailto:gianluigi.ferrante@iss.it)

**Background:** Monitoring population health-related behaviours is important to identify areas for public health intervention. The ongoing Italian Behavioural Risk Factor Surveillance System (PASSI) collects useful data at the local level, increases the use of epidemiological data, provides timely feedback and facilitates comparisons with international data and among local health units (LHUs) or regions.

**Purpose:** To describe up-to-date results of indicators related to lifestyles, not covered by other Italian sources.

**Study/Intervention Design:** PASSI is a cross-sectional telephone survey that provides information about quality of life, smoking habits, physical activity, diet, alcohol consumption, driving behaviours, cardiovascular risk factors, cancer screenings, vaccinations, mental health, domestic accidents and sociodemographic aspects.

**Methods:** Monthly telephone interviews are conducted by personnel of the LHUs with a random sample of the resident general population aged 18 to 69 years. More than 140 000 interviews have been collected (2007 to May 2011). In 2010, 138 LHUs participated in surveillance, with an eligibility rate of 96%, a response rate of 87% and a substitution rate of 13%.

**Results:** In 2010, 28% of respondents were cigarette smokers. Among smokers within 12 months before interview, 40% tried quitting; of these, 8% succeeded, 9% were still trying and 83% failed. Fifteen per cent of interviewees were asked by a general practitioner (GP) about alcohol consumption habits; among at-risk alcohol drinkers, only 6% reported having received advice to drink less alcohol. Both these percentages have been stable since 2007. Among overweight/obese people, 52% were advised by a GP to lose weight (44% of overweight people, 77% of obese people) and 39%, to do physical exercise regularly.

**Conclusion:** PASSI provides public health authorities with useful information to plan and evaluate interventions for chronic disease prevention.

**Keywords:** public health, behaviours, lifestyles, advice, interventions, prevention

## Cardiovascular and chronic disease risk factors in a population of Colombian coffee growers

M. A. González, MD, MSc (1,2); R. J. Dennis, MD, MSc (3,4); J. H. Devia, MD (1); D. Echeverri, MD (5); G. Briceño, MD (3); F. Gil, Est. \*, MSc (4); A. Jurado (6); M. Mora, Est. \* (6)

### Author references

1. Colombian Coffee Growers Federation, Bogotá, Colombia
2. Department of Social and Preventive Medicine, School of Public Health, Université de Montréal, Montréal, Quebec, Canada
3. Department of Research, Fundación Cardioinfantil-Instituto de Cardiología, Bogotá, Colombia
4. Department of Clinical and Biostatistics Epidemiology, Javeriana University, Bogotá, Colombia
5. Cardiology and Hemodynamic Unit, Fundación Cardioinfantil-Instituto de Cardiología, Bogotá, Colombia
6. Alberto Jurado Consulting, Bogotá, Colombia

**Correspondence:** Miguel Antonio González; Email: [miguel.antonio.gonzalez@umontreal.ca](mailto:miguel.antonio.gonzalez@umontreal.ca)

**Purpose:** To estimate the prevalence of cardiovascular and chronic disease risk factors in a population of Colombian coffee growers.

**Study/Intervention Design:** Cross-sectional survey.

**Methods:** We used multistage cluster sampling, selecting 13 municipalities and 55 villages. A total of 2 516 men and women aged 18 to 74 years were surveyed in 2007. We used instruments recommended by the Pan American Health Organization, with anthropometric and biochemical measurements. We performed descriptive univariate and bivariate analyses. Comparisons were made with previous study results.

**Results:** Prevalence estimates were as follows: current smokers, 21.1% (95% CI: 19.2–23.3); sedentary lifestyle, 31.2% (95% CI: 27.8–32.6); daily consumption of less than 5 servings of fruit and vegetables, 86.3% (95% CI: 84.4–87.9); high alcohol consumption, 2.2% (95% CI: 1.6–3.2); blood hypertension, 26.2% (95% CI: 23.9–28.6); diabetes, 4.6% (95% CI: 3.6–5.8); hyperlipidemia, 62.1% (95% CI: 59.5–64.7); overweight and obesity, 42.9% (95% CI: 40.4–45.5). Eighty-five per cent of survey respondents had 2 or more risk factors simultaneously. Sedentary lifestyle, diabetes, hyperlipidemia and overweight/obesity were more prevalent among women ( $p < 0.001$ ). Prevalence of alcohol consumption and smoking was higher among men ( $p < 0.001$ ). Age, marital status, education, income and type of health system were related to the risk factors studied.

**Conclusion:** These results add to the limited information available on rural and agricultural populations of Latin America and could contribute to the orientation of interventions. We did not observe substantial progress in terms of decreased prevalence of risk factors in comparison with the second national survey on risk factors for chronic diseases. Our findings suggest that social, cultural and health system determinants could explain the results of this study.

**Keywords:** risk factors, chronic diseases, cardiovascular diseases, prevalence, rural population

\* Estadístico (statistician degree).

## Evaluation of the effectiveness of the "Schools Free of Tobacco Smoke" program in Lara State, Venezuela

R. Granero, MD (1,2); Z. Sánchez, MD (1,2); S. Cabré, PhD (1,3)

### Author references

1. Americas' Network for Chronic Disease Surveillance (AMNET) / Red de Vigilancia de Enfermedades Crónicas del Continente Americano
2. Asociación Cardiovascular Centrooccidental (ASCARDIO), Barquisimeto, Lara State, Venezuela
3. Ciencias de la Salud, Universidad Centrooccidental "Lisandro Alvarado," Barquisimeto, Lara State, Venezuela

**Correspondence:** Ricardo Granero; Tel.: +58 (251) 7194403

**Purpose:** To evaluate the "Schools Free of Tobacco Smoke" program that was implemented in Venezuela to prevent the use of tobacco by students in public and private schools.

**Study/Intervention Design:** The methodological approach was both qualitative and quantitative, including the use of data from an epidemiological surveillance system (EMTAJOVEN).

**Methods:** The evaluation had four phases: (1) description of the intervention, (2) comprehensive interpretive analysis through systematization of the experience, (3) analysis of EMTAJOVEN data, and (4) complex synthesis of the experience.

**Results:** Contextual aspects of the intervention allowed us to consider the vulnerable environment of program implementation, key element of the analysis along with EMTAJOVEN data. The program was initiated in Lara State with a 1-year delay, and only one person was devoted to working part-time on its implementation. The program was introduced in only 9% of 1844 eligible schools due to logistics issues. No significant changes in smoking were observed in this group of students.

**Conclusion:** Having only one person conduct the program made the intervention vulnerable to time constraints and issues with the administration of the intervention. The tobacco control initiative in schools was circumstantial with little or no follow-up.

**Keywords:** tobacco, evaluation, programs, intervention

## Adolescent alcohol use and school performance in Hong Kong

R. Huang, MB (1); S. Y. Ho, PhD (1); W. S. Lo, PhD (1); T. H. Lam, MD (1)

### Author references

1. School of Public Health, The University of Hong Kong, Hong Kong, China

**Correspondence:** R. Huang; Email: [rongwong@hku.hk](mailto:rongwong@hku.hk)

**Background:** Although binge drinking could impair adolescent learning ability, little is known about the effect of frequent or infrequent drinking.

**Purpose:** To examine the association between alcohol use and school performance in adolescents in Hong Kong.

**Study/Intervention Design:** School-based cross-sectional study in 2006/2007 that was part of the Hong Kong Student Obesity Surveillance project.

**Methods:** A total of 25 097 Form 1 (US Grade 7) to Form 7 students with mean age of 15.0 years (SD 2.0) from 42 randomly selected schools completed a self-administered questionnaire on lifestyle and school performance. Students reported their school performance compared with others as very poor, poor, average, good or very good. They described their usual weekly frequency of alcohol use as none (reference group), less than 1 time or 1 to 2 times (infrequent drinking), or 3 to 6 times daily (frequent drinking). Logistic regression analysis was used to examine the association between school performance and alcohol use, adjusting for sociodemographic characteristics and smoking status.

**Results:** One-fifth (19.1%) of students drank infrequently, and 7.4% drank frequently. About 17.0% reported very poor/poor school performance. Students with infrequent and frequent drinking were 34.7% (95% CI: 23.2%–47.3%) and 67.0% (48.1%–88.3%) more likely, respectively, to report very poor/poor (vs. average/good/very good) school performance, as compared with students who did not usually drink ( $p$  for trend < 0.001).

**Conclusion:** Alcohol use is associated with poorer school performance with a dose-response effect in adolescents in Hong Kong. Prospective studies of the adverse effects of drinking are warranted.

**Keywords:** school performance, alcohol use, adolescents

## Risk and protective factors for chronic diseases identified by telephone survey, Brazil, 2010

---

B. P. M. Iser, [BHSc](#) (1); L. M. V. Sardinha, [MSc](#) (1); R. T. C. Yokota, [MSc](#) (1); N. N. Bandeira de Sá, [MSc](#) (1); D. C. Malta, [MD](#), [PhD](#) (1)

### Author references

1. General Coordination of Non Communicable Diseases and Injuries, Secretariat of Health Surveillance, Ministry of Health, Brazil

**Correspondence:** Betine Pinto Moehlecke Iser; Email: [betine.iser@saude.gov.br](mailto:betine.iser@saude.gov.br)

**Background:** In 2006, a system to monitor risk and protective factors for chronic diseases through telephone interviews (Vigitel) was developed in Brazil.

**Purpose:** To describe the risk and protective factors for chronic diseases with 2010 data from the telephone survey.

**Study/Intervention Design:** National cross-sectional telephone survey.

**Methods:** Telephone interviews were conducted in a probabilistic sample of the population covered by land line telephones in Brazilian state capitals and the Federal District. Prevalence estimates of the main risk and protective factors for chronic diseases were calculated for adults aged 18 years or older, stratified by sex, age and level of education.

**Results:** Data from 54 339 adults were collected in 2010. Risk factors like smoking (15.1%), overweight (48.1%) and fatty meat consumption (34.2%) were more prevalent in men and in people with lower education levels. Soft drink consumption (28.1%), binge drinking (18.0%) and watching television 3 or more hours a day (28.2%) were more frequent among young adults. Men were more active in their leisure time (18.6%) and consumed more beans (72.2%) than women did (11.7% and 62.0%, respectively), whereas fruit and vegetable intake was more frequent among women, older adults and people with higher education levels. Poor self-rated health and self-reported diagnoses of hypertension, diabetes and asthma were more prevalent in women (5.4%, 25.5%, 7.0% and 7.6%, respectively) than in men (3.5%, 20.7%, 5.4% and 6.0%).

**Conclusion:** The results revealed different health behaviours according to sex, age and level of education in Brazil. This variability could inform health promotion actions.

**Keywords:** chronic diseases, epidemiological studies, surveillance

## Risk and protective factors for chronic diseases in the adult Brazilian population according to health insurance coverage, 2009

---

B. P. M. Iser, [BHSc](#) (1); R. M. Claro, [PhD](#) (2); L. M. V. Sardinha, [MSc](#) (1); R. T. C. Yokota, [MSc](#) (1); N. N. Bandeira de Sá, [MSc](#) (1); D. C. Malta, [MD](#), [PhD](#) (1)

### Author references

1. General Coordination of Non Communicable Diseases and Injuries, Secretariat of Health Surveillance, Ministry of Health, Brazil
2. Center for Epidemiological Studies in Health and Nutrition - Public Health Faculty, University of São Paulo ([NUPENS-USP](#)), São Paulo, São Paulo, Brazil

**Correspondence:** Betine Pinto Moehlecke Iser; Email: [betine.iser@saude.gov.br](mailto:betine.iser@saude.gov.br)

**Background:** About 23% of the Brazilian population is covered by private health insurance. In Brazil, the health insurance coverage reflects social disparities and influences health services use.

**Purpose:** To describe the main risk and protective factors for chronic diseases in Brazilian adults according to their health insurance coverage status.

**Study/Intervention Design:** National cross-sectional telephone survey.

**Methods:** We analyzed telephone surveillance data (Vigitel) from 2009. Telephone interviews were conducted in a probabilistic sample of the population covered by land line telephones in Brazilian state capitals and the Federal District. Prevalence estimates (and 95% [CIs](#)) of the main risk and protective factors for chronic diseases

were calculated for adults aged 18 years or older by sex, age and education, according to their health insurance coverage.

**Results:** Of 54 367 adults interviewed, 42.6% had health insurance, with no difference shown between men and women. The highest frequency of health insurance coverage was found among individuals aged 35 years or more and among those with 12 years of schooling or more. The uninsured population presented a higher frequency of current smokers, passive smokers at home and at work, fatty meat consumption, poor self-rated health, and self-reported diagnoses of hypertension and cardiovascular diseases. Consumption of fruits and vegetables and leisure-time physical activity were more prevalent in the population covered by at least one health plan. The prevalence of having had Pap smears and mammography screening was also higher among women covered by health insurance.

**Conclusion:** Adults covered by health insurance presented higher frequency of protective factors and lower frequency of risk factors for chronic diseases than did those who were uninsured.

**Keywords:** chronic diseases, epidemiological studies, surveillance, health insurance

## Building Australia's risk factor evidence: The Australian Health Survey

---

P. L. Jelfs, PhD (1); D. Zago (2); J. Pettit (2); J. Baines (3)

### Author references

1. Health Information Branch, Australian Bureau of Statistics, Belconnen, ACT, Australia
2. Health Surveys Section, Health Information Branch, Australian Bureau of Statistics, Belconnen, ACT, Australia
3. Population Health, Department of Health and Ageing, Canberra, Australia

**Correspondence:** Paul Jelfs; Email: [paul.jelfs@abs.gov.au](mailto:paul.jelfs@abs.gov.au)

**Background:** The Australian Health Survey (AHS) is a major investment in public health information. It will deliver key information on health status, health risk factors, health service usage and the impact of ill health for all Australians, as well as new information about physical activity, nutrition and biomedical measures.

**Purpose:** The AHS is designed to provide important health-related information to monitor the health of Australians, report on key monitoring indicators for all levels of government and support key research.

**Study/Intervention Design:** Cross-sectional, clustered random sample survey. The AHS is the largest and most complex health survey in Australia.

**Methods:** The AHS will survey 50,000 people in the general and Aboriginal and Torres Strait Islander communities across Australia. It will combine face-to-face interviews, computer-assisted telephone interviews, objective body measures and blood pressure. Voluntary blood and urine collection will be offered using existing pathology collection centres and centralized processing. The survey uses core questions from previous surveys, nutritional survey components (Australianized) drawn from the National Health and Nutrition Examination Survey (NHANES), new content in physical activity and special tailoring of the survey to the Aboriginal and Torres Strait Islander population.

**Results:** Results are expected to be delivered commencing October 2012. Results may be presented on the cognitive testing, pilot tests and dress rehearsals, and on response rates for the first half of the survey.

**Conclusion:** The AHS represents a major public investment from the Australian Bureau of Statistics (ABS), the Heart Foundation Australia and the Department of Health and Ageing. High expectations are held for the outputs by a wide range of stakeholders. The ABS is working closely with advisory groups to ensure a strong outcome from this survey.

**Keywords:** Australian Health Survey, biomedical, risk factors, nutrition

## Rising incidence of adenocarcinoma of the lung in Canada

---

X. Jiang, RN (1); M. de Groh, PhD (1); S. Liu, MD, PhD (2); H. Morrison, PhD (1)

### Author references

1. Science Integration Division, Centre for Chronic Disease Prevention and Control, Public Health Agency of Canada, Ottawa, Ontario, Canada

2. Health Surveillance and Epidemiology Division, Centre for Chronic Disease Prevention and Control, Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** XiaoHong Jiang; Email: [xiaohong.jiang@phac-aspc.gc.ca](mailto:xiaohong.jiang@phac-aspc.gc.ca)

**Purpose:** This study examined temporal trends in the incidence and mortality of lung cancer; temporal trends in histological types of lung cancer for the provinces of Ontario, Saskatchewan and British Columbia; and age-period-cohort effects on the incidence rates in Canada.

**Methods:** We obtained incidence data for 1972 to 2006 from the Canadian Cancer Registry Database and mortality data for the same period from the Canadian Vital Statistics Death Database. The 5-year period rates and annual percentage changes (APCs) were calculated to compare the changes over the study period. We used age-period-cohort modelling to estimate underlying effects on the observed trends in incidence by histological type of lung cancer.

**Results:** In Canada, age-adjusted incidence and mortality rates have increased 160% and 157% respectively among women. However, age-adjusted incidence and mortality rates have declined 21% and 13% respectively among men over the 34 years. The three major histological types—adenocarcinoma (APC: 4.4), squamous cell carcinoma (APC: 2.9), and small cell carcinoma (APC: 3.6)—have increased in women. Whereas adenocarcinoma (APC: 2.0) increased moderately, squamous (APC: -1.5) and small cell carcinoma (APC: -0.3) declined in men between 1972 and 2006 in Ontario, Saskatchewan and British Columbia. Age-specific incidence rates increased most rapidly in women aged 70+ years with adenocarcinoma (APC: 6.4). Men aged 70+ years also experienced a significant increase in adenocarcinoma (APC: 3.3).

**Conclusion:** Our results suggest that the observed increases in adenocarcinoma incidence are consistent with smoking trends over time, particularly differential patterns in smoking prevalence among men and women. The relative increase in consumption of lower tar and filtered cigarettes and exposure to environmental carcinogens may have played a role.

**Keywords:** lung cancer, adenocarcinoma, time trends, cigarette smoking, age-period-cohort modelling

## Non-communicable disease risk factor surveillance in China

Y. Jiang, MPH (1); L. Wang, MPH (1); M. Zhang, MPH (1); Y. Li, MPH (1); N. Hu, MSc (1); Z. Huang, BSc (1); X. Li, MPH (1); P. Yin, PhD (1); Z. Wang, PhD (1); W. Zhao, PhD (1); L. Wang, PhD (1)

### Author references

1. National Centre for Chronic and Non-Communicable Disease Control and Prevention (NCNCD), Chinese Centre for Disease Control and Prevention, Beijing, China

**Correspondence:** Yong Jiang; Email: [jerryjiang@263.net](mailto:jerryjiang@263.net)

**Background:** As China sees socio-economic development and lifestyle changes, noncommunicable diseases (NCDs) such as cardiovascular diseases, malignant tumours, chronic obstructive pulmonary diseases and diabetes have begun to pose a challenge to the health of the Chinese population.

**Purpose:** To provide the epidemiologic profile and trends of chronic disease risk factors and the main chronic diseases; to identify priorities for chronic disease control and prevention; and to provide information for evaluating national public health policy and the effect of NCD control and prevention strategies.

**Study/Intervention Design:** China's national risk factor surveillance system was created by the NCNCD based on China's National Disease Surveillance Point System.

**Methods:** Household or community-based surveys were adopted. Surveillance content comes from questionnaire interviews, physical measurements and laboratory tests. Questionnaire data, collected face-to-face by interviewers, consist of information on demographics, behavioural risk factors such as smoking, alcohol drinking, unhealthy diet and physical inactivity, and history of diseases such as hypertension and diabetes. Physical measurements were taken of weight, height, waist circumference and blood pressure. In 2010, we added laboratory tests, including fasting blood glucose, oral glucose tolerance test, hemoglobin A1c and blood lipid. Quality control measures were applied to ensure the quality of the surveillance work.

**Results:** China's national risk factor surveillance system has been firmly established, and a great deal of information has been collected and provided to inform decision making. Comprehensive surveys have been carried out every 3 years since 2004.

**Conclusion:** Representative NCD risk factor surveillance is vital to evidence-based decision making.

**Keywords:** China, chronic disease, risk factor, surveillance

## Relative burden of disease in the general population of Edmonton, Alberta

---

C. Kontz, RN, MPH (1); S. D. Kelly, MA, MSLP (1); M. Kosinski, MA (2)

### Author references

1. Alberta Health Services, Edmonton, Alberta, Canada
2. Quality Metric Incorporated (now part of Optuminsight), Lincoln, Rhode Island, U.S.A.

**Correspondence:** Crispin Kontz; Email: [crispin.kontz@albertahealthservices.ca](mailto:crispin.kontz@albertahealthservices.ca)

**Background:** Generic measures of functional health status provide a common currency by which to evaluate the relative burden of disease in general populations.

**Purpose:** To estimate the functional health status burden of self-reported conditions in the general population of Edmonton, Alberta, and to compile normative data to be used to estimate disease burden and interpret outcomes in several Alberta Health Services care management programs.

**Study/Intervention Design:** A cross-sectional study examining questionnaire data collected from a representative sample of the Edmonton population.

**Methods:** Functional health status was measured using the SF-12v2 Health Survey, a brief 12-item questionnaire scored to produce two psychometrically derived summary measures of physical (PCS-12) and mental (MCS-12) health status. Respondents also completed a checklist of 24 self-reported conditions. A relative burden analysis was conducted using linear regression methods with PCS-12 and MCS-12 as dependent variables, and demographics and self-reported conditions as independent variables.

**Results:** A total of 2059 respondents returned completed questionnaires (42% response rate). The average age of the sample was 51 years, 52% was female and 79% self-reported one or more conditions. The top self-reported conditions included low back pain (31%), arthritis (27%), high blood pressure (24%) and high cholesterol (18%). Regression analyses showed that limitations in use of arms or legs, liver disease, chronic obstructive pulmonary disease, arthritis and incontinence had the greatest physical health burden, and mood disorder, eating disorder, schizophrenia, incontinence and hearing impairment had the greatest mental health burden in the Edmonton population.

**Conclusion:** Generic functional health status measures provide valuable insights into the relative burden of conditions in general populations.

**Keywords:** functional health status, disease burden

## Manitoba's experience building a system of surveillance leading to action

---

C. Leggett, MPH (1); N. McPherson, MSc (2); K. McGarry, MSc, MPA (1); E. Harland, MA (1); J. Allan, BScN (3); T. Erickson, BComm (4); B. Kinasevych, MSc (5); Adult Risk Factor Surveillance Working Group (6)

### Author references

1. CancerCare Manitoba, Winnipeg, Manitoba, Canada
2. Brandon Regional Health Authority, Brandon, Manitoba, Canada
3. Assiniboine Regional Health Authority, Manitoba, Canada
4. Interlake Regional Health Authority, Manitoba, Canada
5. Health in Common, Winnipeg, Manitoba, Canada
6. Partners in Planning for Healthy Living Adult Risk Factor Surveillance Working Group, Winnipeg, Manitoba, Canada

**Correspondence:** Carly Leggett; Email: [carly.leggett@cancercare.mb.ca](mailto:carly.leggett@cancercare.mb.ca)

**Background:** Recognizing the need for local level data and a province-wide approach, a group of stakeholders collaborated to create a primary prevention system for Manitoba. This group is known as Partners in Planning for Healthy Living (PPHL).

**Purpose:** The system's goal is to ensure stakeholder access to community-specific risk factor surveillance information, local program evaluation and practice-based evidence for chronic disease prevention. In turn, all data is integrated within a systematic, evidence-based program planning framework.

**Study/Intervention Design:** PPHL's role is to provide leadership and support the use of evidence in planning interventions promoting healthy living in communities across Manitoba. PPHL members share a common mandate for the prevention of chronic diseases.

**Methods:** To date, PPHL has focused on two main activities: local area risk factor surveillance and knowledge exchange.

**Results:** PPHL membership has expanded rapidly, and as a result of this collaboration, many regions have built capacity in risk factor surveillance. While several members have implemented community adult health surveys, all regions in Manitoba participated in a youth health survey in partnership with the education and health systems. Most recently, PPHL hosted a successful provincial risk factor surveillance conference.

**Conclusion:** PPHL works and learns together, building capacity and using evidence to develop an integrated knowledge system within the Manitoba context. This dynamic nature allows for multilevel leadership while maintaining local level control over data. Regions have evidence meeting their specific needs while contributing to the provincial system. PPHL truly embodies "thinking like a system and learning as we go."

**Keywords:** surveillance, primary prevention, chronic disease

## Patterns of occupational injuries in a coastal area and a mountain area in Southern China

L. Li, PhD (1); X. Liu, MPH (1,2); B. C. K. Choi, PhD (1,3); Y. Lu, MBBS (1); M. Yu, MPH (4)

### Author references

1. Injury Prevention Research Centre, Shantou University Medical College, Shantou, Guangdong, China
2. Shenzhen Centre for Disease Prevention and Control, Shenzhen, Guangdong, China
3. Department of Epidemiology and Community Medicine, University of Ottawa, Ottawa, Ontario, Canada
4. Zhejiang Provincial Centre for Disease Prevention and Control, Hangzhou, Zhejiang, China

**Correspondence:** Liping Li; Email: [lppli@stu.edu.cn](mailto:lppli@stu.edu.cn)

**Background:** Occupational injury is a serious problem affecting workers' health. An injury surveillance system was set up in China to track the pattern of occupational injuries, and it has been effective in preventing injuries. China's economy is more developed in the south, especially in the coastal areas that attract migrants from other provinces. As most of these migrant workers are young and inexperienced job seekers, a high level of occupational injuries has been reported and cannot be neglected.

**Purpose:** To compare the patterns of occupational injuries in two different areas—coastal and mountain—in Southern China to provide information for the development of prevention measures in China.

**Study/Intervention Design:** Data from an injury surveillance system (ISS) were obtained based on hospital data collected from April 1, 2006, to March 31, 2008.

**Methods:** Occupational injury was defined as injury that occurred when the activity indicated was work. Descriptive analysis and  $\chi^2$  tests were used to study the distribution and differences in injuries between the two areas.

**Results:** Men were more likely to experience occupational injuries, with no difference in the two areas ( $p = 0.112$ ). In the coastal area occupational injuries occurred more among those aged 21 to 30 years, but in the mountain area it occurred more in those aged 41 to 50 years ( $p < 0.001$ ). Occupational injuries in the two areas differed by location of hometown, education and occupation (all  $p < 0.001$ ). The peak month of the year for these injuries was also different in the two areas ( $p < 0.001$ ). Industrial and construction areas were the most frequent locations of occurrence ( $p < 0.001$ ). Most occupational injuries were unintentional and not serious, and patients could go home after treatment. The two areas also differed in external causes and consequences of occupational injuries.

**Conclusion:** The patterns of occupational injuries in the coastal and mountain areas in Southern China differed. Different preventive measures should be developed to correspond to the distinct patterns.



**Keywords:** occupational injuries, preventive measures, industrial, rural, China

## The effect of socio-economic status on chronic disease behavioural risk factors among Chinese adults

---

Y. Li, [MMed](#) (1); Y. Jiang, [MPH](#) (1); M. Zhang, [MMed](#) (1)

### Author references

1. National Centre for Chronic and Non-Communicable Disease Control and Prevention ([NCNCD](#)), Chinese Centre for Disease Control and Prevention, Beijing, China

**Correspondence:** Yichong Li; Tel.: +86 010 83136482

**Background:** Chronic diseases have become the leading causes of mortality in China, and related behavioural risk factors ([BRFs](#)) have shifted tremendously in past decades.

**Purpose:** To examine the relationship between socio-economic status (SES) and chronic disease [BRFs](#) at the national level.

**Study/Intervention Design:** National cross-sectional survey.

**Methods:** The 2007 China Chronic Disease and Risk Factor Surveillance survey was conducted by face-to-face interviews with 49 247 Chinese aged 15 to 69 years. We used weighted prevalence and logistic regression, taking into account the complex sample design and controlling for potential confounders, to examine the effect of educational level and household income on five [BRFs](#): tobacco use, excessive alcohol drinking, insufficient vegetable and fruit intake, physical inactivity, and overweight or obesity.

**Results:** As educational levels rose, Chinese adults were less likely to use tobacco products and to consume insufficient fruit and vegetables, whereas no statistically significant associations were found between education and the other three [BRFs](#). With regard to household income, individuals living in families in the lowest income quartile were the least likely to smoke, drink heavily and be overweight or obese, but were the most likely to consume insufficient fruit and vegetables and to lead a low-activity lifestyle.

**Conclusion:** Although some [BRFs](#) were inversely associated with SES, certain unexpected positive or insignificant relationships between [BRFs](#) and SES were found. This implies that populations with high SES are still at considerable risk of having [BRFs](#), and interventions targeting broad populations with the whole spectrum of SES are needed in China.

**Keywords:** China, behavioural risk factor, socio-economic status

## Chronic Disease InfoBase: Canada's online data dissemination tool

---

H. Liang, [MD](#), [PhD](#) (1)

### Author references

1. Surveillance Division, Centre for Chronic Disease Prevention and Control, Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Hongbo Liang; Email: [hongbo.liang@phac-aspc.gc.ca](mailto:hongbo.liang@phac-aspc.gc.ca)

**Background/Purpose:** Surveillance, health promotion and disease prevention require high-quality and up-to-date data, appropriate statistical analyses, easy-to-understand presentations, and easily accessible information. Canada's Chronic Disease Infobase (Infobase) and the World Health Organization Global Infobase ([WHO](#) Infobase) provide excellent examples of this standard.

**Study/Intervention Design:** Infobase was initially designed and developed in Canada in the late 1990s and was a precursor of the [WHO](#) Infobase.

**Methods:** Infobase collects data on major non-communicable diseases and risk factors from varied sources, displaying data and information in a format that is easily accessible to professionals and the general public. Infobase contains over 2 million data points and over 200 subdata groups regarding demographics, morbidity, mortality, risk factors and health-related services, spanning the past few decades to the present at national and

local levels. The major data sources are national health surveys, birth and death databases, and disease registry databases. The [SQL](#) Server Database and [ASP.NET](#) software are used for the Infobase application.

**Results:** Infobase ([infobase.phac-aspc.gc.ca](http://infobase.phac-aspc.gc.ca)) presents many statistical analyses, such as age-standardized incidence, hospital discharge and mortality rates; risk factor prevalence; mortality, birth cohort and proportional mortality trends; and national and regional health profiles. Results are displayed on maps, graphs and tables with a link to indicate the original sources. A data cube technology solution is also currently available. The [WHO](#) Infobase is available at [infobase.who.int](http://infobase.who.int).

**Conclusion:** Chronic Disease Infobase presents an easy and quick way for accessing the most recent health data and information online. It can be used to promote and monitor prevention of chronic diseases and to improve public health practices.

**Keywords:** chronic disease, risk factor, health indicators, data dissemination, map, data cube

## Epidemiology of asthma in [US](#) adults: a population-based examination of health service deficits

M. N. Lutfiyya, [PhD](#) (1); J. E. McCullough, [MD](#), [MPH](#), [MSc](#) (2); M. Lipsky, [MD](#), [MSc](#) (3)

### Author references

1. Essentia Institute of Rural Health, Research Division, Duluth, Minnesota, [USA](#)
2. Spokane Regional Health District, Spokane, Washington, [USA](#)
3. Department of Community and Family Medicine, University of Illinois–Chicago College of Medicine at Rockford, Rockford, Illinois, [USA](#)

**Correspondence:** May Nawal Lutfiyya; Email: [mlutfiyya@eirh.org](mailto:mlutfiyya@eirh.org)

**Background:** Asthma prevalence in the [US](#) is higher than it is in many other countries. Large health care expenditures are associated with asthma morbidity and mortality. In the [US](#) many groups bear a disproportionate disease burden for asthma.

**Purpose:** Understanding the epidemiology of adult asthma and deficits in health care can help to identify opportunities for improving care and effectively managing resources. "Health service deficits," the dependent variable for this study, was calculated from a number of other variables and entailed a lack of health insurance, not having a healthcare provider, deferring medical care because of cost and having had no routine medical exam.

**Study/Intervention Design:** Cross-sectional.

**Methods:** Multivariate analysis was performed on 2005 data from the Behavioral Risk Factor Surveillance System ([BRFSS](#)) to examine health service deficits experienced by adults with asthma, controlling for socio-economic status (SES), race and ethnicity, and geographic locale. To identify where the greatest health service deficits existed, we calculated rates for each [US](#) state, and GIS software was used to map all states according to the health services deficit variable.

**Results:** Hispanic ([OR](#) = 1.683, 95% [CI](#): 1.677–1.689) and other/multiracial ([OR](#) = 1.454, 95% [CI](#): 1.449–1.460) adults with current asthma had greater odds for having a health service deficit. Rural adults with current asthma had greater odds of having such a deficit ([OR](#) = 1.127, 95% [CI](#): 1.124–1.130). Adults of low SES ([OR](#) = 1.689, 95% [CI](#): 1.684–1.694) and middle SES ([OR](#) = 1.329, 95% [CI](#): 1.326–1.333) with current asthma had greater odds for having a health service deficit. There was a 31-point range by state in the percentage of adults with current asthma experiencing at least one health service deficit, from a low of 28.5% (Delaware) to a high of 58.8% (Wyoming).

**Conclusion:** There are clear patterns of disparity associated with health services and asthma among [US](#) states.

**Keywords:** [US](#) adult asthma surveillance, [US](#) health service deficits, [US](#) asthma disparities, asthma epidemiology

## Rural chronic disease surveillance and small area analysis

M. N. Lutfiyya, [PhD](#) (1); M. L. Decou, [RN](#), [MSc](#) (2,3); M. MacLeod (2); C. Hynes (4)

**Author references**

1. Essentia Institute of Rural Health, Research Division, Duluth, Minnesota, [USA](#)
2. Public Health Agency of Canada, Ottawa, Ontario, Canada
3. Canadian Alliance for Regional Risk Factor Surveillance ([CARRFS](#)), Windsor, Ontario, Canada
4. [NOR-MAN](#) Regional Health Authority, Flin Flon, Manitoba, Canada

**Correspondence:** May Nawal Lutfiyya; Email: [mlutfiyya@eirh.org](mailto:mlutfiyya@eirh.org)

**Background:** Public health is about the health of people in their context. Provincial/state-level health departments/ministries/agencies all need and struggle to obtain precise local health-related data for program planning and resource allocation. In both Canada and the [US](#) there are numerous rich and varied data sources for national as well as provincial/state-level health surveillance in the form of large national and public databases (e.g., Canadian Community Health Survey, Aboriginal Peoples Survey, Behavioral Risk Factor Surveillance Survey, National Health Interview Survey). Few health-related data sources exist for smaller geographic areas (e.g., county, zip or postal code, neighbourhood, village, Census Dissemination Area). Small area analysis is a method of analyzing the variation in health care use in small geographic or demographic areas.

**Purpose:** To identify and compare methods used for small area analysis, especially for health surveillance in rural areas. Small area analysis offers a promising avenue for producing health-related prevalence estimates for chronic conditions in rural areas that can be produced annually for surveillance and monitoring purposes.

**Study/Intervention Design:** Review of current approaches.

**Methods:** We reviewed a number of studies using and describing small area analysis.

**Results:** We identified three methods used for small area analysis: the synthetic method, spatial data smoothing and regression analysis. These offer important alternatives to direct approaches to prevalence estimation when such cannot produce stable estimates for the areas of interest.

**Conclusion:** Small area analysis approaches are fairly sophisticated. Given the meaningful yield for regional health and other health entities, sharing this knowledge with epidemiologists or other data analysts would be worthwhile.

**Keywords:** small area analysis, rural chronic disease surveillance

## Lifestyles of adolescents attending school in the district of Huila

---

J. M. Mahecha, [MA](#) (1); C. Figueroa, BPE (2)

**Author references**

1. Docente Universidad Surcolombiana, Neiva, Huila, Colombia
2. Colciencias, Neiva, Huila, Colombia

**Correspondence:** Jaime Monje Mahecha; Email: [jaimemonje@usco.edu.co](mailto:jaimemonje@usco.edu.co)

**Background:** A great deal of attention has been devoted to studying lifestyle and its contribution to the increased prevalence of chronic diseases among adults in the district of Huilla. However, the situation in adolescents has not been investigated.

**Purpose:** To characterize the lifestyles of adolescents attending school in the district of Huila, Colombia, based on their practices and beliefs.

**Study/Intervention Design:** Descriptive cross-sectional study.

**Methods:** A questionnaire, developed using the Likert scale, was administered to a stratified random sample of 916 students. Questions on physical activity, management of leisure time, self-care, food habits, sleep patterns, smoking and consumption of psychoactive substances (alcohol and drugs) were incorporated.

**Results:** In general terms, students in Huila have a healthy lifestyle and favourable attitudes toward health. Nonetheless, there is a disconnect between belief and practice in the areas of physical activity and dietary habits. Sixty-nine per cent of the students do not participate in any extracurricular activities during their leisure

time. Social inequalities in the district were not found to be associated with how the students perceive their lifestyle.

**Conclusion:** Many Huila adolescents appear to have low levels of physical activity and poor dietary habits, independent of social inequalities and beliefs about physical activity and maintaining healthy food habits.

**Keywords:** habits, lifestyle, physical activity

## Developing behavioural risk factor indicators: the need to include multiple disciplines when developing indicators for the built environment

A. Mahendra, MHSc (1); S. Galloway, MUD, MCIP, RPP (2); H. Chen, PhD (3); J. Chow, MSc, CPHI(C) (4); F. Cabarcas Sr., PhD (5); J. Gervais, CTTS-M (6); S. Johnson, MSc (3); S. Maaten, MSc (7); D. Moore, MSc (6); J. Skinner, MSc (8)

### Author references

1. Public Health Agency of Canada, Ottawa, Ontario, Canada
2. City of London, London, Ontario, Canada
3. Ontario Agency for Health Protection and Promotion, Toronto, Ontario, Canada
4. York Region, Newmarket, Ontario, Canada
5. Halton Region, Oakville, Ontario, Canada
6. Niagara Region Public Health, Thorold, Ontario, Canada
7. Middlesex-London Health Unit, London, Ontario, Canada
8. Haliburton, Kawartha, Pine Ridge District Health Unit, Port Hope, Ontario, Canada

**Correspondence:** Ahalya Mahendra; Email: [ahalya.mahendra@phac-aspc.gc.ca](mailto:ahalya.mahendra@phac-aspc.gc.ca)

**Background:** The Ontario Public Health Standards require public health units in Ontario to work with municipalities to support healthy public policies and to create and enhance supportive environments in recreational settings and the built environment. A working group of the Association of Public Health Epidemiologists in Ontario (APHEO) has thus been developing indicators that can be used to measure and track the impact of the built environment on population health outcomes. This task, as part of the Core Indicator Project of APHEO, was renewed in January 2011. The working group consists of epidemiologists, municipal planners and health promoters.

**Purpose:** To describe the process of selecting and developing key built environment indicators by the working group of APHEO.

**Study/Intervention Design:** Case study.

**Methods:** To select valid and measurable indicators of the built environment, the working group developed a process that includes assessing the relationship between the built environment and physical activity, conducting literature reviews of planning documents, and setting up brainstorming meetings among multidisciplinary groups.

**Results:** The development of built environment indicators has benefited from cross-disciplinary partnership between municipal planners and public health professionals. Members of the group from different disciplines offer expertise that is specific to their area of practice, yet have equal value in describing and measuring the health impacts of the built environment. The indicators under development include density, street connectivity and land use mix.

**Conclusion:** Through multidisciplinary collaboration, it is possible to develop indicators to measure the effect of the built environment on many risk factors for chronic disease.

**Keywords:** built environment, planning, public health, APHEO

## Bridging health promotion intervention policy with behavioural risk factor surveillance in Thailand

S. Manosontorn, PhD (1); N. Petcharoen, PhD (1); S. Sensathien, MSc (1); N. Asawarat, MA (1)

### Author references

1. Centre of NCD Behavioural Risk Factor Surveillance Information, Bureau of NonCommunicable Diseases, Department of Disease Control, Ministry of Public Health, Nonthaburi Province, Thailand

**Correspondence:** Supawan Manosoontorn; Email: [supawan@health.moph.go.th](mailto:supawan@health.moph.go.th)

**Background:** The Behavioural Risk Factor Surveillance System in Thailand (TBRFSS) is a continuous population-based point-in-time survey that provides data on the country, regions and provinces. It focuses on cardiovascular disease (CVD), a major public health problem. The survey has been conducted four times (2004, 2005, 2007 and 2010) to support the 9<sup>th</sup> National Health Development Plan (2002 to 2006) with the national agenda "Healthy Thailand 2004."

**Purpose:** To examine and monitor the prevalence of behavioural risk factors for cardiovascular disease in Thai people.

**Study/Intervention Design:** Population-based cross-sectional survey with stratified multistage cluster sampling. The participant total was 59 109 in 2004 (47 provinces), 130 301 in 2005 (76 provinces), 65 542 in 2007 (38 provinces) and 131 300 in 2010 (76 provinces).

**Methods:** Data were gathered through individual interviews with Thai people aged 15 to 74 years. Multilevel analysis was applied to calculate the prevalence of behavioural risk factors for CVD in the Thai population aged 15 to 74 years, including weight and height, physical movement, fruit and vegetable intake, tobacco use, alcohol consumption, diabetes and hypertension screening, and diabetes and hypertension self-management.

**Results:** Data from the last four surveys showed not only the increasing prevalence of accessibility to care (diabetes and hypertension screening, diabetes and hypertension self-management), but also the decreasing prevalence of behavioural risk factors of CVD (tobacco use, low fruit and vegetable intake, physical inactivity and alcohol use) in Thai people aged 15 to 74 years. However, obesity prevalence had increased.

**Conclusion:** The prevalence of behavioural risk factors of CVD in Thai people showed improvements, which could be linked to lifestyle modification intervention policy. Results on the increased levels of obesity could inform the National Health Development Plan.

**Keywords:** behavioural risk factor surveillance, cardiovascular risk factor, health promotion intervention

## Improving monitoring of youth tobacco control, physical activity and nutrition via core indicators and measures (CIM)

S. Manske, EdD (1); C. Kroeker, MSc (1); G. Mammen, MA (2); D. Gleddie, PhD (3); M. McKenna, PhD (4)

### Author references

1. Propel Centre for Population Health Impact, University of Waterloo, Waterloo, Ontario, Canada
2. Memorial University of Newfoundland, St. John's, Newfoundland and Labrador, Canada
3. Grant MacEwan University, Edmonton, Alberta, Canada
4. University of New Brunswick, Fredericton, New Brunswick, Canada

**Correspondence:** Steve Manske; Email: [manske@uwaterloo.ca](mailto:manske@uwaterloo.ca)

**Background:** Although every jurisdiction in Canada collects data about youth health, the nature of these data and the way they are reported vary.

**Purpose:** To work toward standardizing core indicators and measures for youth health surveillance and evaluation. Using a set of identical questions in different data collections and reporting the same indicators is a compelling approach because it enables comparative studies of policies and programs as these are implemented in jurisdictions across the country. Shared findings will accelerate improvements in youth health through effective policies and programs.

**Study/Intervention Design:** Health and education stakeholders (through Youth Excel CLASP—Coalitions Linking Action and Science for Prevention) have stimulated work toward a "continuous learning system" for youth health in Canada. We are creating a more coherent system by introducing core indicators and measures (CIM) designed for use in national and provincial surveillance and evaluation.

**Methods:** We developed two sets of indicators and questions: one for youth respondents (aged 10 to 19 years) and one to assess the school environment. Priority areas are tobacco control, physical activity and nutrition. Each is in a different stage of implementation.

**Results:** The CIM reports recommend questions to use with youth respondents and/or in school environment assessments, outline common reporting guidelines and describe the development process and rationale. A variety of stakeholders from across Canada developed the CIM. A group of youth health surveillance and evaluation initiative leaders and funders collaborated to develop a sustainable action plan for implementation.

**Conclusion:** We see an advantage to working co-operatively and collaboratively across Canada as we build our capacity to learn about policy and program implementation to improve health among youth.

**Keywords:** youth, surveillance, chronic disease prevention, common measurement, evaluation

## Saskatoon Health Region's Public Health Observatory: a case study of regional risk factor surveillance

---

J. Marko, MPH (1); D. Rasali, PhD (2); T. Rac (1); M. L. Decou, RN, MSc (3)

### Author references

1. Public Health Observatory, Saskatoon Health Region, Saskatoon, Saskatchewan, Canada
2. Epidemiology & Research Unit, Population Health Branch, Saskatchewan Ministry of Health, Regina, Saskatchewan, Canada
3. Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Josh Marko; Email: [mary.lou.decou@phac-apsc.gc.ca](mailto:mary.lou.decou@phac-apsc.gc.ca)

**Background:** The Saskatoon Health Region's Public Health Observatory (PHO), formed in 2008, has a program of health surveillance. It works to improve health and reduce health inequity through surveillance, research, evaluation and knowledge exchange to inform decision making, policy and service delivery. This case study on the PHO, carried out by the Canadian Alliance for Regional Risk Factor Surveillance (CARRFS), was a part of its environmental scan of risk factor surveillance in Canada.

**Purpose:** To examine aspects of the PHO as a program of regional risk factor surveillance.

**Study/Intervention Design:** Case study.

**Methods:** We examined multiple risk factors and components of the PHO system, using literature review, key informant questionnaires and a face-to-face WebEx interaction. The study focused on the risk factor surveillance system and analyzed its strengths and challenges.

**Results:** The PHO's program of surveillance includes descriptive epidemiological analysis of various risk factors. A web-based reporting tool called Community View Collaboration aids in dissemination and knowledge exchange. The use of multiple data sources, customizable geographies and intersectoral co-operation are key strengths of the PHO. The main challenge facing the PHO is time lags for administrative health data. PHO surveillance and research has been published in the peer-reviewed literature, has helped to create a program called "Building Health Equity" and has assisted in creating effective community-based interventions.

**Conclusion:** PHO surveillance integrates multiple sources of data and uses intersectoral collaboration for surveillance, research and knowledge dissemination activities.

**Keywords:** surveillance, research, knowledge dissemination, public health

## Relationship between social support and obesity in the Canadian population

---

S. McDermott, MHSc (1); B. Jackson, PhD (1); W. Luo, MSc (2); M. DesMeules, MSc (1)

### Author references

1. Strategic Initiatives and Innovations Directorate, Public Health Agency of Canada, Ottawa, Ontario, Canada
2. Centre for Chronic Disease Prevention and Control, Public Health Agency of Canada, Ottawa, Ontario, Canada

**Correspondence:** Sarah McDermott; Email: [sarah.mcdermott@phac-aspc.gc.ca](mailto:sarah.mcdermott@phac-aspc.gc.ca)

**Background:** Obesity is influenced by a spectrum of behavioural, social, economic and environmental factors. Social support, a social determinant of health, is associated with behavioural risk factors for obesity including diet and physical activity. The extension of this relationship to obesity remains to be investigated using recent population data in Canada.

**Purpose:** To examine the relationship between social support and obesity in a subset of the Canadian adult population.

**Study/Intervention Design:** Secondary analysis of cross-sectional data from the Canadian Community Health Survey (2009/2010) was conducted. The data were weighted to represent the age and sex distribution of the household population aged 18 to 64 years in five Canadian regions opting to include social support modules.

**Methods:** Four types of social support (tangible support, affection, positive social interaction and emotional and informational support) were defined. Descriptive and multiple logistic regression analyses were undertaken to examine associations between social support type and obesity.

**Results:** Low levels of social support were associated with a higher likelihood of obesity among women. Odds ratios (and 95% CIs) for low levels of tangible support, affection, positive social interaction and emotional/informational support were 1.38 (1.11–1.70), 2.35 (1.75–3.17), 1.94 (1.48–2.55) and 1.74 (1.37–2.20) respectively. After adjusting for several determinants of obesity, the association between affection and obesity among women remained. No association between obesity and social support was found among men.

**Conclusion:** Even after adjusting for several determinants of obesity, affection remained significantly associated with obesity among women. Further study with longitudinal data would contribute to understanding affection as a possible protective factor against obesity among women and mechanisms for this.

**Keywords:** obesity, social support, Canada, logistic regression

## Telling the whole story: a case study on three knowledge exchange systems

K. McGarry, MSc (1); B. Bell, PhD (2); L. A. Duffley, BSc (3); J. Griffith, PhD (1); D. Murnaghan, RN, PhD (2); W. Morrison, PhD (3)

### Author references

1. CancerCare Manitoba, Winnipeg, Manitoba, Canada
2. Comprehensive School Health Research Group, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada
3. Health and Education Research Group, University of New Brunswick, Fredericton, New Brunswick, Canada

**Correspondence:** Katherine McGarry; Email: [kate.mcgarry@cancercare.mb.ca](mailto:kate.mcgarry@cancercare.mb.ca)

**Background:** As part of the "Youth Health Collaborative: Excelsioring' Evidence-Informed Action" (a Canadian Partnership Against Cancer-funded Coalition Linking Action and Science for Prevention), Manitoba (Youth Health Survey), New Brunswick (N.B.) (Student Wellness Survey) and Prince Edward Island (P.E.I.) (School Health Action, Planning and Evaluation System—P.E.I.) each conducted province-wide case studies on their youth health surveillance and knowledge exchange (KE) initiatives.

**Purpose:** To share our experiences in trying to improve youth health outcomes through building KE capacity across research, policy and practice.

**Study/Intervention Design:** We used a multiple case study design to explore KE systems in Manitoba, N.B. and P.E.I. A case study approach provides in-depth understanding of people, events and relationships that are firmly situated within specific but complex contexts.

**Methods:** Using interviews, focus groups, surveys and document review allowed for exploration of diverse perspectives within and across local and provincial contexts. For each case study, we performed thematic analysis to examine, categorize and tabulate data from multiple sources, resulting in emerging evidence. Each participating province then conducted cross-case comparisons using "clusters" and themes, identifying commonalities, differences and realistic outcomes from KE networks.

**Results:** By using a multisite approach, a cross-case comparison between Manitoba, N.B. and P.E.I. identified generalizable lessons. We will explore stakeholder perceptions in three areas: the challenges and successes of partnerships, knowledge development and KE mobilization.

**Conclusion:** Each provincial context provides lessons that are applicable to other local, provincial, national and international surveillance systems to improve outcomes in knowledge use and youth health.

**Keywords:** youth health, knowledge exchange systems, knowledge mobilization, evidence to action, capacity

## Achievements, challenges and future directions of the Rapid Risk Factor Surveillance System (RRFSS) in Ontario, Canada

---

K. Moynagh, BSc (1); M. King, MSc (2); J. Phillips, BA (3); D. Northrup, MA (4); R. Elsbett-Koeppen, MSc (4)

### Author references

1. Halton Region Health Department, Oakville, Ontario, Canada
2. Sudbury & District Health Unit, Sudbury, Ontario, Canada
3. Durham Region Health Department, Whitby, Ontario, Canada
4. Institute for Social Research, York University, Toronto, Ontario, Canada

**Correspondence:** Karen Moynagh; Email: [karen.moynagh@halton.ca](mailto:karen.moynagh@halton.ca)

**Background:** The Rapid Risk Factor Surveillance System (RRFSS) is a collaboration of many Ontario health units and the Institute for Social Research at York University. The system has operated since 2001 with an emphasis on providing "pretty good data, pretty quick" to meet local information needs. The RRFSS provides ongoing surveillance of key public health indicators related to health risk knowledge, attitudes and behaviours and is also flexible enough to collect information on emerging issues.

**Purpose:** To describe the structure and function of the RRFSS, factors contributing to successes, challenges experienced, and future directions.

**Study/Intervention Design:** Data are collected by telephone survey using the next-birthday method of list-assisted random digit dialling to randomly select a sample of respondents within households in participating health units across Ontario. A provincial data stream is being piloted using the same design.

**Methods:** RRFSS partners work collaboratively to develop, fund and implement a flexible, timely and responsive local risk factor surveillance system; develop and review survey questions; select core content; standardize and support data analysis through the development of data dictionaries, indicators and syntax; participate in joint governance and policy development; and support central coordination, including a coordinator position, a website, workshops and special projects.

**Results:** Survey results will be presented from various topic areas that highlight the successes, challenges and future directions of the RRFSS.

**Conclusion:** For a decade the RRFSS has provided timely, locally relevant data, available to inform program planning and evaluation and to advocate for public policy development.

**Keywords:** surveillance, survey, RRFSS

## Youth health risk factor surveillance system: lessons learned from one Canadian province, 2008 to 2011

---

D. Murnaghan, RN, PhD (1); B. Bell, PhD (1); M. Munro-Bernard, MA (1); C. Laurence, MA (1)

### Author references

1. University of Prince Edward Island, Charlottetown, P.E.I., Canada

**Correspondence:** Donna Murnaghan; Email: [dmurnaghan@upe.ca](mailto:dmurnaghan@upe.ca)

**Background:** The School Health Action, Planning, and Evaluation System—Prince Edward Island (SHAPES-PEI), established in 2008, provides measures of student/school health. It contributes data for the province of P.E.I. and offers a detailed snapshot of youth health beneficial to policy/program development.

**Purpose:** To share our experiences and lessons learned with this system (2008 to 2011) in order to provide beneficial insights to others establishing risk factor surveillance and knowledge exchange systems.

**Study/Intervention Design:** Every "cycle" of SHAPES-PEI is implemented over 2 years. Year 1 includes collecting data and generating school health profiles for schools, boards and the province. Year 2 includes knowledge exchange with stakeholders and follow-up support for schools.



**Methods:** Data are collected from students (grades 5 to 12) on physical activity, healthy eating, mental fitness and tobacco use. School administrators/teams complete a school environment assessment tool (policies and programs). Partnerships are established, presentations/meetings are held with stakeholders and the School Health Grant Program is offered to support schools in responding to their data.

**Results:** Since 2008, we have seen uptake and institutionalization of this system. Changes in student/school health behaviours can be compared year to year and across provinces. Schools are more informed about student/school health and have evidence to support priorities, programs and initiatives. Provincial decision makers have province-wide student and school health data not previously available.

**Conclusion:** Implementing a provincial risk factor surveillance and knowledge exchange system for school health has been beneficial to health and education stakeholders in P.E.I. Our lessons learned can inform others developing similar systems aimed at impacting disease prevention and health promotion.

**Keywords:** youth health, knowledge exchange, evidence to action

## Linking surveillance and health promotion information with service access to reduce health disparities in minority communities

---

A. Ng, MA (1)

### Author references

1. Community Transcultural Support Services, Calgary, Alberta, Canada

**Correspondence:** Amy Ng; Email: [amy.ng.ctss@gmail.com](mailto:amy.ng.ctss@gmail.com)

**Background:** Multicultural surveillance—the systematic collection of data pertaining to the occurrence of specific diseases in ethnic communities—is valuable in a multicultural health promotion field. Linkages between multicultural surveillance work and health promotion make way for developing strategies to reduce disparities with respect to health information and services in minority communities.

**Purpose:** To understand occurrences of different cancers and their variation from one population group to another. Characteristics of ethnic populations may be an underlying cause for the variation in disease distribution.

**Study/Intervention Design:** Prospective cohort study.

**Methods:** Cancer prevention screening practices in 2009 and 2010 will be compared among members of a minority Asian group to determine the relation between a cancer screening service and individual behaviour of minority members toward cancer prevention screening.

**Results:** The study may identify specific risk factors for the development of cancer in a multicultural health environment.

**Conclusion:** Pending results.

**Keywords:** health disparities, multicultural surveillance

## Bed bugs, emerging health issues, and the Rapid Risk Factor Surveillance System (RRFSS)

---

D. Northrup, MA (1); R. Elsbett-Koeppen, MSc (1); J. Phillips, BA (2); M. King, MSc (3); K. Moynagh, BSc (4)

### Author references

1. Institute for Social Research, York University, Toronto, Ontario, Canada
2. Durham Region Health Department, Whitby, Ontario, Canada
3. Sudbury & District Health Unit, Sudbury, Ontario, Canada
4. Halton Region Health Department, Oakville, Ontario, Canada

**Correspondence:** David Northrup; Email: [northrup@yorku.ca](mailto:northrup@yorku.ca)

**Background:** Although very few Ontario residents report ever having bed bugs in their home, fears about infestations are more common. In January 2011 the Ontario government committed \$5 million to assist health units in the fight against bedbugs. Using the Rapid Risk Factor Surveillance System (RRFSS), health units have taken steps to collect information to inform and evaluate education and control initiatives.

**Purpose:** The primary goal was to determine levels of knowledge, experience and fears about bed bug infestations in Ontario.

**Study/Intervention Design:** Data were collected in a telephone survey using the next-birthday method of list-assisted random digit dialling to randomly select a sample of respondents within households across Ontario.

**Methods:** Survey questions about how to identify, prevent and remove bed bugs as well as the psychological impact of being concerned about bed bug infestations were developed. The telephone questionnaire used for the RRFSS Provincial Sample Pilot Project included these questions beginning in May 2011.

**Results:** Results were pending at the time of publication, but data was presented at the conference. Two hypotheses will be examined. First, fears associated with bed bugs will not be correlated with knowledge. Second, residents of major urban areas, in particular the Greater Toronto area where the newspaper with the highest circulation supported a "war on bedbugs," will express greater concerns about bed bugs than other residents.

**Conclusion:** There are no conclusions at this time, but preliminary conclusions were part of the presentation.

**Keywords:** bed bugs, survey results, RRFSS

## The Chronic Disease Informatics Monitoring System (CDIMS): an online resource for public health

---

S. O'Connor, PhD (1); R. Schwartz, PhD (1); D. Crouch, MSc (2); A. Philipneri, MPH (1)

### Author references

1. Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
2. The CAPTURE Project, Simon Fraser University, Burnaby, British Columbia, Canada

**Correspondence:** Shawn O'Connor; Email: [shawn\\_oconnor@camh.net](mailto:shawn_oconnor@camh.net)

**Purpose:** To create an interactive online data portal to enhance the use and adoption of risk factor indicators by public health stakeholders.

**Methods:** Technical requirements for the portal were modelled after a sister site, the Tobacco Informatics Monitoring System (TIMS). The original site design involved key informants throughout the process and included several iterations, user testing and an expert heuristic evaluation. Chronic disease indicator development progressed through a series of steps, including interviews with key stakeholders and reviews of established indicators.

**Results:** Formative research showed that stakeholders wanted a dynamic database-driven website with a user friendly and easy-to-navigate front end. Interviews and user testing revealed that stakeholders believed the portal would facilitate use of chronic disease risk factor measures for planning, decision making and surveillance. To meet user needs, the portal includes indicators from a range of risk factors, such as healthy eating, healthy weights, food security, tobacco use and physical activity. The site design allows users to navigate to thousands of unique data points, including results by population (age, sex, education, occupation and income), geography (national, provincial and subprovincial) and multiple surveys spanning multiple years. Display options include table, bar/line chart and map.

**Conclusion:** By providing access to analyzed data, the portal has the potential to enable new insights into emerging issues and trends. The site facilitates links between health-outcome results and the decision-making process, such as consideration of health equity issues focusing on priority subpopulations and high-risk areas. This information has the potential to inform public health efforts.

**Keywords:** informatics, surveillance, chronic disease risk factor indicators

## Socio-economic status and behavioural risk factors for overweight and obesity in Thailand

N. Petcharoen, [PhD](#) (1); G. Chernrungrroj, [MD](#), [PhD](#) (1); S. Manosoonthorn, [PhD](#) (1); S. Sensathien, [MSc](#) (1); N. Asawat, [MA](#) (1)

### Author references

1. Bureau of Non-Communicable Diseases, Department of Disease Control, Ministry of Public Health, Nonthaburi Province, Thailand

**Correspondence:** Nawarat Petcharoen; Email: [nawarat@health.moph.go.th](mailto:nawarat@health.moph.go.th)

**Background:** In developed countries, people with lower socio-economic status (SES) have a greater risk for overweight and obesity than those with higher SES. Thailand is a developing country where lifestyles tend to change along with SES transition, and the presence of overweight and obesity has been increasing.

**Purpose:** To explore the associations of overweight and obesity with SES and with behavioural risk factors in Thai people.

**Study/Intervention Design:** Population-based cross-sectional survey.

**Methods:** Secondary analysis was performed on data from the 2007 Behavioural Risk Factors of Non-Communicable Diseases and Injuries Survey in Thailand. Data were collected by self-reporting of 65 542 individuals of Thai citizenship aged 15 to 74 years. Body mass index of  $\geq 25$  kg/m<sup>2</sup> was used to determine overweight and obesity. We used logistic regression models to examine the association of overweight and obesity with SES and with behavioural risk factors.

**Results:** In the SES analysis, higher monthly family income was positively associated with overweight and obesity for both sexes, whereas higher education was negatively associated for women. Examination of behavioural risk factors showed that men with moderate job activities and no job activities were more likely to be classified as overweight and obese, as compared with men whose jobs involved vigorous activities. Men who were current smokers were less likely to be classified as overweight and obese. Current drinking of alcohol was positively associated with overweight and obesity in women.

**Conclusion:** The associations between SES, behavioural risk factors, and overweight and obesity were different between sexes. These results could appropriately inform policies and strategies for subpopulation groups.

**Keywords:** overweight and obese, socio-economic status (SES), behavioural risk factors

## Drunk driving monitoring system in Cambodia

S. Sann, [MBA](#) (1); N. T. Tran, [PhD](#) (2); A. M. Bachani, [PhD](#) (2); C. Gnim, [MA](#) (1); P. Sem, [BA](#) (1); A. Ou, [BA](#) (1); A. A. Hyder, [MD](#), [PhD](#) (2)

### Author references

1. Handicap International Belgium, Phnom Penh, Cambodia
2. International Injury Research Unit, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, [USA](#)

**Correspondence:** Socheata Sann; Email: [sann.socheata@hib-cambodia.org](mailto:sann.socheata@hib-cambodia.org)

**Background:** Since 2009, to address the drunk driving issue, drunk driving enforcement has been strengthened and various public awareness campaigns have been implemented. Drunk driving has also been identified as one of the prioritized interventions in the National Road Safety Action Plan for 2011 to 2020. A drunk driving monitoring system was developed to respond to those issues and intervention.

**Purpose:** To assess the burden from road crash injuries related to drunk driving and monitor trends in drunk driving over time, and to assess knowledge, attitudes and practices related to drunk driving in Cambodia.

**Methods:** The assessment comprised both primary and secondary data sources. Data from the Road Crash and Victim Information System were analyzed to identify the burden of injuries due to drunk driving. Observational studies were conducted bimonthly to measure drunk driving prevalence. Behavioural surveys of motorists were conducted to understand knowledge, attitudes and practices related to drunk driving.

**Results:** Preliminary results indicated that 3% of night-time drivers had blood alcohol content greater than 0.25, and 16% of fatalities were related to drunk driving. In addition, 85% of interviewed drivers were aware of the legal limit for alcohol level when driving, and more than 70% of respondents knew the possible penalty.

**Conclusion:** As the second leading cause of road traffic crash and injury in Cambodia, drunk driving is a serious public health threat. The results from the behavioural survey suggest that relaxed attitudes, not a lack of knowledge, may be the main contributor to continued drunk driving.

**Keywords:** drunk driving, monitoring system, surveys, road crashes

## Family situation and protection from use of tobacco, alcohol and drugs in adolescents, National Survey of School Health, Brazil, 2009

---

L. M. V. Sardinha, [BHSc](#) (1); R. T. C. Yokota, [BHSc](#) (1); B. P. M. Iser, [BHSc](#) (1); N. N. Bandeira de Sá, [BHSc](#) (1); D. C. Malta, [BHSc](#) (1)

### Author references

1. General Coordination of Non Communicable Diseases and Injuries, Secretariat of Health Surveillance, Ministry of Health, Brazil

**Correspondence:** Luciana Monteiro Vasconcelos Sardinha; Email: [luciana.sardinha@saude.gov.br](mailto:luciana.sardinha@saude.gov.br)

**Purpose:** To evaluate the relationship between consumption of psychoactive substances (tobacco, alcoholic beverages and illicit drugs) in adolescents and protective factors in their family situation.

**Study/Intervention Design:** National cross-sectional survey.

**Methods:** Data were analyzed from the National Survey of School Health (PeNSE), which provided a sample of 60 973 students from the 9<sup>th</sup> grade of junior high school from public and private schools of Brazilian state capitals.

**Results:** Most adolescents surveyed lived in the company of their father and mother (58,3%), and about a third lived in households with only their mother (31,9%). Half of the parents or persons responsible for the children knew what the adolescents did in their free time (55,8%). Living with both parents had a protective effect on the habits of smoking, drinking and using drugs; in addition, family supervision was important in the prevention of these behaviours. The habitual practice of eating meals with parents or a responsible person every day (62,6%) and the fact that the parents knew what the adolescents did in their free time in the last 30 days also had a protective effect. Students that missed classes without telling their parents had higher chances of using tobacco, alcohol and drugs.

**Conclusion:** The family played a positive role in preventing the risks of using tobacco, alcohol and drugs of these adolescents.

**Keywords:** chronic diseases, epidemiological studies, surveillance

## Sexual health of adolescents, National Survey of School Health, Brazil, 2009

---

L. M. V. Sardinha, [BHSc](#) (1); R. T. C. Yokota, [BHSc](#) (1); B. P. M. Iser, [BHSc](#) (1); N. N. Bandeira de Sá, [BHSc](#) (1); D. C. Malta, [BHSc](#) (1)

### Author references

1. General Coordination of Non Communicable Diseases and Injuries, Secretariat of Health Surveillance, Ministry of Health, Brazil

**Correspondence:** Luciana Monteiro Vasconcelos Sardinha; Email: [luciana.sardinha@saude.gov.br](mailto:luciana.sardinha@saude.gov.br)

**Purpose:** To describe behaviours related to sexual health in adolescents according to the National Survey of School Health (PeNSE).

**Study/Intervention Design:** National cross-sectional survey.

**Methods:** The survey was performed by the Instituto Brasileiro de Geografia e Estatística ([IBGE](#); Brazilian Institute of Geography and Statistics) in partnership with the Ministry of Health. It involved 60 973 students and 1453 public and private schools in Brazilian state capitals.

**Results:** The data analysis showed that 30.5% (95% CI: 29.9–31.2%) of these adolescents had already had sexual relations; this was more frequent among boys (43.7%, 95% CI: 42.7–44.7%) than girls (18.7%, 95% CI: 18.0–19.4%) and more often among students in public schools than those in private schools. The mean sex initiation age was 14.8 years, and 40.1% of the students (95% CI: 38.8–41.4%) reported having only one partner in their lifetime. The use of condoms was high (75.9%, 95% CI: 74.8–76.9%), as was contraceptive use (74.7%, 95% CI: 73.6–75.7%).

**Conclusion:** This study could inform action in sexual health promotion for adolescents in view of minimizing their vulnerabilities.

**Keywords:** chronic diseases, epidemiological studies, surveillance

## Surveillance of risk factors and protective factors for non-communicable diseases among adolescents in Brazil, 2009

L. M. V. Sardinha, [BHSc](#) (1); R. T. C. Yokota, [BHSc](#) (1); B. P. M. Iser, [BHSc](#) (1); N. N. Bandeira de Sá, [BHSc](#) (1); D. C. Malta, [BHSc](#) (1)

### Author references

1. General Coordination of Non Communicable Diseases and Injuries, Secretariat of Health Surveillance, Ministry of Health, Brazil

**Correspondence:** Luciana Monteiro Vasconcelos Sardinha; Email: [luciana.sardinha@saude.gov.br](mailto:luciana.sardinha@saude.gov.br)

**Background:** Adolescence is marked by transformation and exposure to several health situations and risk factors.

**Purpose:** To describe study methods and the prevalence of the main health risk and protective factors for non-communicable diseases among schoolchildren estimated by the National Survey of School Health (PeNSE).

**Study/Intervention Design:** National cross-sectional survey.

**Methods:** 60 973 grade 9 students of 1453 public and private schools in Brazilian state capitals were surveyed in 2009. The survey was performed by the Instituto Brasileiro de Geografia e Estatística ([IBGE](#); Brazilian Institute of Geography and Statistics) in partnership with the Ministry of Health. Data were analyzed from the PeNSE.

**Results:** Food consumption results were based on foods that were consumed 5 or more days a week: 62.6% of the adolescents ate beans and 31.5% consumed fruit. The unhealthy foods most consumed were sweets (58.3%) and soft drinks (37%). Only 43.1% of the students were sufficiently physically active, whereas 79.5% spent more than 2 hours a day in front of the television. In terms of tobacco use, 6.3% of the students were current smokers. The prevalence of current alcoholic beverage consumption was 27% among those interviewed, and illicit drugs were used at least once in a lifetime by 8.7% of the students.

**Conclusion:** The results provide prevalence estimates of a few of the health risk and protective factors for non-communicable diseases among adolescents in Brazil, generating evidence to guide public policy implementation.

**Keywords:** chronic diseases, epidemiological studies, surveillance

## Hospital discharges from the public health system and prevalence of diabetes in the province of Tucuman, Argentina, 2009

E. B. Sarrouf, [MD](#) (1); R. Calli, [MSc](#) (2)

### Author references

1. Epidemiología de Campo aplicada a la Salud Pública, Dirección de Epidemiología de la Provincia de Tucumán, San Miguel de Tucumán, Tucumán, Argentina
2. Dirección de Epidemiología de la Provincia de Tucumán, San Miguel de Tucumán, Tucumán, Argentina

**Correspondence:** Elena B. Sarrouf; Email: [direpitucuman@gmail.com](mailto:direpitucuman@gmail.com)

**Background:** Diabetes accounts for 5% of deaths worldwide, most notably in developing countries.

**Purpose:** To determine the prevalence and epidemiological characteristics of diabetes among people aged 18 years and older in Tucumán and to assess the characteristics of diabetes-related discharges from the public hospitals system (PHS).

**Study/Intervention Design:** Cross-sectional study of period from January to December 2009.

**Methods:** Data from the national survey on risk factors for 2005 and 2009 (national ministry of health) and 2009 discharge abstracts of the PHS were analyzed. We calculated averages, the 25th to 75th percentiles (P25–75) and 95% confidence intervals (CIs).

**Results:** The prevalence of diabetes in 2009 was 9.88% (95% CI: 8.22–11.83), which was higher than that in 2005 (6.94; 95% CI: 5.66–8.41) and higher in women, though not significantly in either case ( $p > 0.05$ ). The mean age of this population was 51 years (P25–75 = 36–63). Thirty-seven percent of the people with diabetes used the PHS. A total of 1823 people with diabetes were discharged from the PHS, of which 1389 (76%) had a principal diagnosis of diabetic complications. The mean hospital stay was 11.39 days (P25–75 = 2–14), maximum = 188), diabetes-specific mortality was 6% (84) and the mean age of the hospitalized population was 66 years (P25–75 = 56–76). During the first 48 hours of hospitalization, 34 patients (44%) died, mostly in a provincial referral hospital.

**Conclusion:** The prevalence of diabetes may be on the rise in Tucumán. The main reasons for hospitalizations were unspecified complications. The mortality rate was highest in the early hours and in tertiary-level hospitals. It is important to highlight the magnitude of the problem to allow informed allocation of resources into prevention and treatment programs for this disease.

**Keywords:** diabetes, prevalence, hospital discharges

## Promoting positive mental health: risk and protective factors for youth who experienced physical and sexual abuse

A. Smith, MLA<sup>†</sup> (1); D. Stewart, MA (1); C. Poon, PhD (1); C. Hoogveen, BA (1); E. Saewyc, RN, PhD (1)

### Author references

1. McCreary Centre Society, Vancouver, British Columbia

**Correspondence:** Annie Smith; Email: [annie@mcs.bc.ca](mailto:annie@mcs.bc.ca)

**Background:** Sexual abuse and physical abuse are risk factors for a trajectory of poor mental health.

**Purpose:** To identify specific risk and protective factors associated with mental health for male and female youth who have experienced physical and sexual abuse.

**Study/Intervention Design:** A mixed methods study using data from the 2008 BC<sup>‡</sup> Adolescent Health Survey (AHS) and from 617 youth who participated in 44 focus groups.

**Methods:** We analyzed quantitative data from the AHS (completed by 29 400 students in grades 7 to 12) and qualitative data from youth focus groups, including suggestions for reducing risk factors among BC youth.

**Results:** Youth who experienced any form of abuse reported poorer outcomes on 11 mental health indicators than did non-abused peers. However, physical abuse was associated with negative body image for boys in a way not seen with sexual abuse. Physically or sexually abused youth who indicated feeling that they had a skill reported better outcomes on the mental health indicators. However, other protective factors were not effective for all abused youth. For example, accessing a non-familial supportive adult was protective against suicidal ideation for all physically abused youth, but only for sexually abused girls. Also, abused girls (but not boys) who engaged in weekly arts activities were more likely than those not involved to have postsecondary aspirations. Focus group participants spoke of the need for gender- and experience-specific services involving supportive adults and peer mentors.

**Conclusion:** The differing associations between specific risk and protective factors for abused youth need to be taken into account when planning programs and policies.

**Keywords:** youth, abused, risk factor, protective factor

<sup>†</sup> Master of Liberal Arts.

<sup>‡</sup> British Columbia.

## Pilot test and validation of indicators of sexual health among young people aged 16 to 24 years in Canada

---

L. Smylie, PhD (1); M. Doherty, PhD (2); B. Clarke (1); T. Yovetich (1); J. Otis, PhD (3); J. Gahagan, PhD (4); G. Smith (5); A. McKay, PhD (6); M. Numer, PhD (c) (4)

### Author references

1. Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, Ottawa, Ontario, Canada
2. University of Alberta, Edmonton, Alberta, Canada
3. Université du Québec à Montréal, Montréal, Quebec, Canada
4. Dalhousie University, Halifax, Nova Scotia, Canada
5. Options for Sexual Health, Vancouver, British Columbia, Canada
6. Sex Information and Education Council of Canada (SIECCAN), Toronto, Ontario, Canada

**Correspondence:** Lisa Smylie; Email: [lisa.smylie@phac-aspc.gc.ca](mailto:lisa.smylie@phac-aspc.gc.ca)

**Background:** Canada collects national sexual health data only on rates of positive tests of the three reportable sexually transmitted infections (STIs)—chlamydia, gonorrhoea and infectious syphilis—and rates of pregnancy. These measures are limited in their ability to identify risk factors and social determinants of poorer health outcomes, including rising rates of STIs and HIV. The development of strategies, policies and programs to promote sexual health and to prevent STIs, including HIV, requires more comprehensive data on the sexual health of vulnerable populations, including youth.

**Purpose:** To develop, pilot test and validate a set of comprehensive indicators of sexual health among youth in Canada aged 16 to 24 years.

**Study Design:** Computer-assisted self-interviewing survey.

**Methods:** The study used a computer-assisted self-interviewing survey design with a purposive sample of 1185 participants between the ages of 16 and 24 years. The survey was administered in both English and French languages. Data were analyzed using SPSS and SAS for content validity, construct validity, criterion validity, test-retest reliability and inter-rater reliability.

**Results:** The set of indicators demonstrated good content validity, construct validity, criterion validity, test-retest reliability and inter-rater reliability. Seven scales representing protection use self-efficacy, STI/HIV testing self-efficacy, sexual limit setting, sexual assertiveness, sexual functioning self-efficacy, partner violence victimization and sexual coercion were supported by the analyses.

**Conclusion:** The survey requires minor modifications; however, it contains a valid set of indicators of sexual health for youth. This set of validated indicators can be used to collect national level data on the sexual health of young people in Canada, to inform policies and programs to promote sexual health and to prevent STIs.

**Keywords:** sexual health, sexually transmitted infections, youth

## Building an evidence base for health-related built environment surveillance

---

C. Steensma, MSc (1); M. Warr, MSc (2)

### Author references

1. Public Health Agency of Canada, Montreal, Quebec, Canada
2. Public Health Agency of Canada, Vancouver, British Columbia, Canada

**Correspondence:** Colin Steensma; Email: [colin.steensma@phac-aspc.gc.ca](mailto:colin.steensma@phac-aspc.gc.ca)

**Background:** A growing body of evidence demonstrates a link between the built environment (BE) and its impact on maintaining healthy lifestyles. However, to adequately document trends associated with health and the built environment, a solid evidence base is vital; surveillance systems need to be established based on survey and administrative data.

**Purpose:** The Public Health Agency of Canada (PHAC) brought together key experts for a pan-Canadian workshop entitled "Indicators for Measuring the Health Impact of the Built Environment." This presentation aims to summarize the outcomes of the workshop discussions and ongoing collaborations.

**Methods:** A scan by PHAC of BE indicator activities in Canada identified a need for experts to share information on BE indicator development and implementation. Consequently, PHAC organized a workshop where participants presented their research and initiatives and also participated in small group discussion.

**Results:** Workshop participants highlighted the need to account for differing geographies, populations and socio-economic realities. Despite identifying numerous promising indicators to measure the health-related impact of BE, participants identified several barriers, including availability and applicability of data sources, risk of overly standardized indicators, investment requirements and differing priorities by sector. However, it was recognized that the potential benefits of a standardized set of indicators outweigh the potential challenges.

**Conclusion:** Participants identified several knowledge translation mechanisms to move the work forward, some of which are now being implemented in collaboration with PHAC. However, a continued dialogue among workshop participants and other key stakeholders is required to better define promising BE indicators and, ultimately, to guide and influence surveillance of this health determinant.

**Keywords:** built environment, indicator development, knowledge exchange, intersectoral collaboration

## Trends in the frequency of fast food consumption among South Australian children aged 1 to 17 years, 2002 to 2010

---

A. Taylor, PhD (1); J. Wu, PhD (1); E. Dal Grande, MPH (1); T. Gill, PhD (1)

### Author references

1. Population Research and Outcome Studies, Discipline of Medicine, Faculty of Health Sciences, The University of Adelaide, Adelaide, South Australia, Australia

**Correspondence:** Anne Taylor; Email: [anne.taylor@adelaide.edu.au](mailto:anne.taylor@adelaide.edu.au)

**Background:** Fast food consumption has been reported to be adversely associated with the diet quality of children and may contribute to childhood obesity.

**Purpose:** To assess trends in the annual frequency of fast food consumption by children aged 1 to 17 years in South Australia (SA) between 2002 and 2010.

**Study/Intervention Design:** A cross-sectional study analyzed data collected since 2002 through the South Australian Monitoring and Surveillance System (SAMSS), a high-quality monthly telephone survey.

**Methods:** We included children aged 1 to 17 years (n = 14 102) in our analysis. We used analysis of variance to test the overall trend of yearly frequency of fast food consumption over the 9-year period, as well as the trends by sex, age group, area of residence and high/low levels of household income. Statistical significance was indicated by a *p* value less than 0.05.

**Results:** Overall, the frequency of fast food consumption for children has decreased since 2002, from a yearly mean of 35.4 times in 2002 to 32.6 times in 2010. Between 2002 and 2010, there was a decreasing trend in the frequency of fast food consumption per year for both boys and girls aged 4 to 15 years in households with high and low annual income levels, and in metropolitan Adelaide. The yearly frequency of fast food consumption did not change in children aged 1 to 3 years or in the SA rural region.

**Conclusion:** A trend of decreasing frequency of fast food consumption among children in SA was observed between 2002 and 2010.

**Keywords:** fast food consumption, trend, children, South Australian Monitoring and Surveillance System

## Trends in the reduced-fat milk consumption of Australian children, 2006 to 2011

---

A. Taylor, PhD (1); P. Bai, MSc (1); E. Dal Grande, MPH (1); J. Avery, MPH (1); Z. Shi, MD, PhD (1); T. Gill, PhD (1)

### Author references



1. Population Research and Outcome Studies, Discipline of Medicine, Faculty of Health Sciences, The University of Adelaide, Adelaide, South Australia, Australia

**Correspondence:** Anne Taylor; Email: [anne.taylor@adelaide.edu.au](mailto:anne.taylor@adelaide.edu.au)

**Background:** The South Australian Monitoring and Surveillance System (SAMSS) is a monthly telephone surveillance system that provides high-quality, epidemiologically sound, representative, relevant population data concerning community residents of all ages. It is designed to monitor population trends of state- and national-priority health conditions and to identify target groups, health promotion influence and risk factors. Since January 2006, SAMSS has continuously collected regular information regarding nutrition in children.

**Purpose:** To determine trends in the consumption of reduced-fat milk by Australian children.

**Study/Intervention Design:** In 2011, the SAMSS dataset contains 5 years of monthly population data points and almost 14 000 cases relevant to this time trend analysis.

**Methods:** We produced fractional polynomial plots using time as a continuous variable to examine food consumption among children. Trends in milk consumption by factors such as sex, region and socio-economic status were also determined.

**Results:** In 2003, the [dietary \(PDF\)](#) guidelines published by the National Health and Medical Research Council encouraged parents to give children aged 2 years and older more reduced-fat milk for healthy growth. The prevalence of reduced-fat milk consumption in South Australian children has increased since 2006, whereas the prevalence of whole-fat milk consumption in this group has decreased. In December 2010, 31.6% of boys and 30.8% of girls consumed reduced-fat milk.

**Conclusion:** The trends of milk consumption in South Australian children show a positive impact in response to the public policy regarding reduced-fat milk.

**Keywords:** reduced-fat milk, children, whole-fat milk, trends

## Trends in the social determinants of the health of Australians, 2002 to 2011

A. Taylor, [PhD](#) (1); J. Avery, [MPH](#) (1); E. Dal Grande, [MPH](#) (1); P. Bai, [MSc](#) (1); Z. Shi, [MD](#), [PhD](#) (1)

### Author references

1. Population Research and Outcome Studies, Discipline of Medicine, Faculty of Health Sciences, The University of Adelaide, Adelaide, South Australia, Australia

**Correspondence:** Anne Taylor; Email: [anne.taylor@adelaide.edu.au](mailto:anne.taylor@adelaide.edu.au)

**Background:** The South Australian Monitoring and Surveillance System (SAMSS) is a monthly telephone surveillance system that provides high-quality, epidemiologically sound, representative, relevant population data concerning community residents of all ages. It is designed to monitor population trends of state- and national-priority health conditions and to identify target groups and risk factors. Since July 2002, SAMSS has continuously collected regular information regarding numerous chronic conditions and risk factors.

**Purpose:** To determine trends in the social determinants of health.

**Study/Intervention Design:** Time trend analysis of surveillance data. In 2011, the SAMSS dataset contains 9 years of monthly population data points and almost 65 000 cases.

**Methods:** We produced fractional polynomial plots using time as the continuous variable for several of the social determinants of health. These graphs enabled us to determine trends in the prevalence of risk factors by determinants such as socio-economic status (SES).

**Results:** The prevalence of sufficient physical activity in South Australia has increased over the past 9 years. However, there is still a discrepancy in sedentary behaviour between different SES levels, whereby people with the lowest SES status have higher levels of sedentary behaviour, and vice versa. Similar relationships were found for high blood pressure, high cholesterol, smoking status, and fruit and vegetable consumption, such that respondents from lower SES groups were less likely than those from higher SES groups to have the protective factors.

**Conclusion:** The original design of SAMSS meets the highest standards of population surveillance methodology, facilitating techniques such as time trend analysis that highlight social determinants of health.

**Keywords:** socio-economic status, risk factors, monitoring, trends

## Trends in consumption of soft drinks and artificial juices in adults surveyed by telephone in Brazil, 2006 to 2009

G. Velasqu ez-Mel endez, [PhD](#) (1); L. L. Mendes, [MSc](#) (1); M. C. Pessoa, [MSc](#) (1); R. T. C. Yokota, [MSc](#) (2); F. Lana, [PhD](#) (1); D. C. Malta, [PhD](#) (1,2)

### Author references

1. Escola de Enfermagem, Universidade Federal de Minas Gerais, Brazil
2. Ministry of Health, Bras lia, Distrito Federal, Brazil

**Correspondence:** G. Velasquez-Melendez; Email: [guveme@enf.ufmg.br](mailto:guveme@enf.ufmg.br)

**Background:** Sweetened beverage consumption has become a highly visible public health problem.

**Purpose:** To estimate trends in consumption of soft drinks and artificial juices between 2006 and 2009 among adults aged 18 years or older in Brazil.

**Study/Intervention Design:** Data came from a telephone risk factor surveillance (VIGITEL) survey (n = 54 369 in 2006; n = 54 251 in 2007; n = 54 353 in 2008; and n = 54 367 in 2009) conducted in 27 Brazilian state capitals, in which participants were asked: "How often do you drink soft drinks (or artificial juice)?"

**Methods:** To estimate changes in consumption, we used the percentage of people drinking sugar-sweetened soft drinks or artificial juices five or more days per week. We calculated annual estimates by sex, age, body mass index and race/ethnicity, using multivariate Poisson regression analysis.

**Results:** The proportion of participants consuming soft drinks or artificial juices on five or more days per week rose from 24.7% in 2006 to 32.4% in 2009. There was a broad range in consumption frequency across state capitals through 2006 to 2007, from 19.16% in Natal to 43.62% in Porto Velho. An increasing trend in consumption of soft drinks and artificial juices was observed by research year for all studied variables except the age group of 65 years or older.

**Conclusion:** Given the important link between sugar-sweetened beverages and obesity, estimates of soft drink and artificial juice intake could be used as part of a strategy to promote increased consumption of more healthy beverages.

**Keywords:** soft drinks, artificial juices, telephone survey, trends

## Development of a spatial analytic framework for cardiovascular disease surveillance

L. Wang, [PhD](#) (1); S. Stalker, [MSc](#) (2); C. I. Ardern, [PhD](#) (3); S. Hoetmer, [MHSc](#) (2); W. Kou, [MHSc](#) (2); P. Simmons, [BSc](#) (4); S. Cholewa, [MA](#) (2); D. Chen, [PhD](#) (1)

### Author references

1. Department of Geography, Queen's University, Kingston, Ontario, Canada
2. Public Health, Community and Health Services Department, Regional Municipality of York, Newmarket, Ontario, Canada
3. School of Kinesiology and Health Science, York University, Toronto, Ontario, Canada
4. Geomatics, Planning and Development Department, Regional Municipality of York, Newmarket, Ontario, Canada

**Correspondence:** Lei Wang; Email: [wanglei@queensu.ca](mailto:wanglei@queensu.ca)

**Background:** Cardiovascular disease ([CVD](#)) risk factor and outcome data are used to inform public health program planning.

**Purpose:** To evaluate the feasibility and utility of developing a spatial framework to enhance [CVD](#) surveillance within York Region, Ontario.

**Study/Intervention Design:** Cohort study.

**Methods:** A geographic information system was used to integrate land use, demographic, [CVD](#) risk factor and outcome data (hospital discharges and mortality). Mapping and spatial analysis were used to visualize and

explore spatial variation in determinants and rates. Using the 2004 Health Canada report *Framework and Tools for Evaluating Health Surveillance Systems*, the framework's utility and feasibility were evaluated through an online survey and key informant interviews.

**Results:** Spatial analysis revealed strong clusters for CVD risk factors, indicating north-south variation. Using scan statistics, 13 mortality (radii: 0.13 km to 2.35 km) and 14 morbidity clusters (radii: 0.17 km to 1.13 km) were identified. Geographically weighted regression analyses indicated that 55% of variance in mortality was accounted for by community-level demographic and physical environment determinants. A total of 15 of 28 reviewers completed the survey. The framework was consistently rated highly on indicators of acceptability, simplicity, flexibility and data quality. Between 83% and 92% of reviewers indicated that the framework was sufficient for ongoing surveillance, were satisfied with the variable definitions and felt that the variables were collected within normal operations.

**Conclusion:** Integration of geospatial information with routinely collected surveillance data is feasible within the structure and resources of local public health units to assist in the identification of regional variation in the burden of CVD.

**Keywords:** cardiovascular disease, geospatial analysis, surveillance, Canada

## Incidence and risk factors for newly acquired (acute) hepatitis C virus infection among Aboriginal versus non-Aboriginal Canadians in eight health regions, Canada, 2004 to 2009

H.-X. Wu, MD, PhD (1); A. K. Dudani, PhD (1); Q. Li, MSc (1); A. Andonov, MD, PhD (2); S. ElSaadany, PhD (1); K. Dinner (1); J. Wu, MD, PhD (1)

### Author references

1. Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, Ottawa, Ontario, Canada
2. National Microbiology Laboratory, Public Health Agency of Canada, Winnipeg, Manitoba, Canada

**Correspondence:** Hong-Xing Wu; Email: [hong-xing.wu@phac-aspc.gc.ca](mailto:hong-xing.wu@phac-aspc.gc.ca)

**Purpose:** To compare the incidence and risk factors for newly acquired hepatitis C virus (HCV) infection within Aboriginal and non-Aboriginal people, using data from the Enhanced Hepatitis Strain Surveillance System (EHSSS) of the Public Health Agency of Canada.

**Methods:** Cases of newly acquired HCV infection were reported to the EHSSS by eight jurisdictions in Canada from 2004 through 2009. We analyzed data using a Cochran-Armitage trend test and a Poisson regression. Multiple imputation methods were used to account for missing data.

**Results:** The overall reported incidence of HCV infection per 100 000 population was 14.0 (95% CI: 12.1–16.2) in Aboriginal people and 2.2 (95% CI: 1.9–2.4) in non-Aboriginal people. In comparison with non-Aboriginal cases, Aboriginal cases were significantly more likely to be female (60.8% vs. 37.2%;  $p < 0.01$ ) and younger (27 vs. 31 years of age;  $p < 0.01$ ). The disease incidence peaked at 15 to 44 years of age and was associated with injection drug use as the most frequently (63% of those with known risk factor information) reported route of transmission. Poisson regression analysis revealed that the incidence of HCV infection was 7.1 times greater among Aboriginal people than among non-Aboriginal people (95% CI: 5.9–8.5).

**Conclusion:** The results of the enhanced surveillance show exceedingly high incidence rates of newly acquired HCV infection among Aboriginal Canadians compared with their non-Aboriginal counterparts. These data could be used to support the development of tailored, culturally appropriate and relevant HCV prevention interventions that consider sex and ethnicity issues.

**Keywords:** risk factors, surveillance, acute hepatitis C, injection drug user

## Family history and environmental risk factors of esophageal carcinoma and its historical change in Linzhou City, Henan Province, China

D. Xu (1); L. Li (1); W. Yang (2); J. Wang (1); X. Zhang (1); Q. Shi (1); G. Chang (2)

### Author references

1. Department of Epidemiology, School of Public Health, Fourth Military Medical University, Xi'an, China

2. Institute of Oncology, Henan Province, China

**Correspondence:** DeZhong Xu; Email: [xudezh69@163.com](mailto:xudezh69@163.com)

**Background:** Linzhou is an area with high incidence of esophageal carcinoma (EC). Previous reports show contradictory results on risk factors.

**Purpose:** To examine major risk factors and historical change in order to explain the contradiction in previous results.

**Study/Intervention Design:** Hospital-based case-control study.

**Methods:** We recruited subjects twice: from October 1995 to January 1996 and from April to July 1998. All hospitalized patients diagnosed pathologically at the three main hospitals in Linzhou were included as cases. Controls were non-cancer patients with various diseases admitted at the same time in the same hospital, matched for age and years of residence.

**Results:** In the first and second surveys, respectively, there were 67 and 118 cases of EC, and 134 and 169 controls. Family history of EC (OR = 1.55-2.59) was the major risk factor, and eating pickled vegetables (OR = 1.41-2.02) was a significant risk factor. Male smoking showed an association with the incidence of EC (OR: 1.55-1.94,  $p = 0.07-0.09$ ). Greater annual income, consumption of animal foods and consumption of fruits were protective factors. Most factors showed significant dose-effect relationships. Unexpectedly, as compared with previous data, exposure to pickled vegetables had decreased and the strength of the association with EC had weakened, but smoking now showed an association.

**Conclusion:** The discovery of changes in the effect size of carcinogenic risk factors for EC could explain the previous contradictory results and attract more attention to prevention efforts.

**Keywords:** esophageal carcinoma; case-control study; risk factors, historical change

## Risk factors for bicycle traffic injury among middle school students in rural China: a case-control study

J. Yan-Hu, MSc (1); L. Li-Ping, MD (1); L. Yao-Gui, MSc (1); Z. Ming-Zhi, MD (2); G. Yang, MD (2); S. Griffiths, MD (3)

### Author references

1. Injury Prevention Research Centre, Shantou University Medical College, Shantou, China
2. Joint Shantou International Eye Centre of Shantou University and the Chinese University of Hong Kong, Shantou, China
3. School of Public Health and Primary Care, Chinese University of Hong Kong, Hong Kong, China

**Correspondence:** Ji Yan-Hu; Email: [xiaohu123596@163.com](mailto:xiaohu123596@163.com)

**Background:** Bicycles constitute a very popular mode of transportation in China, with at least 400 million units in use all over the country, in particular in rural areas. Deaths resulting from bicycle accidents account for 30% of all traffic-related deaths. In the rural areas of Chaoshan, where 87.5% of the students ride a bike to go to school on a daily basis, very little work has been done to examine factors associated with bicycle injuries and deaths.

**Purpose:** To explore the risk factors for bicycle traffic injury among middle school students in rural areas of Chaoshan in China

**Study/Intervention Design:** Case-control study.

**Methods:** Using a stratified cluster sampling method, we included 3475 students in six middle schools of Liangying County in the Chaoshan region in our research. We conducted individual matching (1:3) among 502 victims of bicycle traffic injuries and 1506 healthy controls. Univariate and multivariate logistic regression analyses were performed.

**Results:** Several factors increased the risk of bicycle traffic injury: cyclists contacting other vehicles (OR = 1.603), cyclists carrying passengers (OR = 1.395), cyclists' passengers contacting other vehicles (OR = 1.776), cyclists' passengers playing with cyclists (OR = 1.594), having a father work outside or in business (OR = 1.500), and family per capita annual income of less than 5000 yuan (OR = 3.320). Family per capita annual income of more than 5000 yuan was shown to be a protective factor (OR = 0.257).

**Conclusion:** Poor cycling behaviour and low family income level were major risk factors for bicycle injury among middle school students in rural China.

**Keywords:** rural middle schools, bicycle traffic injury, risk factors, case-control study

## Short-term trends of tobacco smoking, Brazil, 2006 to 2010

R. T. C. Yokota, MSc (1); L. M. V. Sardinha, MSc (1); B. P. M. Iser, BHSc (1); N. N. B. Sá (1); D. C. Malta, PhD (1)

### Author references

1. General Coordination of Non-Communicable Diseases and Injuries, Ministry of Health, Brazil

**Correspondence:** Renta Tiene de Carvalho Yokota; Email: [renata.yokota@saude.gov.br](mailto:renata.yokota@saude.gov.br)

**Background:** The prevalence of tobacco smoking in Brazilian adults declined substantially from 34.8% in 1989 to 22.4% in 2003, according to data from national surveys.

**Purpose:** To analyze short-term trends of tobacco smoking among Brazilian adults from 2006 to 2010.

**Study/Intervention Design:** Telephone survey (VIGITEL) conducted annually in all 26 Brazilian state capitals and the Federal District from 2006 to 2010.

**Methods:** We used linear regression models with tobacco smoking as the dependent variable and the year of the study as the explanatory variable, stratified by sex, age group and level of education, to identify short-term linear trends.

**Results:** Tobacco smoking prevalence in Brazil was 16.2% (95% CI: 15.4–16.9%) in 2006 and 15.1% (95% CI: 14.2–16.0%) in 2010, representing a significant mean prevalence decrease of 0.3% per year. Among men, the prevalence was 20.2% (95% CI: 18.8–21.6%) in 2006 and 17.9% (95% CI: 16.4–19.4%) in 2010, representing a mean prevalence decrease of 0.7% per year. A significant mean prevalence decrease of 1% per year was observed among adults aged from 35 to 44 years (2006: 18.8%; 2010: 15.2%). A prevalence decrease among adults with a high level of education ( $\geq 9$  years) was observed (2006: 12.7%; 2010: 11.1%), with a mean prevalence decrease of 0.5% per year.

**Conclusion:** Due to the significant decrease in tobacco smoking we observed among men, adults aged 35 to 54 years and adults with high education levels, specific prevention actions in Brazil should be aimed at groups with higher prevalence and no decreasing tendency in tobacco smoking.

**Keywords:** tobacco smoking, trends, telephone survey, Brazil

## AMNET (Americas Network for Chronic Disease Surveillance) members' participation in chronic disease activities in the Americas and in the Caribbean

J. C. Zevallos, MD (1); C. López-Campos, MD (1); A. Alasino, MD (1); J. Vélez, MPH (1); Z. Sánchez, MD (1); R. Granero, MD (1)

### Author references

1. AMNET Board of Directors, San Juan, Puerto Rico

**Correspondence:** Juan Carlos Zevallos; Email: [juan.zevallos@upr.edu](mailto:juan.zevallos@upr.edu)

**Background:** AMNET (Americas' Network for Chronic Disease Surveillance) is the first international network created for the implementation and enhancement of chronic disease (CD) surveillance.

**Purpose:** To examine AMNET members' participation, teaching activities and funding mechanisms related to CD surveillance in countries located in the Americas and in the Caribbean.

**Study/Intervention Design:** Retrospective study.

**Methods:** We searched for AMNET members' participation in CD risk factor surveys, hospital discharge reviews and mortality analyses conducted for the implementation and enhancement of surveillance efforts registered at AMNET secretariat. In addition, we reviewed the funding support mechanisms obtained since AMNET's creation.

**Results:** The 484 AMNET members from 23 countries have participated in CD activities including surveillance design/planning, data analysis and/or results dissemination conducted in Argentina, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Peru, Venezuela and in six English-speaking Caribbean countries. Seven teaching conferences have been held in Montevideo, Uruguay (2003 and 2005); Tegucigalpa, Honduras (2006); Torreón, Mexico (2007); San Salvador, El Salvador (2008); Mar del Plata, Argentina (2009); and Cali, Colombia (2010). Support for these conferences was obtained from prestigious public health and academic organizations including the Centers for Disease Control and Prevention, the Public Health Agency of Canada, the Pan American Health Organization, and the National Institute for Health and Welfare of Finland. All international teachers pay for their own travelling expenses and conference registration.

**Conclusion:** AMNET members may work for governments, universities, non-profit or professional organizations, but they do not represent their institutions. This fact and the innovative way of financing each conference have created a successful international model for the implementation and enhancement of chronic disease surveillance activities in the Americas and in the Caribbean.

**Keywords:** chronic disease surveillance, population-based risk factor surveillance, Latin American and Caribbean countries

## Using medical records for surveillance of cardiovascular diseases in Puerto Rico

---

J. C. Zevallos, MD (1); J. Yarzebski, MD, MPH (2); J. A. González-Sánchez, MD (1); H. Mattei, PhD (1); H. Banchs, MD (1); R. J. Goldberg, PhD (2); V. Torres, MD (1); M. González, MD (1); M. C. González, MPH (1); M. Colón, MCP (1); L. R. Pericchi, PhD (3); M. R. Garcia-Palmieri, MD (1)

### Author references

1. Medical Sciences Campus, University of Puerto Rico, San Juan, Puerto Rico
2. University of Massachusetts Medical School, Worcester, Massachusetts, USA
3. Rio Piedras Campus, University of Puerto Rico, San Juan, Puerto Rico

**Correspondence:** Juan Carlos Zevallos; Email: [juan.zevallos@upr.edu](mailto:juan.zevallos@upr.edu)

**Background:** Cardiovascular diseases (CVD) are the leading cause of death in most countries of Latin America and the Caribbean. Surprisingly, there is little information on the demographic characteristics of this population, as well as on risk factors and the medical management of these patients.

**Purpose:** To investigate the possibility of using medical records to support the surveillance of CVD.

**Study/Intervention Design:** Retrospective study.

**Methods:** Using a real-time computerized system, we obtained medical information from medical records for patients hospitalized in the first two years of the study with a diagnosis of myocardial infarction, stroke or heart failure at 12 hospitals in Puerto Rico.

**Results:** The distribution of medical records by diagnosis was as follows: 1415 for myocardial infarction, 915 for stroke and 520 for heart failure. In 2007 and 2009, respectively, the mean age of patients was 68 and 69 years, and the percentage of patients who were men was 47% and 46%. Risk factor prevalence in 2007 and 2009 was as follows: history of diabetes (54%, 55%), history of hypertension (81%, 81%), history of heart failure (7%, 6%), history of stroke (5%, 5%) and current smoking (15%, 14%). Secondary prevention strategies in the same years involved quitting smoking (3%, 6%) and optimal medication at discharge (45%, 48%).

**Conclusion:** Medical records constitute an accessible source of valuable information for use in CVD surveillance in Puerto Rico. The majority of the hospitalized patients were elderly women with hypertension and diabetes. The limited use of secondary prevention could inform the education of medical personnel.

**Keywords:** surveillance, cardiovascular disease, medical records, Hispanics

## Investigation of risk factors on intra-uterine transmission of hepatitis B virus in China

---

J.-X. Zhang (1); D.-Z. Xu, MPH (1); Y.-P. Yan, PhD (1); Z.-J. Shao, PhD (1); J.-Q. Xu (2)

### Author references

1. Department of Epidemiology, School of Public Health, Fourth Military Medical University, Xi'an, China
2. Shaanxi Maternal and Neonatal Health Hospital, Xi'an, China

**Correspondence:** DeZhong Xu; Email: [xudezh69@163.com](mailto:xudezh69@163.com)

**Background:** Most infants affected by intra-uterine transmission of the hepatitis B virus (HBV) will evolve to carrier status, and this cannot be prevented efficiently.

**Purpose:** To determine the molecular mechanism and risk factors of intra-uterine HBV.

**Study/Intervention Design:** Case-control study.

**Methods:** From September 1996 to October 2004, 660 pregnant women who were HBsAg positive and their newborns were enrolled at Shaanxi Maternal and Neonatal Health Hospital in Xi'an, China. Collection of risk factor data was conducted via face-to-face interview with a trained investigator. HBV markers (HBsAg, HBcAg, HBeAg and HBV DNA) in maternal placental tissues were detected with immunohistochemistry. If the newborns were HBsAg positive (detected by ELISA method) and persisted more than one month, they were judged as intra-uterine infection cases. We classified these newborns and their mothers as the case group, and uninfected newborns and their mothers as the control group.

**Results:** Sexual contact in the second trimester, maternal positivity of HBeAg and threatened premature delivery were found as independent risk factors for intra-uterine HBV. There was a significant association between intra-uterine HBV transmission and positive HBV markers in villous capillary endothelial cells (VCEC) in the placenta (OR = 18.46,  $p = 0.0002$ ).

**Conclusion:** Occurrence of intra-uterine HBV is most likely caused by sexual contact in the second trimester, maternal positivity of HBeAg and threatened premature delivery. HBV can reach newborns via the placenta, which may be the possible molecular mechanism of intrauterine HBV transmission.

**Keywords:** hepatitis B, intra-uterine transmission, risk factor, molecular mechanism

## Disability surveillance in China

---

X. Zheng, PhD (1); G. Chen, PhD (1); X. Song, PhD (1)

### Author references

1. Institute of Population Research/WHO Collaborating Centre, Peking University, Beijing, China

**Correspondence:** Xiaoying Zheng; Email: [hch@pku.edu.cn](mailto:hch@pku.edu.cn)

**Background:** Population and economic growth in China has been accompanied by an increase in the prevalence of disability.

**Purpose:** To describe the population with disability by age, sex, marital status, employment and education, by province, and to assess the level of health service coverage and use, in order to aid in the development and delivery of effective health policies and programs.

**Methods:** The 2006 National Sample Survey on Disability had a total sample of 2.6 million residents from 734 counties and 2980 townships from all 31 provinces. It was found that more than 80 million people had one or more kinds of disability. A total of 2 526 145 individuals in 771 797 households were included in the survey based on a sampling ratio of 1.93 per 1000. The survey ascertained disabled people's quality of life, use of health services, mortality and morbidity. In addition, since 2006, ongoing annual surveillance has been monitoring 25 000 households with a disabled person through the China Disabled Persons' Federation.

**Results:** Population health, year and month of death, education level, education level of children with disability, marital status, employment and social security, household income, help and services received, and living environment were recorded. While the overall disability rate in China is 6%, the prevalence rates are very different by population characteristics.

**Conclusion:** With the increasing chronic disease rates of the Chinese population, their disability risk is also increasing. Health care in China could focus more on disability health care and rehabilitation, especially in poor and rural populations.

**Keywords:** disability survey, surveillance, China

[\[Previous Page\]](#) [\[Table of Contents\]](#)

Date Modified: 2012-01-19