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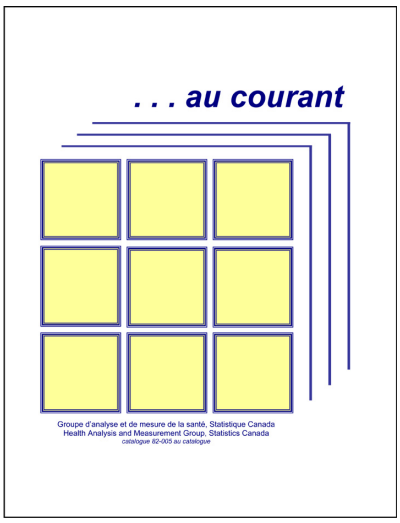

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UP FRONT. . .

Moving ahead on the PHI, and more!

Our research program Population Health Impact of Disease, Injury and Health Determinants (PHI) is moving ahead! We are building the foundation for summary measures of population health that incorporate both mortality and morbidity. While mortality is quite straight forward to estimate, morbidity is more complicated: we had to define and measure the impact of many diseases on functional health.

This involved two steps. The first, presented in our *Inside story*, was to develop a **Cla**ssification and **Me**asurement **S**ystem of Functional Health (CLAMES). The second was to measure the preference of Canadians for many health states, defined using CLAMES. This is presented in our *In short* section below. A future newsletter will provide more on this research project.

In addition to our PHI activities, we continue our tradition of conducting policy-relevant analytical projects. We hope to see you at our Fall seminar series starting October 16 (see *New from HAMG* section) to update you on some of this exciting new analytical work.

Jean-Marie Berthelot, Manager

IN SHORT. . .

Preference measurement

In the PHI, a health state represents one stage in the progression or treatment of a disease. A numeric value, sometimes called a weight or a preference score, needs to be assigned to various health states as a measure of morbidity. This score represents an individual's relative preference for a health state compared with full health. It can be combined with epidemiological data to estimate the morbidity associated with that disease.

We elicited preference scores from 17 panels of Canadians, each with about 10 participants. Participants considered how the limitations of various health states (described using the attributes in CLAMES) would affect their own lives in terms of usual activities, such as work, school, community participation and social roles. They gave each health state a score reflecting their relative preference for it compared with full health. The standard gamble method was used in these exercises because it is grounded in utility theory and participants in focus groups preferred it to other techniques (e.g., time trade-off, person trade-off).

Median scores from this exercise will be used to reflect the population's relative preference for about 200 health states on a numeric scale. A statistical function will then be derived to estimate preference scores for another 200 health states that were not directly measured in the field.

A future issue of this newsletter will describe these measurement exercises and provide some preliminary results.

Sarah Gorber

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

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Canada

A new classification and measurement system of functional health

HAMG has developed the Classification and Measurement System of Functional Health (CLAMES) to describe the impact of disease or injury in terms of functional limitations. Like existing generic tools—the Health Utilities Index (HUI 3), the EuroQol five dimensions index (EQ-5D) and the SF-36 Health Status Questionnaire—CLAMES measures health status and health-related quality of life. It can be used to compare the impact of disease or injury in a population, to monitor population health over time, and to identify disparities between socio-demographic groups. CLAMES combines the attributes used in existing tools so that we can characterize diseases and injuries across all aspects of health.

The challenge: covering the spectrum of health-related functioning

To cover the spectrum of health-related functioning—physical, mental and social—we needed a classification system that included all significant aspects of functional status resulting from diseases commonly experienced in Canada.

We reviewed existing instruments, three of which (HUI 3, EQ-5D, and SF-36) had been tested and validated in Canada. None of these could describe the complete range of illness and injury, e.g., from the common cold to terminal cancer. We thus selected, and modified as required, the most appropriate attributes from these three instruments.

CLAMES uses eleven attributes, divided into core and supplementary attributes (see Table 1). Core attributes describe the main domains of functioning affected by common diseases and injuries. Supplementary attributes describe aspects of functioning affected by a limited number of them.

Our goal was to ensure that as far as possible, the six core attributes were structurally and statistically independent (in other words, they each measure a different aspect). They also needed to be validated and coherent (they measure what they are intended to measure).

Table 1
Attributes used in CLAMES with sources from which they were adapted

Core attributes	
Pain or Discomfort	HUI 3
Physical Functioning	SF-36
Emotional State	HUI 3
Fatigue	SF-36
Memory and Thinking	HUI 3
Social Relationships	SF-36
Supplementary attributes	
Anxiety	EQ-5D+
Speech	HUI 3
Hearing	HUI 3
Vision	HUI 3
Use of Hands and Fingers	HUI 3

Each attribute has 4 or 5 levels, with level 1 representing no limitations in functioning (see Table 2). Consistent with the definition of capacity used in the International Classification of Functioning (ICF) developed by the WHO, these attributes reflect what individuals are capable of doing and how they could function given the opportunity. For instance, “social relationships” measures a person’s intrinsic capacity for developing and maintaining social relationships, regardless of opportunities or restrictions provided by his or her environment.

CLAMES has been refined subsequent to qualitative testing and peer review. The review process concluded that CLAMES covers the main domains of functioning with no apparent gaps.

Descriptions for health states relevant to Canadians

We have selected about 400 health states based on prevalence, mortality and other indicators of policy relevance. A health state usually describes one stage of a disease or its treatment. Description cards are identified with random two-letter codes (see Figure 1, Sample health state description card, which describes severe chronic asthma).

Each description includes the six core attributes. To simplify the presentation, we leave blank space to indicate that there are no limitations in an attribute. Supplementary attributes are indicated as required (in the sample card, health state ML includes anxiety).

Descriptions are based on the scientific literature and are reviewed for clinical accuracy by a panel of medical experts. To date almost 300 health state descriptions have been prepared.

Contribution to program and policy decisions

A subset of these standardized descriptions was used to elicit preference scores from panels of Canadians.

The scores will be integrated with epidemiologic data in the Population Health Impact of Disease, Injury and Health Determinants in Canada (PHI). The PHI is developing estimates and tools that contribute to objective assessment of the relative health impacts of various disease, injury and risk factors on the Canadian

Table 2
Examples of levels for attributes used in CLAMES

Fatigue	1. Generally no feelings of tiredness, no lack of energy 2. Sometimes feel tired, and have little energy 3. Most of the time feel tired, and have little energy 4. Always feel tired, and have no energy
Social Relationships	1. No limitations in the capacity to sustain social relationships 2. Mild limitations in the capacity to sustain social relationships 3. Moderate limitations in the capacity to sustain social relationships 4. Severe limitations in the capacity to sustain social relationships 5. No capacity or unable to relate to other people socially

population. The PHI will measure this impact in terms of morbidity and mortality, combined into a single index or summary measure of population health.

CLAMES could also be adapted for use on population surveys such as the Canadian Community Health Survey to measure and monitor health status in terms of functional limitations.

In summary

The Classification and Measurement System of Functional Health (CLAMES) is a generic tool used to measure health status and health-related quality of life.

This comprehensive tool permits comparable description and classification of health states covering a broad range of severity levels and symptoms.

CLAMES was developed by HAMG to describe health states—generally, a particular stage in the progression or treatment of a disease—in a standardized and coherent framework.

In our next issue, we will discuss how we measured Canadian preferences associated with these health states.

Related reading

Feeny D, Furlong W, Torrance GW, Goldsmith CH, Zhu Z, DePauw S, et al. Multiattribute and single-attribute utility functions for the Health Utilities Index Mark 3 system. *Med Care* 2002;40(2):113-28.

Brooks R. EuroQol: the current state of play. *Health Policy* 1996; 37(1):53-72.

Ware JE Jr. *SF-36 Health Survey manual and interpretation guide.* Boston: The Health Institute, New England Medical Centre; 1993.

Chatterji S, Üstün BL, Sadana R, Salomon JA, Mathers CD, Murray CJL. *The conceptual basis for measuring and reporting on health.* Global Programme on Evidence for Health Policy Discussion Paper No. 45. World Health Organization: Geneva; 2002.

Figure 1
Sample health state description card

HEALTH STATE: ML

You have problems with the following:

Pain or Discomfort	Moderate pain or discomfort
Physical Functioning	Mild limitations in physical functioning
Emotional State	
Fatigue	Sometimes feel tired, and have little energy
Memory and Thinking	
Social Relationships	
Anxiety	Mild levels of anxiety experienced occasionally

Sarah Gorber *is a senior analyst in the Health Analysis and Measurement Group. She came to HAMG in 2001, after working with the Applied Research Branch at Human Resources Development Canada. She has a master's degree in Health Education from Dalhousie University. Her current research interests include health status and preference measurement and quality of life research. She has played a major role in the development, testing and implementation of the Measurement of Health State Preferences in Canada.*

NEW FROM HAMG. . .

Recently accepted for publication

Sanmartin CA and the Steering Committee of the Western Canada Waiting List Project. Toward standard definitions for waiting times. *Healthcare Management Forum* 2003 in press.

Sanmartin C, Ross NA, Tremblay S, Wolfson M, Dunn JR, Lynch J. Labour market income inequality and mortality in North American metropolitan areas. *J Epidemiol Comm Health* 2003; 57(10) in press.

Flanagan W, Le Petit C, Berthelot J-M, White KJ, Coombs BA, Jones-McLean E. Potential impact of population-based colorectal cancer screening in Canada. *Chronic Dis Can* 2003 in press.

Announcements

Over the past few months, HAMG has welcomed several new analysts:

Philippe Finès is doing postdoctoral work on the relationship between income and health in the urban region of Ottawa-Gatineau compared with other CMAs of Québec and Ontario.

Saeeda Khan, a master's student in epidemiology at McGill University, is examining the influence of neighbourhoods on self-reported stress among residents of Montréal.

Kellie Murphy, a master's student in epidemiology at the University of Ottawa, is studying measurement scales as part of our Population Health Impact of Disease, Injury, and Health Determinants in Canada research program.

Ritsuko Kakuma, a PhD student at the Department of Epidemiology and Biostatistics at McGill University, joined HAMG in September through a Statistics Canada Research Stipend. She will be investigating "Depression and Anxiety: Patterns and Predictors of Mental Health Service Utilization over Time."

Seminars and presentations

On June 23, 2003, Jean-Marie Berthelot gave an invited presentation "Modeling the Potential Impact of Colorectal Cancer Screening in Canada" at "Colorectal Cancer in Ontario, Opportunities for Quality Improvement," the first annual Signature Event of the Cancer Quality Council of Ontario.

Four HAMG projects were presented at the First Health Statistics Data Users Conference, Ottawa, September 7-9, 2003:

Jean-Marie Berthelot	Potential impact of colorectal cancer screening
Jean-Pierre Courteau	Socio-economic indicators and health in urban Outaouais: a strained connection (with Philippe Finès)
Nancy Ross	Health inequalities between and within Canadian metropolitan areas
Russell Wilkins	Socio-economic inequalities in health outcomes

Our seminar series begins Thursday, October 16 with invited speaker Robert Choinière of the Institut national de santé publique du Québec. He will present international comparisons of mortality in Québec.

Christel Le Petit will present "Potential Impact of Population-Based Colorectal Cancer Screening in Canada" at the International Conference on Health Policy Research in Chicago, October 17-19, 2003.

Sarah Gorber and Julie Bernier will present a workshop on the health preference measurement exercises at the tenth annual conference of the International Society for Quality of Life Research (ISOQoL) in Prague, November 12-15, 2003 and at the Institute for Clinical Evaluative Sciences (ICES) Symposium, January 20, 2004. Julie will also present a poster, "The Measurement of Preferences Toward Health States using the Classification and Measurement System of Functional Health (CLAMES)," at ISOQoL.

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Note of appreciation

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We welcome your comments!
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