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# The classification of health problems in health interview surveys: using the International Classification of Primary Care (ICPC)

Most Health Interview Surveys (HIS) include questions that gather information on health problems of the respondents. Often these are closed ended questions (e. g., respondents are asked if they suffer from a specific disease). Yet, in quite some surveys respondents are also asked in an open ended question to indicate the health problem that they are suffering from, or for which they have contacted a health professional.

In order to analyse this information, the answers need to be classified. Often this is done with "ad hoc" classifications or with the International Statistical Classification of Diseases and Related Health Problems (ICD), now available in its 10th edition: ICD-10 (WHO 1992). Apart form the ICD there are a number of other classifications that are used in medicine and public health (Lagasse et al. 2001), one of which is the International Classification of Primary Care (ICPC).

The ICPC was developed in primary care and has received increasing recognition during the past few years. It was first published by WONCA (World Organisation of Family Doctors) in 1987 (Lamberts & Wood 1987). The main purpose was to fit better the frequency distributions of family/general practice. The new classification departed from the traditional ICD chapter format where the axes of the several chapters vary, from body systems to aetiology and to others. This mixture of axes creates confusion, since diagnostic entities can with equal logic be classified in more than one chapter, for example influenza in either the infections chapter or the respiratory chapter, or both. Instead of conforming to this format, the ICPC chapters are based on body systems, following the principle that localization has precedence over aetiology. The components that are part of each chapter permit considerable specificity for all elements of a medical encounter, yet their symmetrical structure and frequently uniform numbering across all chapters facilitate usage even in manual recording systems (WONCA International Classification Committee 1998).

The ICPC is based on a simple bi-axial structure: 17 chapters based on body systems on one axis, each with a letter code, and seven identical components with rubrics bearing a two-digit numeric code as the second axis (see Fig. 1).

Since its first publication in 1987 the ICPC has been used extensively as an epidemiological tool for the description of family/general practice in countries all over the world[1]. A second edition of the ICPC has been prepared for two main reasons: to relate it to the 10th edition of the ICD, ICD-10, published by WHO in 1992, and to add inclusion criteria and cross-referencing (lists of synonyms, similar conditions which should be coded elsewhere and alternatives if the particular patient's condition does not meet the inclusion criteria) for many of the rubrics (WONCA International Classification Committee 1998; Jamoulle et al. 2000). The complete ICPC-2 classification in its electronic form can be downloaded from the internet (http://www.ulb.ac.be/esp/wicc/ceo.html). The use of the ICPC-2 classification in national/local coding systems is subject to a copyright by the WICC (WONCA International Classification Committee).

Although the ICPC is primarily aimed for use in general practice it has also been used in other settings in various European countries (http://www.ulb.ac.be/esp/wicc/icpc2001.html).

The ICPC is very useful for the classification of medical terms in health interview surveys for the following reasons:

- ICPC was developed for the primary care setting, making it less technical and more appropriate for classification of lay terms than the ICD, the language of which is essentially medical/diagnostic.
- Classification of health problems with the ICPC is straightforward and less confusing than with the ICD.
- In the ICPC specific rules are applied for recording reasons for encounters (RFE).
- Because of the direct link between the ICPC and the ICD it is always possible to link an ICPC code with a corresponding ICD-code.

[1] For updated list of ICPC bibliography see: http://www.ulb.ac.be/esp/wicc/icpc_ref.html

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**Figure 1** ICPC Classification, oriented according to 17 chapters and 7 components

| | A-General | B-Blood, blood forming | D-Digestive | F-Eye | H-Ear | K-Circulatory | L-Musculo-skeletal | N-Neurological | P-Psychological | R-Respiratory | S-Skin | T-Metabolic, Endocrine, Nutr | U-Urinary | W-Pregnancy, Childbearing Family Planning | X-Female genital | Y-Male genital | Z-Social |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Symptoms and complaints | | | | | | | | | | | | | | | | | |
| 2. Diagnostic, screening, prevention | | | | | | | | | | | | | | | | | |
| 3. Treatment, procedures, medication | | | | | | | | | | | | | | | | | |
| 4. Test results | | | | | | | | | | | | | | | | | |
| 5. Administrative | | | | | | | | | | | | | | | | | |
| 6. Other | | | | | | | | | | | | | | | | | |
| 7. Diagnoses, disease | | | | | | | | | | | | | | | | | |

In the Belgian HIS the ICPC was used to classify the answers to questions in which respondents were asked to describe the health problems for which they had contacted a medical doctor during the two months preceding the interview.

To illustrate the type of output that can be obtained when classifying answers with the ICPC we present some results from the Belgian HIS 1997 (Van Oyen et al. 1997).

Table 1 gives the top 10 of the most commonly mentioned health problems for contacting the GP. In total 7 318 contacts with the GP were reported. For 5 367 contacts (73.3 %) information was obtained on the health problem for which the GP was contacted. In 153 cases (3 %) the term used by the respondent was not specific enough to allocate a complete code, but was sufficient to link it to an ICPC-chapter (e.g., "eye problem" = "F"). In 26.7 % of the cases no information was given on a health problem, e.g., because respondents had only indicated that they had contacted the GP for a general examination or a prescription without indicating the underlying reason. These contacts are not included in the results listed below.

Table 2 presents in descending order the reported health problems for which the GP is contacted, grouped according to the 17 ICPC chapters.

These results are quite comprehensive and acceptable. Similar tables could be presented with results on reasons for contacts with medical specialists and reasons for admission to hospital.

**Table 1** Top 10 of complaints, health problems or diseases for which the GP is contacted coded with the ICPC-1, Belgian HIS (1997)

| Disease or complaint | ICPC code | % |
|---|---|---|
| Hypertension, uncomplicated | K86 | 9.3 |
| Acute upper respiratory infection | R74 | 7.3 |
| Influenza | R80 | 4.4 |
| Acute bronchitis/bronchiolitis | R78 | 4.4 |
| Symptom/complaint back | L02 | 3.2 |
| Diabetes mellitus | T90 | 2.9 |
| Ostheoarthrosis, location not specified | L91 | 2.3 |
| Asthma | R96 | 2.1 |
| Acute/chronic sinusitis | R75 | 1.7 |
| Depressive disorder | P76 | 1.6 |
| Total N | | 5 367 |

Even though the Belgian experience with ICPC codes is positive some problems should be mentioned as well. As illustrated in the example above a considerable number of answers lacked specificity or the respondent did not answer the question in the right way – hence no code could be given – and in rare cases it was not clear what code should be allocated. The coding procedure was also quite time consuming. Ideally automatic tools should be developed that link lay terms of medical problems to appropriate ICPC-codes. These could be based on answers in past surveys. In absence of these the manual coding by trained staff is inevitable. Inter- and intra-coder reliability should be tested and the

**Table 2** Complaints, health problems or diseases for which the GP is contacted; grouped according to the ICPC chapter, coded with ICPC-1. Belgian HIS (1997)

| ICPC Chapter | ICPC code | % |
|---|---|---|
| Respiratory | R | 29.6 |
| Circulatory | K | 16.7 |
| Musculoskeletal | L | 15.7 |
| Digestive | D | 7.2 |
| Endocrine, metabolic and nutritional | T | 5.6 |
| General and unspecified | A | 5.2 |
| Skin | S | 4.2 |
| Psychological | P | 4.2 |
| Neurological | N | 3.3 |
| Ear | H | 2.9 |
| Urological | U | 1.7 |
| Female genital | X | 1.0 |
| Male genital | Y | 0.8 |
| Blood, blood-forming organs, immune system | B | 0.8 |
| Eye | F | 0.7 |
| Pregnancy | W | 0.5 |
| Social problems | Z | 0.1 |
| Total N | | 5 367 |

results should be used for continuing coder training to ensure quality improvement. The automatic coding of answers by making use of databases from general practice settings could also be envisaged and collaboration with researchers on this field in general practice may lead in the future to lists of standard terms that could be useful for health surveys. Researchers in Australia have already such a database of lay terms, that has been used for automatic secondary coding of Australia's national study of general practice (Britt et al. 2002). Finally, when grouping lay reported data one needs to consider the extent to which the classification falsely separates concept that (to most lay people) are equivalent. For example, lay people may not understand the difference between hypertension (unspecified), hypertension (uncomplicated) and hypertension (with complications).

Despite the constraints it may be concluded that the ICPC provides a useful framework for the classification of diseases and complaints in open ended questions in health surveys and that its use for this purpose can definitely be recommended.

## References

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