

The March 2002 update of the electronic version of ICPC-2

A step forward to the use of ICD-10 as a nomenclature and a terminology for ICPC-2

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The electronic version of the second edition of the International Classification of Primary Care, ICPC-2-E, available on the website of *Family Practice* since 2000, needed an update of the mapping with ICD-10 as a nomenclature and, consequently, of some of its criteria. This is now being made available, together with the full four-digit conversion structure between the two systems, in an electronic form, allowing the use of the alphabetical index of ICD-10 in several languages to be used as a terminology for ICPC-2. In this contribution, we discuss the considerations for preparing this new mapping structure, and its potential use in future electronic patient records in family practice.

Introduction

The main purpose of the International Classification of Primary Care (ICPC) is to order the domain of family practice, for a better understanding of its content. The relationships between reasons for encounter and diagnoses, together with the diagnostic and therapeutic interventions, at the start and during follow-up of episodes of care ('transitions') form the basis for knowledge of morbidity patterns in family practice.^{1–3} One of the main results of the comprehensive use of ICPC is the establishment of prior and posterior probabilities of diseases when patients present with a symptom or complaint.^{4–7}

After the publication of ICPC-2 as a book, a corrected electronic version (ICPC-2-E) was made available on Oxford University Press's web site,^{2,8} allowing the use of ICD-10 as a nomenclature for ICPC (www.fampra.oupjournals.org/content/vol17/issue6). Also, it allowed national translations of ICPC to relate to translations of ICD-10.^{4,9,8–18} Although ICPC provides more labels than ICD-10 for common symptoms and complaints,

it provides only a limited number of classes for diagnoses and, therefore, lacks the specificity needed for documentation at the level of an individual patient in electronic patient records. ICD-10, as a nomenclature with well over 10 000 diagnostic labels, covers medicine at large, and obviously provides far more detail, but it still does not provide the diagnostic granularity to label and code diagnoses in individual patients "on the true level of diagnostic understanding".^{19–21}

Use of ICPC-2 to code diagnoses

The criteria of ICPC-2 are meant to use the classification system optimally and to assign the best ICPC class available to an episode of care (the 'intension' of the class).^{2,22,23} The availability for each ICPC class of its mapping to ICD-10 as a nomenclature (the 'extension' of the class) leads to a substantial increase of the diagnostic potential of ICPC-2.^{23,24}

In ICPC-2-E, each rubric was mapped to one or more three-digit ICD-10 rubrics, and to one or more four-digit ICD-10 rubrics if necessary.^{4,8,20} The limitations of this proved to be especially important for the 'rag bag' rubrics of ICPC, where many three-digit ICD-10 rubrics were included, several of which also served as rag bags ('other', 'not elsewhere classified', 'not otherwise specified'). Obviously, in an electronic patient record, a patient can never get a 'rag bag' diagnosis; therefore, the four-digit classes of ICD-10 referring to specific disorders are necessary.

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This is illustrated by the one-to-one mapping of the ICPC class T85 hyperthyroidism/thyrotoxicosis (in various languages) to the three-digit class E05 in ICD (Table 1).²³ The four-digit classes E05.0–E05.9 (represented in English, French, Spanish and Dutch) allow the family doctor to describe the patient's condition in greater clinical detail. The use of the alphabetical index of ICD-10 as a terminology introduces even more specificity, illustrated by the available terms for E05.0 'thyrotoxicosis with diffuse goiter'. Now terms such as toxic goiter, exophthalmic goiter, Basedow's, Graves',

Flajani's and Parry's disease become available. It is evident that, internationally, the use of ICPC-2 is supported by the availability of different language versions of both ICD-10 and ICPC-2.

Discussion

During the process of mapping between ICPC-2 and ICD-10, several problems had to be dealt with. Two systems incorporating different ordering principles and

TABLE 1 The mapping between ICPC-2 class T85 hyperthyroidism/thyrotoxicosis (labels in various languages) with ICD-10 on the three- and four-digit level, and the available ICD-10 terms in English, French, Spanish and Dutch

ICPC-2 code	ICPC-2 label	ICD-10 codes	ICD-10 labels (English)	ICD-10 labels (French)	ICD-10 labels (Spanish)	ICD-10 labels (Dutch)
T85	Hyperthyroidism/thyrotoxicosis	E05	Thyrotoxicosis (hyperthyroidism)	Thyréotoxiciose (hyperthyroïdie)	Tirotoxicosis (hipertiroidismo)	Thyrotoxicose (hyperthyroïdie)
	Hypertyreose/tyreotoksikose (Danish)	E05.0	Thyrotoxicosis with diffuse goiter	Thyréotoxiciose avec goitre diffuse	Tirotoxicosis con bocio difuso	Thyrotoxicose met diffuse struma
	Hyperthyreoidie/thyreotoxiciose (Dutch)	E05.1	Thyrotoxicosis with toxic single thyroid nodule	Thyréotoxiciose avec nodule thyroïdien simple	Tirotoxicosis con nódulo solitario tiroideo tóxico	Thyrotoxicose met solitaire toxische schildkliermodus
	Hyperthyroïdie/thyréotoxiciose (French)	E05.2	Thyrotoxicosis with toxic multinodular goiter	Thyréotoxiciose avec goitre multinodulaire toxique	Tirotoxicosis con bocio multinodular tóxico	Thyrotoxicose met toxische multinodulaire struma
	Hypertyreose/Thyreotoksikose (German)	E05.3	Thyrotoxicosis from ectopic thyroid tissue	Thyréotoxiciose due à des nodules thyroïdiens ectopiques	Tirotoxicosis por tejido tiroideo ectópico	Thyrotoxicose door ectopisch schildklierweefsel
	Ipertiroidismo/tireotossicosi (Italian)	E05.4	Thyrotoxicosis factitia	Thyréotoxiciose factice	Tirotoxicosis facticia	Thyrotoxicosis factitia
	Hipertiroidismo/tireotoxiciose (Portuguese)	E05.5	Thyroid crisis or storm	Crise aiguë thyrotoxiq	Crisis o tormenta tirotóxica	Thyrotoxische crisis of storm
	Hipertiroidismo/tirotoxicosis (Spanish)	E05.8	Other thyrotoxicosis	Autres thyréotoxicioses	Otras tirotoxicosis	Overige gespecificeerde vormen van thyrotoxicose
		E05.9	Thyrotoxicosis, unspecified	Thyréotoxicioses	Tirotoxicosis	Thyrotoxicose
			Terms referring to E05.0 in the Alphabetical Index of ICD-10 (English) Basedow's disease exophthalmic; goiter Flajani's disease goiter; exophthalmic goiter; hyperthyroidism goiter; thyrotoxicosis goiter; toxic Graves' disease hyperthyroidism; goiter Parry's disease thyrotoxicosis; goiter toxic; goiter	Terms referring to E05.0 in the Alphabetical Index of ICD-10 (French) Basedow Flajani goitre; adénomateux; exophthalmique goitre; hyperthyroïdie goitre; thyréotoxiciose goitre; toxique Graves hyperthyroïdie, goitre Parry thyréotoxiciose; goitre toxique; goitre diffus toxic; goitre; diffus	Terms referring to E05.0 in the Alphabetical Index of ICD-10 (Spanish) Basedow; enfermedad bocio; exoftálmico bocio; hipertiroidismo bocio; tirotoxicosis bocio; tóxico enfermedad; Basedow enfermedad; Flajani enfermedad; Graves enfermedad; Parry hipertiroidismo; bocio tirotoxicosis; bocio tóxico; bocio	Terms referring to E05.0 in the Alphabetical Index of ICD-10 (Dutch) Basedow exoftalmie; struma Flajani Graves hyperthyroïdie; struma Parry struma; exoftalmie struma; hyperthyroïdie struma; thyrotoxicose toxisch; struma

characterizing different domains cannot be mapped perfectly in both directions. The example regarding 'hyperthyroidism/thyrotoxicosis' is, in this sense, an exception. Several errors in the mapping were identified by the members of the WONCA International Classification Committee (WICC) and, on this basis, the March 2002 update was prepared, which is linked to this article in an electronic form. This update replaces the mapping in the first electronic version of ICPC-2.

Our aim was to have at least one map for each ICPC-2 rubric to ICD-10, even if this is difficult. Whenever possible, symptoms and complaints or conditions that are not considered to be a 'disorder' are mapped to the first component of ICPC. In case an ICD-10 'disorder' concept is mentioned in ICD-10, mapping occurs in principle to the seventh component of ICPC. It was decided not to map the process components of ICPC to ICD-10, since this may cause friction on the diagnostic level with ICD-10 codes that are focusing rather ambiguously on an intervention rather than on a condition or a health problem.

The clinical modification of ICD-10 (ICD-10-CM) is not yet available, but it is already evident that it can help to solve difficulties in the ICPC2/ICD-10 mapping, caused by the existence of two codes for respectively, aetiology and for manifestation or localization (the dagger and asterisk problem).

This brings us to the future of the documentation and classification of diagnoses in family practice. A medical vocabulary provides the terminology to conceptualize all medical objects with a term, and refers not only to diagnoses, but also to a wide range of other areas: operations, treatments, special investigations, appliances, drugs, occupations, administrative items, etc.^{25,26} A Controlled Medical Vocabulary thus is a list of all terms used by health care professionals and, as a consequence, it contains several hundreds of thousands of terms, of which diagnostic terms are only a small proportion. Such a comprehensive terminology is given by Clinical Terms Version 3 (CTV-3 or Read Codes), to be replaced by the Systematized Nomenclature of Medicine-Clinical Terms (SNOMED-CT).²⁷⁻³⁰ CTV-3 is made available and updated by the British National Health Service Information Authority. SNOMED was first published in 1975 by the College of American Pathologists. SNOMED-CT will be a joint effort of both organizations.²⁹

A Controlled Medical Vocabulary is no classification: in order to retrieve aggregated data for epidemiological use, a classification is needed. Therefore, for CTV-3 and SNOMED-CT, ICD-10 is designated to summarize the documented diagnostic data, in the form of, for example, incidences and prevalences of diseases.²⁹ However, it remains to be seen whether family doctors using such a large medical vocabulary in their offices will produce reliable classification. Standardized cross-maps to ICD-10 are essential, but only provide diagnostic terms; for areas such as treatments, investigations, occupations, drugs and appliances, other mappings are required.

In addition to the classification of reasons for encounter and diagnoses, ICPC offers a very basic classification of interventions in family practice. Depending on the national situation, additional classifications of procedures have to be considered for practical use.^{1,31} The ICPC drug code, directly derived from ATC (the Anatomical Therapeutic Chemical Classification Index), is a good example of such a strategy.³² A major decision with regard to the documentation of interventions in family practice is whether family doctors primarily will take on the responsibility to classify and code the interventions for which they are, themselves, responsible, or whether they wish to document and code all interventions that their patients face in their national health care system, and, for this, a complete controlled medical vocabulary is needed.

ICPC is now available in some 20 languages (and more are under development) and, because of its detailed mapping with ICD-10, a widespread multilanguage use in the domain of family practice can be foreseen. This is exactly the purpose of ICPC as the main ordering principle of the domain of international family practice.

Finally, it is very important that users of a classification in development (and being under development is a trait of any useful and adequate classification of a domain) are in a position to indicate exactly which version they used. The consecutive updates published by this journal are still entirely in line with the first nine chapters of the book, and the book is still indispensable for anyone who wants to make correct use of ICPC.² Therefore, in order to prevent confusion in the literature, when using ICPC-2 as a classification, reference should be made to both the book and this 2002 update (or the 2000 update; there are no differences in ICPC-2 itself between these two updates; changes occurred in the conversion structure to ICD-10 and, consequently, in the related inclusions and exclusions).^{2,8}

Note

Attached to this contribution online (at www.fampra.oupjournals.org/content/vol19/issue5) is an Access file containing three tables:

- (i) the documentation of 146 changes in the mapping of ICPC-2-E;
- (ii) revised mapping of ICPC-2-E as of March 2002 with 3187 mappings; and
- (iii) the new four-digit mapping between ICPC-2-E and ICD-10 with 9765 mappings.

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Appendix

Definitions of important terms used in this contribution

Controlled Medical Vocabulary

A 'Controlled Medical Vocabulary' contains the terminology of related subject fields in medicine: diseases, reasons for encounter, external causes, health interventions, preventive measures, microbial causes, morphology, environmental factors, living conditions, body functions, etc.

Classification system

Arrangement of all concepts in a domain into groups/classes according to established criteria.

Diagnostic criteria

Symptoms and complaints, together with the objective signs and test results that are essential for labelling a health problem with a specific diagnosis.

Mapping

Establishment of a relationship between the representation of a concept in one system to the most similar representation in another system.

Nomenclature

A terminology that is structured systematically according to pre-established rules.

Rag bag

Miscellaneous collection of symptoms and complaints, of interventions or of diseases not classified elsewhere.

Terminology

List of terms referring to the concepts in a particular domain.