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International Classification of Primary Care converted to ICD-10: Extended Danish ICPC

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Abstract. The Danish health care service is using two different classification systems for coding diagnoses: ICD-10 in hospitals and ICPC in General Practices. The organisation of FynCom has now developed a conversion between these two classification systems, so that general practitioners can use the ICPC-classification system when coding the electronic health care record (EHCR) as well as being able to send an electronic referral to the hospital with an ICD-10 code.

1. Introduction

General practitioners are pioneers in the field of electronic communications within the Danish health service. Seventy percent of general practitioners in Denmark keep an electronic health care record, and, at present, prescriptions, laboratory responses and statements are dispatched from medical practices. The time is now ripe for introducing electronic referrals. Therefore the key word in referrals - the diagnosis - with associated codes has become important. The secondary sector uses the WHO's ICD-10 (International statistical Classification of Diseases and related health problems), while in general practice the ICPC (International Classification of Primary Care) code system has been chosen. Naturally, this has resulted in a communications problem requiring a conversion from ICPC to ICD-10.

Against this background and within the FynCom organisation, a collaborative relationship has been established between Odense University, Odense University Hospital and general practice in order to integrate ICD-10 with the ICPC general practice classification system. We have named the result: Exteded Danish ICPC, abbreviated ICPC-E.

2. Problems with the classification systems

"WONCA" (the world organisation of general practitioners) has developed ICPC, which has been tested in a number of countries including Denmark. It has been found extremely useful, with very low faulty coding frequency and a high degree of acceptance among doctors. Patients are often seen in the early stages of illness; ICPC is remarkable because it can record vague diagnoses and general symptoms. Furthermore, it is highly suitable for recording reasons for encounter as well as medical examination and treatment.

Since the introduction of ICD-9 in 1978, it has been suggested that the new version should incorporate universal medical problems. ICD-10 does not take account of this. It

covers 1,929 three-figure codes - 95% more than ICD-9.

In the course of a few days, admission to hospital should result in a diagnosis; the same applies to a consultation of 10 minutes' duration. The difference between these two scenarios lies in the reason for encounter (vague complaints/admission diagnosis), the scope of the examination and the time available. It is a well-known fact that the pattern of illness in general practice is quite different from that in secondary healthcare.

In some fields, ICD-10 is not as precise in its formulation of general practice problems as ICPC - the symptom/complaint diagnoses - and in other areas, ICD-10's "fine-meshed" coding potential is quite unsuitable for those diagnostic requirements with which it is possible to work in general practice. ICD-10 contains 37 and 23 codes, respectively, for pneumonia and gastritis. ICPC has one for each. ICD-10 coding produces a high percentage of faulty coding, and the coding itself is so difficult, it cannot be executed with sufficient care. On the whole, ICD-10 is too big and cumbersome for general practice. In turn, ICPC's breadth can be inconvenient from time to time. Naturally, this is due to a compromise between clarity and accuracy. For example, there is no distinction made between IDDM and NIDD, and rarer though nonetheless important diagnoses, like Huntington's chorea, can only be stated as "Other diseases of the neurological system" in ICPC.

ICPC is a biaxial classification system based on chapters and subdivided in components. Seventeen chapters with an alpha code reflects the human organs and is forming the one axis. Seven components with rubrics bearing a two-digit numeric code form the second axis. It should be observed, that component 1, symptoms and complaints and component 7, diagnoses have approximately the same number of rubrics. This marks an essential difference between ICPC and ICD-10.

Components 2 to 6 (Diagnostic and preventive. Drugs and other treatment. Results. Administration. Referrals, etc.) are not used on an everyday basis, as we have codes in our agreement that cover much of the procedure, and drugs are coded by their stock number. With the coding of reasons for encounter, these components are however necessary, but at present our electronic health care records are not geared up for this. The consequence is that 17 x 40 = 680 codes are superfluous in the daily diagnosis coding, and the menu system therefore feels too comprehensive, as use is not made of the above-named components. Finally, the system does not have an alphabetical search register or regional register.

3. The purpose of the extended danish ICPC (ICPC-E)

This work has been based on the book: The Classification of Primary Care in the European Community (2). The Danish ICPC version (3) has been extended with ICD-10 diagnoses relevant to general practice, as a more detailed specification of the ICPC diagnosis.

Thus the aim is not to create a blending or hybrid of the two classifications. ICPC continues to be the classification for general practice, but the part of ICD-10 that is relevant to general practice has been accommodated within ICPC and communication with the secondary sector is ensured with the conversion of diagnoses into ICD-10 codes.

To put it more specifically, the aim of this project is as follows:

1) to enable supply of all referrals for hospital treatment with an ICD-10 diagnosis code.
2) to optimise ICPC's user-friendliness with a simplified menu and an alphabetical index
3) to supply ICPC with a localisation register.
4) to produce a more detailed specification of the ICPC diagnosis with ICD-10 diagnoses where applicable to general practice.

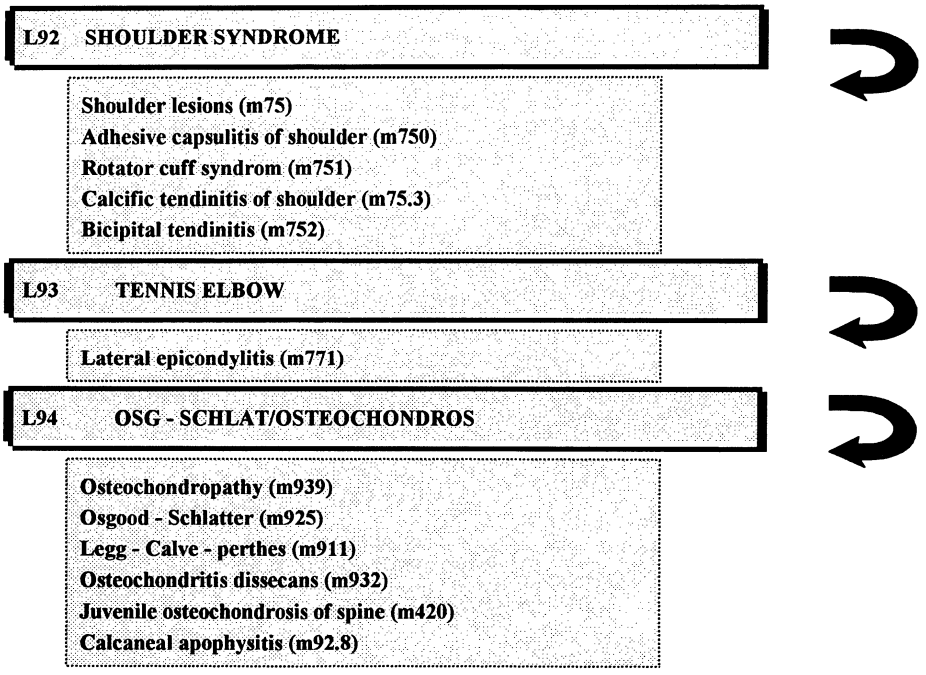
Paradoxically ICPC-E will in this way become a simplified version of ICPC, as components 2 to 6 will be omitted. At the same time, it will rectify a shortcoming in ICPC - insufficient specification - hence the name Extended ICPC. The simple structure of ICPC will be maintained, and user-friendliness will be taken into consideration through the introduction of an alphabetical index.

The reverse task of linking all the ICD-10 rubrics with an ICPC rubric has been left undone for the present. It is more problematic to go from a detailed- to a broad diagnosis and the clinical significance is not urgent from ouer point of view.

4. The diagnosis

With every consultation, the problem is summarized in a diagnosis: a compression of data, based on specialist knowledge, that gives the pathological picture and its course.

The conventional case notes of a general practitioner are characteristically brief and concise. We wish to maintain this practice with ICPC-E.



The figure above is an illustration of several ICPC diagnoses and the more detailed specification of their ICD-10 diagnoses. The first ICD-10 diagnosis corresponds to the diagnosis converted to if the ICPC diagnosis is selected. The others are of a more detailed specification. If we think the problem is a case of "rotator cuff syndrome", choosing this is more informative for us than the shoulder syndrome diagnosis.

The object of this extension is to rectify a shortcoming in ICPC - insufficient specification. We will maintain the simple structure of ICPC, which means we will have a diagnosis system that can focus on the particular without loosing the broad view of things.

5. Diagnosis registration

Diagnosis registration will be carried out in three different ways:
1) Entering the ICPC code direct
2) Finding the ICPC code with the help of the ICPC menu
3) Searching for the ICPC code with the help of the ICPC index.

When the code and its associated ICPC text have been found, the more detailed specification of the ICD-10 diagnoses will appear simultaneously in the dialogue box on the screen. The doctor will stick to his/her ICPC diagnosis or select one of the more detailed ICD-10 diagnoses. In this last case, the ICPC text will be replaced with the selected ICD-10 text.

The next keystroke gives the option of the localisation specification.

6. Referral with ICD-10 code

Diagnosis with ICD-10 code on referral to hospital is achieved in three ways:
1) Entering a referral into the electronic health care record.
   (Keying in work which is ordinarily carried out by a secretary)
   The keyed-in diagnosis is transferred to the transcript form with ICD-10 code which is then printed out or sent electronically via EDIFACT.
2) Entering a referral outside the electronic health care record.
   (We refer here to entries made by word processor, typewriter or hand)
   The ICD-10 code is retrieved from the medical system by finding the diagnosis referred to under input. A further keystroke brings up the ICD-10 code instead of the text diagnosis. The text diagnosis is displayed again when the key is released.
3) Entering a referral, when the electronic health care record is not available.
   (With referrals made out during home visits.)

7. Testing and evaluation

ICPC-E was implemented provisionally in 5 of the electronic health care record systems used in general practice. Testing and evaluation has just been undertaken and a report was

published. The conclusion is positive. Now the aim is to set up classification in all medical systems. At the same time, all general practitioners are offered instruction in ICPC-E.

8. Internationally

Other countries throughout the world, including Australia and Canada, are working along similar lines. In December 1995, Erik Falk□ Lorentzen made a study trip to Sydney where "one-to-one" conversion from ICPC TO ICD-10 was discussed with Professor Charles Bridges-Webb, chairman of the WONCA Classification Committee. They reached an agreement on this conversion, and their conclusions will be submitted to the committee.

9. Advantages of ICPC-E

The most important advantage in general practice is that the doctor is provided with an unambiguous term to sum up the pathological picture. In this way, a platform is created from which he/she can more easily make his/her choice of treatment and prognosis. With ICPC-E, writing the patient record is made simpler, as the diagnosis is often sufficient in itself. The patient record summary will also be improved. The complexity of the electronic health care record makes it possible to view diagnoses of the past year, chronologically, on a single screen page; with the use of the diagnoses as key words, the doctor will be able to get an overview of the course of specific diseases, e.g. diabetes and hypertension. It is possible to obtain more detailed specification of the ICPC diagnosis in selected ICD-10 diagnoses, which can clarify a problem. Finally, with the aid of the diagnosis codes, the doctor will be able to analyse his/her own work - a form of internal quality assurance.

Because all diagnosis texts are followed by an ICD-10 code, diagnosis classification is especially useful outside the practice for facilitating clear communication with the secondary sector. Referral to hospital and specialist care is the first consideration here, but this naturally also applies between doctors when patients change doctors and to reports from the doctor on call. In future, diagnosis registration will, with this system, automatically be coded both in ICPC and ICD-10. This will bring great potential for research and quality assurance across the primary and secondary health sectors.

References

[1] The International Classification of Primary Care in the European Community, with a Multi-Language. Lamberts H, Wood M, Hofmans-Okkes I. Oxford University Press, Oxford 1993.

[2] ICPC International Classification of Primary Healthcare. Editors: Lamberts H, Wood M; Danish adaptation: Bentzen N, Schroll H, DSAM. Monthly publication Prakt. L☞gegern. og Fyns Amt, 1991. Monthly publication Prakt. L☞gegern., 1991.

[3] Klassifikation af sygdomme, Systematis & Alfabetisk del, 10. revision, Schi□ler G, Mosbech J, Munksgaard 1993.