

# Educational Challenges of E-representation of International Classification of Nursing Practice

## Izobraževalni izzivi e-predstavitve Mednarodne klasifikacije prakse zdravstvene nege

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### Abstract

*Teaching about classifications plays an important role also in nursing education. International Classification for Nursing Practice is a unified professional language devoted to nurses, other health workers and broader. In the paper the e-version of classification is presented as a challenge for efficient educational practice searching for new information solutions in different environments using information and communication technology. Browsers on personal computer, internet and PDA-hand-held computers are presented. Combination of those browsers in education in health-care is analyzed.*

**Keywords:** education, health care, nursing, classifications, information technology

### Povzetek

*Klasifikacije zasedajo pomembno mesto v izobraževanju zdravstvenih delavcev. Mednarodna klasifikacija zdravstvene nege je poenoten profesionalni jezik namenjen medicinskim sestram, drugim zdravstvenim delavcem in pa tudi laikom. V članku je predstavljena e-oblika klasifikacije kot izziv za učinkovito izobraževanje z uporabo sodobne informacijske in komunikacijske tehnologije. Predstavljene so rešitve za osebne računalnike, na spletu in za dlančne računalnike. Analizirana je kombinacija treh predlaganih rešitev kot možnost za uspešno izobraževanje v zdravstvu.*

**Ključne besede:** izobraževanje, zdravstvo, zdravstvena nega, klasifikacije, informacijska tehnologija

## 1. Introduction

International Classification for Nursing Practice (ICNP®) is a professional language for communication among people (Mortensen, 1999; Hardiker and Coenen, 2006). An important goal of this thesaurus is also to facilitate informatization in the whole field of health care. It is a good base to

support nursing process (Potter and Griffin Perry, 2003; Taylor et al., 2001; Yu et al., 2006) and their computerization along the lines of patient's record, minimal data set, etc (van Bemel and Musen, 1997; Šušteršič et al., 2003; van de Castle, 2006; Müller-Staub et al., 2007). Therefore, in nursing education it is not only important that students become familiar with ICNP®, but also that they develop critical thinking/reasoning about its usage in nursing documentation and informatization of nurses' work (Eldh et al., 2007). To meet these challenges ICNP® must be widely accessible, not only as a book (International Council of Nurses, 1999; Cibic et al., 2000), but also on electronic media such as personal computers, Internet, PDA computers (Bond, 2006; Norton et al., 2006; Saranto, 2007).

In this paper three versions of browsers for different above mentioned media are presented. User can browse Slovene and English version of ICNP® beta 2. Each version is discussed regarding its technical advantages and disadvantages. Teaching critical thinking enables nurses and other health workers not only to select the most suitable access to ICNP® in given situation, but also to evaluate the role of information and communication technology (ICT) as a tool for adding value in their work.

## 2. ICNP® and Its Expectations

ICNP® can be viewed as an information tool for describing nursing processes in practice (Mortensen, 1999; International Council of Nurses, 2005). It encourages unified acquisition, storage, processing and dissemination of nursing data in the frame of health information system. Such data can be used by practitioners, researchers and educators (van Bemel and Musen, 1997; Scholes et al., 2000; Hammon and James, 2006; Hardiker and Coenen, 2007).

These data are also the basis for quality management in nursing. Consequently the need for possible changes in education, management and health care strategy become more evident.

In the frame of information system ICNP® supports unified coding, which is significant for electronic patient's record and data exchange among different information solutions. Formalized health care language supports process method of work (McEwan and Wills, 2007) and standardizes the way nurses work with patients / clients. It also makes the exchange of "best-practice" experiences easier.

With the e-representation of ICNP® we would like to contribute to the achievement of the above-mentioned goals. The classification should be accessible to nurses during their education and work in different situations where it can be used for describing nursing diagnoses, interventions and outcomes. Different browsers together with a book offer the possibility to every nurse to choose the most suitable access to ICNP® for her/him.

## 3. Browsers

A browser must offer flexible access to ICNP® with the aid of information and communication technology. So the book version (International Council of Nurses, 1999) is significantly extended. Besides the usual advantages of e-representation it is important to mention multilingual access to ICNP® like in our case a combination of Slovene and English language.

Different browsers can be used in different segments of nurse's education and work. Therefore, advantages and disadvantages of each browser must be known. From our experience no single solution can serve as a replacement for others. We propose the complementary view on the use of different browsers. Thus, a nurse should have access to all browsers. It is up to her/him to choose the most appropriate in certain case.

### 3.1 Internet Version

The Internet browser can be accessed on the web (<http://lopes1.fov.uni-mb.si/icnp>). Screen image is shown in Figure 1. It offers browsing the hierarchical tree structure, search for keywords (in both languages and their codes) and full-text search. Search is conducted on the server side and results are transferred to the user. In the case of multiple search results, the user can move forward and

backwards among them. Access to the database is possible only through the search engine on the server in order to secure the database.



Figure 1: Screen of the browser on the Internet

One of the main advantages is the ease with which changes on the central computer are implemented, always offering users the newest version of ICNP®, which is a live language still undergoing some changes. Access to this version is based on the access to the Internet. To a certain degree Internet connection can present a problem. Therefore, the tree structure is built on the client's side.

From educational point of view this is a good example of using internet in teaching students about the ICNP® and ICT concepts together. In relation with other teaching materials it also encourages distance learning.

### 3.2 Personal computer version

A user must install this version in order to use it. It is available on a CD-rom together with installation software. Screen shot is shown in Figure 2. There is a flexible user interface offering more ways for searching than other versions. Having the database on personal computer means that this browser is the fastest.

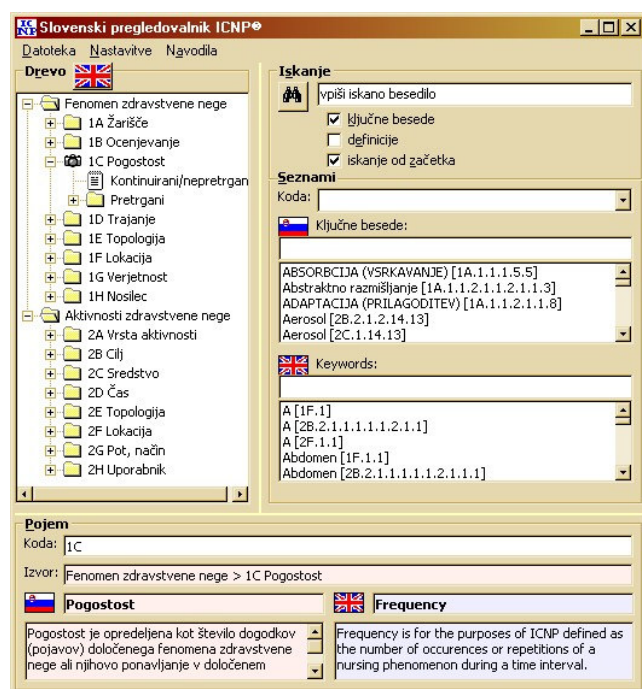


Figure 2: Screen of the browser for a personal computer

It offers keyword and full-text search. There are alphabetically ordered lists of codes and keywords in both languages. Tree structure is instantly changing according to the position of a search result in a hierarchical structure.

Compared to the Internet version we would like to emphasize the speed and numerous search methods. Friendly user interface offers flexibility so it can be customized to fit the user. This version can be viewed as a step forward toward information system solutions.

According to our practice PC version is suitable for classroom work and individual student's work on documentation in nursing. Due to the fact that our Ministry of Health printed the CD-ROM with PC browser (Rajkovic et al., 2004) and made it available free of charge, students can use the software at their homes on their own PCs.

### 3.3 PDA (Palm) version

PDA hand-held computer version (Figure 3) is based on the Palm operating system. The database was changed to suit it. The solution takes advantage of PDA's characteristics such as handiness, short start-up time, different user interfaces, etc. The most significant one is that a nurse can always carry a PDA in her/his pocket. This way ICNP® is kept close at hand. Among disadvantages we would like to mention the processing speed and small screen size.

PDA does not offer a wider view over the tree structure. A user can browse the hierarchical structure by moving one level up or down, search for keyword, code or search through full-text. In the latter case the browser returns the list of keywords where the search string was found.

Even when the PDAs and mobile phones will be joint in a single device, this version will present cheaper access in comparison to the mobile version through WAP protocol.

Using PDAs students realise the strengths and weaknesses of available mobile applications. They have some ICT support always with them, what is especially important as they work with patients on site that is far from classrooms and often far from other ICT support.



Figure 3: Screen of the browser on a PDA

## 4. Conclusion

Classification ICNP®, which is widely accessible in professional community by electronic means, contributes toward faster development of standardization of nursing diagnoses, interventions, outcomes and documentation in the field of nursing care. It also encourages multilingual approach what is important in multicultural environment where different mother languages are used. Consequently it means better information picture of the whole nursing process. It encourages integration with other segments of health care as well as the usage of existing data for research and development purposes (Bohanec et al., 2000; Sustersic et al., 2002). With the e-representations of ICNP® we also bring the spirit of e-services closer to practice.

To achieve these goals we recommend the use of presented browsers as tools in education on several levels from ICT literacy through the whole nursing process to the students' practical work with patients.

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