

## **Are (bio)physical knowledge necessary for nurses? (Selected results of written test)**

Zuzana Balazsiova

Institute of Medical Physics, Biophysics, Informatics and Telemedicine, Faculty of Medicine, Comenius University, Bratislava, Slovak Republic

### **Abstract**

The aim of our research was to determinate technological and physical literacy of nurses – 266 external students of master study. Original written test was used. Questions were based on nursing practice. Tasks could be solved using the nursing or physical knowledge. It has been validated by High school curriculum and curricula of Slovak Medical Faculties.

Results: Only 31.9% of respondents said that drugs with identical active principle in different solvents can be dosed differently. In our view this result is alarming given the current Government drug policy aimed at the use of cheaper generic drugs. It is likely that the reason for this result is the fact that the teaching of subject Nursing Procedure and Equipment is more focused on the technical implementation of drug administration, not on the physical properties of liquids (medicines) and their possible changes. This topic should be the subject of teaching in biophysics.

Disturbing is the fact that almost 70% of all respondents did not know correctly or at all determine required information from the patient temperature curve record. More than a quarter of all respondents (27.45%) have no knowledge that the width sphygmomanometer cuff affects the result of measurement of blood pressure patient. Blood pressure measurement is included among basic nursing skills in all hospital wards and clinics. Therefore sister should perfectly control this activity in any situation.

Conclusion: Subject biophysics is taught in the 1<sup>st</sup> term of bachelor study nursing. Nevertheless, the research results show that nurses have poor knowledge of physics, theory of measurement and devices used in nursing practice or they do not know to use their knowledge for solving model problem task.

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### **Recent Publications**

1. Balazsiova Z (2012) Analysis of the nursing practice problem solving using physical knowledge. In: Kania, A., Pasko, J R., Tejchman, W. (eds.) *Badania w dydaktyce fizyki (Research in didactics of physics)* Pedagogical University of Krakow, pp. 6-9.
2. Guimarães F S P, Dickman A G, Chaves A C L (2014) Website: complementary material for biophysics teachers in nursing programs. *Revista Brasileira de Ensino de Física* 36: 1-8.
3. Loftus J (2013) Improving technology literacy and skills among minority nursing students. *Journal of Nursing Education* 52: 238-238.
4. Lussins J (2016) Concept-Based Curriculum. The Nuts and Bolts. National Nurse Educator Summit 2016. [Accessed 2017-03-06]. Available on [www](http://www.nursingsummit.com/wp-content/uploads/2016/03/The-Nuts-and-Bolts-of-Getting-a-Concept-Based-Curriculum-Off-the-Ground.pdf):
5. Paclova S, Mornstein V, Caruana C J (2009) Device Learning Needs of General Nurses in First Cycle Programs in the Czech Republic. In: Dössel O, Schlegel W (Eds.). *WC 2009, IFMBE Proceedings 25/XII*, pp. 145-147.

6. Pfeil M (2008) Technology and Nursing: Practice, Concepts and Issues. Book Reviews: Barnard A, Locsin R (eds.), Technology and Nursing: Practice, Concepts and Issues. 2007In. Nurse Education Today 28:781-894

### **Biography**

Zuzana Balazsiova is lecturer on Medical Faculty Comenius University in Bratislava, Slovak Republic. In 2012 she defended dissertation on the topic: "The conception of teaching biophysics in the Nursing Bachelor's degree program". She has her expertise in students education of medical and paramedical study programs on (bio)physics, physical applications in medicine and nursing. She is aware that (bio)physics is a difficult subject for students. Therefore she tries to find an effective and student friendly way for teaching (bio)physics. In her view, model of teaching biophysics should be based on solving the tasks of nursing / medical practice. Transfer of knowledge and their explanation should be in the direction from nursing / medical to the physical knowledge.

Email: [zuzana.balazsiova@fmed.uniba.sk](mailto:zuzana.balazsiova@fmed.uniba.sk)