

# **South Eastern Europe Health Sciences Journal (SEEHSJ)**

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Official publication of Faculty of Health Care and Nursing,  
University of "Vitez", Travnik (Bosnia i Herzegovina) and  
School of Medicine, University Josip Juraj Strossmayer Osijek (Croatia)



## **1th International Scientific Conference in Health Sciences**

Vitez, Bosnia and Herzegovina

13<sup>th</sup> November 2012

# **South Eastern Europe Health Sciences Journal**

Volume 2, Supplement 1, 2012

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### **FINAL PROGRAMME AND ABSTRACTS**

Editor:  
Selma Uzunović

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**ISSN 2233- 0186**

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**Editor**

Selma Uzunović

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## **IMPORTANT INFORMATION**

### **Important dates:**

#### **Until 1st September 2012 – abstracts submission**

Until 15th September 2012 – notification of acceptance of the abstracts

Until 1st October 2012 – full article submission

### **Participation fee for the Conference:**

Active participants (payment due by September 01, 2012)	50 Euro
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Active participants - students	free
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Other participants (payment due by September 01, 2012)	50 Euro
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Other participants (payment due after September 01, 2012)	70 Euro
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The participation fee includes lecture proceedings, Abstract book, participation certificate lunch, refreshments during the breaks.

### **The participation fee must be transferred to the:**

Vitez University of Travnik

Školska 23, 72270 Travnik, Bosnia & Herzegovina

ID 4236444360001

ProCredit bank

SWIFT CODE: MEBBBA22

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For additional information on the conference, please call +387 30 509 571 or to:

<http://unvi.edu.ba/index.php/international-scientific-conference-in-health-sciences>

Amir Ibrahimagić: amir.ibrahimagic@unvi.edu.ba;

Selma Uzunović: selma\_kamb@unvi.edu.ba

### **Internet**

For all congress participants internet access (wireless) will be available in the exhibition area.

### **Languages**

Official languages are Bosnian/Croatian/Serbian and English

## **ACCOMODATION**

### **Hotel CENTRAL**

Poslovni centar 96, 72250 Vitez, Bosnia and Herzegovina

Phone.: +387 30 718 460; fax.: +387 30 718 461; info@central.ba

**The price per night per person (including the breakfast): 60 KM (30 EURO).**

# **1th International Scientific Conference in Health Sciences**

## **CONFERENCE PRESIDENT**

Selma Uzunović

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Aleksandar Včev (Osijek, Croatia)

## Welcome Remark

Dear Colleagues and Friends,

It is a great pleasure and privilege to welcome you to Vitez, Bosnia and Herzegovina, on behalf of Organizing Committee and Faculty of Health Care and Nursing, University of "Vitez", Travnik, to 1th International Scientific Conference in Health Sciences

The main goal of this conference is to present the current situation in high education of nurses, to define current weakness, as well as future goals, in Bosnia and Herzegovina, as well as in regional countries, based on the experiences of countries in which this process has already implemented. Except that, very important issue is an involving of respective Ministries (for Health, Education, Science), as well as professional association of health sciences workers. Educational lectures will try to answer for these questions (goals).

Moreover, second part of this conference is to present scientific work related to all fields of health sciences, than we invite all undergraduate, master and doctoral students together with their mentors to present their recent works and to share their findings and experiences with others.

We hope that this 1st conference becomes a reference model for the exchange of scientific information in the future. We wish you full success meeting and a pleasant stay in Vitez.

Selma Uzunović  
Conference President



# **Introduction to the Scientific Programme**

## **Plenary Lectures**

We will start with Plenary Lectures (which are indicated by the prefix "PL") led by experts in the field. These sessions count on active participation of the audience. After a short presentation (up to 20 minutes), the experts will open the session for discussion.

## **Oral Session**

This session composed of abstracts selected for oral presentation (10 minutes), which are indicated by the prefix "O" in the front of the programme number. The presenting author is indicated with an asterisks (\*).

## **Poster Session**

Most of the accepted abstracts (which are indicated by the prefix "P") are scheduled for poster presentation. The posters are displayed in Hall B, and is open to all participants during all day. Poster authors **MUST** be present at their posters for discussion during 14:00h – 15:00h. The presenting author is indicated with an asterisks (\*).

All posters should be in English.

The poster measurements are: width: 70 cm; height: 100 cm. Posters should be displayed for full day.

## **Instructions to Authors**

Lecture hall is equipped with a PC and digital projector for PowerPoint presentations. Presentations must be handed in using a CD-ROM, a zip drive, a memory stick or your personal laptop one hour before start of the meeting.

Please allow enough time for a thorough check of the presentation and the transfer of the data to the presentation system by the staff.

## **Credits and certificates**

For all Conference participants will be provided the Certificate of attendance.

## **Publication of Abstracts**

All accepted abstracts will be published as a supplement to South Eastern Europe Health Sciences Journal, the official publication of the Faculty of Health Care and Nursing, University of "Vitez", Travnik (Bosnia i Herzegovina) and School of Medicine, University Josip Juraj Strossmayer Osijek (Croatia). The Abstract Book will be handed out to all participants upon registration at the congress and included in the registration fee.

(suggested citation: South Eastern Europe Health Sciences Journal 2012; Volume 2, Supplement 1).

## **Publication of Full Research Papers**

All research papers of the accepted abstracts will be published (*in extenso*) in regularly issue of **South Eastern Europe Health Sciences Journal** (SEEHSJ), Vol 3 No 1 (May 2013), and authors kindly ask to prepare their manuscripts according to Guidance to Authors for publishing in SEEHSJ (<http://fznj.unvi.edu.ba/index.php/about-us>) and send us after acceptance of Abstract for Congress.

**Please send your article on the South Eastern Europe Health Sciences Journal**

**e-mail: [seehsj@unvi.edu.ba](mailto:seehsj@unvi.edu.ba)**

## **Program Schedule**

<b>Foyer</b>	<b>7:00</b>	<b>Registration</b>
<b>Hall A</b>	<b>9:00-9:45</b>	<b>Opening Ceremony</b>
<b>Foyer</b>	<b>9:45-10:00</b>	<b>Coffee Break</b>
<b>Hall A</b>	<b>10:00-11:30</b>	<b>Plenary lectures and oral presentation</b>
		<b>Panel 1</b>
		<b>MANAGEMENT, LEADERSHIP AND EMPLOYMENT</b>
		Management in health care; Health system requirements; Nursing development strategy and the possibilities
<b>Foyer</b>	<b>11:30-11:50</b>	<b>Coffee Break</b>
	<b>11:50-13:30</b>	<b>Panel 2</b>
		<b>KNOWLEDGE FOR THE FUTURE</b>
		Education in nursing; Quality in nursing education: management view point Needs and expectations for nursing competences and skills in the clinical environment Experiences in higher nursing education- view point of Ministry of Health, Ministry of Higher Education, Science and Technology, Nurses and Midwives Association Future activities and responsibilities in s tertiary education according to health system requirements; Standards for nursing education
<b>Foyer</b>	<b>13:30-14:30</b>	<b>Lunch</b>
<b>Poster area</b>	<b>14:00-15:00</b>	<b>Poster walking</b>
	<b>15:00-17:00</b>	<b>Panel 3</b>
		<b>QUALITY IN HEALTH CARE</b>
		Clinical practice improvements Standards for nursing education
<b>Foyer</b>	<b>17:00-17:15</b>	<b>Coffee Break</b>
<b>Hall A</b>	<b>17:15-18:00</b>	<b>Round Table and poster discussion</b>
	<b>18:00</b>	<b>Closing Remarks</b>

## **Scientific Programme**

Hall B	7:00	<b>Registration</b>
Foyer	9:00-9:45	<b>Opening Ceremony</b>
		<b>Welcome Remarks</b>
		<b>Selma Uzunović</b> President of Conference
	9:45-10:00	<b>Coffee Break</b>
Hall A	10:00-11:30	<b>Plenary lectures</b>
		<b>Panel 1</b>
		<b>MANAGEMENT, LEADERSHIP AND EMPLOYMENT</b>
		<b>Management in health care; Health system requirements</b>
		<b>Nursing development strategy and the possibilities</b>
		<b>Chairpersons</b>
		Bojana Filej ( <i>SI</i> ), Boris Hrabač ( <i>BA</i> )
10:00-10:20	PL1	<b>Meaning of mentorship in nurses educational process – Example of the Collage of Health Sciences Novo Mesto</b>
		Bojana Filej ( <i>SI</i> )
10:20-10:40	PL2	<b>Patients preventive treatment concept using standard set of prevention and promotion services provided by Family Medicine Teams in the Federation of Bosnia and Herzegovina</b>
		Koncept preventivne obrade pacijenta u F BiH putem standardiziranog seta preventivno-promotivnih usluga u timovima obiteljske medicine
		Boris Hrabač ( <i>BA</i> )
		<b>Oral presentations</b>
10:40-10:50	O3	<b>Holistic nursing practice</b>
		Bojana Filej*, Boris Miha Kaučič ( <i>SI</i> )
10:50-11:00	O4	<b>Pilot testing of bonus payment scheme for standard set of prevention and promotion services provided by Family Medicine Teams in the Federation of Bosnia and Herzegovina</b>
		Testiranje sheme nagradnog plaćanja za sprovedbu standardiziranog seta preventivno-promotivnih usluga u timovima obiteljske medicine
		Boris Hrabač ( <i>BA</i> )

11:00-11:10	<b>O5</b> <b>The identification and mesuring functional dimension of service quality in health care services through the structure of latent variables of secund - order: Focus Group</b> Identifikacija i mjerjenje funkcionalnog kvaliteta usluga u zdravstvu kroz strukturu latentne varijable drugog reda: Fokus grupe Nezir Huseinspahić ( <i>BA</i> )
11:10-11:20	<b>O6</b> <b>Time management as a leading factor in a good healthcare institutions</b> Upravljanje vremenom kao vodeći čimbenik dobre organizacije u zdravstvenim ustanovama Marijana Neuberg*, Jurica Veronek, Goran Kozina, Ivana Živoder ( <i>HR</i> )
11:20-11:30	<b>O7</b> <b>Innovation in developing nurses managerial functions in intensive care units</b> Inovacije u razvoju sestrinskih menadžerskih funkcija u Jedinicama intenzivnog liječenja Amer Ovčina*, Ajnija Omanić, Marjan Marjanović, Nada Spasojević
11:30-11:40	<b>Discussion</b>
11:40-12:00	<b>Coffee Break</b>
12:00-13:30	<b>Panel 2</b> <b>KNOWLEDGE FOR THE FUTURE</b> <b>Education in nursing</b> <b>Quality in nursing education: manadgement view point</b> <b>Needs and expectations for nursing competences and skills in the clinical environment</b> <b>Experiences in higher nursing education— view point of Ministries of Health, Higher Education, Science and Technology, Nurses and Midwives Association</b> <b>Future activities and responsibilities in s tertiary education according to health system requirements</b> <b>Standards for nursing education</b>
	<b>Chairpersons</b> Brigita Skela Savić ( <i>SI</i> ), Nada Prlić ( <i>HR</i> ), Vida Gönc ( <i>SI</i> )
12:00-12:20	<b>PL8</b> <b>Connecting education, research and practice in developing the science and art of nursing</b> Majda Pajnkihar

<b>12:20-12:40</b>	<b>PL9 Future activities and responsibilities in tertiary education in nursing</b> Aktivnosti i odgovornosti u procesu tercijarne edukacije u sestrinstvu Brigita Skela Savić (SI)
<b>12:40-13:00</b>	<b>PL10 Competencies of nursing teachers</b> Kompetencije predavača zdravstvene njegi Nada Prlić (HR)  <b>Oral presentation</b>
<b>13:00-13:10</b>	<b>O11 Selection of the model and criteria for theory analysis and evaluation in Slovenia and Croatia</b> Mjerila i modeli za ocjenivanje teorija zdravstvene njegi u Sloveniji i Hrvatskoj Majda Pajnkihar* (SI), Barbara Donik, Klavdija Čuček Trifković, Barbara Kegl, Nada Prlić, Rade Radić, Jadranka Stričević
<b>13:10-13:20</b>	<b>O12 Competencies of Masters in Nursing</b> Kompetencije magistara sestrinstva Nada Prlić, Robert Lovrić, Ivana Barać, Jadranka Plužarić (HR)
<b>13:20-13:30</b>	<b>Discussion</b>
<b>13:30-14:30</b>	<b>Launch</b>
<b>14:00-15:00</b>	<b>Poster walking</b>
<b>15:00-17:00</b>	<b>Panel 3</b> <b>QUALITY IN HEALTH CARE</b> <b>Clinical practice improvements; Standards for nursing education</b>  <b>Chairpersons</b> Dragana Milutinović (SRB), Safija Kalajlić (BA)
<b>15:00-15:20</b>	<b>PL13 Assessing clinical skill competence of nursing students through objective structured clinical examination</b> Kliničke kompetencije studenata sestrinstva i mogućnosti njihove procene pomoću objektivnog strukturisanog ispita Dragana Milutinović (SRB)
<b>15:20-15:40</b>	<b>PL14 Quality control of health care provided by quality indicators</b> Kontrola kvaliteta pružene zdravstvene njegi pomoću indikatora kvaliteta Safija Kalajlić*, Mirza Jahić, Naza Mujkić, Damir Hodžić (BA)

## **Oral presentations**

<b>15:40-15:50</b>	<b>O15</b>	<b>Nursing documentation as a tool in the nursing research</b> Sestrinska dokumentacija kao alat u istraživačkom sestrinstvu Mirza Jahić*, Safija Kalajlić, Naza Mujkić (BA)
<b>15:50-16:00</b>	<b>O16</b>	<b>Categorization of patients in nursing</b> Kategorizacija zdravstvene njege prema potrebama bolesnika Naza Mujkić*, Safija Kalajlić, Mirza Jahić (BA)
<b>16:00-16:10</b>	<b>O17</b>	<b>Multiparameter decision making model of categorization of sick children</b> Jadranka Stričević*, Barbara Kegl, Metka Harih, Majda Pajnkihar
<b>16:10-16:20</b>	<b>O18</b>	<b>Engineer of medical laboratory diagnostics, education and place in educational diagnostic medical institutions</b> Diplomirani inžinjer medicinsko-laboratorijske dijagnostike, edukacija i mjesto u obrazovnim i medicinsko-dijagnostičkim institucijama Nedeljka Šljivo (BA)
<b>16:20-16:30</b>	<b>O19</b>	<b>Variations in number of blood elements at persons professionally exposed to effect of benzene</b> Varijacije broja krvnih elemenata kod profesionalno izloženih osoba djelovanju benzena Esad Burgić*, Jasmina Berbić Fazlagić, Enver Ivanković, Nedeljka Šljivo (BA)
<b>16:30-16:40</b>	<b>O20</b>	<b>Fetal cystic hygroma colli – a case report</b> Anton Galić
<b>16:40-17:00</b>		<b>Discussion</b>
<b>17:00-17:15</b>		<b>Coffee Break</b>
<b>Hall A</b>	<b>17:15-18:00</b>	<b>Round Table and poster discussion</b> <b>Chearpersons:</b> Brigita Skela Savić, Bojana Filej, Nada Prlić, Safija Kalajlić, Boris Hrabač <b>All participants</b>
	<b>18:00</b>	<b>Closing Remarks</b>
<b>Poster area</b>		<b>Poster Presentations</b> <b>Panel 3</b> <b>QUALITY IN HEALTH CARE</b>

**P21 Breastfeeding and health visitors's early intervention**  
Dojenje i rana intervencija patronažnih sestara  
Štefica Mikšić\*, Ines Drenjančević, Aleksandar Včev,  
Zdenka Konjarik (*HR*)

**P22 Loneliness, grieving process and depression affecting people of old age**  
Usamljenost, žalovanje i depresija u osoba starije  
životne dobi  
Mirjana Kralj-Vasilj\*, Dunja Degmečić, Aleksandar  
Včev (*HR*)

**P23 Knowledge of the possibilities of post exposure prophylaxis for HIV infection**  
Poznavanje mogućnosti postekspozicione profilakse  
HIV infekcije  
Milica Marjanović\*, Snežana Brkić

Panel 4  
**SANITARY ENGINEERING  
ENVIRONMENTAL HEALTH AND ECOLOGY**

**P24 Correlation of bacteriological quality of drinking water and sewage disposal in the Zenica Dobojsk Canton**  
Korelacija bakteriološke ispravnosti vode za piće i  
sanitacije u Zeničko-Dobojskom kantonu  
Nino Hasanica\*, Fatima Smriko, Selma Uzunović (*BA*)

**P25 Microbiological quality of meat and ready-to-eat food in the Zenica Dobojsk Canton in the 2008-2010 periods**  
Mikrobiološka ispravnost mesa, mesnih proizvoda i  
gotovih jela na području zeničko-dobojskog kantona u  
periodu 2008. -2010. godine  
Ilma Šakić\*, Sanita Sejdinoska, Selma Uzunović (*BA*)

**P26 Monitoring of environmental surfaces in objects of food service and food industry in the Zenica Dobojsk Canton in the period in 2005-2008 periods**  
Bakteriološka ispravnost briseva površina u  
ugostiteljskim objektima na području zeničko-  
dbojskog kantona u periodu 2005 – 2007. Godine  
Edina Garanović\*, Selma Uzunović (*BA*)

**P27 Public sanitary importance of brucellosis at the Central Bosnian Canton**  
Javno zdravstveni značaj bruceloze na području  
Srednjobosanskog Kantona, Bosna i Hercegovina  
Habiba Ganić (*BA*)

**P28 We spending money for health with pleasure, but what about expensive food? The price of olive oil and the consumers' opinion**

Zsolt Vági\*, Kitti Deé, Zsuzsanna Lelovics, Mária Figler (HU)

**P29 The prevalence of smokers among the hospitalized patients at the clinical department for cardiovascular diseases, their smoking habits and attitude**

Prevalencija pušača među bolesnicima kliničkog odjela za bolesti srca i krvnih žila, njihove pušačke navike te osobni stavovi

Ivka Blažević\*, Ines Drenjančević, Aleksandar Včev, Maja Boras (HR)

**P30 Smoking prevalence among medical professionals, their smoking habits and personal attitude**

Prevalencija pušača među zdravstvenim djelatnicima, njihove pušačke navike i osobni stavovi

Brankica Juranić\*, Ines Drenjančević, Martina Mihalj, Aleksandar Včev (HR)

**P31 Testing habits and diet quality for schoolgirls**

Ispitivanje navika i kvalitete ishrane kod djevojčica školskog uzrasta

Emilija Hrapović - Moranjačkić\*, Ermina Kukić, Mateja Paklarčić, Zudi Osmani, Sead Karakaš (BA)

#### **Panel 5**

#### **LABORATORY-DIAGNOSTIC ENGEENERING**

**P32 High risk human papillomavirus (HPV) screening and HPV genotyping in clinical specimens from North-Eastern Croatia**

Praćenje infekcija visokorizičnih ljudskih papiloma virusa i njihova genotipizacija u kliničkim uzorcima sjeverno-istočne Hrvatske

Zinka Bošnjak, Magdalena Perić\*, Snježana Džijan, Nataša Ružman, Ivana Roksandić-Križan, Dubravka Vuković, Stjepan Rudan

**P33 Practical implementation and usability evaluation of apparatus for chemical-cytological urinal status**

Praktična primjena i procjena upotrebljivosti aparata za biohemski-citološki status urina  
Jasmina Kišija-Bajrić (BA)

#### **Panel 6**

#### **MIDWIVES**

**P34 Examination of Pelvic Floor Muscle Function after Using Cube Pessary**

Márta Hock\*, Zoltán Németh, Péter Varga, Péter Gőcze, Brigitta Hajnal, János Kránicz, József Bódis, Miklós Koppán (*HU*)

**P35 Review on quality of life and sexual function after hysterectomy**

Márta Hock\*, Szilvia Tóth, Tamás Hartmann, Géza Hartmann, Brigitta Hajnal, János Kránicz, József Bódis, Miklós Koppán (*HU*)

**Panel 7  
PHYSIATRY**

**P36 Physical activity as an important factor in prevention of osteoporosis**

Tjelesna aktivnost kao važan čimbenik u prevenciji osteoporoze  
Slavica Babić\*, Stjepan Jelica, Josip Šubarić, Mirsad Muftić (*HR*)

**P37 The importance of static and dynamic signs of non-verbal communication with patient during the kynesitherapy treatment**

Važnost statičkih i dinamičkih znakova neverbalne komunikacije s pacijentom u fizioterapijskom tretmanu  
Stjepan Jelica\*, Vilmica Kapac, Gordana Bujišić, Dejan Gogić (*HR*)

**P38 The appearance of back pain and physiotherapy interventions during the third trimester of pregnancy**

Pojava križobolje i fizioterapijske intervencije u trećem trimestru trudnoće  
Vesna Šeper\*, Nebojša Nešić, Erna Davidović, Brankica Kunić (*HR*)

**P39 Physiotherapeutic assessment and intervention in patients with juvenile idiopathic arthritis**

Fizioterapijska procjena i intervencija kod pacijenta sa juvenilnim idiopatskim artritisom  
Josip Šubarić\*, Slavica Babić (*HR*)



PL1

## **Meaning of mentorship in nurses educational process – Example of the Collage of Health Sciences Novo Mesto**

**Bojana Filej**

College of Health Sciences Novo mesto, Slovenia

(bojana.filej@guest.arnes.si)

### **ABSTRACT**

Education of nurses is carried out in compliance with the European directives. In the syllabus there is a great stress given to clinical practice of 2300 hours which have to be accomplished within three years. Clinical trainings are performed at health and social welfare institutions, where students are enabled to have direct contact with patients. Clinical practice has to be based on student's developmental level and complementarities, i.e. on development of student's competence and cooperation of teaching institutes offering clinical trainings. Teaching institutes choose adequate mentors who have to establish relationship which develops from a degree of complete strangers to a degree of mutuality and partnership. In this article, the author presents comprehensive system of clinical training, including quality criteria, professional and organisational processes and quality assessment methods.

**Key words:** mentorship, clinical practice, nurse



PL2

## **Patients preventive treatment concept using standard set of prevention and promotion services provided by Family Medicine Teams in the Federation of Bosnia and Herzegovina**

**Boris Hrabac**

Federation Ministry of Health, Sarajevo; Faculty of Health Care and Nursing, University "Vitez" Travnik; Bosnia and Herzegovina

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### **ABSTRACT**

Objective of this assignment is to demonstrate our new concept of preventive treatment in FBH using standard set of prevention and promotion services provided by Family Medicine Teams under BH Health Sector Enhancement Project, implemented by Federation Ministry of Health. „Patient preventive treatment“ concept includes creation of reporting form as an annex to medical records, titled „Preventive Treatment Sheet“, which would include identification and monitoring the following risk factors for development of chronic non-communicable diseases: (a) hypertension; (b) obesity; (c) smoking; (c) physical inactivity; (e) dyslipidaemia; (f) diabetes mellitus. The said six risk factors would be subject to *organized massive screening*, and reporting to Health Insurance Fund, with the objective of making “bonus payments”. Besides the said six risk factors, it would be necessary to report on the group of promotion and prevention programs relevant for individual patients and population groups, marked as “other risk factors and screenings”. For a significant number of people of a certain gender and age, screenings and counseling on prevention and early detection of cervix, breast and colon carcinoma, are of importance. Besides the said carcinomas, number of other diseases and risk factors could be subject of *individual early detection*. Services marked as “other risk factors and screening” would not be subject to bonus payment, however, it means under no circumstances, that they should not be provided. Screening program guidelines, in terms of screening intervals and targeted age groups are clearly elaborated in the project activities implementation instruction.

# **Koncept preventivne obrade pacijenta u F BiH putem standardiziranog seta preventivno-promotivnih usluga u timovima obiteljske medicine**

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## **SAŽETAK**

Cilj ovog rada je prikazati naš novi koncept preventivne obrade pacijenta u F BiH putem standar-diziranog seta preventivno-promotivnih usluga u timovima obiteljske medicine u okviru Projekta jačanja zdravstvenog sektora u BiH, koji implementira Federalno ministarstvo zdravstva. Koncept "preventivne obrade pacijenta" uključuje kreiranje evidencijskog obrasca, kao dodatka zdravstvenom kartonu, pod naslovom "List preventivne obrade pacijenta", koji će uključiti otkrivanje i praćenje slijedećih faktora rizika za razvoj hroničnih nezaraznih bolesti: (a) hipertenzija; (b) gojaznost; (c) pušenje; (d) fizička neaktivnost; (e) dislipidemija; (f) diabetes mellitus. Pomenutih šest faktora rizika će biti predmet organiziranog masovnog skrininga, te izvještavanja ka zavodu zdravstvenog osiguranja sa ciljem isplate „nagradnih plaćanja“. Pored pomenutih šest faktora rizika, neophodno je evidentirati skupinu relevantnih promotivno-preventivnih programa za pojedine pacijente i populacijske skupine, označenih kao „ostali faktori rizika i skrininzi“. Za značajan broj osoba određenog spola i starosti od interesa su skrininzi i savjetovanja u vezi prevencije i ranog otkrivanja karcinoma grlića materice, dojke i debelog crijeva. Pored navedenih karcinoma, niz drugih obo-ljenja i faktora rizika mogu postati predmetom individualnog ranog otkrivanja. Usluge označene kao „ostali faktori rizika i skrininzi“ neće biti predmet nagradnog plaćanja, što nikako ne znači da se ne trebaju raditi. Smjernice za skrining programe u smislu intervala skrininga i ciljnih dobnih skupina su jasno razrađene kroz metodološko uputstvo za implementaciju projektnih aktivnosti.

03

## Holistic nursing practice

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### ABSTRACT

**Aim** To investigate the understanding of holistic nursing practice among nurse practitioners and nurse technicians working in health care institutions (hospitals and health centres) or in residential care settings (nursing homes, etc.)

**Methods** A quantitative research design was employed. The statistical tests conducted were the chi-square test for comparing different groups of institutions and the t-test for comparing independent samples (level of education, institution). Of the 178 questionnaires distributed electronically to participating nurses and nurse technicians in the form of an on-line survey, 77 questionnaires were correctly filled out and returned, making the response rate 43.25%. The data were processed using statistical software SPSS 19.0.

**Results** All respondents agreed that the most important roles of a holistic nurse practitioner include “listening to patients”, “ensuring patients’ privacy” and “reducing patient anxiety”. No statistically significant differences were established according to the level of the respondents’ education. The most necessary change required for the implementation of patient-centred care is “defining the scope of patient-centred care” and the least necessary change is “changing the environment for patient care provision”. For required changes, a significant difference ( $p=0.021$ ) was revealed according to the type of institution. Respondents with a university degree or higher expressed significant agreement ( $p=0.012$ ) with the criterion “empowering patients in the health care context” as being one of the criteria defining patient-centred care.

**Conclusion** The concepts of holistic nursing and patient-centred care, together with all their dimensions, should be clearly defined. In doing so, the social environment and the competencies of nurse practitioners must be taken into account. Finally, both concepts should be introduced into nursing education programs.

**Key words:** nurse, holistic nursing, patient, patient-centred care



04

## Pilot testing of bonus payment scheme for standard set of prevention and promotion services provided by Family Medicine Teams in the Federation of Bosnia and Herzegovina

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### ABSTRACT

Objective of this assignment is to demonstrate new concept of bonus payment for prevention and promotion services provided by Pilot Teams, under BH Health Sector Enhancement Project (HSEP), implemented by Federation Ministry of Health. Sample covered by this Study includes 100 FM Pilot Teams from Tuzla, Zenica, Sarajevo and Mostar Health Centers. Within each Health Center, the FM Teams would be divided, using random selection method, to experimental and control group. Given large differences in number of people registered with individual FM Teams, we took approximate average of registered patients with a FM Team equal to 1,500 patients, as basis for calculating performance indicators. Team *performance indicators* would be calculated quarterly, and form basis for bonus payment, as follows: (a) reported risk factors and screening (133-225 patients per quarter, with incentive weight 35); (b) number of check-ups focused on identified risk factors (15-24% of identified risk factors per quarter, with incentive weight 35); (c) home visits of promotion and prevention nature (22-45 home visits per quarter with incentive weight 10); (d) thematic work with a small group (1-6 services per quarter, with incentive weight 10); (e) presentations to a large group (1-2 services per quarter, with incentive weight 10). Control group teams are expected to implement the recommended model of prevention work and to report thereon on quarterly basis. Bonus payment for control group teams would present compensation/award for reporting efforts, and it would be made following "all or nothing" principle for accurate and timely reporting. Control group team performance indicators would be used for statistic data processing within the project, but would not serve as a basis for bonus payment. Experimental group teams would implement the same model of prevention work as the control group, but they would be awarded on a quarterly basis applying bonus payment method in accordance with their performance indicators. This would test relation between financial incentives, created through bonus payment mechanism, with team performance indicators in both observed groups. Statistic processing of the results should answer the question whether financial incentives are correlated with excellence of prevention and promotion services provision. The project would be implemented during 2013, and it would be supported by web software application.

# **Testiranje sheme nagradnog plaćanja za sprovedbu standardiziranog seta preventivno-promotivnih usluga u timovima obiteljske medicine**

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## **SAŽETAK**

Cilj rada je prikazati novi koncept nagradnog plaćanja za sprovedbu standardiziranog seta preventivno-promotivnih usluga pilot timova u okviru Projekta jačanja zdravstvenog sektora u Bosni i Hercegovini (BiH), koji implementira Federalno ministarstvo zdravstva.

Ispitivani uzorak ove studije je 100 pilot timova obiteljske medicine u domovima zdravlja Tuzla, Zenica, Sarajevo i Mostar. Timovi u okviru svakog doma zdravlja će metodom slučajnog izbora biti podijeljeni na eksperimentalnu i kontrolnu grupu. S obzirom na veliku varijabilnost između broja opredjeljene populacije u pojedinim timovima obiteljske medicine, kao osnov za izračunavanje indikatora izvedbe uzeli smo aproksimativni prosjek broja registriranih pacijenata u pojedinom timu u iznosu od 1.500 pacijenata. Indikatori izvedbe timova izračunavaju se kvartalno, te predstavljaju osnovu za nagradna plaćanja, a to su slijedeći: (a) evidentirani faktori rizika i skrining (135-225 pacijenata kvartalno, s ponderom stimulacije 35); (b) broj kontrolnih pregleda usmjerenih na prisutne faktore rizika (15-24% od otkrivenih faktora rizika kvartalno, s ponderom stimulacije 35); (c) kućne posjete sa promotivno-preventivnim djelokrugom rada (22-45 posjeta kvartalno, s ponderom stimulacije 10); (d) tematski rad sa malom grupom (1-6 usluga kvartalno, s ponderom stimulacije 10); (e) predavanja u velikoj grupi (1-2 usluga kvartalno, s ponderom stimulacije 10). Od timova u kontrolnoj grupi se očekuje da primjenjuju preporučeni model preventivnog rada i da o tome izvještavaju na kvartalnoj osnovi. Nagradna plaćanja za timove u kontrolnoj grupi predstavljaju kompenzaciju/nagradu za poslove izvještavanja, a biti će isplaćena po principu „sve ili ništa“ za tačno i blagovremeno izvještavanje. Indikatori izvedbe timova iz kontrolne grupe će biti korišteni za statističku obradu u okviru projekta, ali neće biti osnova za nagradno plaćanje. Timovi iz eksperimentalne grupe će primjenjivati isti model preventivnog rada kao i kontrolna grupa, s tom razlikom da će biti kvartalno nagrađeni metodom nagradnog plaćanja sukladno svojim indikatorima izvedbe. Na taj način se testira povezanost finansijske stimulacije kreirane kroz mehanizam nagradnog plaćanja sa indikatorima izvedbe timova u obje ispitivane skupine. Statistička obrada rezultata bi trebala odgovoriti na pitanje da li finansijske stimulacije stoje u korelaciji sa izvrsnošću pružanja preventivno-promotivnih usluga. Projekt će se implementirati okom 2013. godine, a biti će podržan softwerskom web aplikacijom.

## The identification and measuring functional dimension of service quality in health care services through the structure of latent variables of second - order: Focus Group

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### ABSTRACT

**Aim** To develop a functional determinants for measuring dimensions of quality in health services, adapted SERVQUAL model and check its validity and appropriateness when evaluating the quality services experienced by the patient in health care using several software tools, and to confirm the structure of a functional quality as a latent variable of the second-order.

**Methods** Six groups were formed including the patients (1) submitted to diagnostic testing, (2) done laboratory testing, (3) hospitalized for internal treatments, (4) had some sort of surgery procedure, (5) hospitalized on the department of gynecology and obstetrics, and (6) who were receiving services of medical rehabilitation for the purposes of conducting interview with examinees in focus-groups.

**Results** The results of confirmatory factor analysis models of second-order dependence of functional dimensions of quality sub-dimension of quality suggested that it was a statistically reliable model ( $p < 0.05$ ) and three sub-dimension of service quality ("tangibles", "responsibility" and "assurance") significantly affected the level of functional dimensions of service quality. Coefficients of determination for the dimension "tangibles", "responsibility" and "assurance" was 85%, 77%, and 0.80%, respectively. Sub-dimensions "reliability" and "empathy" had a positive relationship with the functional quality dimensions ( $p < 0.05$ ).

**Conclusion** The level of previous expectations of patients had a significant impact on the perception of the functional dimensions of service quality as a prerequisite for building the final satisfaction of patients as consumers, and functional sub-dimension of service quality had a major impact on the overall perception of service quality. Studies have confirmed latent variables determined the functional dimension of quality in health care. A key way to increase perceptual quality of health services could be through focusing on these three sub-dimension of the functional quality of service because the conditions of competition may be an important means of differentiation. Finally, software tools used showed the same values of reliability and validity of the model as an index of good acceptability of the model.

**Key words:** perceptions and expectations of patients, functional quality

# **Identifikacija i mjerjenje funkcionalnog kvaliteta usluga u zdravstvu kroz strukturu latentne varijable drugog reda: Fokus grupe**

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## **SAŽETAK**

**Cilj** Potvrditi determinante za mjerjenje funkcionalne dimenzije kvaliteta usluga u zdravstvu, prilagođenih SERVQUAL modelu, te provjera validnosti i prikladnosti SERVQUAL modela kod ocjene doživljenoga kvaliteta pruženih usluga pacijentu u zdravstvu korištenjem nekoliko softverskih alata, i potvrditi strukture funkcionalnog kvaliteta kao latentne varijable drugog - reda.

**Metode** Formirano je šest grupa pacijenata koji su (1) podvrgnuti dijagnostičkom testiranju, (2) uradili laboratorijsko testiranje, (3) hospitalizirani zbog liječenja, (4) imali operaciju, (5) hospitalizirani na ginekološko-opstetričkom odjelu, i (6) na medicinskoj rehabilitaciji, a u cilju intervjuiranja u ciljnim grupama.

**Rezultati** Konfirmativni faktor funkcionalnog kvaliteta kao latentne varijable drugog reda funkcionalne dimenzije kvaliteta i tri sub-dimenzije kvalitete ("opipljivost", "susretljivost" i "sigurnost") se pokazao kao statistički značajan model ( $p < 0,05$ ). Koeficijent za "opipljivost", "susretljivost" i "sigurnost" je iznosio 85%, 77% i 0,80%. Sub-dimenzije "reliability" and "empathy" su imale pozitivan odnos sa dimenzijama funkcionalne kvalitete ( $p < 0,05$ ).

**Zaključak** Izbor modela je posljedica činjenice da je korišten u ranijim istraživanjima nivoa kvaliteta i percepcija, te se u više studija pokazalo da postoje razlike u nivoima očekivanja kupaca a pojedine sub-dimenzije imaju različit intezitet utjecaja na funkcionalnu dimenziju kvaliteta. Glavni način za pojačanje kvaliteta percepcije usluga je kroz sub-dimenzionalno fokusiranje funkcionalnog kvaliteta usluga jer uvjeti kompeticije su važan način diferencijacije. Osim toga, softverski alati su pokazali iste vrijednosti varijabli što govori u prilog prihvatljivosti modela.

**Ključne riječi:** percepcija, očekivanja, funkcionalna kvaliteta

## **Time management as a leading factor in a good healthcare institutions**

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### **ABSTRACT**

Time management is the description of the discipline focused on rational use of time as a valuable and scarce resource. According to Griffin's, it is ability to define priority work, efficient operations and appropriate delegation. People who manage their time well also develop methods and techniques to improve their work and thus develop their potential. It was believed that time management is a basic skill of manager, but now many people of various profiles plan and organize their work activities in order to devote leisure activities. Knowing how to manage time, we realize that we do not do more and more, but in order to do more wisely, and to perform tasks faster and easier. Most health care professionals including nurses during their high school are not addressed through the curriculum of the importance of good time management. Admission to the nursing study program during different topic of education, students become aware of the business and personal benefit of these skills. Within the program of Coordination and supervision of health care, topic have a great importance, through lectures and practice teaching. During specialist nursing studies, particularly in the specialist study "Management in Nursing" emphasis is placed on the broad education of nurses in the field of time management. Health professionals and nurses, particular because of the stressful and demanding job, should adopt these skills as they will be used in the prevention of job stress and burnout syndrome, and in enhancing working efficiency. With daily use of these skills we shall be more privately satisfied and easier to realize planned goals and a sense of control and balance in life. In this paper it is presented models of time management with particular emphasis on applications in everyday nursing health care, as well as a differences in the approaches to the discipline of the medium horizons nurses to the garment and nurses on the management position.

**Key words:** health care workers, nurse, time management, priorities, time commitment, time eaters

# **Upravljanje vremenom kao vodeći čimbenik dobre organizacije u zdravstvenim ustanovama**

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## **SAŽETAK**

Upravljanje vremenom (engl. time management, njem. Zeit-Management) danas je opis discipline usmjeren na racionalnu uporabu vremena kao dragocjenog i oskudnog resursa. Prema Griffinu to je sposobnost određivanja radnih prioriteta, učinkovitog rada i prikladnog delegiranja. Osobe koje dobro upravljaju svojim vremenom također razvijaju metode i tehnike za unapređivanje svojeg rada i tako razvijaju svoje potencijale. Nekada se smatralo da je upravljanje vremenom temeljna vještina menedžera, no danas ljudi raznih profila planiraju i organiziraju svoje radne aktivnosti kako bi se mogli posvetiti slobodnim aktivnostima. Poznavanjem upravljanja vremenom spoznajemo kako da ne radimo još više i dulje, već kako da radimo mudrije, a zadatke da obavljamo brže i jednostavnije. Većina zdravstvenih djelatnika pa tako i medicinske sestre tijekom svog srednjoškolskog obrazovanja nisu putem nastavnog plana upućivane na važnost dobrog upravljanja vremenom. Upisom na studij sestrinstva iz nekoliko se kolegija ukazuje studentima poslovna i osobna dobrobit ove vještine. U sklopu kolegija Kordinacija i supervizija zdravstvene njegе ovoj se temi pridodaje velika važnost kroz predavanja a posebice kroz vježbovnu nastavu studenata. Tijekom specijalističkih studija sestrinstva, a posebice na specijalističkom studiju "Menadžment u sestrinstvu" naglasak je stavljen na široku edukaciju medicinskih sestara iz područja upravljanja vremenom. Zdravstveni djelatnici a osobito medicinske sestrameupravo zbog stresnog i zahtjevnog posla trebaju usvojiti ove vještine jer će ih koristiti u prevenciji stresa na poslu i sindroma sagorijevanja, a i u povećavanju radne efikasnosti. Svakodnevnim korištenjem ove vještine postajemo i privatno zadovoljniji jer lakše ostvarujemo planirane ciljeve i imamo osjećaj kontrole i ravnoteže u životu. U radu su prikazani modeli upravljanja vremenom s osobitim osvrtom na primjenu u zdravstvu i sestrinskoj svakodnevici, kao i razlike u pristupu ovoj disciplini sa vidika srednje medicinske sestre na odijelu i medicinske sestre na rukovodećoj poziciji.

**Ključne riječi:** zdravstveni djelatnici, medicinska sestra, upravljanje vremenom, prioriteti, vremenske obveze, gutači vremena

## Innovation in developing nurses managerial functions in intensive care units

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### ABSTRACT

**Aim** To present the strategic and operational management positions at Intensive Care Units, to evaluate the organizational structure of the ICUs in the Sarajevo Canton in comparison with other European countries and regions.

**Methods** Retrospective analysis of data obtained from the Office for Planning and Analysis of the Clinical Center University of Sarajevo, Institute of Public Health of the Canton Sarajevo, which are related to human resources. Standardized questionnaire used to test employee satisfaction and operational implementation of strategic management. The survey conducted among 130 employees in the ICUs of the Sarajevo Canton.

**Results** Analyses of the study have shown a clear discrepancy in functioning and in personnel and infrastructure fulfilled needs in the intensive care units of the Sarajevo Canton as compared to developed countries and neighbouring countries

A larger number of respondents in our survey to questions related to interpersonal relationships, work motivation and appreciation of their ideas gave negative responses, given that the majority of employees in the ICUs had one or more burnout symptoms.

**Conclusion** The results of a scientific survey and research findings, by consistent and objective knowledge about the functioning of the intensive care units at the cantonal, national and regional level, it is possible to propose the optimal mode of operation for the ICUs of the Sarajevo Canton, which should contribute to the improvement of care for the vitally compromised patients.

**Key words:** intensive care unit, innovation, nursing, managerial functions, perspective.

## **Inovacije u razvoju sestrinskih menadžerskih funkcija u Jedinicama intenzivnog liječenja**

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### **SAŽETAK**

**Cilj** Prikazati strateške i operativne menadžerske funkcije u jedinicama intenzivnog liječenje (JIL), ocjeniti organizacionu strukturu u JIL na području Kantona Sarajevo u komparaciji sa zemljama Evrope i regionala.

**Metode** Retrospektivna analiza podataka dobivenih iz službi za plan i analizu Kliničkog Centra Univerziteta u Sarajevu, Zavoda za javno zdravstvo Kantona sarajevo, a koji se odnose na ljudske resurse. Korišten je standardizirani anketni upitnik o zadovoljstvu uposlenih sprovedbom operativnog i strateškog menadžmenta. Anketa je sprovedena među 130 uposlenika u JIL Kantona Sarajevo.

**Rezultati** Analize našeg istraživanja pokazale su postojanje jasne diskrepance u načinu funkcioniranja, te u kadrovskoj i infrastrukturnoj opremljenosti jedinica intenzivne terapije u Kantonu Sarajevo u odnosu na razvijene zemlje i zemlje okruženja

Veći broj ispitanika u našem istraživanju na pitanja koja se odnose na međuljudske odnose, motivaciju za rad i uvažavanje njihovih ideja je negativno odgovorio, obzirom da kod većine radnika u JIL postoji jedan ili više simptoma profesionalnog sagorijevanja.

**Zaključak** Rezultatima naučnog i anketnog istraživanja, konzistentnim spoznajama i objektivnim znanjima o funkcionisanju jedinica intenzivne terapije na kantonalm, nacionalnom i regionalnom nivou, moguće je predložiti optimalan model djelovanja jedinica za intenzivnu terapiju u Kantonu Sarajevo koji bi trebao doprinijeti unapređenju rada sa vitalno ugroženim pacijentima.

**Ključne riječi:** intenzivna jedinica, inovacije, sestrinstvo, menadžerske funkcije, perspektive.

PL8

## **Connecting education, research and practice in developing the science and art of nursing**

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### **ABSTRACT**

Nurses, who represent the most numerous group within the health care process, have been far too long neglected in the development of education and research in nursing in many countries. To combine the science and art of nursing practice, the latter requires information collected on the basis of various research methods of the positivistic and of the interpretative paradigm. The art of nursing enables a humane treatment of every individual, while the scientific foundation ensures efficiency, security and lowers the costs of nursing. Qualitative methodology with the use of grounded theory method was applied in the research. The nursing structure is composed of science, on the one hand, and art on the other, and is developing and applying different research methodologies and scientific paradigms. The use of various methodologies enables the formation of a unique compound of knowledge and a holistic, individual and humane patient treatment, based on scientific evidence. The science and art of nursing have their place in nursing theories. Results show that interpersonal and equal partner-like relations in nursing need to be supported by theory. The research have shown the link between education and practice. The cases of USA and Great Britain demonstrate that the basis for the development of nursing is in education, which requires competent nursing educators. The transfer and use of theoretical knowledge into practice demands correctly understood and defined needs of practice in order to ensure a humane, efficient and science-based nursing treatment of patients.

**Key words:** Research, education, science, art, theory, nursing, evidence-based practice, patient.



PL9

## Future activities and responsibilities in tertiary education in nursing

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### ABSTRACT

The understanding and today reality of education systems for nurses and other health care professionals in former Yugoslavian countries still have a strong impact of secondary level education which was in majority in the past and in some countries still today. The biggest group of health care professionals are nurses and they need to be educated by EU directive 2005/36/ES. The entrance years in general education for nursing education is moving now on 12 years of previous education. Good practices in the developed countries show that graduated nurses (diploma/bachelor level) with specialisations, master's and doctor's degrees in nursing care significantly contribute to reaching of national health care goals. There are also strong recommendations of international professional's bodies, organizations and states regulations that nursing education need to be on university level. Tertiary education or education on higher educational level is education after secondary school which can be on universities, polytechnics or other higher educational independent institutions which are not part of universities (faculties, colleges). In higher educational level we have in EU on first Bologna level two type of education (also for nursing).

Bologna Process creates a great opportunity for nursing education at the bachelor's degree level as the entrance level, followed by master's and doctoral academic recognition in all EU countries. There are strong evidence to support the fact that higher educated nurses result in improved patient outcomes and better patient care. International Council of Nurses in document "Global Issues and Trends in Nursing Education" (ICN, 2010) defines advanced practice nurses (APNs) as registered nurses who have acquired the expert knowledge base, complex decision making skills, and clinical competencies for expanded practice, the characteristics of which are shaped by the context or country in which they are credentialed to practice. A master's level degree is recommended for entry level. This definition is the essence of advanced practice but at the same time indicates that countries will need to interpret and realize the practice of advanced nursing in their specific context of healthcare environment.



PL10

## **Competencies of nursing teachers**

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### **ABSTRACT**

Competencies are defined as set of knowledge and skills including high level of independence and responsibility. The aim of this work was to analyse competencies of nursing teachers. Nurse educators have a key role in education and training of nurses from vocational school to graduate study programmes. Initial education and training, as well as further professional development of nursing teachers need to be focused on acquisition of competencies. Qualification standards need to include level and range of necessary knowledge and skills for nursing profession as well as for nursing teachers. It is essential to define ways of professional advancement for nursing teachers. Formal education and further development need to focus on knowledge and understanding regarding subjects and field of work with defined learning outcomes and wide range of pedagogic and didactic methods applied in teaching process, especially in clinical settings. Nursing teacher needs to have both competencies of a nurse and of a teacher. Nursing teachers should have not only the knowledge of the subject they teach but also interdisciplinary knowledge of their profession and pedagogical-psychological skills. Minimum skills required of nursing teachers include use of ICT, management and administration, providing help for pupils/students, communication with pupils/students and their behaviour management including conflict resolution strategies. Standard of nursing teachers' competencies needs to include five dimensions: facilitating learning, evaluation and giving information on learning outcomes, participation in professional development and curricular strategies planning as well as in other programmes oriented towards achieving results and forming partnership within educational community.

**Key words:** competencies, nursing teacher

## **Kompetencije predavača zdravstvene njage**

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### **SAŽETAK**

Kompetencije označavaju skup znanja i vještina te pripadajuću samostalnost i odgovornost. Cilj je ovoga rada prikazati kompetencije predavača zdravstvene njage. Ključnu ulogu u uspješnom obrazovanju medicinskih sestara od srednje škole do diplomskog studija imaju predavači zdravstvene njage. Početno obrazovanje, kasnija usavršavanja i napredovanja predavača trebaju se usmjeriti isključivo prema stjecanju kompetencija. Standard zanimanja i kvalifikacija predavača zdravstvene njage treba imati definiranu razinu, opseg i profil znanja, vještina. Važno je definirati putove njihova profesionalnog napredovanja. Formalno obrazovanje i usavršavanje treba biti usmjereno na znanja i razumijevanja predmeta i područja rada, u sustavu usmjerrenom na rezultate učenja, široka pedagoška znanja, učinkovito primjenjivanje različitih metoda, oblika i sredstava u nastavi, a posebice nastavi u kliničkom okruženju. Predavač zdravstvene njage osim kompetencija medicinske sestre mora posjedovati i kompetencije predavača. Predavač bi trebao imati: znanja iz predmeta koji podučava, ali i iz drugih, njemu sličnih - interdisciplinarno poznavanje svoje struke; pedagoško-psihološka znanja – razumijevanje razvojnih obilježja učenika/studenata, stilova učenja, kulture učenika/studenata; vještine podučavanja - poznavanje strategija, metoda i tehnika podučavanja; razumijevanje društvenog i kulturnog konteksta obrazovanja i fakulteta/škole. Minimum je vještina koje predavač mora imati: uporaba novih informacijsko-komunikacijskih tehnologija; menadžment i administracijski poslovi; primjerena pomoć studentima/učenicima; komunikacija sa studentima/učenicima i upravljanje njihovim ponašanjem; rješavanje problema bez sukoba. Standard kompetencija predavača treba uključiti pet dimenzija: olakšavanje učenja studentima, vrjednovanje i izvješćivanje o postignućima (ishodima) učenja, uključivanje u profesionalno učenje, sudjelovanje u kurikulskoj politici i drugim programima usmjerenim na rezultate, stvaranje partnerstva unutar obrazovne zajednice.

**Ključne riječi:** kompetencije, predavač, zdravstvena njega

## Selection of the model and criteria for theory analysis and evaluation in Slovenia and Croatia

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### ABSTRACT

**Aim** Nursing theories always underline and describe the concepts which are in the interest of nursing and the patients in a certain period of time and space. Analysis and evaluation of nursing theories represent an evaluation of a theory according to its usefulness in practice, education and research. Theory evaluation is a process in which a theory is systematically reviewed.

**Methods** The research was supported by quantitative methodology with two structured questionnaires. Evaluation was based upon the use of Likert's scale from 1 (the worst) to 4 (the best). The students have described the model evaluation also in qualitative terms. A sample of graduate students at the University Slovenia, (1) Slovenia (n= 24) and at the University in Croatia (2), Croatia (n=38), both in the first year of the second Bologna degree in nursing was consciously designed.

**Results** The results demonstrate that students from both Universities have single dout clarity with mean grade of 3.9, utility with mean grade of 3.8, and simplicity with mean grade 3.8, as the most important criteria for theory analysis and evaluation. Concerning the evaluation of nursing theory analysis and evaluation models of different authors the students have selected McKenna's model (1997), graded with the mean grade of 3.8, as the most useful one according to the required criteria of simplicity, complexity and utility.

**Conclusion** Analysis and evaluation of a selected theory is performed according to a set of evaluation criteria, therefore also the latter need to be presented in a clear and simple manner. It is important that the contents do not repeat themselves and that they lead the user through the process. If possible it is also valuable if the criteria are presented in the form of diagram. The heart and soul of development, analysis and evaluation of a theory lie in the knowledge and education of nurses.

**Keywords:** theories, models, criteria, nursing



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## Competencies of Masters in Nursing

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### ABSTRACT

**Aim** To evaluate competencies of students before studying for master's degree and after completing a master's programme and to determine whether there are differences between areas of competencies.

**Methods** Subjects were students of university graduate programme in nursing at J. J. Strossmayer University of Osijek, Faculty of Medicine Osijek. The study was conducted in two parts in years 2011 1nd 2012. In the first part the students did self-evaluation of their own competencies before they started the master's programme and in the second part they evaluated the same competencies at the end of the master's programme. The research instrument was a questionnaire that contained seven competency areas (27 criteria based on learning outcomes) and was designed specifically for this research. The data were presented in absolute and relative frequencies. Differences between the groups were analyzed by Wilcoxon test. Significance level was set at 0.05.

**Results** The study included 28 subjects, average age 45 ( $\pm 8$ ) years, 24 (88.9%) were women and 3 (11.1%) were men. 18 subjects (66.7%) had more than 20 years of work experience. The results showed the lowest value for research competencies ( $MV=3.09$ ,  $SD= 0.9$ ) and pedagogic competencies ( $MV=3.4$ ,  $SD=0.83$ ), while the highest value was for ICT competencies ( $MV=4.04$ ,  $SD=0.59$ ) at the beginning of the master's programme. At the end of the master's programme the results showed significantly higher values in all seven areas of competencies ( $p<0.001$ ). Self-evaluation of professional-pedagogic competencies, including planning, organizing and conducting nursing care in form of lectures, seminars and practical training showed  $MV=3.04$ ,  $SD=1.07$  at the beginning and  $MV=4.67$ ,  $SD=0.55$  ( $p<0.001$ ) at the end of the master's programme.

**Conclusion** Having completed a university programme leading to a Master's degree in Nursing at the Faculty of Medicine Osijek, the graduates have achieved the competencies required for a nursing care teacher.

**Key words:** competencies, master of nursing

## **Kompetencije magistara sestrinstva**

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### **SAŽETAK**

**Cilj** Procijenit kompetencije studenata prije upisivanja diplomskog studija Sestrinstvo i na kraju studija te ispitati postoji li razlika u skupinama kompetencija.

**Ispitanici i metode** Ispitanici su bili studenti sveučilišnog diplomskog studija Sestrinstvo Medicinskog fakulteta Sveučilišta Josipa Jurja Strossmayera u Osijeku. Istraživanje je provedeno u dva dijela 2011. i 2012. godine. U prvom su dijelu studenti samoprocjenjivali svoje kompetencije prije diplomskog studija, a u drugom dijelu na kraju studija. Instrument je istraživanja upitnik sa sedam skupina kompetencija (27 kriterija prema ishodima učenja) sastavljen za ovo istraživanje. Podatci su predstavljeni apsolutnim i relativnim frekvencijama. Razlike između promatranih skupina testirane su Wilcoxonovim testom. Razina značajnosti postavljena je na 0,05.

**Rezultati** U istraživanju je sudjelovalo 27 ispitanika, prosječne dobi 45 ( $\pm 8$ ) godina, od toga 24 (88,9%) žene i 3 (11,1%) muškarca. Najviše ispitanika, 18 (66,7%), ima više od 20 godina radnog staža. Prije studija ispitanici su najniže samoprocjenili istraživačke kompetencije SV 3.09 SD 0.9 i pedagoške SV 3.4 SD 0.83, a najviše ICT kompetencije SV 4.04, SD 0.59. Značajno su više vrijednosti samoprocjene ispitanika na kraju studija u odnosu na početak u svih sedam skupina ( $p<0,001$ ) kompetencija. Stručno-pedagoške kompetencije, kriterij planiranje, organiziranje i izvođenje nastave – predavanja, seminara i vježbi iz područja zdravstvene njegе ispitanici su na početku studija samoprocjenili sa SV 3.04, SD 1.07, a na kraju sa SV 4.67, SD 0.55 ( $p<0,001$ ). Zaključak Medicinske sestreobrazovane na diplomskom studiju, prema kurikulu Medicinskog fakulteta Osijek, postigle su kompetencije predavača zdravstvene njegе.

**Ključne riječi:** kompetencije, magistar sestrinstva

PL13

## Assessing clinical skill competence of nursing students through objective structured clinical examination

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### ABSTRACT

**Aim** To investigate the possibility of assessing clinical skill competence of nursing students by using the Objective Structured Clinical Examination - the OSCE.

**Methods** The search for empirical articles on the assessment of clinical skill competence of nursing students was based on the electronic database SCOPUS. Search strategy included the utilization of keywords based on the MeSH index. It was the combination of two key words OSCE and nursing student that resulted in 65 papers, whereas during the scope of ten years, from 2002 to 2012, 54 papers were selected. The combination of three key words OSCE, nursing students and clinical competence selected 48 papers, 39 of which were over the last ten years. The analysis was restricted to the papers in English language. Bibliography of selected papers was used to search for additional empirical studies as well.

**Results** A review of the literature showed that since 1979, when the first objective structured clinical examination was introduced; there has been a growing interest in the assessment utilization of clinical skill competence of nursing students. The OSCE has been used for formative and summative assessment, but also as a source of learning. This method of assessment included direct evaluation of clinical skills in the classroom or hospital room. Application of objective structured examination required a good organization, prepared checklists, as well as a number of examiners, time and money. By analyzing the efficiency of this method some authors have pointed out that the use of this method could lead to consider a health care a simple set of tasks to be performed, while others were emphasizing that by a customized implementation of this method other clinical skill competence of nursing students can be also evaluated. Students' opinions about this method of assessment are different.

**Conclusion** The widespread use of OSCE for the assessment of clinical skill competence also imposes a number of questions for those involved in its planning, implementation and assessment.

**Keywords:** Objective Structured Clinical Examination, assessment, clinical competence, nursing student, skills checklists

# Kliničke kompetencije studenata sestrinstva i mogućnosti njihove procene pomoću Objektivnog strukturisanog ispita

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## SAŽETAK

**Cilj** Ispitati mogućnosti procene kliničkih kompetencija studenata sestrinstva koristeći Objektivni strukturisani klinički ispit – OSCE.

**Metode** Za pronalaženje empirijskih radova o proceni kliničkih kompetencija studenata sestrinstva korišćena je elektronska baza SCOPUS. Strategija pretraživanja uključivala je primenu ključnih reči po MeSH-u. U kombinaciji dve ključne reči *OSCE i nursing student* za izdvojeno je 65 radova, a za desetogodišnji period, 2002.–2012. godina, 54 rada. U kombinaciji tri ključne reči OSCE, nursing student i clinical competence izdvojeno je 48 radova. Od toga 39 radova je za poslednjih deset godina. Analizom su obuhvaćeni radovi na engleskom jeziku. Bibliografija odabranih radova je takođe korišćena za pronalaženje dodatnih empirijskih radova.

**Rezultati** Pregledom literature je utvrđeno da od 1979 godine, od kada je prvi put uveden Objektivni strukturisani klinički ispit, je postojao sve veći interes za njegovu primenu u proceni kliničkih kompetencija studenata sestrinstva. OSCE se koristio za formativno i sumativno ocenjivanje, ali i kao izvor za učenje. Ovaj metod procene uključivao je direktnu procenu kliničkih veština u učionici ili bolesničkoj sobi. Primena objektivnog strukturisanog ispita zahtevala je dobru organizaciju, pripremljene kontrolne liste, veći broj ispitivača, vreme i novac. Analizirajući efikasnost ove metode pojedini autori su ukazivali da upotreba ovog metoda može dovesti do toga da se zdravstvena nega smatra kao jednostavan skup zadataka koje treba izvršiti, dok su drugi ukazivali da prilagođenom primenom ove metode, se mogu proceniti i druge komponente kliničke kompetencije studenata sestrinstva. Mišljenja studenata o ovom načinu ocenjivanja su različita.

**Zaključak** Široka upotreba OSCE-a za procenu kliničkih veština nameće i veliki broj pitanja za one koji učestvuju u njegovom planiranju, implementaciji i evaluaciji.

**Ključne reči:** Objektivni strukturisani klinički ispit, procena, klinička kompetencija, studenti sestrinstva, kontrolne liste veština

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## Quality control of health care provided by quality indicators

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### ABSTRACT

**Aim** To determinine the level of health care provided in the University clinical Centre (UCC) Tuizla, Bosnia and Herzegovina during 2009-2011 through the given quality indicators.

**Methods** Retrospective analysis of the report (nursing records) about the quality of health care provided according to the indicators has been done. The following indicators were analyzed: regularity fill nursing documentation, incident, patient falls, pressure ulcers, complaints, compliments and suggestions, nosocomial infection control, patient satisfaction surveys.

**Results** A total of 167 nursing records examined and analyzed in 2009, 179 in 2010 and 277 in 2011. Average occupancy of nursing documentation in 2010 and 2011 was similar for all clinics and it was 4.32 and it increased by 0.12 compared to 2009 when it was 4.20. There was a total of 324 reported incidents in 2010, 309 in 2011, and it was 4.6% less than in 2010. There was a total of 137 reported patient falls in 2011, 155 in 2010, which was 11.61% less than in 2010. The ratio of complaints addressed (68) in 2010 and praises (798) was 1:11,7 in favor of praises, while the ratio of complaints in 2011 (56) and praises (624) was 1:11 in favor of praise. The rate of nosocomial infections in 2009 was 0.35%, in 2010 it was 0.32%. The overall rate of nosocomial infections for 2011 was 1.1% in 100 treated patients. The total number of hospital infections in 2011 was increased by 27% compared to the 2010 which was not a consequence of growth of hospital infections but of improvement in the efficiency of monitoring, recording and reporting. Patient satisfaction increased by 0.03% compared to 2009, and it increased by 0.06% compared to 2010.

**Conclusion** The quality of health services in our institution was significantly improved in 2011 compared to the 2010 and 2009.

**Key words:** quality indicators, health care, nursing documentacion

## **Kontrola kvaliteta zdravstvene njegе mјerena uspostavljenim indikatorima kvaliteta**

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### **SAŽETAK**

**Cilj** Utvrditi kvalitet pružene zdravstvene njegе u Univerzitetsko kliničkom centru (UKC ) Tuzla za period 2009-2011. godine kroz uspostavljene indikatore kvaliteta.

**Metode** Na nivou UKC-a urađena je retrospektivna analiza izvještaja o kvalitetu pružene zdravstvene njegе prema indikatorima za 2009, 2010 i 2011 godinu. Analizirani su sljedeći indikatori: pravilnost popune sestrinske dokumentacije, incidentne situacije, padovi pacijenata, pojava dekubitusa, žalbe, pohvale i sugestije, kontrola bolničkih infekcija, anketa o zadovoljstvu pacijenta.

**Rezultati** Ukupno je pregledano i analizirano 167 sestrinskih dokumentacija u 2009. godini, 179 u 2010. i 277 u 2011. Prosječna ocjena popunjenoosti sestrinske dokumentacije u 2010. i 2011 godini je bila slična za sve klinike iznosila je 4,32, i bila je veća za 0,12 u odnosu na 2009. godinu kada je iznosila 4,20. Ukupno je bilo prijavljeno 324 incidentne situacije u 2010. i 309 u 2011. godini što je za 4,6% manje u odnosu na 2010. godinu. Ukupno je prijavljeno 137 padova pacijenata u 2011. godini a u 2010. 155, što je za 11,61% manje u odnosu na 2010. godinu. Odnos upućenih žalbi i pohvala u 2010. i 2011. godini je iznosio 1:11,7 (60 odnosno 798) u korist pohvala, a u 2011. godini 1:11 (56 odnosno 624) u korist pohvala. Stopa intrahospitalnih infekcija u 2009. godini iznosila je 0,35%, u 2010. 0,32%. Ukupna stopa bolničkih infekcija za 2011. godinu iznosila je 1,1/100 liječenih pacijenata. Ukupan broj bolničkih infekcija u 2011. godini povećan je za 27% u odnosu na 2010. godinu što nije posljedica rasta bolničkih infekcija nego poboljšanja efikasnosti nadzora, evidentiranja i prijavljivanja. Zadovoljstvo pacijenta je u 2011. godini povećano za 0,03% u odnosu na 2009. Godinu, a u odnosu na 2010. za 0,06%.

**Zaključak** Kvalitet pruženih zdravstvenih usluga u našoj Ustanovi je znatno poboljšan u 2011. godini u odnosu na 2010. i 2009. godinu.

**Ključne rječi:** indikatori kvaliteta, zdravstvena njega,sestrinska dokumentacija

## Nursing documentation as a tool in the nursing research

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### **ABSTRACT**

**Aim** To define the concept of nursing documentation, identify the importance of collecting and analysis of nursing documentation, and to indicate the possibility of using nursing documentation as a research tool in nursing.

**Methods** The data were collected from the literature related to nursing documentation and the importance of its implementation is emphasized, as well as standard procedures in the field of nursing documentation. Data were analyzed by analysis and method synthesis.

**Results** With the analysis and synthesis of data we came to a range of conclusions why is important to implement and analyze nursing documentation. According to WHO documentation one of the important reasons is that nursing documentation represent an important tool in nursing research.

**Conclusion** Managing and analysis of nursing documentation has multiple meanings, and certainly represent a mine of information for the preparation of research papers in the field of nursing. If nurses starts writing down all their activities and their day and night vigils next to the patient and spoke loudly about its contribution to the overall treatment patients / users of their professional work, their work would be more appreciated and respected, not only by the immediate associates, but also by consumers of health care and the general public.

**Keywords:** medical records, nursing, research work.

## **Dokumentacija kao alat u istraživačkom sestrinstvu**

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### **SAŽETAK**

**Cilj** Definisati pojam sestrinske dokumentacije, utvrditi značaj vođenja i analize sestrinske dokumentacije, ukazati na mogućnost korištenja sestrinske dokumentacije kao alata u istraživačkom sestrinstvu.

**Metode** Podaci iz literature vezani za sestrinsku dokumentaciju i značaj njenog uvođenja te standardne procedure iz oblasti sestrinske dokumentacije. Podaci su analizirani metodom analize i sinteze.

**Rezultati** Analizom i sintezom podataka došli smo do niza zaključaka o važnosti uvođenja i analize sestrinske dokumentacije. Prema podacima SZO jedan od bitnih razloga je što sestrinska dokumentacija predstavlja bitan alat u istraživačkom radu u sestrinstvu.

**Zaključak** Vođenje i analiza sestrinske dokumentacije ima visestruk značaj i sigurno predstavlja rudnik podataka za izradu istraživačkih radova iz oblasti sestrinstva. Kada bi medicinske sestre zapisivale sve svoje aktivnosti i svoja danonoćna bdijenja pored bolesnika i glasno govorile o svom doprinosu cjelokupnom tretmanu bolesnika/korisnika njihov stručni rad bi bio više cijenjen i poštovan, ne samo od neposrednih saradnika, već i od korisnika zdravstvene njege i šire javnosti.

**Ključne riječi:** medicinska dokumentacija, medicinska sestra, istraživački rad.

## Categorization of patients in nursing

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### ABSTRACT

**Aim** To determine the categorization of hospitalized patients by type of healthcare provided, to compare the actual with the necessary number of nurses obtained according to conducted categorization, as well as to determine the quality of provided health care at clinics and provide suggestions for improvement.

**Methods** The prospective study was conducted, a categorizing patients who were admitted to the Department of Ophthalmology (Surgical Unite) and patients at the Department of Anesthesiology and Reanimation (Intensive Care Unit, ICU) in the period from 01. 01. 2011 to 01.12.2011. It was not included patients whom in early postoperative period needed intensive care for several hours in ICU. Categorization Warstler scale, for providing health care in 24 hours, depending on patient's health care needs. The evaluation was performed according to 16 factors using nursing documentation, according to modified category I-IV), category I self-care 1-2 hours health care is needed, category II minimal health care is needed 3-5 hours, category III half intensive care, 6-9 hours needed and category IV: intensive care over 10 hours. Each category is scored separately.

**Results** Annual average number of patients at the Department of Ophthalmology was 197/month, and at the Department of Anesthesiology and Reanimation 48/month. The largest number of patients at the Department of Ophthalmology belonged to the second, while at the Clinic for Anesthesiology and Reanimation to the fourth category. Annual number of nurses needed at the Ophthalmology was ranging from 2.5 to 5 and for Anesthesiology and Reanimation 0-6 nurses. The average score for quality of provided health care at the Department of Ophthalmology was 4.92 and represents the result of patient satisfaction.

**Conclusion** The need for number of nurses were higher at the Department of Ophthalmology in relation to the Department of Anesthesiology and Reanimation, because according to the classification less number of nurses at the Department of Ophthalmology was employed, along with higher number of admitted patients during the year. Quality of health care was at a high level.

**Keywords:** classification, nurses, health care

## Kategorizacija hospitaliziranih pacijenata

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### SAŽETAK

**Cilj** Utvrditi kategorizaciju hospitaliziranih pacijenata prema vrsti pružene zdravstvene njegi, te uporediti stvarni broj medicinskih sestara sa potrebnim brojem prema provedenoj kategorizaciji. Utvrditi kvalitet pružene zdravstvene njegi na Klinikama i dati prijedloge za poboljšanje.

**Metode** Rađena je prospективna studija kategoriziranja pacijenata koji su primljeni na Odjel za operativno liječenje i pacijenata na Odjelu intenzivne njegi u periodu od 01. 01. 2011. do 01. 12. 2011. godine. Kategorizacijom nisu bili obuhvaćeni pacijenti kojima je u ranom postoperativnom periodu bila neophodna intezivna njega nekoliko sati na Odjelu intenzivne njegi. Kategoriziranje pacijenata je rađeno uvidom u sestrinsku dokumentaciju, a prema modificiranoj Warstlerovoj skali pružene zdravstvene njegi u toku 24 sata, u zavisnosti od pacijentovih potreba za zdravstvenom njegom. Procjena se izvodila prema 16 faktora i svrstavala u odgovarajuću kategoriju (kategorija 1 - 4), I kategorija: samonjega 1 - 2 sata potrebe za zdravstvenom njegom, II kategorija: minimalna njega 3 - 5 sati, III kategorija: poluintenzivna njega 6 - 9 sata, IV kategorija: intenzivna njega preko 10 sati. Svaka kategorija je zasebno bodovana.

**Rezultati** Godišnji prosjek pacijenta na Klinici za očne bolesti je iznosio 197 po kalendarskom mjesecu, a na Klinici za anestezilogiju i reanimatologiju 48 pacijenta. Najveći broj pacijenta na Klinici za očne bolesti pripadao je u drugu, dok na Klinici za anestezilogu i reanimatologiju u četvrtu kategoriju. Godišnje potrebe za medicinskim sestrama na Klinici za očne bolesti su se kretale od 2,5 do 5, a na Klinici za anestezilogiju i reanimatologiju od 0 do 6 medicinskih sestara (u zavisnosti od odsustva sestara). Prosječna ocjena za kvalitet pružene zdravstvene njegi za 2011 godinu na Klinici za očne bolesti je iznosila 4,92 i predstavlja rezultat zadovoljstva pacijenta. Na Klinici za anestezilogiju i reanimatolgiju anketa nije urađena uslijed specifičnosti stanja pacijenta.

**Zaključak** Potrebe za medicinskim sestrama su veće na Klinici za očne bolesti, u odnosu na Kliniku za anestezilogiju i reanimatologiju, jer prema kategorizaciji na Očnoj klinici je uposleno manje sestara, a bilo je više pacijenata u toku godine. Kvalitet pružene zdravstvene njegi je bio na visokom nivou.

**Ključne riječi:** kategorizacija, medicinske sestre, zdravstvena njega.

## Multiparameter decision making model of categorization of sick children

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### ABSTRACT

**Aim** To investigate multiparameter decision-making model of categorization of sick children regarding their needs in health care and working stresses of nurses in paediatric nursing. Paediatric health care is therefore done in one system of aggregation, which enables wholesome treatment of sick children on the transparent information help grounds, of selectively treating critical cases in a manner “what-if”.

**Methods** Theoretical methods were selected from literature, theories of nursing of Henderson V and Orem D were introduced, as well as process and quality in nursing. The categorization of patient were explained and some of the methods of categorizations.

**Results** To support categorization of sick children and paediatric nursing we have developed multiparameter decision-making model with expert system DEX, which enables us the introduction of aggregation knowledge with logical rules, explanation and assessment of categorization.

**Conclusion** In hierarchy structure of indicators which are in accord with international classification for nursing practice (ICNP), we have made, on grounds of fourteen basic life activities of sick child, evaluations scales of three to five values and aggregation functions. Use of suggested multiparameter decision model will help nurses in decision making about categorization of sick child.

**Key words:** sick child, paediatric nursing, nurse, information system, patient categorization, multiparameter decision model, DEX method.



## **Engineer of medical laboratory diagnostics, education and place in educational diagnostic medical institutions**

**Nedeljka Šljivo**

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### **ABSTRACT**

Department for education of Engineer of Medical Laboratory Diagnostics (MLD) is formed at the Faculty of Health Studies, a member of the University of Sarajevo. Engineers of MLD were educated in four years as full and part-time studies, and differentiated for 1 or 2 years study on the faculty until the academic 2009/10 year. Since that year, faculty has moved to the Bologna process. Classification of Occupations of Federation of B&H classified graduate engineers MLD in category 2: Scientists- experts and under the code 2229-09.

The certification exams are taken at the Federal Ministry of Health. The Health Protection Law of Federation of B&H embeds profile of graduate engineer of Medical Laboratory Diagnostics through art. 34, art. 95, art. 137, art. 147, art. 148, art. 221;

Place: Scientific research process: Biomedicine and Health.

Scientific research projects and scientific level of progression: 1. head of laboratory, 2. research team member: responsible for the selection of methods, automatisation, Laboratory Information System (LIS), photo microscopic analysis in the field of quality of the preparation and transfer on electronic medium, protection measures, good laboratory practices (GLP) and quality control, 3. independent work: a combination of various methods with changes in recipe, the initiator of new methods, a good expert of the structure and function of processed materials, 4. a good manager and an expert (private and government laboratories), 5. an author and co-author of scientific papers, 6. continuous improvement and advancement, 7. a good presenter of the profession in technical and scientific terms.

Qualified and knows: state of the art laboratory measurement and other technologies that operate on the principle method of spectrophotometry, nephelometry, fluorometry, densitometry, atomic absorption, chromatography, immunoassays, etc., microscopic and photographic technique, automatic data processing → LIS, quality control of the laboratory medicine, the organization of medical laboratory services, safety at work, management and leadership of medical diagnostic laboratories (governmental and private sector).

**Key words:** MLD, faculty of health studies, biomedicine and health, management, leadership, diagnostic laboratory, quality control

# **Diplomirani inžinjer medicinsko-laboratorijske dijagnostike, edukacija i mjesto u obrazovnim i medicinsko-dijagnostičkim institucijama**

**Nedeljka Šljivo**

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## **SAŽETAK**

Diplomirani inženjer medicinsko-laboratorijske dijagnostike (MLD) se obrazuje na Fakultetu zdravstvenih studija (FZS), članici Univerziteta u Sarajevu. Do akademske 2009/10 godine na Fakultetu su se obrazovali dipl. ing MLD u četverogodišnjem trajanju kao redovni i izvanredni i razlikovni studij u trajanju od 2 ili 1 godine. Od te godine se prelazi na bolonjski način studiranja. Klasifikacija zanimanja F BiH razvrstava dipl. ing MLD u kategoriju 2. Znanstvenici – stručnjaci, a pod šifrom 2229-09. Stručni ispit se polaže pri Federalnom ministarstvu zdravstva. Zakonom o zdravstvenoj zaštiti F BiH ugrađen je profil diplomiranog inženjera medicinsko-laboratorijske dijagnostike kroz čl. 34, čl. 95, čl. 137, čl. 147, čl. 148, čl. 221;

Mjesto: Naučno-istraživački proces: biomedicina i zdravstvo.

Naučno-istraživački projekti i naučni stupnjevi napredovanja: 1. voditelj laboratorija, 2. član istraživačkog tima zadužen za izbor metoda, automatizaciju, Laboratorijski Informacioni Sistem (LIS), fotomikrosku analizu u domenu kvalitete preparata i transfera na elektronski medij, mjere zaštite, dobru laboratorijsku praksu /GLP/ i Kontrolu kvalitete, 3. samostalni rad, kombinacija raznih metoda s izmjenama u recepturi, inicijator uvođenja novih metoda, dobar poznavalac grude i funkcije materijala koji obrađuje, 4. Dobar menadžer i stručnjak: privatni i državni laboratoriji, 5. Autor i koautor naučnih radova, 6. Stalno usavršavanje i napredovanje, 7. Dobar prezentator svoje profesije u stručnom i naučnom pogledu;

Ospozobljen i poznaje najsvremenije laboratorijske mjerne i druge tehnologije koje rade na principu metoda spektrofotometrije, nefelometrije, fluorimetrije, denzitometrije, atomske apsorpcije, hromatografije, imunoodređivanja i sl., mikrosku psku i fototehniku, automatsku obradu podataka → LIS, kontrola kvalitete rada u laboratorijskoj medicini, organizacija medicinsko-laboratorijske službe, zaštitom na radu, menadžmentom i voditeljstvom medicinsko-dijagnostičkih laboratorija (društveni i privatni sektor)

**Ključne riječi:** MLD, fakultet zdravstvenih studija, biomedicina i zdravstvo, organizacija, medicinsko-laboratorijska služba, kontrola kvalitete

## Variations in number of blood elements at persons professionally exposed to effect of benzene

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### ABSTRACT

**Aim** To determine presence of changes in blood count in professionally exposed people to benzene.

**Methods** The test have been performed on blood samples (with EDTA) collected at the Health Center Lukavac, taken from people who work with benzene at "Global Ispat" coke industry Lukavac during their annual mandatory systematic check up and on teachers who were working at High School (Gymnasium) Lukavac, as control sample.

The blood samples have been processed by standardised procedures on Sysmex KX 21 machine (Japan).

**Results** Individuals who have been working in benzene industry had altered values of erythrocytes, haemoglobin concentration, platelets and leukocytes, which leads to conclusion that benzene and its homologues have myelosuppressive effect.

Altered erythrocytes and platelets count, and concentration of haemoglobin were found at participants who have been exposed to benzene over two decades, in 5 (12,5%).

Leukocytes count was beyond normal at people exposed to benzene less than five years, in 2 (5%), and over twenty years, in 22 (55%).

**Conclusion** Literary data show that when poisoning with benzene there are all types of transitions from severe hypoplasias to extramedullary hematopoiesis. That is why when we're dealing with longterm, chronic exposure to benzene we can not state that number of erythrocytes, leukocytes, thrombocytes and hemoglobin concentration has significant decrease of value and appearance of anemia but we can state that there is possible increase of values which is main characteristic of this research.

**Keywords:** benzene, erythrocytes, leukocytes, haemoglobin, platelets

## **Varijacije broja krvnih elemenata kod profesionalno izloženih osoba djelovanju benzena**

**Esad Burgić<sup>1\*</sup>, Jasmina Berbić Fazlagić<sup>2</sup>, Enver Ivanković<sup>3</sup>, Nedeljka Šljivo<sup>4</sup>**

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### **SAŽETAK**

**Cilj** Utvrditi prisustvo promjena broja krvnih elementa kod osoba profesionalno izloženih djelovanju benzena.

**Metode** Kao materijal za istraživanje je uzeta puna krv uz dodatak EDTA u laboratoriju Doma zdravlja Lukavac radnicima koji rade sa sirovim benzenom u koksnoj industriji "Global Ispat" Lukavac za vrijeme sistematskog pregleda, i uzorci krvi nastavnog osoblja Gimnazija Lukavac, kao kontrolni uzorak. Iz uzorka krvi po standardiziranom postupku je urađena krvna slika na aparatu Sysmex KX 21 (Japan).

**Rezultati** Kod radnika u proizvodnji benzena su nađene promjene vrijednosti broja eritrocita, koncentracije hemoglobina, broja trombocita i leukocita signifikantno češće u odnosu na kontrolnu grupu, što dokazuje mijelosupresivno dejstvo benzena i njegovih homologa. Broj eritrocita, koncentracija hemoglobina i broj trombocita pokazali su promjene u ispitivanoj skupini koja je imala ekspoziciju benzena više od 20 godina, u 5 (12,5%) slučajeva. Broj leukocita je u ispitivanoj grupi bio izmjenjen kod skupine sa ekspozicijom manjom od 5 godina u 2 (5%) i iznad 20 godina u 22 (55%) slučajeva.

**Zaključak** Literarni podaci navode kod trovanja benzenom sve moguće prelaze od teških hipoplazija do pojave ekstramedularne hematopoeze. Zato kod dugotrajne, hronične izloženosti benzenu ne možemo tvrditi da je kod vrijednosti broja eritrocita, leukocita i trombocita, te koncentracije hemoglobina karakterističan pad vrijednosti i pojava anemije nego da je moguće i porast vrijednosti što je i karakteristika i ovog istraživanja.

**Ključne rječi:** benzen, eritrociti, leukociti, hemoglobin, trombociti

## Fetal cystic hygroma colli – a case report

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### ABSTRACT

**Aim** Nuchal translucency (NT) denote ultrasound accumulation of fluid (lymph) between the skin and subcutaneous fascia in the neck or back of the neck the embryo, which was detected by ultrasound between 11- 14 weeks of pregnancy, if the distance crown rump (CRL) between 45-84 mm. It is standard measurement and legal obligation in the European Union since 2007, for detection of an increased risk of Syndroma Down and other congenital malformations.

**Methods** In this case report, using 2D and 3D transvaginal color ultrasound (TVUS) (Mindray CD-3, China) probe volume 5-8MHz it was presented a 12 weeks gestational fetus with fetal cystic hygroma colli (FCHC), in which observed with eight weeks thickening of the back neck presented as hypo echoic multilocular cyst. It was clearly showed the existence of thickening of the back of the neck at 12 weeks of gestation

**Results** TVUZ clearly observed showed the changes of the back of the fetus neck at 8 weeks of pregnancy, which was presented as multilocular cysts and increased NT with a value greater than 6 mm. We performed a termination of pregnancy at 15 weeks' gestation, and the autopsy has shown additional structural anomalies (hydrops fetalis), inflammatioiones (pneumonia, hepatitis, CMV fetalis).

**Conclusion** Increased NT with FCHC findings and autopsy results confirmed the reliability of NT practices as ultrasound marker in detecting congenital malformations. The introduction of NT as a compulsory examination, ultrasound markers in standard ultrasound screening will facilitate the diagnosis of some congenital malformations.

**Keywords:** FCHC, fetal disease, prenatal diagnosis, ultrasound diagnostics

## Fetal cystic hygroma colli-prikaz slučaja

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### SAŽETAK

**Cilj** Nuhalni nabor (nuchal translucency, NT) označuje ultrazvučni nalaz nakupine tekućine (limfe) između kože i potkožne fascije u predjelu vrata ili vrata i leđa embrija, koji se otkriva ultrazvučnim pregledom između 11. - 14. tjedna trudnoće, odnosno kada je udaljenost tjeme trtice (CRL) između 45 - 84 mm. Standardno mjerjenje NT, koje je i zakonska obaveza od 2007. godine u Europskoj Uniji od 11 – 14 tjedna, je metoda koja detektira povećani rizik *Syndroma Down*, ali i nekih drugih kongenitalnih malformacija.

**Metode** U ovome radu je prikazan slučaj *fetal cystic hygroma colli* (FCHC) fetusa gestacijske starosti 12 tjedana kod koga je sa osam tjedana primijećeno zadebljanje vrata sa stražnje strane koje se očitovale kao hipohogena multilokularna cista pomoću 2D I 3D TVUZ (transvaginalni ultrazvuk Mindray Cd-3, Kina) sondom jačine 5-8 MHZ

**Rezultati** Pomoću TVUZ su jasno uočene promjene na stražnjem dijelu vrata fetusa već u 8 tjednu trudnoće, koje su se očitovale kao multilokularne ciste, a potvrđene su i u 12 tjednu trudnoće, uz povećanje NT čija je vrijednost bila veća od 6 mm. U ovom slučaju, urađen je prekid trudnoće u 15 tjednu trudnoće, a obdukcijom su otkrivene i druge strukturalne anomalije (*hydrops fetalis*) upale (upala pluća, jetre i CMV).

**Zaključak** Povećanje nuhalnog nabora sa nalazom FCHC i rezultati obdukcije potvrdili su u praksi pouzdanost mjerjenja NT kao UZ markera u otkrivanju kongenitalnih malformacija. Uvođenje mjerjenja NT kao obaveznog pregleda, odnosno ultrazvučnog markera kod standardnog ultrazvučnog skrininga, olakšati će dijagnozu nekih kongenitalnih malformacija.

**Ključne riječi:** FCHC, fetalne bolesti, prenatalna dijagnostika, ultrazvučna dijagnostika

## Breastfeeding and health visitors's early intervention

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### ABSTRACT

**Aim** To determine efficacy and duration of breastfeeding, early interventions provided by health visitors, and to determine the correlation between evaluation of breastfeeding and evaluation of child's development.

**Methods** We have conducted our research in town of Đakovo and local area from September, 2011 until February, 2012, using an anonymous survey on 154 mothers who breastfed their children. Survey consisted of two parts; mothers filled the first part, and the second part was completed by health visitors.

**Results** Out of 154 mothers, 79 (51.3%) lived in a rural area, and 75 (48.7%) in a town. Average age along with giving birth to first, second or third child was statistically higher among examinees from urban area. With the first child, average age of a mother from the town was 26 years, while this age was lower in the rural area, 23 years ( $p<0.001$ ). 98 (63.6%) mothers had only high-school graduation; 58 (37.7%) mothers had full-time jobs, while 65 (42.2%) mothers were unemployed. The decision about breastfeeding before giving birth was made by 98 (58.4%) mothers, while most of the breastfeeding-educated mothers, 81 (56.3%), were given information by a nurse in maternity hospital. 88 (57.9%) examinees were supported by their husbands, and 72 (46.8%) children were given formula while they were in maternity hospital. First visit from a house visitor was made within 7 days after the labour among 121 (78.6%) of examinees, which is a strong indicator of good collaboration between maternity hospital and primary health care.

**Conclusion** Statistically better scores on breastfeeding and child's development were achieved by children whose mothers made their decision about breastfeeding before conceiving; those children had highest scores on scales carried out by health visitors. This is an indication of good positive correlation between evaluation of breastfeeding made by health visitor and child's development ( $p<0.001$ ).

**Key words:** breastfeeding, nurse, nursing assessment, development of the child

## Dojenje i rana intervencija patronažnih sestara

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### SAŽETAK

**Cilj** Utvrditi uspješnost i duljinu dojenja, rane intervencije patronažnih sestara te uvidjeti postoji li povezanost između procjene dojenja i procjene razvoja djeteta.

**Metode** Istraživanje je provedeno na području grada Đakova i okolice u razdoblju od rujna, 2011. godine, do veljače, 2012. godine, uz pomoć anonimne ankete među 154 majke koje su dojile svoju djecu. Anketa se sastojala od dva dijela; prvi dio su ispunjavale majke, a drugi dio su ispunjavale patronažne sestre.

**Rezultati:** Od ukupno 154 roditelja koje su anketirane 79 (51,3%) živjelo je na selu, a 75 (48,7%) u gradu. Prosječna starosna dob kod rođenja prvog, drugog i trećeg djeteta značajno je bila viša u ispitanica iz grada. Kod prvog djeteta prosječna starost majke u gradu iznosila je 26 godina, dok je na selu iznosila 23 godine ( $p<0,001$ ). U obrazovnoj strukturi najviše ispitanica imalo je SSS, njih 98 (63,6%), stalan radni odnos 58 (37,7%), a 65 (42,2%) ispitanica bilo je nezaposleno. Odluku o dojenju donijelo je 98 (58,4%) ispitanica prije trudnoće, dok je najviše podučenih ispitanica o dojenju, njih 81 (56,3%), informaciju dobilo od medicinske sestre u rodilištu nakon poroda. Podršku supruga tijekom dojenja je imalo 88 (57,9%) ispitanica, zamjenu za majčino mlijeko u rodilištu dobilo je 72 (46,8%) djece. Prvi posjet patronažne sestre unutar 7 dana nakon poroda bio je kod 121 (78,6%) ispitanice, što pokazuje dobru obaviještenost i suradnju između rodilišta (bolnice) i primarne zdravstvene zaštite.

**Zaključak** Značajno bolja procjena dojenja i procjena razvoja ustanovljena je kod ispitanica koje su odluku o dojenju donijele prije trudnoće i ta djeca su dobila najvišu ocjenu patronažnih sestara. Rezultati su pokazali da postoji dobra pozitivna korelacija između procjene dojenja patronažne sestre i razvoja djeteta ( $p<0,001$ ).

**Ključne riječi:** dojenje, patronažna sestra, procjena dojenja, razvoj djeteta.

## Loneliness, grieving process and depression affecting people of old age

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### ABSTRACT

**Aim** To investigate influence of loneliness and grieving process on manifestation of depressive symptoms, and to determine appearance of aggressive behaviour. Other aims were to explore subjects' spiritual beliefs, and the ways of coping with spiritual and moral beliefs.

**Methods** The research group consisted of 163 subjects older than 65 and divided in two groups. Older people living in an elderly care facility in Osijek formed one group, where the other group was formed of those living in their own homes in Osijek or Đakovo (Croatia). An anonymous and voluntary survey was used, and it included: general questionnaire, a questionnaire dealing with grief from a spiritual point of view, *Kendall Questionnaire on Chronic Sorrow*, and the *Beck Depression Inventory* (BDI).

**Results** From our research we can conclude that elderly people were lonelier, had lower life satisfaction rates, and insufficient social contacts. Religion hold very important place in their lives (79.8%), and facilitates hard lifetime moments. Subjects who lived in their own homes showed signs of chronic sorrow (19.8%) more often than subjects who lived in an elderly care facility, but the latter were more depressive and showed more verbal aggressiveness.

**Conclusion** The paper emphasizes the fact that the feeling of loneliness and the grieving process influenced the depression symptoms occurrence. It is therefore essential to encourage successful ageing and provide any help necessary to the elderly in order for them to cope with stressful changes the best way possible thus preparing themselves gradually for the ageing process.

**Key words:** depression, the elderly people, loneliness, grieving process.

## **Usamljenost, žalovanje i depresija u osoba starije životne dobi**

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### **SAŽETAK**

**Cilj** Ispitati utjecaje usamljenosti i žalovanja na pojavnost simptoma depresije, te utvrditi pojavu agresivnosti. Ispitati duhovna uvjerenja ispitanika i način sučeljavanja s duhovnosti i moralnim uvjerenjima.

**Metode** U istraživačkoj skupini bilo je ukupno 163 ispitanika starijih od 65 godina. Prvu skupinu ispitanika činile su osobe smještene u Ustanovu za stare i nemoćne u Osijeku, a drugu su skupinu ispitanika činile osobe koje žive u vlastitom domaćinstvu na području grada Osijeka i Đakova. Korištena je anonimna i dobrotljiva anketa, koja je sadržavala: opći upitnik, upitnik nošenja s tugom s duhovnog aspekta, Kendallin upitnik o kroničnoj tuzi, te Beckov samoocjenski upitnik za depresiju.

**Rezultati** Iz istraživanja je vidljivo da su stari ljudi usamljeni, imaju nisku razinu zadovoljstva životom, a socijalni su kontakti nedostatni. Vjera zauzima važno mjesto u životima ispitanika (79,8%), te im značajnije olakšava teške trenutke. Znatno više ispitanika koji žive u vlastitom domu imali su znakove kronične tuge (19,8%), ali su depresivniji ispitanici smješteni u ustanovu, koji su pokazali i više verbalne agresivnosti.

**Zaključak** Ovim radom skreće se pozornost na posebnost utjecaja usamljenosti i žalovanja na pojavnost simptoma depresije, na potrebu poticanja uspješnog starenja i pružanja pomoći starim ljudima da se na najbolji mogući način suoče sa stresnim promjenama i pripreme za procese starenja.

**Ključne riječi:** depresija, stari ljudi, usamljenost, žalovanje.

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## Knowledge of the possibilities of post exposure prophylaxis for HIV infection

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### ABSTRACT

**Aim** To examine the knowledge of nurses, laboratory technicians and nursing students about possibilities of post-expositional prophylaxis after occupational exposure to HIV infection, as well as an impact of the knowledge obtained during education and professional career on this problem.

**Methods** The study was conducted by a anonymous questionnaire, among 232 respondents. Respondents were nurses and laboratory technicians, employed at the Clinical Centre of Vojvodina, and Nursing students from Medical Faculty of Novi Sad. In analysis we used chi-squared test, and  $p<0.05$  was statistically significant.

**Results** Students of Nursing, nurses from infectious and general internal departments, and laboratory technicians are very well aware of the potential risks of occupational exposure to HIV infections, which cannot be said for nurses on the surgical departments, who had a very small percent of any training in this field.

**Conclusion** The knowledge of this issue is still not satisfying enough among the nurses and laboratory technicians. As this research shows, it is most important to ensure the education of nurses within the surgical department, and continuous education regarding this issue.

**Keywords:** post-expositional prophylaxis, HIV / AIDS, education

## **Poznavanje mogućnosti postekspozicione profilakse HIV infekcije**

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### **SAŽETAK**

**Cilj** Ispitati poznavanje i znanje medicinskih sestara - tehničara, laboratorijskih tehničara i studenata zdravstvene nege u vezi mogućnosti primene postekspozicione profilakse kod profesionalne izloženosti HIV infekciji, te uticaj edukacije u toku rada i školovanja na poznavanje ove problematike.

**Metode** Istraživanje je sprovedeno anonimnim, anketnim upitnikom, među 232 ispitanika. Anketirane su medicinske sestre – tehničari i laboratorijski tehničari zaposleni u Kliničkom centru Vojvodine, i studenti zdravstvene nege Medicinskog fakulteta u Novom Sadu, u periodu 1. septembar – 30. decembar 2011.godine. U analizi su korišćeni testovi značajnosti razlika ( $\chi^2$  test) verovatnoće  $p<0,05$ .

**Rezultati** Studenti zdravstvene nege, medicinske sestre/tehničari iz infektivnih i internističkih klinika i laboratorijski tehničari statistički značajno su pokazali veće poznavanje potencijalnih rizika od profesionalne eksponiranosti HIV infekciji u odnosu na medicinske sestre/tehničare iz hirurških klinika, koje su u malom procentu imale edukaciju iz ove oblasti.

**Zaključak** Poznavanje ove problematike još uvek nije na zadovoljavajućem nivou među medicinskim sestrama/tehničarima i laboratorijskim tehničarima. Kako je pokazalo ovo istraživanje, najvažnije je obezbediti edukaciju medicinskim sestrama/tehničarima iz hirurških klinika i kontinuiranu edukaciju tokom rada u vezi ove problematike.

**Ključne riječi:** postekspoziciona profilaksa, HIV/AIDS, edukacija

## Correlation of bacteriological quality of drinking water and sewage disposal in the Zenica Doboј Canton

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### ABSTRACT

**Aim** To determine the bacteriological quality of drinking water samples analyzed in period 01 January 2007 to 30 June 2012 in Zenica-Doboј Canton, Bosnia and Herzegovina.

**Methods** The data were extracted from the Protocols of the Laboratory for Sanitary and Clinical Microbiology (Cantonal Public Health Institute Zenica). Total number of coliform bacteria, thermotolerant *E. coli* and aerobic mesophilic bacteria were determined. Membrane filtration method (MFM) was used for the analysis the samples of drinking water. The analysis were performed according to the standards and legal regulations.

**Results** A total number of 14932 samples were analyzed, of which 2276 (15.2%) samples did not meet the standards. Trend of drinking water quality was slightly increasing. The highest number of unsatisfied samples were from the wells, 2863 (83.1%) samples, from which supplies 46.1% of the Canton population. There was statistically significant correlation between bacteriological quality of water and quality of sewage sanitation systems in rural regions (Pearson correlation coefficients of 0.449).

**Conclusion** Poor sewage sanitation systems in rural regions is the cause of a high number of unsatisfactory samples of drinking water. Preventive activities and more frequent water sampling are necessary measures.

**Key words:** coliform bacteria, thermotolerant *E. coli*, chlorinated water, wells, springs

## Korelacija bakteriološke ispravnosti vode za piće i sanitacije u Zeničko-Dobojskom kantonu

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### SAŽETAK

**Cilj** Istražiti bakteriološku ispravnost analiziranih uzoraka vode za piće od 01.01.2007. do 30.06.2012. godine u Zeničko-Dobojskom kantonu, Bosna i Hercegovina.

**Metode** Korišteni su Protokoli Laboratorija za sanitarnu i kliničku mikrobiologiju (Kantonalni zavoda za javno zdravstvo Zenica). Određeni su ukupan broj koliformnih bakterija, termotolerantne *E. coli* i aerobnih mezofilnih bakterija. Uzorci vode za piće su analizirani metodom membranske filtracije (MMF). Analize su provedene prema standardima i zakonskim regulativama.

**Rezultati** Od ukupno 14932 analizirana uzorka, 2276 (15,2%) uzoraka nisu zadovoljavali standarde. Trend kretanja ispravnosti vode za piće je u blagom poboljšanju. Najveći broj neispravnih uzoraka bio je iz zatvorenih izvorišta, 2863 (83,1%) uzoraka, iz kojih se snabdijeva 46,1% populacije kantona. Ustanovljena je statistički značajna korelacija između bakteriološke kvalitete vode i kvaliteta sanitacije u ruralnim područjima (Pearson koeficijent korelacije 0,449).

**Zaključak** Loši sanitarni kanalizacijski sistemi u ruralnim područjima su uzrok velikog broja bakteriološki nezadovoljavajućih uzoraka vode za piće. Preventivne aktivnosti i češće uzimanje uzoraka vode su neophodne mјere.

**Ključne riječi:** koliformne bakterije, termotolerantna *E. coli*, hlorisana voda, zatvorena izvorišta, otvorena izvorišta.

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## Microbiological quality of meat and ready-to-eat food in the Zenica Doboј Canton in the 2008-2010 periods

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### ABSTRACT

**Aim** To investigate the microbiological quality of meat, meat products and ready-to-eat food in the Zenica-Doboј Canton in order to point out the importance of food monitoring and provide safe food for consumers.

**Methods** Retrospectively, using the Protocols of bacteriological food analysis laboratory for Sanitary and Clinical Microbiology, Cantonal Public Health Institute Zenica, analyzed the results of bacteriological analysis of all samples of meat, meat products and ready-to-eat food samples submitted in the 2008 - 2010 periods were analyzed. The legal B&H low Regulations were applied.

**Results** Of total number 2 534 meat and meat products samples, 66 (2,6%) were conditionally satisfied, 11 (0,4%) did not satisfy. Of the 4 448 ready-to-eat food samples, 133 (3,0%) did not satisfy the regulations. The most common cause of contamination of ready-to-eat food samples was total bacterial count > 20 000 in 39 (29,3%); thermotolerant *E. coli* was found in 18 (13,5%) samples. The most common reason for the improper quality of meat and meat products was the presence of thermotolerant *E. coli*, in 20 (26%), *Proteus* spp. in eight (10,4%) and *Salmonella* in two (2,6%) samples.

**Conclusion** The most common cause of food borne diseases is consequence of mistakes or ignorance in the process of food handling in the manufactures and sells facilities. Supervision and monitoring of food quality is powerful way to detect new diseases, to determine the specific source, thus contributing to the education of food handlers in order to prevent contamination.

**Key words:** meat, ready-to-eat food, outbreak, *Salmonella*, *Campylobacter*

# **Mikrobiološka ispravnost mesa, mesnih proizvoda i gotovih jela na području zeničko-dobojskog kantona u periodu 2008.-2010. godine**

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## **SAŽETAK**

**Cilj** Ustanoviti bakteriološku ispravnost mesa, mesnih proizvoda i gotovih jela na području Zeničko-dobojskog kantona obzirom na zakonski postavljene propise kojima moraju udovoljavati uzorci. Svrha rada je ukazati na važnost praćenja ovih analiza u cilju obezbjeđenja sigurne hrane za potrošača.

**Metode** Retrospektivno, koristeći Protokole bakteriološke analize hrane Laboratorija za sanitarnu i kliničku mikrobiologiju Kantonalnog zavoda za javno zdravstvo Zenica, analizirani su rezultati bakterioloških analiza svih uzoraka mesa, mesnih proizvoda i gotovih jela prispjelih u Laboratorij od 2008 do 2010. godine a obzirom na zakonske važeće propise u FBiH (u skladu sa važećim Pravilnikom).

**Rezultati** Od ukupno 2 534 analiziranih uzoraka mesa i mesnih proizvoda, 66 (2,6%) je uvjetno udovoljavalo, 11 (0,4%) nije udovoljavalo. Od 4 448 uzoraka gotovih jela, 133 (3,0%) nije udovoljavalo zakonskim proposima. Najčešći uzrok kontaminacije neudovoljavajućih uzoraka je bio ukupan broj bakterija  $>20\ 000$  (29,3%) gotovih jela. Termotolerantna *E. coli* pronađena je u 18 (13,5%) uzoraka gotovih jela. Najčešći razlog higijenske neispravnosti mesa i mesnih proizvoda je prisutnost termotolerantne *E. coli* u 20 (26%), *Proteus* spp. u osam (10,4%) i *Salmonellae* u dva (2,6%) uzoraka.

**Zaključak** Najčešći uzroci bolesti nastalih trovanjem hranom javljaju se uslijed grešaka ili neznanja u procesu rukovanja hranom u objektima gdje se ona proizvodi i prodaje. Nadgledanje i praćenje je moćan način da se otkriju nove bolesti koje dolaze iz hrane, da se odredi specifičan izvor, a time se doprinosi i edukaciji o načinu čuvanja hrane u cilju sprječavanja kontaminacije.

**Ključne riječi** meso, spravljeni jela, epidemija, *Salmonella*, *Campylobacter*

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## Monitoring of environmental surfaces in objects of food service and food industry in the Zenica-Doboj Canton in the period in 2005 -2007

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### ABSTRACT

**Aim** To research bacteriological (hygienical) correctness of surfaces (smear hand's employed staff in proces of work, smear of furniture, walls) in object's meat production (8), milk producution (3), products of cakes (14), bakery and bakery product's (4) sugar rafinery and product of biscuits (1) and in restaurants on the territory Zenica-Doboj Canton (Bosnia and Herzegovina B&H) in the 2005-2007 periods and to point out importance of these analyses in providing food safety.

**Methods** We used data's from protocol Labaratory for clinic and sanitary microbiologic Cantonal institution for public health Zenica. Sample of smear's were inoculated on Mc Conkey and blood agar, in purpose of identificcition gram –negative and gram positive bacteria, respectively. Result's were interpreted in accordance with Law regulation in B&H.

**Results** From totally 5051 analized smear's 190 (3%) didn't satisfy. The largest number of unsatisfied smear's were note in community Zenica 75 (47%), Visoko 49 (25.8%) and Tešanj 37 (19.5%). From 190 unsatisfied smear's, 57 (30%) was smear from dishes, 43 (22.6%) smear's from furniture, 42 (22.1%) smear's from work surfaces and 41 (21.6%) smear's from hands. The most isolated was *Escherichia coli*, from 25 (22,6%) smear of machines during proces of work, and 34 (17.2%) smear from dishes. During 2005 – 2007 from 190 unsatisfied smear's the mostly noted in restaurants, 96 (50.5%) in objects for meat production, 82 (43.2%) and ice-cream and product of cakes, five (2.6 %).

**Conclusion** Regular control (monitoring) of hygiene correctness of smears in objects and education of employes it is important in order to improve hygienic measurers and to prevent contamination of food.

**Key words:** smears, objects, food industry, food poisonig.

# Bakteriološka ispravnost briseva površina u ugostiteljskim objektima i objektima proizvodnje hrane na području Zeničko-dobojskog kantona u periodu 2005. – 2007. Godine

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## SAŽETAK

**Cilj** Istražiti bakteriološku (higijensku) ispravnost briseva površina (bris ruku zaposlenog osoblja u procesu rada, bris radne odjeće osoblja, bris radnog namještaja, bris sa posuđa ili escajga, i bris zidova prostorija) u objektima proizvodnje mesa i mesnih proizvoda (8), za proizvodnju mlijeka i mlječnih proizvoda (3), slastičarni (sladoled i proizvodnje kolača) (14), pekara i proizvodnje peciva (4), šećerana i proizvodnje keksa (1), te u objekatima društvene prehrane na području Zeničko – dobojskog kantona (Bosna i Hercegovina, B&H) u periodu od 2005 – 2007 godine i ukazati na važnost praćenja ovih analiza u cilju obezbjeđenja sigurne hrane za potrošače.

**Metode** Koristili smo podatke iz Protokola Laboratorija za kliničku i sanitarnu mikrobiologiju Kantonalnog zavoda za javno zdravstvo Zenica. Uzorci briseva su inokulirani na Mc Conkey i krvni agar, u cilju identifikacije gram-negativnih, odnosno gram-pozitivnih bakterija. Rezultati su interpretirani u skladu sa zakonskom regulativom u B&H.

**Rezultati** Od ukupno 5051 analiziranih briseva, 190 (3,7%) nije udovoljavalo. Najveći broj neudovoljavajućih briseva zabilježen je u općini Zenica, 75 (39,47%), Visoko, 49 (25,8%) i Tešanj 37, (19,5%). Od 190 neudovoljavajućih briseva, 57 (30%) je bilo iz briseva posuđa, 43 (22,6%) iz briseva namještaja, 42 (22,1%) iz briseva radnih mašina i 41 (21,6%) iz briseva ruku. Najčešće je izolirana *Escherichia coli*, iz 25 (22,6%) briseva mašina u procesu rada, i iz 34 (17,2 %) briseva posuđa. Tokom 2005 – 2007 godine od ukupno 190 ezadovoljavajućih briseva najviše je zabilježeno u objektima društvene prehrane za spravljenje gotovih jela, 96 (50,5 %), u objektima za proizvodnju mesa, 82 (43,2 %), u slastičarnama (sladoled i proizvodnja kolača) pet (2,6 %).

**Zaključak** Redovnom kontrolom (nadzorom) higijenske ispravnosti briseva u ugostiteljskim objektima i edukacijom zaposlenika moguće je poboljšati sprovođenje higijenskih mjera sa ciljem spreječavanja kontaminacije hrane.

**Ključne riječi:** brisevi, ugostiteljski objekati, industrija hrane, trovanje hranom

## Public Sanitary Importance Of Brucellosis In The Central Bosnian Canton

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### ABSTRACT

**Aim** To display a number of brucellosis cases and number of cattle affected by brucellosis in thirteen communities in the Central Bosnian Canton in the periods 2003-2007, as well as to categorize brucellosis affected population by their age, sex and profession.

**Methods** The work was made by analytical – descriptive methods. It's been used the retrospective inquiry based on received information from Public Health Institute, Ministry of agriculture, water management and forestry and Veterinary Inspection of the Central Bosnian Canton regarding the number of people and cattle affected by brucellosis since 2003/01/01 until 2007/12/31. Created reports made by institutions competent for monitoring of the contagious diseases via notifications of the contagious diseases of the population and cattle.

**Results** Brucellosis had an epidemical character and the number of ill persons was reciprocally increased from 53% in 2007 regarding to 2003. Sporadic cases of human brucellosis were registered in three communities during 2003, six outbreaks were registered in eight communities during 2007 (143). Prevalence of 77% (201 cases) was registered in age group of 18-65 years. According to profession, the most common appearance was registered at herders, 139, and at people who were in contact with animals, 102, males were getting sick more often, 172. The number of diseased livestock were 29 in 2003, in 2007 966 cases.

**Conclusion** The incidence of human brucellosis was the highest in Travnik municipality increasingly from 2003 to 2007. Most of the sick were working-age population, age group of 18-65 years, malea, and according to the profession, herders.

**Key words** brucellosis, plague, precautionary measures

## **Javno zdravstveni značaj bruceloze na području Srednjobosanskog Kantona**

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### **SAŽETAK**

**Cilj** Prikazati broj oboljelih osoba i broj oboljele stoke od bruceloze na području trinaest općina Srednjobosanskog Kantona u periodu 2003. do 2007. godine, te prikazati oboljevanje stanovništva u odnosu na dob, spol i profesiju.

**Metode** Rad je rađen analitičko – deskriptivnom metodom. Korišteno je retrospektivno istraživanje na osnovu podataka dobijenih u Zavodu za javno zdravstvo, Ministarstvu poljoprivrede, vodoprivrede i šumarstva i Veterinarskoj inspekciji Srednjobosanskog Kantona o broju oboljelih osoba i broju oboljele stoke. Izvještaji institucija nadležnih za praćenje kretanja zaraznih oboljenja, putem prijava zaraznih bolesti stanovništva i prijava zaraznih bolesti stoke su statistički obrađeni, analizirani te prikazani tabelarno i grafički.

**Rezultati** Brucelozu je imala epidemski karakter, a broj oboljelih osoba je recipročno povećan za 53% u 2007. u odnosu na 2003. godinu. Sporadični slučajevi humane bruceloze su registrovani u tri općine tokom 2003. godine (6), epidemisko širenje je zabilježeno na osam općina u 2007. godini (143). Incidencija je zabilježena u dobroj skupini 18-65 godina i to

201 oboljela osoba ili 77%. Prema profesiji najčešća pojava oboljenja je zabilježena kod stočara, 139, i osoba koje su bile u čestom kontaktu sa životinjama, 102, muškarci su oboljevali češće, 172. Broj oboljele stoke u 2003. godini od 29 pozitivnih slučajeva, do 966 u 2007.godini.

**Zaključak** Incidencija humane bruceloze je bila najviša na području općine Travnik povećavajući se od 2003. do 2007. godine. Najviše je oboljevalo radno sposobno stanovništvo, dobne skupine od 18-65 godina, češće muškarci, prema profesiji stočari. Najviši broj oboljele stoke u 2007. godini, posmatranog perioda istraživanja.

**Ključne riječi:** brucelozu, epidemija, mjere prevencije

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## We spending money for health with pleasure, but what about expensive food? The price of olive oil and the consumers' opinion

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### ABSTRACT

**Aim** To assess the role of the product price in the small amount of consumption.

**Methods** A self administrated questionnaire was used and asked 1000 Hungarian about their patterns of olive oil consumption.

**Results** Only 102 (10.2%) of the respondents did not agree with the statement “Olive oil consumption is useful to preserve our health, but its price is not appropriate”, 198 (19.8%) agreed with it, 701 (70.1%) agreed with it absolutely. Ninety (9.0%) said that the price is appropriate and 569 (56.9%) that it is too expensive. “Expensive but it's worse it” answered 335 (33.5%). There was only one person who said that it is cheep, but his financial situation was “well below the average” – according his own opinion.

**Conclusion** The correlation between the financial situation and the statement “olive oil consumption is useful to preserve our health, but its price is not appropriate” was significant and moderately strong ( $r = 0.23$ ;  $p < 0.001$ ). Six hundred seventy-two (67.2%) of the people with average or better financial situation agree with this statement.

**Key words:** food consumption, olive oil, price sensitivity



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## The prevalence of smokers among the hospitalized patients at the Clinical Department for Cardiovascular diseases, their smoking habits and attitudes

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### ABSTRACT

**Aim** To determine prevalence of smokers among the hospitalized patients at the Department for Cardiovascular diseases, Clinical Hospital Center Osijek and to examine their smoking habits and attitudes toward their role and responsibility in prevention of smoking, and opinions on law regulative in regard of smoking.

**Methods** A cross-sectional study was conducted with anonymous questionnaire, which was consisted of three groups of questions: general information, data about smoking habits and attitudes.

**Results** The results demonstrated that 23 of 53 (43.4%) examinees were non smokers, 12 (38.7%) females and 11 (50%) males; 30 were smokers. There was no significant difference in number of smoked cigarettes per day, and also in other smoking habits. Both males and females have agreed that active and passive smoking is a health hazard, however, significantly more examinees with lower education did not agree. The law regulative in favor of prohibition of smoking was thought 39 (73.6%) of examinees, both males and females. The highest number of examinees who agreed was among examinees with finished elementary school, 18 (85.7%) and with high level of education, four (80%), while the least number ones were examinees with the intermediate education, two (40%). The opinion that the Law regulative is just toward non smokers had 40 (75.5%) of examinees, more males than females. There was no difference in this opinion in regard of the education. There was no significant difference in smoking habits and duration of smoking among males and females that have myocardial infarction or hypertension. In addition, there was no significant difference among their attitudes in regard of hypertension and myocardial infarct.

**Conclusion** It is necessary to increase the awareness of the patients with cardiovascular diseases on the health risks that smoking carries, particularly in passive smoking. Additionally, it is important to support the acceptable healthy behavior in that group of patients.

**Key words:** smoking, prevalence, risk factor, cardiovascular diseases, legislative

## Prevalencija pušača među bolesnicima kliničkog odjela za bolesti srca i krvnih žila, njihove pušačke navike te osobni stavovi

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### SAŽETAK

**Cilj** Odrediti prevalenciju pušača među bolesnicima Odjela za bolesti srca i krvnih žila, Kliničkog bolničkog centra Osijek; ispitati njihove pušačke navike i stavove u odnosu na ulogu i odgovornosti u prevenciji i suzbijanju pušenja, te njihovo stajalište o zakonskoj regulativi vezanoj uz problematiku pušenja.

**Metode** Ispitanje je provedeno kao presječna studija, putem anonimne ankete. Anketom su uzeti opći podatci, podatci o navikama vezanim uz pušenje i podatci o osobnim stavovima o pušenju.

**Rezultati** Od ukupno 53 (43,4%) ispitanika 23 nisu bili pušači, od kojih 12 (38,7%) žena i 11 (50%) muškaraca, a ostali su bili pušači. Nije ustanovljena značajna razlika po spolu u broju pušenih cigareta, kao ni u drugim pušačkim navikama, npr. pušačkom stažu. Da je aktivno kao i pasivno pušenje štetno za zdravlje, složili su se podjednako i muškarci i žene. Međutim, značajno više ispitanika niže stručne spreme se nisu složili sa tvrdnjom o opasnostima pasivnog pušenja. Da je Zakon o zabrani koristan mislilo je 39 (73,6%) ispitanika, podjednako muškaraca i žena. S obzirom na stručnu spremu s tom su se tvrdnjom najviše složili ispitanici sa završenom osnovnom školom, 18 (85,7%) i fakultetom, 4 (80%), dok su se najmanje složili ispitanici sa višom školom, 2 (40%). Sa tvrdnjom da je Zakon pravedan prema nepušaćima u potpunosti se složilo 40 (75,5%) ispitanika, značajno više muškaraca, no prema stručnoj spremi nije bilo značajnijih razlika. Kod najzastupljenijih popratnih bolesti (hipertenzija i infarkt) nije bilo značajne razlike između muškaraca i žena u pušačkom statusu i stažu. Stavovi ispitanika o pušenju s obzirom na hipertenziju i infarkt također nisu pokazivali značajne razlike.

**Zaključak** Potrebno je ojačati svjesnost kardioloških bolesnika o postojećem riziku koje pušenje nosi u razvoju kardiovaskularnih bolesti, o opasnosti pasivnog pušenja, te poticati zdravstveno prihvatljivo ponašanje u toj grupi bolesnika.

**Ključni riječi:** pušenje, prevalencija, čimbenik rizika, kardiovaskularne bolesti legislati

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## Smoking prevalence among medical professionals, their smoking habits and personal attitude

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### ABSTRACT

**Aim** To determine the prevalence of smoking among health care providers (physicians, nurses, technicians), their smoking habits and personal attitudes towards smoking, as well as the role and responsibility of the health care providers in prevention of smoking and evaluation of the new regulative in regards of restriction of smoking in public institutions.

**Methods** In this study 499 participants filled the anonymous questionnaire: 253 nurses (high school education), 97 nurses (Bachelor's level), 39 nurses at internship, 78 physicians specialists, 32 residents. Among participants, 175 (35.1%) were active smokers, 29 (5.8%) ex-smokers and 295 (59.1%) non-smokers.

**Results** Nurses with high school education significantly did not support the opinions that the passive smoking is health hazard. Also, they did not agree with the statement that the new regulative in regard of smoking at public institution is justified for the smokers. Significantly more doctors specialists agree that smokers should pay more attention to non-smokers. Compared to examinees in different work areas, they have also shown more ethic responsibility about smoking outside of work hours, and about warning the smokers on bad cigarette influence.

**Conclusion** There is necessity for additional education of health care providers in terms of their role in prevention of smoking and reduction of number of smokers in population.

**Key words:** smoking, dependence, addictions, prevention, promotion

## **Prevalencija pušača među zdravstvenim djelatnicima, njihove pušačke navike i osobni stavovi**

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### **SAŽETAK**

**Cilj** Ispitati prevalenciju pušenja među zdravstvenim djelatnicima, njihove pušačke navike i osobne stavove o pušenju, ulogu i odgovornost zdravstvenih djelatnika u prevenciji pušenja i vrijednost novoga zakona o zabrani pušenja u javnim ustanovama.

**Ispitanici i metode:** U ispitivanju je sudjelovalo 499 ispitanika, od kojih 253 medicinske sestre srednje stručne spreme, 97 medicinskih sestara više stručne spreme, 39 sestara pripravnica, 78 liječnika specijalista, 32 liječnika specijalizanata. Od ukupnog broja ispitanika 175 su bili aktivni pušači, 29 bivši pušači i 295 nepušači. Ispitivanje je provedeno putem anonimnih anketa.

**Rezultati** Od ukupnog broja ispitanika, s tvrdnjom da je pasivno pušenje općenito štetno za zdravlje najviše se u potpunosti nisu slagale srednje medicinske sestre, kao i s tvrdnjom da je uvedeni zakon o pušenju pravedan prema pušačima. Značajno više liječnika specijalista se u potpunosti slaže da pušači trebaju voditi računa o nepušačima i pokazuju veću etičku odgovornost o pušenju izvan radnog vremena i upozorenju pušača na štetne učinke pušenja, u odnosu na ispitanike koji imaju drugo radno mjesto. Rezultati su pokazali da liječnici imaju veću etičku odgovornost u pitanjima o pušenju izvan radnog vremena i upozorenju pušača na štetne učinke pušenja.

**Zaključci** Potrebna je dodatna edukacija zdravstvenih djelatnika o njihovoj ulozi u prevenciji pušenja i provođenja adekvatnih mjera za smanjenje broja pušača.

**Ključne riječi:** pušenje, ovisnost, navika, prevencija, promidžba

## Testing habits and diet quality for school girls

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### ABSTRACT

**Aim** To examine the nutritional status, dietary habits, attitudes and knowledge about the importance of proper nutrition and physical activity, as well as the consciousness awakening of the active effects of proper nutrition on the performance, their psycho-physical activity and general health throughout further growth and development.

**Methods** The study was conducted by surveying 267 girls 7-14 years of age, participants of the Fun School Soccer tournament in Travnik. Assessment of the nutritional state was conducted by comparing the Body Mass Index (BMI) of the subjects with recommended values. The survey contained 22 questions that were related to the ingrained habits, related to their diet which the participants anonymously filled in.

**Results** The results of the BMI showed that 94 (35.2%) students had a desirable body weight, 165 (61.8%) were thin and malnourished and 8 (3%) had increased body weight. The average age of respondents was 13. On the question concerning the frequency of eating breakfast, out of the total number surveyed participants, 230 (86.5%) participants eat breakfast every day, 30 (11.3%) eat breakfast only sometimes, and 7 of them (2.5%) never eat breakfast. Within the total number of surveyed participants 11 (4.1%) never consumed sweets, 28 (10.5%) consume less than once a week, 39 (14.6%) consume once a week, 67 (25.1%) consume 2-4 days a week, 41 (15.4%) consume 5-6 days a week, 36 (13.5%) consume once a day, every day and 45 (16.9%) of surveyed participants consume sweets every day, several times a day.

**Conclusion** The results indicate the existence of problems related to malnutrition and malnourishment. This can be partly explained by socio-economic circumstances, but generally poor dietary and lifestyle habits of students. With the introduction of the teaching contents and various workshops on healthy eating to allow timely correction of poor eating habits which would provide the possibility of forming a positive attitude about physical activity, health and aesthetic problems that can arise from that. A proper and healthy diet, along with regular physical activity is essential prerequisites for maintaining good health and ideal state of the entire organism.

**Key words:** Body Mass Index, anthropometry, dietary habits, physical activity, health promotion

## Ispitivanje navika i kvalitete ishrane kod djevojčica školskog uzrasta

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### SAŽETAK

**Cilj** Ispitati stanje uhranjenosti, prehrambenih navika, te stavova i znanja o značaju pravilne prehrane i tjelesne aktivnosti, kao i buđenje svijesti o aktivnom uticaju pravilne ishrane na obavljanje svih njihovih psihofizičkih aktivnosti i općeg stanja organizma kroz daljnji rast i razvoj.

**Metode** Istraživanje je sprovedeno anketiranjem 267 djevojčica starosti 7–14 godina učennicama turnira zabavne škole nogometa u Travniku. Procjena stepena uhranjenosti provedena je uspored-bom indeksa tjelesne mase (ITM) ispitanika sa preporučenim vrijednostima. Anketa je sadržavala 22 pitanja koja su se odnosila na usvojene navike vezane uz prehranu, a učesnici su je ispunjavali anonimno.

**Rezultati** Rezultati ITM su pokazali da je 94 (35,2%) učenica imalo poželjnu tjelesnu težinu, 165 (61,8%) su bile mršave ili neuhranjene, 8 (3%) povećanu tjelesnu težinu. Prosječna dob ispitanica bila je 13 godina. Na pitanje koje se odnosilo na frekvencu konzumacije doručka od ukupnog broja anketiranih učesnica 230 (86,5%) doručkuje svaki dan, 30 (11,3%) doručkuju samo ponekad, a njih 7 (2,5%) nikada ne doručkuje. Unutar ukupnog broja anketiranih učesnica 11 (4,1%) nikada ne konzumira slatkiše, 28 (10,5%) konzumira manje od jednom sedmično, 39 (14,6%) jednom sedmično, 67 (25,1%) 2-4 dana sedmično, 41 (15,4%) 5-6 dana u sedmici, 36 (13,5%) jednom dnevno, svaki dan, a 45 (16,9%) anketiranih učesnica slatkiše konzumira svaki dan, više puta dnevno.

**Zaključak** Rezultati istraživanja su ukazali na postojanje problema vezanih za neuhranjenost i nepravilnu ishranu. To se djelomično može objasniti socijalno-ekonomskim prilikama, ali uglavnom lošim prehrambenim i životnim navikama učenika. Uvođenjem nastavnih sadržaja i različitih radionica na temu zdrave ishrane blagovremeno bi se omogućila korekcija loših prehrambenih navika i pružila bi se mogućnost formiranja pozitivnog stava o tjelesnoj aktivnosti, te zdravstvenih i estetskih problema koji proizlaze iz toga. Pravilna i zdrava ishrana, te redovna tjelesna aktivnost bitni su preduslovi za održavanje dobrog zdravlja i idealnog stanja cjelokupnog organizma.

**Ključne riječi:** indeks tjelesne mase, antropometrija, prehrambene navike, tjelesna aktivnost, una-prijedenje zdravlja

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## High-risk human papillomavirus (HR-HPV) screening and HPV genotyping in clinical specimens from North-Eastern Croatia

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### ABSTRACT

**Aim** To investigate the prevalence of human papilloma virus (HPV) infections, its correlation to the age and sex, relation between the certain HPV genotype with the age and sex; relation between HPV genotype and behavioral risk factors (smoking, number of sexual partners, etc.).

**Methods** From 2007 to 2011, it was tested 2521 clinical specimens for high-risk (HR) HPV by AMPLICOR HPV test (Roche Diagnostics, Germany); 436 urethral swabs from males and 2085 cervical swabs (females). Subsequently, 301 HR HPV positive samples were genotyped by Linear Array HPV Genotyping Test (Roche Diagnostics).

**Results** The significantly higher prevalence of HR HPV infections was found in women, 1078 (42.8%) compared to men, 137 (5.4%) in all age groups. Women at the age of 21-25 years old had the highest prevalence 292 (11.5%), and men at the age of 25-30 years old, 38 (1.5%). Genotyping analysis revealed that HR HPV 16 (~20%) was the most common type, followed by HPV 51, 31, 52, 39, 66, 6, 18, 62, 33, 58, 45 and 56 (in descending order). The prevalence of multiple HPVs infections was 139 (46.2%). Marital status, number of sexual partners, active smoking and cervical grades were significantly associated with HPV positive infection compared to HPV negative controls.

**Conclusion** In the comparison to other European countries and other region of the world, HPV prevalence was unexpectedly high. The HPV 52 was significantly higher (6.1% vs 1.4-5%) while HPV 18 was significantly lower (3.8% vs 5-30%) compared with neighbourhood European countries. The comparative analyses between HR HPV positive and negative samples strongly suggest that certain risk factors were significantly associated with HPV infections. In conclusion, due to the high prevalence of HR-HPV in young population, mass vaccination against HPVs is highly recommended.

**Key words:** HR HPV, HPV genotyping, risk factors, Osječko-baranjska županija

## Praćenje infekcija visokorizičnih ljudskih papiloma virusa i njihova genotipizacija u kliničkim uzorcima sjeverno-istočne Hrvatske

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### SAŽETAK

**Cilj** Istražiti prevalenciju visokoričnih ljudskih papiloma virusa (HR HPV) genitalnih infekcija, povezanost između dobi, spola i rizičnih čimbenika (pušenje, spolno ponašanje, itd.) s HR HPV zaražavanjem.

**Metode** Od 2007. do 2011. godine, testiran je 2521 klinički uzorak (2085 obrisaka grlića maternice i 436 obrisaka genitalne regije kod muškaraca) uporabom Amplicor HPV testa (Roche, Njemačka). Posljeđično, genotipiziran je 301 HR HPV pozitivan uzorak uporabom Linear Array HPV genotyping testa (Roche).

**Rezultati** Značajno visoka prevalencija HR-HPV infekcije utvrđena je u žena 1078 (42,8 %) u odnosu na muškarce, 137 (5,4 %) u svim dobnim skupinama. Najviša prevalencija HPV infekcije kod žena utvrđena je u dobroj skupini 21 - 25 godina, 292 (11,5 %), dok je kod muškaraca utvrđena u dobroj skupini 26 - 30 godina, 38 (1,5 %). Genotipizacijom HPV-a utvrđen je HPV 16 (~20 %) kao najčešći, za kojim slijede 51, 31, 52, 39, 66, 6, 18, 62, 33, 58, 45 i 56. Prevalencija HPV infekcija s više od jednog HPV-a utvrđena je u 139 ispitanika (46,2 %). Usporednom analizom HPV pozitivnih ispitanika s HPV negativnim zdravim kontrolama utvrđeno je da su bračno stanje, spolno ponašanje, aktivno pušenje te stupnjevi neoplazija na grliću maternice statistički značajno povezani s HR HPV zarazom.

**Zaključak** U odnosu na druge zemlje Europe i svijeta prevalencija HR HPV genitalnih infekcija u našoj županiji je neočekivano visoka. Također, prevalencija HPV 52 je značajno viša (6,1 % naspram 1,4 – 5 %) dok je prevalencija HPV 18 značajno niža (3,8 % naspram 5 – 30 %) u našoj županiji u odnosu na susjedne europske države. Usporednom analizom HR HPV pozitivnih i negativnih ispitanika utvrđena je značajna povezanost između određenih rizičnih čimbenika i HR HPV infekcije. Budući da je mlađim dobnim skupinama određena visoka prevalencija genitalnih HR HPV-a više je nego opravdana imunizacija protiv HR HPV-a.

**Ključne riječi:** HR HPV, HPV genotipizacija, rizični čimbenici, Osječko-baranjska županija

## Practical implementation and usability evaluation of apparatus for chemical-cytological urinal status

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### ABSTRACT

**Aim** To investigate advantages and disadvantages of visual and automated reading of test stripes for biochemical urine analysis.

**Methods** Testing was conducted as a prospective study in the Department of Laboratory Diagnostics, Institute for Occupational Health of Zenica-Doboj Canton. Urine samples were collected during the period of three months (from February till May 2012) from two groups of patients: 100 urine samples from healthy people (annual health screenings) and 100 urine samples from patients with urinary tract disorder. Research methods were cytological and microbiological. We compared visual and automated reading of two devices (Miditron Junior II Roche and Mission U120 Urinanalysator ACON Lab. Inc.), and two test stripes for urine analysis combining different manufacturers, and also conducted microbiological analysis in cases where bacterial infection was suspicious (nitrites found in urine).

**Results** The Mission U120 apparatus showed statistically significant lower levels of leukocytes and erythrocytes in urine compared to Miditron Junior II ( $Z = -3,632$ ,  $p=0,0005$ ;  $Z = -4,482$ ,  $p=0,005$ ) and cytological control that was crucial for these estimations. In the first group of healthy people proteins in urine were found in 76 cases in automated reading. This was not shown in visual reading of test stripes (20% sulphosalicylic acid test was negative). In second group of patients visual and automated reading of test stripes regarding nitrites (found negative) was not followed cytological findings (bacteria found in urine).

**Conclusion** We wanted to emphasize importance of combination of automated test stripes analyzers with cytological urine examination. Test stripes are of the special importance, considering false positive and false negative results. Biochemical laboratory have to be focused on new generation of completely automatized devices for urine analysis.

**Key words:** urine, automated urine analyzers.

## **Praktična primjena i procjena upotrebljivosti aparata za biohemijsko-citološki status urina**

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### **SAŽETAK**

**Cilj** Istražiti prednosti i nedostatke vizuelnog i automatskog očitavanja test traka za biohemiju analizu urina.

**Metode** Ispitivanje je rađeno kao prospektivna studija u Službi za laboratorijsku dijagnostiku Kantonalnog Zavoda za medicinu rada Zenica. Uzorci urina su u periodu od tri mjeseca (februar-maj 2012. godine) prikupljeni od dvije grupe pacijenata: 100 uzoraka od zdravih ljudi koji rade periodične sistematske pregledе i 100 uzoraka pacijenata koji su analizu urina obavili zbog problema prisutnih u urinarnom sistemu. Primijenjene su biohemijsko-citološke i mikrobiološke metode. Izvršeno je upoređivanje ručnog i automatskog načina rada sa dva aparata (Miditron Junior II firme Roche, i Mission U120 Urinalysator firme ACON Lab. Inc.) odnosno dvije vrste test traka za analizu urina, kombinirajući različite proizvođače, te mikrobiološka obrada uzorka urina u slučajevima sumnje na bakterijsku infekciju (pozitivnog nalaza nitrita).

**Rezultati** Aparat Mission U120 je pokazivao statistički značajno niže vrijednosti leukocita i eritrocita u urinu u odnosu na aparat Miditron Junior II ( $Z = -3,632$ ,  $p=0,0005$ ;  $Z = -4,482$ ,  $p=0,005$ ) i citološku kontrolu koja je bila presudna za izdavanje nalaza. U prvoj grupi zdravih pacijenata u 76 slučajeva su nađeni proteini u urinu u automatskom očitanju test traka, što nije bilo pokazano u vizuelnim očitanjima tih traka (test sa 20% sulfosalicilnom kiselinom je bio negativan). U drugoj grupi pacijenata automatska i vizuelna očitanja test traka vezano za nitrite (negativni nalaz) nisu bila praćena sa citološkim nalazima (bakterije nađene u urinu).

**Zaključak** Ovim istraživanjem željeli smo naglasiti važnost kombinacije aparata za očitavanje test traka sa citološkim pregledom urina. Posebnu pažnju treba posvetiti samim test trakama zbog mogućnosti pojave lažno pozitivnih i lažno negativnih rezultata. Biohemijski laboratorij treba težiti ka novoj generaciji aparata za kompletno automatizovanu analizu urina.

**Ključne riječi:** urin, automatski čitači test traka.

## Examination of pelvic floor muscle function after using cube pessary

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### ABSTRACT

**Aim** Follow up of pelvic floor muscle function after using cube pessary, paying special attention to the changes in the strength of pelvic floor muscle and in the ability to relax.

**Methods** To determine the degree of the changes in the strength of pelvic floor muscle and in the ability to relax, 25 patients had been contacted before provided with cube pessaries. Eighteen out of 25 subjects supported our study. Three subjects were excluded due to vaginitis, so finally 15 survey data were processed. Pelvic floor muscle function measurements were performed at the beginning when cube pessaries were given to the subjects and later after a 3-week period of usage. Patients were selected with the help of the accidental sample method. Demographic data and gynecological history selection were based on our own general survey questionnaire, while Femi Scan surface EMG was used to measure pelvic floor muscle strength and the ability to relax. Statistical analysis involved t-test or Mann-Whiney U-test, significance level was defined at  $p \leq 0.05$ .

**Results** Although pelvic floor muscle strength showed positive changes, statistically significant changes were not detected in the surveyed group. In the analysis of survey data of the ability to relax pelvic floor muscle statistically significant difference could not be detected in the average results either at the beginning when cube pessaries were given to the subjects or after a 3-week period of usage.

**Conclusion** Cube pessary usage may have an effect on pelvic floor muscle function. It might decrease the degree of prolapse progression.

**Key words:** PFM, strength, cube pessary



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## Review on quality of life and sexual function after hysterectomy

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### ABSTRACT

**Aim** To follow up changes in sexual function and quality of life after hysterectomy, particularly regard to different surgical methods of hysterectomy, and to review the incidence of incontinence during the post-operative period.

**Methods** A total number of 200 hyserectomised women were asked to fill up the questionnaire, 164 of them were willing to help us by answering it. Twenty one women were excluded from the study because of depression, resulted in 143 processed questionnaires. Patients were randomized by snowball method. Three questionnaires were used for data collection: own-created public/general questionnaire, the SF 36 questionnaire, and a shortened version of two questionnaires to evaluate sexual function (Female Sexual Function Index and Lemack). For the statistical analysis t-test or Mann-Whiney U-test was used. The statistical analysis was performed by using SPSS 17.0 system. Chi square test was used to review categorical variables. The significance level of  $p \leq 0.05$  was used.

**Results** There was no statistically significant difference in quality of life between the preformed subgroups. Reviewing the sexual function in the four different surgery methods, there was no statistically significant difference between the average scores. Further rewieving of the average scores of the subgroups showed statistically significant differences ( $p = 0.047$ ). In the subgroup of vaginal hysterectomised women, there was a significantly higher incidence of women, who felt pain once in a while during sexual intercourse and also was a significantly higher incidence ( $p = 0.023$ ) of women, who had urinary incontinence.

**Conclusion** Based on our results, total vaginal hysterectomy did not significantly affect the quality of life, but it can affect sexual function and to increase the risk of developing incontinence.

**Key words:** hysterectomy, sexual function, quality of life



## Physical activity as an important factor in prevention of osteoporosis

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### ABSTRACT

**Aim** Beside its educative aspect, this study aimed to point out the possibilities in suppression of osteoporosis through physical activity, according to the WHO recommendation.

**Methods** A 25 patient with clinically diagnosed osteopenia were included in the study. The patients were advised, by participating physician, to undertake regular physical activity consisting of the appropriate therapeutic exercises combined with the Pilates exercises. The first step in the study was to make an estimate of the physical condition of the subjects. Based on the estimate, an appropriate physical exercise program was formulated for each patient. The patients executed the assigned exercise program three times a week for 45 minutes for 6 months. After the 6 month period final estimate was made and HAQ questionnaire repeated.

**Results** In 21 (85%) subjects an improvement of functional abilities and the life quality was indeed achieved.

**Conclusion** Physical activity is an important factor in prevention of osteoporosis in persons with the predisposition for development of such diseases. Prevention of osteoporosis seems to be a more effective and a preferred path than the currently available treatment options. Moreover, osteoporosis and the related complications, such as bone fractures, cause a significant medical, social and economic burden for the individual but also the society. Ideally, the prevention would start in childhood with regular physical activity, later to be continued throughout the person's life in form of a physically active lifestyle.

**Key words:** physical inactivity, osteoporosis, education

## **Tjelesna aktivnost kao važan čimbenik u prevenciji osteoporoze**

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### **SAŽETAK**

**Cilj** Pored edukativnog faktora, ukazati na mogućnosti suzbijanja osteoporoze kroz tjelesnu aktivnost, kojem je WHO posvetila jedno desetljeće.

**Metode** Analizirali smo 25 pacijentica koje su u svojoj anamnezi imale postavljenu dijagnozu osteopenije. Pacijenticama je od strane liječnika preporučeno bavljenje tjelesnom aktivnošću, te su provodile prilagođene terapeutske vježbe u kombinaciji s vježbama pilatesa. Rad smo započeli provođenjem fizioterapijske procjene ispitanica i HAQ upitnika, te na osnovu statusa izradili programe koje su pacijentice provodile tri puta na tjedan u trajanju od 45 min kroz period od 6 mjeseci. Nakon navedenog perioda načinili smo završnu procjenu i ponovili HAQ upitnik.

**Rezultati** U 21 (85%) bolesnice je postignuta bolja funkcionalna sposobnost i kvaliteta života.

**Zaključak** Tjelesna aktivnost jedan je od važnih faktora u prevenciji osteoporoze kod osoba kod kojih postoji predispozicija za razvoj bolesti. Osteoporoza se može djelotvornije prevenirati nego liječiti, uz to osteoporoza i komplikacije koje ona nosi, poput prijeloma uzrokuju velike medicinske, socijalne i ekonomski probleme kako za pojedinca tako i za društvo u cjelini. U idealnoj situaciji prevencija započinje u djetinjstvu provođenjem tjelesne aktivnosti i nastavlja se kroz cijeli život.

**Ključne riječi:** tjelesna neaktivnost, osteoporoza, edukacija

## The importance of static and dynamic signs of non-verbal communication with patient during the kynesitherapy treatment

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### ABSTRACT

**Aim** To point out the importance of static and dynamic signs of kynesitherapy treatment in order to subtle lead of physical therapist – patient interaction.

**Methods** During three months period internally created Protocol was implemented. The group was made of six patients aged 11 months to 4 years with multiple congenital sensory-motor deficiency of central nervous system. The Protocol included implementation of eight precisely defined non-verbal behaviours of physical therapist in kynesitherapy treatment during the whole treatment. The evaluation was made by questionnaire.

**Results** The following measurement parameters are taken at the beginning of physiotherapy and following results were obtained: occurrence of crying in the begining of the treatment (parameter 1), occurrence of crying during the treatment (parameter 2, categories: always, very often, sometimes, rarely, never), the average length of treatment (parameter 3, in minutes), parents satisfaction with physiotherapist-child interaction, compared with previous treatments (parameter 4, visual analog scale 1/10), physiotherapists satisfaction with physiotherapist - child interaction compared with previous treatments (parameter 5, visual analog scale1/10). At the beginning of physiotherapy following results were obtained: parameter (1) labeled as "very often ", parameter (2) as "very often ", parameter (3) was 20 minutes. After 90 days of protocol application following results were obtained: parameter (1) labeled as "rarely-never", parametaer (2) as "rarely", parameter (3) was 35 minutes. Parameter (4) was 6/9-10, parameter (5) was 7/9-10.

**Conclusion** The results suggest influence of the protocol to positive outcome of kynesitherapy treatment which can be grounds for further research in multidisciplinary team.

**Key words:** non-verbal communication, kynesitherapy treatment, internal protocol.

## **Važnost statičkih i dinamičkih znakova neverbalne komunikacije s pacijentom u fizioterapijskom tretmanu**

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### **SAŽETAK**

**Cilj** Uzakzati na važnost statičkih i dinamičkih znakova u fizioterapijskom tretmanu u svrhu suptilnog vođenja interakcije fizioterapeut-pacijent.

**Metode** U razdoblju od 3 mjeseca primijenjen je interno izrađen protokol. Skupina ispitanika se sastojala od 6 pacijenata u dobi od 11 mjeseci do 4 godine starosti, sa višestrukim prirođenim, senzomotoričkim deficitima središnjeg živčanog sustava. Protokol je uključivao primjenu osam točno određenih neverbalnih ponašanja fizioterapeuta u fizioterapijskom tretmanu tijekom cijelog tretmana. Evaluacija je vršena putem upitnika.

**Rezultati** Za mjerne parametre uzeti su: plač na početku (parametar 1), plač tijekom tretmana (parametar 2, kategorije: uvijek, dosta često, povremeno, jako rijetko, nikad), prosječna dužina tretmana (parametar 3, u minutama), zadovoljstvo roditelja interakcijom fizioterapeut-dijete u odnosu na prijašnje tretmane (parametar 4, vizualna analogna skala zadovoljstva 1/10), zadovoljstvo fizioterapeuta interakcijom fizioterapeut-dijete u odnosu na prijašnje tretmane (parametar 5, vizualna analogna skala zadovoljstva 1/10). Na početku fizioterapije dobiveni su slijedeći rezultati: parametar (1) bilježio je kategoriju "dosta često", parametar (2) kategoriju "dosta često", parametar (3) iznosio je 20 minuta. Evaluacijom primjene protokola nakon 90 dana dobiveni su slijedeći rezultati: parametar (1) bilježio je kategoriju "jako rijetko-nikad", parametar (2) kategoriju "jako rijetko", parametar (3) iznosio je 35 minuta, parametar (4) iznosio je 6/9-10, parametar (5) iznosio je 7/9-10.

**Zaključak** Rezultati sugeriraju utjecaj protokola na pozitivne ishode fizioterapijskog tretmana i mogu biti temelj daljnog istraživanja u multidisciplinarnom timu.

**Ključne rječi:** neverbalna komunikacija, fizioterapijski tretman, interni protokol.

## The appearance of back pain and physiotherapy interventions during the third trimester of pregnancy

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### ABSTRACT

**Aim** To establish the appearance of back pain during pregnancy, when the pain occurs, and the causes of the pain.

**Methods** The research was conducted using a questionnaire with 10 questions at the General hospital Vukovar on a Ward for Gynaecology and Obstetrics during 2010. Thirty women participated, 12 primipara, 13 women who already had two labours, three women who had three labours, and the other two with four and five labours. The questionnaire contained questions regarding the age, the appearance of back pain or other problems during pregnancy, did the women notify their physician about the problems they had, did they take any pain medications, or try to relief the pain in some other way, were they educated about the ways to prevent back pain, and what do they think about physiotherapy as the mean to manage back pain.

**Results** The age of the women was at  $28 \pm 10$ . Of all women 18 (60%) had back pain, most commonly during the third trimester, 11 (61%). The women who had back pain in 11 (61%) of cases notified the physician about it in order to get the physiotherapy. None of them used pain medications, and only 4 (12%) were educated about the ways to prevent back pain. All of the participants think that physiotherapy could be effective in back pain management. Other problems during pregnancy (nausea, brash, opstipation, heart palpitations, leg oedema) had only 8 (27%) women.

**Conclusion** Concerning the results gained in this research back pain is often present during the third trimester of the pregnancy. Although the number of the women who were educated about the prevention of the back pain is small, they do not take pain medications to relief back pain. Back pain is usually due to musculoskeletal disbalance, physiotherapy was effective in back pain management in general population, and it can be assumed that it would be effective during pregnancy.

**Key words:** physiotherapy, gynaecology, back pain.

## Pojava križobolje i fizioterapijske intervencije u trećem trimestru trudnoće

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### SAŽETAK

**Cilj** Utvrditi pojavu boli u ledima tijekom trudnoće, period kada se javlja, te uzroke boli

**Metode** Istraživanje je provedeno u vidu ankete od 10 pitanja tijekom mjesec dana tokom 2010. godine, na Odjelu ginekologije i porodiljstva Opće bolnice Vukovar, na uzorku od 30 žena, od kojih je kod 12 žena bila prva trudnoća, kod 13 druga, kod 3 žene treća trudnoća, a kod ostale dvije, četvrta i peta trudnoća. Anketa je sadržavala pitanja vezana za dob rodilja, pojavnost poteškoća i križobolje tijekom trudnoće, jesu li rodilje o tome obavijestile lječnike, jesu li rodilje uzimale kakve lijekove za križobolju, ili su na neki drugi način pokušale ublažiti križobolju, jesu li bile upoznate s mjerama prevencije i smatraju li fizioterapijsku vježbu učinkovitom u uklanjanju križobolje.

**Rezultati** Starost rodilja bila je u rasponu  $28 \pm 10$  godina. Od ukupnog broja anketiranih rodilja 18 (60%) su navele križobolju, i to najčešće u trećem trimestru trudnoće, u 11 (61%) slučajeva. Od ukupnog broja rodilja koje su imale problema s križoboljom tijekom trećeg trimestra, 11 (61%) o tome je obavijestilo lječnika kako bi bile upućene na fizioterapijski tretman. Niti jedna rodilja nije koristila lijekove u svrhu rješavanja boli, a od ukupnog broja anketiranih rodilja samo je 4 (12%) bilo upoznato sa mjerama prevencije nastanka križobolje. Sve ispitnice su smatrali kako bi fizioterapija bila učinkovita u rješavanju boli. Što se tiče ostalih tegoba u trudnoći (mučnina, gorušica, zatvor, lupanje srca, oticanje nogu) potvrđno se o njima izjasnilo samo 7 (27%).

**Zaključak** S obzirom na rezultate dobivene ovim istraživanjem vidljivo je kako se križobolja često javljala u trećem trimestru trudoće. Iako je mali broj žena upoznat s mjerama prevencije, nisu uzimale lijekove kao način rješavanja boli. Budući da je križobolja u većini slučajeva posljedica mišićno-koštane neravnoteže i fizioterapija se pokazala učinkovitom u njenom tretmanu, može se prepostaviti da bi bila učinkovita i u trudnoći.

**Ključne rječi:** fizioterapija, ginekologija, križobolja

## Physiotherapeutic assessment and interventionin patients with juvenile idiopathic arthritis

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### ABSTRACT

**Aim** On the view display cases physiotherapy assessment and intervention for patients with JIA. Systematization of data important for therapeutic treatment is based on the SOAP model.

**Methods** The work questionnaires are used Childhood Health Assessment Queationare(CHAQ) and JASI,JAFAR,JAFAS, VAS scale, tests Piedal's sign, Thomas test, Conventional straight leg test, Ely's test and Mennel's test. Kinesiotherapeutical program is adapted to the patient's current condition and we have a program that is based of all data which is dosed individually adapted to patient.

**Results** Claimed to reduce stiffness. Patient did not had pain during or at the end of treatment, practices are adopted and they are independently performed under the supervision of parents. Posture corrects independently. Adopted combined breathing and respirations stopped using auxiliary muscles. He showed a preference to sports activities and parents on the appropriate points.

**Conclusion** Turning patient in individual oriented physiotherapy treatment in the 15 days led to a better acceptance of increased exercise tolerance and finally show a better cardiovascular endurance.

**Key words:** SOAP method, physical activity, arthritis

## **Fizioterapijska procjena i intervencija kod pacijenta sa juvenilnim idiopatskim artritisom**

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### **SAŽETAK**

**Cilj** Na osnovu prikaza slučaja prikazati fizioterapijsku procjenu i intervenciju kod pacijenta sa juvenilnim idiopatskim artritisom. Sistematizacija podataka značajnih za terapeutski tretman bazirala se na SOAP modelu.

**Metode** U radu su korišteni upitnici Childhooood health Assesment Queationare (CHAQ), te JASI, JAFAR, JAFAS, VAS ljestvice, testovi Piedalov znak, Thomasov test, Conventional straight legtest, Ely's test i Mennelov test. Kineziterapijski program je prilagođen pacijentovom trenutnom stanju, te smo program na osnovu svih podataka dozirali i individualno prilagodili pacijentu.

**Rezultati** Ustvrdilo se smanjenje ukočenosti. Pacijent nije imao bolove u toku, niti na kraju tretmana, usvojio je vježbe, te ih samostalno izvodio uz nadzor roditelja. Držanje tijela samostalno korigirao. Usvojio je kombinirano disanje, te prestao koristiti pomoćnu disajnu muskulaturu. Pokazivao je sklonost ka bavljenju sportom, te je ukazano roditeljima na pogodne.

**Zaključak** Uključivanje pacijenta u individualno orientirani fizioterapijski tretman u trajanju od 15 dana dovelo je do boljeg prihvaćanja pojačanog fizičkog napora, te na kraju pokazalo bolju kardiovaskulanu izdržljivost.

**Ključne riječi:** SOAP metoda, fizički napor, arthritis

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#### **Student SEEHSJ**

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#### **Abstract (Sažetak)**

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**Uvod** je kratak i jasan prikaz suštine problema i svrhe istraživanja. Kratko se spominju radovi koji su u izravnoj vezi s problemom što ga prikazuje članak. Na kraju Uvoda dati kratak opis cilja istraživanja.

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#### **Ilustracije-slike**

Fotografije se prilažu elektronski, uz naznaku njezinog broja i imena autora. Bolesnicima na slikama oči valja prekriti crnom trakom da se ne mogu identificirati.

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Literatura se citira na slijedeći način:

#### **Članak u časopisu**

Fodor SP, Rava RP, Huang XC, Pease AC, Holmes CP, Adams CI. Multiplexed biochemical assays with biological chips. *Nature* 1993; 364: 555-6.

#### **Zajednički autor**

The Royal Marsden Hospital Bone-Marow Transplantation Team. Failure of syngeneic bone-marrow graft without preconditioning in posthepatitis marrow aplasia. *Lancet* 1977; 2: 242-4.

#### **Bez autora**

Anonimno. Coffee drinking and cancer of the pancreas. *Br Med J* 1981; 283:628

#### **Suplement časopisa**

Lundstrom E, Nylander C. An electrostatic approach to membrans bound receptors. *Period Biol* 1983; 85 (suppl 2): 53-60.

#### **Knjiga**

Berry MJ, Linoff G. Data mining techniques for marketing, sales and costumer support. New York: Wiley, 1997.

#### **Knjiga (urednici)**

Finch RG, Greenwood D, Norrby SR, Whitley RJ, ur. Antibiotic and chemotherapy. 8. izd. Philadelphia: Churchill Livingston, 2003.

#### **Poglavlje u knjizi**

Weinstein L, Swartz MN. Pathogenic properties of invading microorganisms. U: Sodeman WA, ur. Pathogenic phisiology: mechanism of disease. Philadelphia: W B Saunders, 1974: 457-72.

#### **Zbornik radova**

Uzunovic-Kamberovic S, Zorman T, Hendrickx M, Smole-Mozina S. Epidemiological relatedness among *C. jejuni* and *C. coli* PFGE genotypes from different sources. U: Abstracts of the 11th International Congress of Infectious Diseases, Cancun, Mexico, 2004. Abstract P59.003, str. 188. International Society of Infectious Diseases, Boston, MA, USA.

#### **Monografija u seriji**

Hunninghake GW, Gadek JE, Szapiel SV. The human alveolar macrophage, U: Harris CC ur. Cultured human cells and tissues in biomedical research. New York: Academic Press, 1980: 54-6. (Stoner GD, ur.

Methods and respectives in cell biology; vol 1)

#### **Disertacija ili magisterij**

Cairins RR. Infrared spectroscopic studies of solid oxigen Berkley. University of California, Los Angeles 1965; Disertacija.

#### **Website**

World Health Organization. Global strategy for the containment of antimicrobial resistance. <http://www.who.int>. International datum posljednjeg pristupa.

#### **Online reference:**

Dimick JB, Welch hg, Birkmeyer JD. Surgical mortality as an indicator of hospital quality. *JAMA* 292. [Online] (datum uređenja stranice) <http://jama.ama-assn.org/cgi/content/short/292/7/847>. (datum posljednjeg pristupa)

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submitted manuscript gets its own number (ID) and authors informed about it and manuscript receiving. The ID number will be used in all future correspondence.

### Submission document

The **Author Submission Statement** (signed by all authors separately) should be sent by the post to: **University of "Vitez" Travnik, Faculty of Health Care and Nursing, South Eastern Europe Health Sciences Journal (SEEHSJ)**, Školska 23, 72270 Travnik, Bosnia i Herzegovina, or by fax: +387 30 509 759.

### Authorship

Anyone named as an author should have made a significant contribution to the overall design of the study or the execution of the work described (**Author Submission Statement**). Individuals who simply provided assistance, e. g., supplied facilities, strains or reagents, or who critiqued the paper, should not be listed as authors, but may be recognized in the Acknowledgement section.

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#### Student SEEHSJ

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#### **Journal reference**

Fodor SP, Rava RP, Huang XC, Pease AC, Holmes CP, Adams CI. Multiplexed biochemical assays with biological chips. *Nature* 1993; 364: 555-6.

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