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Book of Abstracts



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Mental Illness Stigma among Medical Students and Faculty

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Background and Aim: Medical school curriculum contributes to future medical doctors' attitude formation towards people with mental illness and psychiatry. The authors compared stigmatizing attitudes between medical students and faculty, analysed stigmatizing attitudes among students from different years of study and identified factors predicting stigma.

Methods: A cross-sectional study with a special focus on comparing medical students and teachers was designed. Attitudes were measured using scales: Community Attitudes toward Mentally Ill, Mental Illness: Clinicians' Attitudes, and Reported and Intended Behaviour Scale. On-line questionnaires were distributed to all students and teachers at one medical faculty in the Czech Republic.

Results: The response rate was 32.1% (n=308) among students and 26.7% (n=149) among teachers. Teachers had a greater prevalence of stigmatizing attitudes than students. Increased tolerant attitudes in students were detected after the 4th year of the study, i.e. following introduction to psychiatry. Preferred specialization in psychiatry and attending two psychiatry related courses predicted more tolerant attitudes toward people with mental illness. Among both students and teachers, males possessed more stigmatizing attitudes toward people with mental illness. The age was an important predictor of stigmatizing attitudes among teachers.

Conclusion: Educators should pay closer attention to the role of active ingredients such as medical psychology and communication training implementation, which may be beneficial to improving skills and increasing medical students' self-esteem and feeling of competence throughout their psychiatry rotation. Future research should focus on the development of stigmatizing attitudes among students across the course of their education.

Keywords: mental health, stigma, medical education

Cross-border healthcare in the Czech Republic and its relationship to other V4 countries

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Background and Aim: Currently, the cross-border healthcare still represents a marginal part of the Czech healthcare system's performance. Compared to the total healthcare expenditures in the Czech Republic that accounted for CZK 299.9 billion in 2014, the costs of the treatment provided to Czech patients abroad constitute mere 0.27%, and the (subsequently refunded) costs of the treatment provided to foreign patients in the Czech Republic are 0.24%. The aim of the paper is to analyse the available data of the cross-border healthcare reimbursement in the Czech Republic and its relationship to other V4 countries.

Results: In 2016, there were total costs of foreign citizens' healthcare from V4 countries in the Czech Republic about CZK 419 million for patients from Slovakia, about CZK 39 million for patients from Poland and about CZK 5 million for patients coming from Hungary. On the other hand, the costs of patients from the Czech Republic in Slovakia reached CZK 364 million, about CZK 57 million in Poland and just CZK 2.5 million in Hungary.

Conclusion: The cross-border healthcare reimbursements play some role between the Czech and Slovak health systems as well as between the Czech and Polish healthcare systems. On the other hand, the relationship between the Czech and Hungarian healthcare systems is in this term not significant.

Keywords: cross-border health care, V4 countries, reimbursements, Health Insurance Bureau

The effect of mandatory vaccination on measles in EU countries

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Background and Aim: Measles has re-emerged in the EU recently, due to suboptimal immunization levels that led to accumulation of susceptible populations over the last years. Remarkable differences in vaccine programme implementation are recognizable among countries in the European Union (EU). Mandatory vaccination may be considered as a way of improving compliance to vaccination programmes and to be effective tool in achieving measles elimination. Study focuses on impact assessment of the mandatory vaccination to measles immunisation coverage and measles incidence in EU countries.

Methods: Data were used for 28 members' countries EU. Mandatory vaccination in terms of measles according VENICE project results was determined for each country. Data about immunization coverage, especially the first dose of vaccine against measles (MCV1) was extracted from merged databases of WHO and UNICEF (reported by Joint Reporting Form) for years 1995- 2015. Trend of immunisation coverage during 2010-2015 was assessed by linear regression coefficient ($p < 0.05$). Incidence of measles data is publicly available through WHO European Health for All Database. The R-project environment was used for data analysis.

Results: Mandatory vaccination related to measles was found in 8 from all EU member countries. Mandatory vaccination is significant predictor of differences in average immunisation coverage (MCV1) from 1995-2015 in the countries. Median of this average coverage for countries with mandatory vaccination is 96.4% and with recommended vaccination is 92%, $p < 0.05$. Significant differences in measles incidence were recorded in 2015 between countries with mandatory vaccination and without mandatory vaccination. Countries with recommended vaccination had higher chance to record measles incidence in 2015 in compare to countries with mandatory vaccination (OR: 9.4; CI_{95%}: (1.43- 62.24)). During the period 2010- 2015 significant decreasing trend in measles immunisation coverage (MCV1) in 8 countries was recorded. Decreasing trend was proven in the half of the countries with mandatory vaccination. The highest average percentage of immunisation coverage (1995-2015) related to MCV1 was observed in the eastern countries of EU, and all of these countries belong to countries with mandatory vaccination.

Conclusion: The countries, which have kept mandatory vaccination related to measles, achieve better results in immunisation coverage and incidence of measles. This study proves positive effect of mandatory vaccination to measles elimination targets in the countries.

Keywords: measles, mandatory vaccination, EU countries, incidence, immunisation coverage

Suicides in the Slovak Republic: trend- and cross-sectional analysis

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Background and Aim: Suicide is a significant global public health issue, resulting in loss of lives, and burdening societies. To assess the situation in the Slovak Republic, we have conducted a study of time trends of suicide rates in the country in the period of its existence 1993–2015 as well as cross-sectional analysis of socio-economic influencing factors.

Methods: Data for this study were obtained from the Statistical Office of the Slovak Republic, the national mortality database for the period 1993–2015. Socio-economic indicators on district level were extracted from DataCube database of the Statistical Office of the Slovak Republic. We have calculated crude and standardised suicide rates by age, sex, year of death, methods of suicide on both national level (for the whole study period 1993–2015) as well as district level for 2015. Suicide rates were analyzed by using negative binomial and joinpoint regression models.

Results: In the period 1993–2015 were 14,575 suicides reported in the Slovak Republic (85.3% men). The overall average age-standardized SR for the study period was 11.45 per 100,000 person years, this is below the Organisation for Economic Co-operation and Development (OECD) average. The rate increases with age, the highest is in men aged 75+ (42.74 per 100,000 person years). Risk of suicide is six times higher in men than in women and nine times higher in men than in women in the age group 25–34. Highest suicide rate in the Slovak Republic in 2015 on district level is in Myjava district.

Conclusion: The time trend of SRs is decreasing in the study period 1993–2015, however, at the same time we have observed increasing trend of proportion of deaths classified as caused by ‘undetermined intent’. Correct cause of death certification and standardized mortality data collection is highly desirable for accurate monitoring and targeted intervention. Suicides are an important public health issue in need of focused prevention activities, with special attention on older people.

Keywords: suicide rate, mental health, completed suicides, Slovak Republic

Directions of migration of Polish patients to remove cataract in the years 2015 - 2016 in the framework of cross-border care. Analysis of selected European Union countries.

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Background and Aim: Cross-border care provides health services to patients outside their home country, in accordance with the rules of the country concerned. Depending on the region, the waiting time of Polish patients for cataract removal is varies: it may even take several years. The low level of organization of healthcare system forces patients to seek alternative solutions to improve their health. It is not surprising that this is achieved in other EU countries without having to wait long in line. The aim of the study is a comparative analysis of the number of applications for reimbursement of cataract care costs paid by Polish patients to the National Health Fund, including the country of completion of the medical service from 2015 to 2016.

Methods: The method used in the study was a query and a review of the applications submitted by Polish patients to the National Health Fund, broken down by the countries where the medical service was performed. Analysis of the collected material covers the years 2015 and 2016. The data was collected in the MS Excel spreadsheet, while statistical analysis was performed using STATISTICA 12 statistical program.

Results: The Czech Republic is the most preferred country in which patients want to perform cataract removal surgery. Germany took second place, followed by Lithuania. The inhabitants of the southern regions of Poland, which are high-population provinces, high population density index and high urbanization coefficient, leave most often. In 2016 Polish patients were treated almost twice as many cataracts in cross-border care than in 2015.

Conclusion: Polish patients dissatisfied with the health care system in their own country seek help in other EU countries where treatments are performed without undue waiting time. The analysis shows that in the years to come, the number of cataract surgery needs to increase. As in previous years, it is expected that most Polish patients will likely go to the Czech Republic.

Keywords: cross-border directive, cataract removal operations, directions of migration of patients in the EU.

Inequalities in the Geographic Distribution of Health Resources

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Background and Aim: The existence of significant geographic differences in the distribution of health resources is documented by many studies. Inequalities in the geographic allocation of health resources represent an important health policy problem even in case of the developed countries. By using traditional measures (for example, Gini Coefficient, Robin Hood Index) separately for each health resource, the possibility of substitution between resources is missed. For example, the health resources as physicians and nurses are, at least to some extent, substitutes. The region with lower number of physicians can compensate such shortage by larger number of nurses. The aim of this study is to show how to evaluate the inequality in situations with multiple health resources.

Methods: Data envelopment analysis (DEA) is a method based on the theory of mathematical programming that was originally developed to construct production frontier and measure technical efficiency of production units. We show that the allocation DEA model can be reformulated to measure the inequality in case of multiple health resources.

Results: The Eurostat regional data on the NUTS 2 regions were used for illustrative purposes. The inequality measure based on DEA was calculated for selected countries and health resources. The new inequality measure takes into account the possibility of resource substitution.

Conclusion: The inequality measure based on the DEA methodology was formulated and tested on real health data. The research was supported by the grant no. 16-01821S of the Czech Science Foundation.

Keywords: Inequality, Geographic Distribution, Data Envelopment Analysis.

The current state and the development of commercial health insurance for migrants in the Czech Republic

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Background and Aim: There were more than 450,000 foreigners legally living in the Czech Republic in 2016; that is about 4.3% of the population. However, the availability of healthcare for third-country migrants has been criticised in the Czech Republic for more than 15 years by a number of actors at both national and international levels. The following study focuses on the current state and the development of commercial health insurance for migrants in the Czech Republic since 1993 till today. The author identifies the key events and the roles of particular actors within the observed “sub-system” of health policy.

Methods: The study uses qualitative methodological approach. The research design is a historical case study. The study uses a combination of documents studying and empirical survey based on 14 semi-structured interviews with experts who come into contact with migrants during the course of their work.

Results: By law, all migrants staying in the CR on a long-term basis are legally obliged to participate in some health insurance plan throughout their stay. Migrants may meet this requirement via public or commercial health insurance. Public health insurance is available for all regular migrants with permanent residence permit in the CR, migrants working in the CR with the status of employee and migrants from the EU. All other regular migrants are obliged to purchase commercial health insurance. In comparison to public health insurance, conditions of commercial health insurance are significantly worse. Current legislation provides only very vague framework and does not concern client’s protection. The development of commercial health insurance for migrants can be divided into two basic periods: in the 1993-2004 period migrants’ commercial health insurance was provided as a by-product of the largest public health insurance company (VZP). In the second period (from 2005 till now), the market for this commercial health insurance has been opened to other subjects. This fact has brought significant marketization in this area. The results clearly showed that the institutional development of migrants’ commercial health insurance is a matter of competition of two opposite ideological streams – 1) to include all regular migrants into public health insurance and 2) to preserve parallel function of both public and commercial health insurance.

Conclusion: The current commercial insurance for migrants in the Czech Republic does not guarantee good accessibility of healthcare to legal migrants and complicates also the work of healthcare providers. In practice, commercial health insurance is a „generator” of number of problems. Particularly children, pregnant women and seriously or chronically ill persons were identified as the most vulnerable groups.

Keywords: migrants, health care availability, health insurance, barriers to health, historical institutionalism, Czech Republic

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Epidemiology of music performance anxiety, substance use and related disorders in a sample of young musicians

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Background and Aim: Anxiety is a leading mental health problem in morbidity statistics. In this study we aimed to investigate music performance anxiety (MPA) as a specific disorder and the underlying psychological and health factors, such substance use (smoking, drug use, and particularly anxiolytic medication).

Methods: The sample consisted of musicians ($N = 100$; aged between 15–35 years) with an ongoing or completed musical education. Online data collection was used. Besides that participants completed the Kenny Music Performance Anxiety Inventory, we also investigated social phobia, substance use, stress and other health-related variables.

Results: The lifetime prevalence of smoking was 59%, whereas 31% of them reported smoking in the last month. The prevalence values of drug use were 24% (lifetime) and 7% (monthly). Twenty-eight percent have previously used anxiolytic medication. Females reported higher levels of both music performance and social anxiety as well as stress. Social anxiety was negatively correlated with smoking and drug use. Taking anxiolytic medication and stress predicted music performance anxiety.

Conclusion: Findings support the fact that anxiety is a significant mental health problem for young musicians, not only music performance anxiety but also social anxiety. Results also suggest that in some cases of MPA there might also be comorbid social phobia. Youth often use cigarettes, drugs and anxiolytic medication for stress relief, not only young adults but also adolescents. We can conclude that young musicians need more attention from their family, teachers and mental health workers.

Keywords: music performance anxiety (MPA); social anxiety; perfectionism; substance use.

Prevalence and risk factors for blood-borne exposure and infection in prison staff: a preliminary report

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Background and Aim: Occupational blood exposures in prison staff and the lack of exposure documentation are concerns, especially in the context of high rate of hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency (HIV) virus infections in the prisoners. The aim of this study is to assess the occupational risk for blood-borne infections (BBI) among prison staff: number and circumstances of blood exposures and preventive methods used, and to estimate the prevalence of HBV, HCV, HIV in this population.

Methods: In 2011-2012, an anonymous sero-survey was completed on active staff at a correctional facility in the city of Goleniow, Poland, between June-July 2016. Anti-HBc total, anti-HCV, anti-HIV were assessed by the use of ELISA tests.

Results: Response rate was 38%; 87 participants, 88.5% males 87.4% correctional officers (age: 22-64 years; median: 34) agreed to participate. Having had at least 1 blood exposure during professional career was reported by 28.7% respondents; 8.0% sustained it in the preceding year, for correctional officers it was caused by a hollow-bore needle/razor blade during cell or manual searches, and was not reported by 83.3%. Participation rate in an infection control training was 85.1%, HBV vaccination uptake: 83.9%. Compliance with glove use was 75.9%, with protective eyewear - 28.7%; 9.2% reported regular use of both; the lack of availability being the most common reason (79.7%) for non-compliance. Anti-HBc total, anti-HCV and anti-HIV prevalence was 2.3%, 1.1%, 0.0% respectively.

Conclusion: Despite training in infection control, prison staff sustain occupational blood exposures. Reporting of such incidents is poor, as well as compliance with PPE use, which place them at risk for acquiring BBI. Anti-HCV prevalence is similar to that observed in the general population, anti-HBc total prevalence is lower, possibly due to high vaccination uptake, however, poor response rate limits precise estimates regarding BBI. Continued efforts to develop interventions to reduce blood exposures and encourage reporting should be implemented/evaluated in correctional settings. These interventions should address infection control barriers unique to this setting.

Keywords: occupational infections; HBV, HCV, HIV; prison staff; sharps injuries, immunization.

What is a Polish doctor like? From media to personal experiences - an assessment based on the opinions of patients

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Background and Aim: For many years, we have observed a tendency to publicize medical errors in media, which can lead to the perpetuation of the negative image of physicians. Studies show, however, that Poles trust their doctors, though they underestimate the quality of communication with medical staff and the overall functioning of the health system. Despite patients' dissatisfaction and the "medical scandals" described in media, the profession of physician is still prestigious and enjoys a high level of social trust. Researchers have attempted to see how the image of doctors built by media differs from the image that patients form on their own experiences.

Methods: In order to compare these two social representations of physicians' image, two focus groups were conducted. It was assumed that the opinion of people rarely using services of doctors (young and healthy people; 1st group) is shaped mainly by media reports, while the opinion of chronically ill people who often benefit from medical care (2nd group) results from their personal experience. Participants were asked to discuss the events that were big news in media regarding to "medical scandals", as well as pointing out the features that a physician they visit should have. Projection techniques were used during the sessions.

Results: The perception of doctors is different in both groups. The image of doctors among healthy people is more one-sided and rarely created with reflection. Patients who often visit doctors notice different "types" of doctors, so the social image of medical professionals is less consistent here. The results confirm the difference in the "private" perspective of ill patients, resulting from personal experience and "media" image, emphasizing rather negative aspects of medical care.

Conclusions: The research is a contribution to analysing the role of media in shaping the social image of physicians. The results show that social images of physicians arise as a result of patient experiences as well as media reports, and social opinions originating from different sources (family, friends, social media, etc.). The attempt to separate the media image from the opinion built on patient's own experience can be considered as significant success. However, Authors admit, that much more efforts have to be done to determine which of these two images ultimately results in patients' behaviour, such as the choice of a physician or compliance.

Keywords: image, media, patients, focus groups

Understanding mental health policy failures in Visegrad countries after 2000

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Background and Aim: Mental health systems and policies have been faced with a number of new challenges at the same time as conflicts: WHO initiatives, the crisis of psychiatry, the commodification of health services, the interests of the pharmaceutical industry and health services providers, human rights related to health, the outcomes of care, the development of mental illness, search for optimal organizational arrangements and financing of services, mental health promotion initiatives, context of economic globalization, social and political changes. The aim of this work is to understand the causes of the problems that have arisen in Visegrad countries in the field of mental health policies after 2000.

Methods: How the individual national mental health policies can respond to these problems is traced through the political and professional discourse of mental health policies (institutional analysis, critical discourse analysis). The primary data of the methodical approach of critical discursive analysis are documents of political practice, legal norms, research results published in the professional press, changes in the specialized and long-term education of workers.

Results: Mental health policy processes are at a very different level in the countries compared. There is a dominance of psychiatric, biologically oriented care. The deficient area is the promotion of mental health, integration with other public policies. After 2010 there is no coordination with the European Office of WHO "Health 2020" program. The reform approaches are focused primarily on changes in the organization and financing of psychiatric care. Not enough attention is paid to the social and political context at national and international level (WHO and EU initiatives). The causes lie in the cultural differences (research, education, deficits in democracy and policy implementation), insufficient definition of the role of mental health care in the commodified health systems, low competence of the ministries of health, and insufficient research of health policy and health systems. No adequate attention is paid to human rights related to health.

Conclusions: Visegrad countries did not sufficiently reflect the pace and thematic focus of the WHO's strategic knowledge initiatives and the global discourse of mental health policy in 2000-2016.

Keywords: Mental health systems and policies, Visegrad countries, WHO and EU-initiatives

Role of local authorities in reducing disparities in public health care access in Poland

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Background and Aim: The article proposes an examination of disparities in access to health care focusing on health system factors (i.e. role of local authorities). These factors can play an important role in linking people to personal health services and ensuring the provision of health care. However, the extent to which they are involved in ensuring access to health care in Poland is not well known.

Methods: Data used were from the Local Data Bank. The websites of 380 territorial units (carrying out tasks of the powiat) were analyzed. The degree of involvement has been identified in reducing inequalities in access to medical services. In this context, consideration was given to having a local health strategy, the level of health expenditure, the implementation of local health programs.

Results: Most poviats in Poland do not have local health strategies. This aspect is significantly correlated with health expenditures and health programs.

Conclusion: There is substantial variation in local authorities engagement in activities to ensure access to care. Further research is needed to determine whether this variation is associated with adverse population health outcomes.

Keywords: health care access, local health policy, provision of health care

Czech health care from the European perspective: strengths and weaknesses.

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Background and Aim: According to the European Health Consumer Index (EHCI), Czech health system is being assessed as one of the best among Central and Eastern European countries, especially considering much smaller healthcare spending than in the most EU member states. In the last years, its position in the EHCI has been still slowly improving and country reaches the 13rd position among 35 countries following the Sweden and being ahead of the United Kingdom.

Conclusion: Good accessibility to health services for a whole population together with high level of equity belong to the main strengths and have been contributing significantly to such positive international assessment. However, in spite of undeniable success, there are some serious weaknesses in the Czech healthcare which should be addressed in the nearest future to maintain quality, efficiency and a good reputation in EU. In this context, topical issues of the Czech health system will be discussed in a greater details.

Keywords: European Health Consumer Index, international comparison

Health literacy as determinant of health

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Background and Aim: The study of health must consider three key questions: (1) What is the level and distribution of health in population?; (2) Why?; and (3) What can be done for better population health?

Results: Orienting health policy solely towards the health care sector is too limited. Citizen participation and health literacy are fundamental components of pursuing health and well-being in the society. Any groups and any institutions can lead initiatives for better health. Health literacy is a key dimension of Health 2020.

Conclusion: People and their ability to make sound health decisions are the important determinants of health.

Keywords: health literacy, public health

The importance of fatigue and depression for quality of life in rheumatoid arthritis patients

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Background: Fatigue and depression are frequently reported symptoms of rheumatoid arthritis (RA). Both symptoms seem to be strongly associated with physical functioning, psychosocial factors, well-being and quality of life. Yet, fatigue is still a neglected symptom compared to depression. Therefore, the aim of this study was examine the importance of fatigue and depression for quality of life in RA patients.

Methods: Our sample consisted of 297 RA patients (80.8% female; mean age 56.03 ± 11.57 years). All patients completed the Visual Analogue Scale - Fatigue (VAS), General Health Questionnaire (GHQ-28) for assessing depression and the 36-Item Short Form Health Survey (SF-36) for assessing health related quality of life (HRQoL). Multiple linear regressions were used to analyse the data.

Results: Sociodemographic (age, gender, education) and clinical variables (HAQ, disease duration and DAS-28-crp) explained together 40.7% of total variance in physical dimension of HRQoL (PCS, SF-36). When VAS-fatigue was added a 4.2% boost in explained variance was achieved. Depression added just 0.8% to the total explained variance in PCS. Findings in mental HRQoL (MCS, SF-36) were different. Sociodemographic and clinical variables explained just 7.7% of total variance of MCS. VAS-fatigue added additional 13.1% and GHQ-depression another 10.9%.

Conclusion: Our results confirm that fatigue and depression have a great impact on physical as well as mental dimensions of quality of life. In addition, these results clearly illustrate that it is important not to focus solely on depression but also to take notice of the fatigue experienced by chronically ill patients; especially when we consider patients' mental health. [Grant support: APVV-15-0719]

Keywords: rheumatoid arthritis, fatigue, depression, physical health, mental health

Ethical Dilemmas of Czech Physicians as Related to the Hippocratic Oath

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Background and Aim:

The Hippocratic Oath laid a conceptual framework of Western medicine. Its ethical principles have a constitutional and institutional character, they still define the present goals of healthcare policy to achieve. It has been discussed and defended among contemporary medical doctors. The aim of the paper is to identify ethical dilemmas of the present medicine in the Czech Republic in context with the Hippocratic Oath ethical principles.

Methods: The research was designed as a two-stage project. The first qualitative stage was focused on medical doctors (n=62) undergoing postgraduate medical education and specialty training who were asked to define the most important ethical dilemmas of the contemporary Czech medicine based on their opinions and experience. The investigators performed a thematic analysis of the results, divided the topics into categories concerning 1) medical doctors, 2) patients, 3) healthcare system, and ranked them according to the response frequency. The results were then used to develop a questionnaire. In the course of the second, quantitative stage, general medicine PhD students (n=26) and Military Hospital in Olomouc medical doctors (n=16) were completing the above-mentioned questionnaire to designate the most important dilemmas of the present Czech medicine and/or add their own supplementary topics. All the three categories of the dilemmas were again frequency-ranked and related to the fundamental Hippocratic Oath ethical principles.

Results: There were a total of 104 survey respondents who designated 36 ethical dilemmas considered as the most serious for the present Czech medicine. In the medical doctor category the most frequent dilemma was expensive healthcare delivery priorities (32) followed by treatment of higher age seniors (32) and euthanasia (32). The patient category comprised such topics as wrong lifestyle (22), requirements to treat all comorbid conditions (21), and noncompliance (18). In the healthcare system category the respondents emphasized excessive administrative procedures (32), money shortage for treatment (20), a low social position of medical doctors (13) and waste of resources (13).

Conclusion: The Hippocratic Oath includes a quarter of the designated themes; out of the five most frequent it is only euthanasia. In the sphere of ethical medical principles there has been a shift from the primary more general ones, such as beneficence (32) and no maleficence (64) towards new challenges, in particular equity (99) and autonomy (41) not directly addressed by Hippocrates. It seemed difficult to match a single major ethical principle with the respective dilemmas.

Keywords: Hippocratic Oath, beneficence, no maleficence, contemporary dilemmas

Content Specification of Mothers' Health Literacy according to Experts

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Background and Aim: The basic prerequisite of life-long health is a good start of one's life. Health literacy of mothers is a significant determiner of the child's health since mothers are the ones who make important decisions with respect to their health and the child's health. The aim of the report is to present a database compiled by experts, which includes themes and contexts that are specific for analyzing the content of health literacy of mothers with children in symbiotic stage (i.e. under 6 months of age). The research was carried out under a series of projects aimed at showing possible connections between the sickness- and death rates of children during the first year of life and the health literacy of their mothers.

Method: The grounded theory method was selected as the research design. The data were obtained through unstructured interviews with various experts. The interviews focused on professional perception of the health literacy content regarding mothers with children in symbiotic stage. Twelve experts were approached – pediatrics (oncology, general practitioner), obstetrics and gynecology (assisted reproductive technology, perinatology and maternal–fetal medicine), forensic medicine, social pathology, medical sociology, family psychology, crisis intervention, andragogy, pediatric nursing, special education. The group was compiled through the snowball method. The data collection was finished based on the sufficient saturation of the statements.

Results: The core category of the determining effects matrix includes the following concepts – “love, interest, engrossment”. The concepts thus become the foundation of a group of statements about the specific content of health literacy of mothers with children in the symbiotic stage. The key contexts of these concepts in connection to health literacy of the mothers are as follows: health education, family experience and tradition, providing comprehensible information and stress-free instructions, psychological wellbeing of the mother, healthy self-confidence of the mother, critical thinking, cooperation with physicians, supportive social network, and motherhood as a part of life.

Conclusion: Based on the contexts mentioned above, the experts suggested several recommendations in the following thematic areas – targeted health education starting in the elementary school, practical training of child care skills, foundation of support centers for mothers that would be free of charge, personalized medicine, planned parenthood, general respect to motherhood, creation of multidisciplinary teams, social support of the parents' relationship. According to the experts, if applied, these recommendations would improve the care for children's health.

Keyword: Health Literacy, Expert's opinion, Motherhood, Infants

Dedicated to the UP Internal grant agency project no **IGA_LF_2017_018** “Analysis of Autopsy Reports from Medical and Forensic Autopsies – Possible Connections of Sudden and Unexpected Deaths of Children under 1 Year of Age to the Lifestyle and Health Literacy of Their Mothers”.

Incidence of viral hepatitis B after the mass vaccination of new-borns in Slovakia

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Background and Aim: Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus. It can cause chronic infection with the higher risk of death from cirrhosis and liver cancer. It is a major global health problem with the biological, social- economic impact worldwide and in European countries also. Especially in southern and eastern part, hepatitis B infection has shown intermediate endemicity level. A vaccine against hepatitis B has been available since 1982. The vaccine is 95% effective in preventing infection and the development of chronic disease and liver cancer. Slovakia implemented mass vaccination of newborns in 1998. Our aim was to estimate age-, sex- and region-adjusted incidence of acute viral hepatitis B infection in Slovakia.

Methods: We have estimated age-, sex- and region-adjusted incidence rate of hepatitis B virus infection in Slovakia after the implementation of regular vaccination of newborns- 1999 till 2015. We used the data about disease incidence from national surveillance system- EPIS.sk with the passive method of work. For statistical analysis, we used R project.

Results: Cumulative incidence of acute hepatitis B was 35.9 cases per 100,000 population in Slovakia between 1999-2015 with the significantly decreasing trend (from 4.5/100,000 in 1999 to 1.1/100,000 in 2015). In the time period, age-adjusted incidence rate was the lowest in age group 0-14 years (0.19/100,000) and the highest rate was in age group 15-34 years (3.6/100,000), in which the rate changed only slightly over the time. Sex-adjusted incidence was higher in men - 2.7/100,000 compared to women 1.8/100,000. When we compared hepatitis B infection according to the regions, the highest adjusted incidence rate was in Nitra region (2.8/100,000) and the lowest was observed in Žilina region (1.5/100,000)

Conclusion: The epidemiological situation of viral hepatitis B in Slovakia has the decreasing trend. The main reason is the implementation of the obligatory vaccination of new-borns that has been realized in our country since august 1998. Strong surveillance system to obtain comprehensive knowledge of hepatitis B epidemiology with the following intervention to target risk population are necessary to cover disease as public health problem.

Keywords: viral hepatitis V, incidence, vaccination, Slovakia

Health Promotion in socially excluded areas – decreasing health inequalities in the Czech Republic

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Background and Aim: The aim of the nationwide project is to provide health information to inhabitants of socially excluded area who have less recourses to control their life style and health.

Methods: Educational programmes on life style topics were provided by health promotion professionals in close collaboration with local NGOs, schools and facilities for children from excluded and poor families. The project runs since 2013 until now.

Results: Different programmes and action has been addressed nearly 3000 children and adult living in excluded areas. Regional network of agencies working with excluded people were created. Health literacy of the target group was improved.

Conclusion: Health promotion can serve as an important activity to improve risky life style of people with very limited resources and health status in long term perspective.

Keywords: health promotion, vulnerable population, health inequalities

Short video interventions to reduce mental health related stigma in nursing high schools

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Background and Aim: Mental health stigma among future health care professionals can have significant consequences for individuals with mental illness. The study aimed to assess whether short video interventions could reduce stigma among nursing students. The outcomes are specifically important for Central Eastern Europe since the evidence in this region is scarce.

Methods: A multi-centre, randomized controlled trial was conducted. Participating schools were randomly selected from a list of all Czech nursing high-schools and then randomly assigned to receive: (i) an informational leaflet, (ii) a short video intervention or (iii) a seminar involving direct contact with a service user. The Community Attitudes towards Mental Illness (CAMI) and Reported and Intended Behaviour Scale (RIBS) were selected as primary outcome measures of students' attitudes and intended behaviour at the baseline, immediately after the intervention and at 3-months follow-up.

Results: 21 randomly selected nursing high schools did take part, 499 students completed assessment at baseline, and 254 students completed all three assessments. Compared to the baseline, effect sizes immediately after the intervention were small in the flyer arm (CAMI: $d = 0.25$; RIBS: $d = 0.07$), medium in the seminar arm (CAMI: $d = 0.61$; RIBS: $d = 0.58$), and medium in the video arm (CAMI: $d = 0.49$ RIBS: $d = 0.26$). Effect sizes at the follow-up were vanishing in the flyer arm (CAMI: $d = 0.05$; RIBS: $d = 0.04$), medium in the seminar arm (CAMI: $d = 0.43$; RIBS: $d = 0.26$), and small in the video arm (CAMI: $d = 0.22$ RIBS: $d = 0.21$).

Conclusion: Seminar had the strongest effect on students' attitudes and intended behaviour, but the effect of short video interventions was also considerable and stable over time. Since short effective video interventions are relatively cheap, conveniently accessible and easy to disseminate globally, we recommend them for further research and development.

Keywords: Stigma, mental illness, high schools, nursing, social contact.

Public Health Workforce Needs and Professionalization in Slovakia

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Background and Aim: Since the first pre-graduate public health education in Slovakia has been established at Trnava University in 1993, the public health system is under the continual transition, including public health education and training. Education and training program should respond the health needs in population and there is a need to strengthen public health workforce development. These needs are described in sets of competencies that graduates of public health schools should possess, but level of national-wide implementation is still in progress.

Methods: The main aim of the survey was to get feedback from public health professionals who are representatives of Public Health Offices in Slovakia. The Ministry of Health in collaboration with Public Health Department of Trnava University prepared the survey during the April 2016. Data were collected by questionnaire from all 36 Regional public health authorities and Public Health Authority of the SR. The survey tool was an anonymous web based questionnaire. The request for data was send to the respondents on leading positions in Public Health Authorities or to the department's managers with direct responsibility for public health practitioners.

Results: Sixty-three public health professionals answered and describe their perspective how present public health education in Slovakia fits to their real needs in practice in public health system. Harmonization of competences with internationally accepted public health competences is a crucial issue for the future procedures; even it was not recognized as a priority.

Conclusion: Weak professional identity of public health profession in Slovakia is a result of traditional concept of public health as hygiene and epidemiology field from the past and we need to discuss new concepts for strengthen public health capacities. Ministry of health of the SR, Department for medical education – as an advisory committee for ministry of Education, Public health authorities and public health schools will join efforts for new educational strategy for public health professionals. There is a need for further clarification and discussions of new content of curriculum and new set of competences.

Keywords: public health, education, needs

Analysis of the most important mental health problems that cause professional deactivation and health exclusion in Poland

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Background and Aim: The aim of the study is to describe and compare the main health problems of the Polish population in terms of mental illness and nutritional disorders. Food disorders as a problem especially among young people, as well as mental disorders affecting people of working age, are a serious public health problem in Poland.

Methods: The study used a literature query and a desktop study based on data from 2012 - 2014. These data were obtained from the National Health Fund, the Social Insurance Institution and the Social Security Clearing House - institutions which are entitled to pay benefits in Poland for long-term illness.

Results: The result of the study is the finding that annual sickness absenteeism, particularly depression, as well as problems related to nutrition disorders is increasing year by year. The results indicate the need to improve access to medical services in these areas of medical services

Conclusion: Mental and nutritional disorders are an important cause of professional inactivation in young and working-age populations. The study has shown that there is a need to strengthen the medical care system for patients with these problems as well as to take action to prevent mental illness.

Keywords: mental health, health policy, food disorders, absenteeism

Primary health care – contract with National Health Fund or holistic medical care focused on patient

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Background and Aim: Primary Health Care (PHC) in most health systems is a key element of their functioning and interactions with outpatient specialty care. In this system a coordinated and comprehensive health care is provided to each entitled member in their living area. In Poland, the functioning of PHC is legally regulated and bases on patients own decision about their doctor, nurse and midwife of primary care (choice declaration). In PHC, financing of all provided benefits is based on capitation, which is an arrangement of a payment set on the premise enrolled patients number for a certain period of time and doesn't change whether the potential patient benefits from the health care or not. For selected groups of patients (due to age or selected disease entities such as diabetes or cardiovascular diseases). The capitation rate is adjusted by an appropriate factor increasing the funding for benefits. The aim of this project is to investigate whether patient service in PHC functions as a set of contacts focused on the final transaction (National Health Fund contract) or whether the main purpose is patients treatment conduct in a process from needs assessment, health monitoring to control of outcomes.

Methods: The research was started in 2016 in Wrocław, along the units that have an agreement for the provision of basic health care services concluded with the National Health Fund. For the research there were chosen public entities like hospital clinic with over 5,000 patients and non-public units with 14,000 patients declarations. In selected entities, different models of employing doctors and different ways of remunerating medical staff are being used, for instance: the remuneration according to the active list of patients, remuneration for the contract of employment or contract. Criteria to be evaluated include: access to doctor services, diagnostic, specialized and environmental services and motivating factors for medical staff to maintain continuity and complexity of services. Variable factors include: frequency of visits (repeatability), number of referrals to specialists and orders for diagnostic tests.

Results: The accessibility of the doctor chosen by a patient varies according to the organizational form of the unit. Thus also the continuity of care differs in the outpatient clinics which underwent the research.

Conclusions: The development directions, attempts at implementing changes in the PHC functioning must take into account all mechanisms affecting the effectiveness and quality of primary care and should consider the organizational forms of the providers. At this stage of the study, more concrete conclusions about the PHC functioning cannot be formulated yet. For example, depending on the form of employment and remuneration, collected results and analyzes can be further use as a basis for discussion and continued research on developing an effective model of motivation and remuneration for PHC medical personnel.

Keywords: patients declarations, capitation, accessibility of the doctor

Quo vadis, Polish healthcare system?

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Background: Until 1999, the Polish Healthcare System had been based on budgetary funding. The annual budgetary bill had included health expenses, both funds dedicated for central disposal as well as funds allocated for local use and managed by particular governors, then the insurance system was implemented.

Methods. Description and comparison. In general and mandatory insurance system, the principle of equal access to guaranteed health benefits states that the same benefits apply in spite of the differences in the actual income of the insured. The principle of social solidarity means that the insurance premium is paid by each insured person in a fixed amount, irrespective of the frequency of health benefits, their type and quality. General health insurance is based on the principle of average risk, in which the individual risk of the insured, i.e. gender, age, health status, occupation, etc., does not determine the cost of the insurance premium.

Results: The insurance health system was based on the premise that institutions offering health services at low levels, and in any case unsatisfactory from a patient perspective, would be forced to improve the quality of their services. Otherwise, the health offices, in the process of contracting health benefits, while defining the criteria of health benefit prices, their scope and quality, competitiveness and, above all, the constant number of patients, would not decide to contract with such health providers.

The separation of the provider and the payer of health benefits functions has caused the identification of the organizational responsibility of the latter in the health care process. In consequence, the payer bears the liability for defective medical services, inadequate number of health care providers and inadequacies related to the ineffective functioning of the health care organization resulting from inadequate selection of the health care providers.

In the next law on publicly funded health care services it was pointed out that the tasks of public authorities include analysis and assessment of health needs as well as financing health services in accordance with regulations set forth in the Act on healthcare services.

Conclusions: The planned reform stipulates the budgetary healthcare system and such activities which serve a purpose of optimal protection of citizens' health needs.

Keywords: healthcare system, budgetary model, insurance model.

Access Inequalities in Europe and in V4 Countries based on ESS2014 Data

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Background and aim: Though health systems are just one amongst the determinants of health status and inequalities of health across the society, it would be important to understand how organizational characteristics of health systems and structural profile of societies interact in producing different access to health care for different social groups. My aim was to explore how unmet needs and rough patient pathways form in different social groups, and how these patterns differ across country groups created based on characteristics of the health system and the society.

Methods: Based on Eurostat macro data I created institutional clusters of countries, according to the characteristics of their health systems (e.g. density of primary and specialized care, level of total and public expenditure, etc., partly based on previous studies). I then, using logistic regression and analysis of variance performed on the ESS2014 microdatabase, analyzed how access patterns by educational attainment and income (as of unmet needs and features of doctor visits) differ across these country groups.

Results: Regarding unmet needs in general, in the Beveridgean-type health systems, all high income countries (in the study: UK, SE, NO) no significant differences were to be detected. In the “old Bismarkian” countries, high income as well (DE, BE, FR, AT) income, and in the cluster of PL, CZ, HU and PT education proved to be significant determinant of unmet needs. More detailed analysis revealed that the effect of income and education is different depending on the actual cause of unmet needs, showing more heterogeneous picture of social inequalities across country groups.

Conclusions: According to the analysis, characteristics of access inequalities differ across countries significantly according to the features of the health system and the societies. Bismarkian systems, in spite of the high levels of capacities, have also high levels of unmet needs (especially because of the inability to pay), indicating high inequalities. In this concern, classic Beveridge-type systems have the best performance - but also these are the richest societies. The analysis shows that health system characteristics may affect access to a great extent, and reveals that the more sophisticated exploration of causality could bring valuable results in this field.

Keywords: health inequalities, access to health care

Czech Healthcare Investment Policy and the Specifics of its Framework

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Background and Aim: Sustainability and efficiency of the healthcare sectors remain one of the most relevant issues in the Czech Republic as in many other countries all around the world. With respect to an experience from a healthcare sector development process in the Czech Republic, the authors assume that investment policy based on transparent, explicit and logical rules may be one of the tools used to achieve these goals. The aim of this study is to (1) map the principles of the investment policy in the Czech Republic; (2) identify stakeholders influencing the investment decision process and (3) analyse resources, its structure and the allocation method in the field of healthcare investment policy.

Methods: Inspired by lack of systematic information and data regarding the field of healthcare investment policy, the authors are mapping the principles of investment policy in the Czech Republic. We suppose that public healthcare facilities do not have enough own resources so they rely on central, regional or European subsidies. As a result, the key factor in deciding on the investment process may be more political than economic. And therefore we study the role and interests of different stakeholders involved in this field which helps us to describe and analyse the manner of resources allocation in this area. Finally, we compare our findings with the situation in the private part of the healthcare sector. Series of structured interviews with national experts are carried out to help the authors to ravel out the unclear situation in this field.

Conclusion: The paper is designed to be a starting point for further analysis of this issue that we consider as one of the most significant weak points of the Czech healthcare system. We suppose that the V4 countries may encounter the same problems, so we plan to make use of this conference to start an international cooperation in this area.

Keywords: investment policy, healthcare sector, interest groups.

Health literacy in the Czech population and challenges for the Health Literacy Alliance.

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Background and Aim: The aim of the presentation is to present results of the comparative survey of health literacy and to introduce the Health Literacy Alliance in the Czech Republic. Health literacy survey was carried out in 2015 in the context of preparation of implementation strategy of the Program Health 2020 in the Czech Republic. The survey was conducted with financial support from Ministry of Health and the Czech WHO office.

Methods: Sociological survey replicated comparative research conducted in eight EU countries in the first half of this decade. Representative survey in 1037 respondents in the age over 16 years exploited identical methodology as used in the original study. Health literacy was measured in the areas of health care, diseases prevention and health promotion.

Results: We found that 59.4% of respondents showed limited general health literacy; health literacy in health care is proved to be 49.5 % of the population, in the area of disease prevention it was 54.1 % respondents and in health promotion it was even 64.3 % of respondents. Compared to the other countries surveyed, the Czech Republic occupies the eighth penultimate place. Health literacy is correlated negatively with age and positively with education. We found a strong social gradient of health literacy which rises with social status. Health literacy quite significantly influences health status and health behaviour.

Conclusion: The low level of health literacy encouraged the establishment of the Health Literacy Alliance aiming at increasing health literacy level of Czech citizens. More than 30 both individual and collective subjects have declared their intention to work for improvement of the situation in the field. National Medical Library is one of the key members of the alliance. Its specialists sort out reliable sources about health and disease and insert them into the information file called MedLike. This source of verified health information has been used by other librarians and lay people as well.

Keywords: health literacy, health literacy alliance

Occupational health services in Slovakia – challenges and vision in new legislation.

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Background and Aim: The European Framework Directive on Safety and Health at Work (Directive 89/391 EEC) adopted in 1989 was a substantial milestone in improving safety and health at work. It guarantees minimum safety and health requirements throughout Europe while Member States are allowed to maintain or establish measures that are more stringent. Provision of occupational health service in Slovakia is based on amendment to the Act No. 355/2007 Coll on protection, support and development of public health that came into force as of August 1st 2014.

Results: In accordance with the wording of the Act, effective until July 31st 2014 an employer was obliged to ensure the occupational health service only for employees classified in the categories 3 and 4 of hazardous work. With effect from 1.1.2015, all employers are required to provide occupational health services for all employees, also for employees in the first and second category. The employer can decide if the mandatory occupational health services will provide with his/her own employees or through the third parties as contracted service. Only the team of occupational health service can provide the occupational health service for employees work in hazardous work classified in third and fourth category, the team consists of minimum two professionals: medical practitioner and public health practitioner. Security technician or an authorized security technician, authorized by Public Health Authority of the Slovak Republic, or individual public health practitioner, can perform some of the activities of the occupational health service only for employees performing tasks classified in first or second category now. Public Health Department at Ministry of Health is leading the legislation process with the aim to optimize the system of provision of occupational health services in Slovakia.

Conclusion: Occupational health services in Slovakia are now in transition due to harmonization with EU legislation and improvement of entrepreneurial environment. We will present the main changes raised during the legislation process.

Keywords: legislation, occupational health services, occupational safety

Noise pollution and its impact on health in Slovak urban population

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Background and Aim: Hearing is the first human sense that is fully functional even before the child's birth. The noise endangers even unborn children and can cause both auditory and non-auditory health effects. Noise is pervasive in urban environments and the availability of quiet areas is decreasing. The aim of the study was to analyse the impact of noise pollution on health in Slovak adolescents and adults living in urban area.

Methods: The study sample consisted of 751 people aged 13-78 years (mean age $31,12 \pm 15,22$) living in Kosice – the second largest city in Slovakia (240 688 inhabitants). The study was realized in 2012. To obtain noise pollution data samples 479 streets in Kosice were monitored using certified and calibrated Sound level meter Peaktech 8005 and subsequently processed by notebook. The self-reported questionnaire contained 71 questions focused on perception of environmental noise pollution, lifestyle behaviour and health status.

Results: Our study found increased sound pressure level with increasing floor number in the apartment building with 12 floors. Objectively measured increased noise intensity was significantly linked to increased number of respondents reporting noise disturbance during relaxation ($p = 0,004$) and with an open window ($p = 0,000$). In terms of subjective perception of noise, significant differences were observed e.g. in sensitivity to noise ($p = 0,000$), disturbance from traffic noise ($p = 0,000$), ventilation limitation ($p = 0,000$), acute diseases ($p = 0,002$), chronic diseases ($p = 0,042$), headache ($p = 0,003$), stomach problems ($p = 0,000$), and immune system ($p = 0,000$). Increased noise intensity was significantly linked to increased number of respondent with an overweight ($p = 0,008$), as well as to those having decreased activity of thyroid gland, hay fever, migraine, eczema and asthma. Analyses by gender showed that women attribute the disturbance to the noise in the building and to loud music played in the neighbourhood more often ($p = 0,022$).

Conclusion: The study results support the need of adequate environmental noise prevention and mitigation strategies for urban public health. A new way of determining acceptable equivalent levels of sound pressure for time intervals (morning, noon, afternoon, evening, night) in protected environment should be adopted by public health legislation e.g. it should be based on acceptable fraction of people annoyed by the environmental noise pollution.

Keywords: noise pollution, noise disturbance, chronic diseases, urban population

Cases studies of mothers who murdered their infant

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Background and Aim: Important foundations of adult health are laid in prenatal life and early childhood. People living under poor social economic conditions since early childhood are more in danger of health difficulties in adulthood but also of passing the risk behaviour to the next generations. The Czech Republic employs a well-established system of prenatal, neonatal, and pediatric preventive check-ups which help reduce these risks. In spite of that there are groups of citizens that are in danger, but they pass through the system of check-ups unnoticed. These groups might harbour mothers whose children under 1 year of life died as a result of their hostile behaviour. All human life needs to be protected. For many reasons, a child's life enjoys special protection, and a murder of a child under 15 years of age is penalized by harsher prison sentence. Cases when a mother kills her child as a result of her state caused by the delivery, which needs to be confirmed by a specialist, are however treated as a specific state of facts evaluated and penalized more leniently. The aim of the article is to describe common social features characteristic of mothers who murdered their child under 1 year of age and identify thus opportunities to prevent similar situation.

Method: The methodology access of research was retrospective study of documents. Main methods were description and comparison of case studies. Method of data collection was quantitative and qualitative content analysis. Material of research were autopsy reports of children under 1 year of age murdered by their mothers between 2007 and 2016. Autopsy reports were performed in the Department of Forensic Medicine and Medical Law of Palacký University in Olomouc, Faculty of Medicine and Dentistry (n=5).

Results: In most case studies mothers, were single or they lived with partners, who are not biologic father of the child, mothers with low social economic status, onerous life situation, problematic life style a low level of health and legal literacy. That mothers either haven't seen possibility to rely on the support of their own social networks or they considered their actual lifestyle endangered by their child or both. Life stories of mothers were different.

Conclusion: It can be reasonably assumed that described common risk factors on mother's side can be connected with infant's violent death. It can be said that the risk of infant's death increases with mother's onerous life situation and their low level of health and legal literacy. It is the question if effectively working social networks together with well – timed risk factors recognition can prevent infant death.

Keyword: Child, Violent, Mother, Murder, Risk Features

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Determinants of households' health expenditures in Poland: A regional analysis

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Background and Aim: Health care financing is one of the most investigated subdisciplines of health economics. Studies on determinants of health expenditure locate among crucial areas of the subdiscipline. Yet, the research on health expenditure determinants are rare in Poland and the interest in health financing focuses rather on sources of financing and on analyses of expenditure level in various household groups. The aim of the study was to identify and quantify social and economic determinants of private health expenditures in Polish households using regional approach.

Methods: Panel data regression was used to estimate associations between socioeconomic factors and households' health expenditures. Data used was taken from Central Statistical Office's Local Data Bank and covered period 1999-2015. Real monthly per capita health expenditures calculated based on households' budget surveys was used as a dependent variable. The factors explaining health expenditure variation were real disposable income, health status, health care availability, health care prices, pollution and population age-structure.

Results: The results show that disposable income is a crucial determinant of health expenditure in Poland. Depending on model specification income elasticity of households' health expenditures varied from 0.62 to 0.89. Other factors correlated with health spending were health care prices and share of population over 70 years old. On the other hand, the results of health expenditures correlation with health care supply, pollution and health status were ambiguous.

Conclusion: Similarly to studies using other countries' and international data, an income proved to be the most important factor determining health expenditure in Poland. Noticeably, in this research the value of income elasticity was lower than one, meaning that in Poland health care financed directly from households' budgets has the characteristics of a necessity good.

Keywords: health expenditures; households; regions; panel data regression; income elasticity

A survey of teachers' health behaviour and mental health in Hungary

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Background and Aim: Teaching is among the most stressful occupations. Not surprisingly, burnout syndrome among teachers is also common and a great challenge since it may have many negative consequences, such as health problems, job stress, depression, professional dissatisfaction. The main goal of the present study was to detect health, especially mental health and health behaviour in the Hungarian teacher population and analyse their relationship with work and life satisfaction.

Methods: Data were collected between in Hungarian teachers (N = 2062, aged between 23-74 years, mean = 48.1 and S.D. = 8.9; 83% females) during the years of 2016-2017. Burnout was measured by Maslach Burnout Inventory - Educators Survey. The questionnaire also included items on work and life satisfaction, besides health-related questions, such as self-perceived health, smoking and drinking, sports activity and other aspects of lifestyle.

Results: Sixty percent of the teachers evaluated their own health as good or very good. In terms of health behaviour, 6.8% of them reported regular smoking and 53% a few times a month or less reported drinking alcohol. Burnout syndrome was more characteristic of male teachers, particularly depersonalization ($p < 0.001$) and lack of personal accomplishment ($p < 0.001$). These two subscales showed higher levels among younger teachers. All of the subscales were associated with a lower perception of one's own health and satisfaction with life. Furthermore, depersonalization was related to the frequency of alcohol use.

Conclusion: Finding suggest that teachers' mental health problems need special attention, particularly the risk of burnout syndrome in male and younger teachers. As it seems they do not have the appropriate coping skills to prevent it. Burnout is associated with lower level of life satisfaction, health problems and substance use. Developing effective intervention should be necessary to map and handle job stress and prevent burnout.

Keywords: health, mental health, burnout, health behaviour

Associations between depression, anxiety, fatigue and health-related quality of life in people with multiple sclerosis

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Background and Aim: Depression, anxiety and fatigue are one of the most prevalent symptoms of multiple sclerosis (MS), of which fatigue is often an overlooked symptom causing significant subjective decline in well-being and quality of life of patients. The aim of this study is to describe associations between physical and mental domains of health-related quality of life (PCS, MCS) and fatigue, depression and anxiety in people with MS.

Methods: Sample consisted of 156 patients (75.0% women, mean age 40.12±9.75 years). Health-related quality of life was assessed by 36-item Short-Form Health Survey (SF-36) which contains 4 scales for PCS and 4 for MCS. Fatigue was assessed by general fatigue subscale of Multidimensional Fatigue Inventory (MFI-20) and finally depression and anxiety were assessed using Hospital Anxiety and Depression Scale (HADS). All these scales are widely used in populations with chronic diseases. Control variables were age, gender, education, Expanded Disability Status Scale (EDSS) and disease duration. Multiple linear regressions were performed using IBM SPSS Statistics 23.

Results: Two models (one containing anxiety and one depression) were analysed for both PCS and MCS. As for the PCS, the final model explained 58% of the total variance in both options. Variables that added significant amount of explained variance to the model were age, EDSS and general fatigue. The total explained variance of MCS was 59.5% (for model with the depression) and 53.1% (anxiety). Age was no longer significantly associated with MCS, but education, depression and anxiety were. Fatigue significantly contributed to the explained variance of all the models under study.

Conclusion: Role of anxiety and depression was significant only in MCS, which is in line with previous research suggesting that these psychological variables seem to be less important for the physical quality of life, but are key variables for mental component. Fatigue was on the other hand significantly associated with both PCS and MCS. Thus therapy aimed at management of fatigue can possibly alter both of these dimensions. Future longitudinal research is needed though to determine causality of these associations.

Keywords: multiple sclerosis, fatigue, anxiety, depression

Evaluation of High School Students Lifestyle: A Pilot Study

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Background and Aim: Overweight and obesity is one of the most common developmental disorders in children. Studies show that 50%-80% of obese children become obese adults in the future. However, evaluation of health behaviour preserves early diagnosis and maintains a high quality of life. This study was conducted to assess the protocol designed for the evaluation of high school students lifestyle. The research assumed anthropometric measurements including height, weight, body mass index (BMI), waist-to-hip ratio (WHR), skinfold thickness and body composition as well as assessment of level of physical activity, food consumption variety and health behaviour. Furthermore, the motivational lecture promoting healthy lifestyle and physical activity was arranged.

Methods: In April 2017, twenty-five students from a public high school in Wrocław expressed the informed consent to participate in the study. The researchers visited the school. The body composition was assessed using bioelectrical impedance analysis (BIA). The further research was carried out using four validated questionnaires: the short version of the International Physical Activity Questionnaire (IPAQ), the Food Intake Variety Questionnaire (FIVeQ), the Questionnaire of Eating Behaviour (QEB) and the Juczynski's Inventory of Health Behavior (IZZ).

Results: We observed that: (i) the full body measurement of one person and fulfilling the questionnaires took an average of 20 and 30 minutes, respectively; (ii) the percentage of missing and incorrect answered questions were: for IPAQ 0% and 0%, FIVeQ 4.4% and 0%, QEB 4.7% and 0.6%, IZZ 1.5% and 0.3%, respectively; (iii) due to the lack of consulting room at the school ensuring the safety and intimacy during the examination might be difficult. Furthermore, the participants were interested in the details of BIA and their individual results in relation to the population of young adults.

Conclusion: The study revealed that the time of measurements should be shortened for instance by creating two independent measuring stations. To avoid missing and incorrect data we decided to create a platform for fulfilling the questionnaires via internet. The latter may include the options of individual results viewing and simple statistical summary. Moreover, more detailed information about applied methods should be given to the participants.

Keywords: body composition, physical activity, food intake variety, health behaviour, high school students

Socio-demographic Differences of Internet Usage in the Doctor-Patient Interaction

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Background and Aim: Today, there are many new possibilities between doctors and patients to communicate, not only the personal oral communication. The aim of this study was to explore how the patient get health-related information (e.g., physician, internet, books, newspapers), how they communicate with their physician between two consultations (calling the doctors in visiting room, calling the doctor on his/her mobile phone, by email) and how they would like to contact him/her (personal, by phone, email) in the aspect of socio-demographic factors (age, gender, education, family status, employment status).

Methods: Questionnaire-based survey was done among potential patients in an outpatient clinic in Budapest. SPSS 22.0 statistical software was utilized for the analysis. Simple descriptive statistics, cross tabulations, chi-square tests, and binary logistic regression analysis were used in the data analysis. The significance level was set at $p < 0.05$.

Results: 260 patients completed the survey (36.2% men; 63.8% women). Patients got medical information primarily from their doctors, followed by different websites and Facebook groups as the most common sources of online information. Young, active workers, highly educated patients were more active, while the elderly – most like the widows – searched less on the internet. Most of the patients phoned the doctor between two consultations and only 6.2% contact by email regardless their sociodemographic status. 61.2% needed more personal consultation, especially males, divorced and widows, 47.9%, wanted to contact by email, especially the young (under age 30), highly educated and singletons.

Conclusion: For the effective use of new technical possibilities in the physician-patient relationship, it is important to know that health-related information on the Internet reaches social groups differently and their preferences, how they want to communicate with their doctors are different, too.

Keywords: health-related information, doctor-patient relationship, socio-demographic differences.

Predictors of one-year mortality after hip fracture surgery in elderly patients from Slovakia

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Background and Aim: Hip fractures represent a worldwide public health problem among the elderly as one of the most important causes of morbidity, disability, decreased independence and mortality. The mortality rate in hip fracture patients depends on a variety of factors including age, gender, co-morbidity and pre-fracture functional state. The aim of this study was to identify risk and protective factors of one-year mortality after trochanteric fracture surgery in elderly patients from Slovakia.

Methods: 173 patients (78.1% of females) 65 years and older (mean age 80.9 ± 6.9 years) all treated with dynamic hip screw were involved in the study. A prospective cohort study was carried out between 2004 - 2009 years with the latest follow up of the cohort in December 2012. Source of admission, number of co-morbidities, number of regularly taken medications prior to the admission, weight, height, and new mobility score (NMS) were documented at the admission. The patient's abbreviated mental test score (AMTS) was obtained before the surgery. In-hospital waiting time for surgery, type of fracture, type of anaesthesia, overall health status using the American Society of Anaesthesiologist ratings (ASA), duration of surgery, postoperative length of stay, in-hospital medical complications, and type of discharge disposition were recorded at the end of hospitalisation. To find the one-year mortality predictive factors Cox proportional hazards models with a forward selection procedure were used.

Results: The one-year mortality reached 30.1%. Significant differences were observed in age ($p < 0.01$), AMTS ($p < 0.01$), NMS ($p < 0.01$), number of comorbidities ($p = 0.02$), time to surgery ($p = 0.02$), ASA grade ($p = 0.03$), source of admission ($p = 0.03$) and number of in-hospital medical complications ($p < 0.01$) between patients who died within one year after surgery compared to those who did not. Multivariate analysis revealed poor mental state - AMTS less than 9 (HR 2.83), presence of in-hospital medical complication (HR 2.76), male gender (HR 1.98), more than 2 comorbidities (HR 1.83) as statistically significant risk factors for one-year mortality with protective effect of good pre-injury mobility score - NMS 7 or higher (HR 0.31).

Conclusion: Our findings indicate that tertiary prevention of reducing one-year mortality after hip fracture in elderly should be tailored to those with higher risk. Optimizing after-surgery care and treatment by performing a rapid and inexpensive assessment of health status of patients and better comorbidities managing, as well as public health interventions focused on mental health promotion with special attention to males can play a significant role.

Keywords: one-year mortality, trochanteric fracture, elderly, tertiary prevention

Prevention of Iodine Deficiency in the Czech Republic

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Background and Aim: The Czech Republic suffers from a lack of iodine in natural resources and health consequences of iodine deficiency occurred here long time ago. Kitchen salt began iodized in mid-20th century and the problem with iodine seemed to be resolved. Alarming results of examinations performed by Institute of Endocrinology in Prague in the first mid-90th of the last century showed slight iodine deficiency in 50 % of adults and more serious deficiency in 12 % of men and 21 % of women, and in 7 % of boys and 10 % of girls. The Intersectoral Committee on Iodine Deficiency Prevention (ICID) was established in 1995 as unformal corporation of experts from medicine, representatives from ministries, governmental authorities, NGO and from food and pharmaceutical industry.

Results: ICID managed all activities to increase iodine supply in population. On ICID proposal Ministry of Agriculture increased iodine content in iodized salt to 27 mg/kg in the decree from 1997. Monitoring of population iodine levels in urine and other preventive activities started. Already in 2002 it was stated, that iodine deficiency in the Czech Republic had been removed. Than over the next two decades, iodine saturation slightly raised up to range of increase saturation with medians iodine levels in urine 150-300µg/L. It reflected higher interest of public on iodine, extension of usage of iodized salt in food industry an unexpected increase iodine concentration in dairy cow's milk. Therefore, the Committee strongly sought to reduce iodine in dairy cow's supplemented feed. Iodine levels in milk began thereafter (since 2005) pronouncedly declined.

Conclusion: There is apparent gradual slight decrease iodine concentrations in urine still in range of optimum in recent population surveys. For satisfying iodine status is necessary eliminate persistent iodine deficiency in pregnant women. Long term experiences show, that iodine deficiency prevention is never-ending process.

Keywords: Iodine deficiency, Effects of prevention

Health education in area of safe pharmacology in the elderly – opportunities and threats

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Background and Aim: It can be argued that patient's safety is currently one of key issues for planning activities by health sector. Although it is health care system that shall be primarily held responsible for guarantee and improvement of patient's safety, patients themselves do bear such responsibility, too. Pharmacotherapy seems to be a particular subject and an area related with patient's health safety. Wide availability of non-prescription medicines and a plethora of sources of information (including those which have no scientific basis) give rise not only to opportunities to improve health condition of a population and improve the functioning of a healthcare system but also to threats such as irresponsible use of medicines. A group which is particularly vulnerable to improper and irrational drug taking are the elderly. This population group frequently shows a tendency to independently decide on the amount and type of medicines they take, especially over the counter (OTC) drugs. This might pose an additional threat at the time of wide availability and intense advertising of this type of medicines. The abovementioned threat shall be faced with preventive measures based on health education addressed at the target group and its environment. The aim of this analysis is to found opportunities and threats pharmacology in the elderly.

Conclusion: Self-medication is a relatively new phenomenon and, similarly to other new terms, it is necessary to address it and build the most beneficial model for it. On the one hand, it should help improve healthcare system efficiency; however, on the other hand it should help build health competencies of a patient in accordance with *patient empowerment*. Consequent implementation of a health policy based on effective and comprehensive education is the key to the improvement of a healthcare system and an increase in patient's health safety.

Keywords: health education, elderly, pharmacology, health promotion, self-medication

Improving professionalism and patient care through continuing professional development (CPD) workshops in interpersonal communication for practicing clinicians

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Background and Aim: Poor quality of interpersonal communication skills (ICS) in doctors can negatively influence doctor-patient relationship and team-work capacities. To highlight the importance of ICS in clinical work, series of workshops for physicians were organized directly in hospitals. An experienced physician and educator used interactive meeting formula to develop skills through reflective practice.

Two goals were set: assessing the level of interest in hospital-run CPD training in ICS, and testing the new workshop formula. It included substantial amount of visuals, humour and content pertained to real-life situations. It aimed at stimulating emotions, personal engagement and feedback.

Methods: Customised questionnaires were distributed after each workshop. Evaluation included analysis of interest in the topic itself, workshop formula and perceived utility of acquired information/skills.

Results: The response whether participants would recommend such workshops to colleagues was encouragingly positive. We expect that working-place meetings will incite participants to attend regular teaching sessions on communication in Medical Council premises.

Conclusions: Survey outcomes indicate a need in communication skills CPD activities for hospital medical staff. Interactive workshops using visuals, humour and pertaining to real-life situations stimulate interest and active participation. Additionally, hospital-based CPD activities are directly available to those physicians who would not attend this kind of activity otherwise. New teaching methods, including peer-to-peer discussions and experience sharing did incite interest in communication as a discipline with its own instruments. In follow-up CPD workshops role-play simulation could be introduced. Hospital-based interpersonal communication skills workshops proposed to physicians can stimulate further development of their professionalism.

Keywords: CPD Continuing Professional Development, interpersonal communication skills, professionalism

Relationship between Gestational Weight Gain and Maternal Lifestyle Characteristics

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Background and Aim: Maternal pre-pregnancy obesity and excessive gestational weight gain are associated with increased risks of adverse foetal outcomes. The aim of this study was to examine sociodemographic and lifestyle factors determining weight gain during pregnancy.

Methods: The cross-sectional, self-administered questionnaire based study was conducted among women having their babies in 2014 at the Department of Obstetrics and Gynaecology, University of Szeged. Participation was offered to each woman who could voluntarily decide to participate (n=1548). The questionnaire included standardized measures of sociodemographic status, lifestyle, and self-reported information on weight and height of pregnant women; gestational weight gain (GWG) was evaluated according to the updated Institute of Health recommendation (USA). Descriptive statistics and logistic regression models were used; statistical analysis was performed with the IBM SPSS 24.0. The study protocol was approved by the Regional and Institutional Human Medical Biological Research Ethics Committee.

Results: The mean age of the participants was 31.55 ± 5.13 years; 17.7% of women had low, 32.8% medium, and 49.5% high level of education; 89.3% of them lived with a partner. 37.5% of them had high, 28.1% low and 34.4% normal GWG. The multivariable logistic regression model showed significant association between high GWG and medium education level (OR: 1.57, $p=0.036$), smoking before pregnancy (OR: 2.09, $p<0.001$), consuming maternal vitamins (OR: 1.34, $p=0.043$), and drinking milk everyday (OR: 1.59, $p=0.011$). Daily consumption of fruits and vegetables and or regular physical activity had no association with GWG in the current model.

Conclusion: Our results showed that pre-pregnancy and pregnancy related factors can influence the GWG. That's why lifestyle interventions have to be started before pregnancy to prevent the development of high GWG as a risk factor of unfavourable health outcomes.

Keywords: pregnancy, weight gain, lifestyle

Public Health Emergencies, preparedness and risk communication as an integral part of curricula

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Background and Aim: The risk related with global threats to the human health is significantly increasing. In order to enhance health security, countries need to build capacity to identify internationally emerging health risks and to provide relevant training to the health professionals. It is important to build capacities at all levels (international, national and sub-national) to be able to identify emerging health risks and to develop relevant emergency plans together with risk communication plans and a, using the most recent ICT approaches. Faculty of Medicine & Dentistry, Palacky University, integrates this topic in all training programmes at both undergraduate and postgraduate levels as well as in continuing professional development programmes. The information on key projects is provided to all students, including recommendations of the international project on “Health Care in Danger” (<http://healthcareindanger.org/hcid-projec>), news from recently launched WHO Health Emergencies Programme and from the European Union’s institutions.

Methods: Development of innovative sustainable training programmes and continuing professional development programme’s (long-life learning) courses for health professionals in Olomouc region. This work is performed in close cooperation of the Faculty of Medicine & Dentistry, Palacky University, and the University Hospital Olomouc, with other key regional stakeholders involved in the areas of public health protection as well as civil protection.

Results: Reviewed and innovative curricula are ready for the implementation phase. The implementation process is ready for the academic year 2017-18, supported by modern ICT-tools and techniques. Evaluation of the implementation phase will be conducted in summer 2018 and reported to the 11th European Public Health Conference.

Conclusions: This innovative approach will contribute to the health security by supporting capacity building for prevention and control of various health threats at all educational levels, including long-life learning.

Key words: Public Health Emergencies, health security, emergency plans, risk communication, capacity development, civil protection.

Road traffic mortality in V4 countries

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Background and Aim: Injuries are considered to be an important public health concern. Road traffic injuries are the leading cause of death among young people aged 15 – 29 years and the second leading cause of death among children aged 5 – 14 years. The aim of this study was to analyse road traffic injury mortality rate in V4 countries in 2003 – 2015.

Methods: Data on traffic related deaths and mid-year population in V4 countries in 2003 – 2015 were obtained from Eurostat and Statistical Office of the Slovak Republic. Age-standardized mortality rates per 100,000 persons were calculated by using direct method of standardization and European standard population.

Results: Road traffic mortality rates decreased for all age groups, all types of road user and both sexes in all V4 countries in study period. The highest pooled age-standardized road traffic mortality rate was observed in Poland (11.8; 95% CI: 10.3 to 13.2) and the lowest in Hungary (9.1; 95% CI: 7.6 to 10.7). Pooled age-standardized mortality rate in the Czech Republic was 9.3 (95% CI: 7.9 to 10.7) and 11.0 (95% CI: 9.3 to 12.7) in Slovakia. Men accounted for about 75% of all deaths. On average, population in age-groups 15 – 24 and over 65 years had the highest mortality rates. The highest mortality rates by type of road user were observed among drivers and pedestrians.

Conclusion: Road traffic mortality rates decreased in all V4 countries in the study period, probably due to legislative changes adopted after joining the European Union. Further effort is needed to achieve an objective stated by European Commission – to halve road deaths in Europe between 2010 and 2020.

Keywords: traffic injuries, traffic accidents, mortality, V4 countries

Systemic reforms and the quality of healthcare. The case of Poland.

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Background and Aim: The aim of this study is to reflect upon the quality of healthcare in the light of systemic reforms in Poland. The problems of healthcare constitute some of the key issues in public policies of European countries. Polish healthcare has already undergone several major reforms after the 1989 transition from communism to democracy. Most of the 1990s witnessed the post-communist system of direct budgetary financing. In 1997, a breakthrough change to a “money-follows-patient” regional sickness funds followed. After waves of criticism, mostly aimed at growing inequalities and the persistence of still unsolved problems (i.e. queues to specialists and hospitals), the centralized National Health Fund (NFZ) was created in 2003. Despite even greater criticism and political promises, NFZ has not undergone any major reforms or improvements until 2017. A new system of even more centralized financing, with a hospital network will be launched on October 1. Alongside institutional reforms, a number of non-governmental organizations provide for the improvement of the system, with the globally unique Great Orchestra of Christmas Charity (WOŚP), a major supporter of children’s hospitals since 1993.

Polish medicine is developing – with many pioneering medical procedures (very successful cardiac surgery, heart, hand and recently face transplants, with the world’s first life-saving face-transplant surgery, to name just a few). Academic medicine and research is globally recognized. EBM is the landmark of Polish medicine, with the dominance of academic discourse, which leads to a dominant position of medical doctors in Polish healthcare, both in health-related policy-making, and the paternalistic models of doctor-patient and doctor-medical personnel relations. At the same time, in terms of healthcare efficiency (accessibility of medical services, preventive medicine, effectivity of treatment), and despite numerous reform attempts, Poland is still far from the highly developed West-European democracies. According to Euro Health Consumer Index (EHCI 2015), healthcare quality is still very low, as in 2015 Poland was ranked 31st of all 37 researched states.

Methods: The discrepancy between the seemingly highly developed (academic and practical) medicine and the quality of health services in Poland is thought-provoking. In our presentation, we’d like to discuss some of the reasons why some innovative and advanced medical research and highly qualified specialists and other medical personnel do not translate to objective and perceived better quality of health services. For that, we will use data from the OECD, EHCI and other sources, which will help us understand some of the key problems of Polish healthcare, which have not been solved by the post-1989 reforms.

Results: We will look at the premises of major health reforms, and the key indicators of Polish healthcare, and try to show some of the major reasons and obstacles to a more efficient health system in Poland.

Conclusion: Three systems, two large reforms and one underway, over 25 years of competing visions and political promises, and Polish healthcare is still highly criticized and perceived as terrible. We will examine both institutional reforms and their outcomes to show the past and possible future paths to more organizational efficiency in Polish healthcare.

Keywords: health policy, health reforms, quality of health services

Resource management under a budget cap – how institutional changes affect the way hospitals are managed in Poland

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Background and Aim: The aim of the article is to present the importance of proper resource management in hospitals operating under a fixed budget cap. Due to institutional changes coming in force in the end of 2017 hospitals will receive a fixed payment that should cover all costs of treatment. A fixed function of revenues forces hospitals to carefully analyse and optimise their costs. As costs are the financial consequence of using resources, any decisions should be based on proper information of resources – their use and cost.

Methods: Authors carried out the review of the literature on the resource management in hospitals and analysed the results in the context of the reimbursement method of hospitals.

Results: The consequence of a fixed function of revenues is as follows – in order to make profit, hospitals must control their costs. Hospitals' costs are mainly fixed costs, which may result in thinking that they are beyond the scope of managers' decisions. Providing information on the cost and use of specific resources gives managers better insight on the room for improvement.

Conclusion: Most of managerial decisions that are taken in order to improve the financial situation of the hospital concern the resources of the hospital – how much they cost, how they are used and what value they generate. Healthcare is characterised by the scarcity of resources, mainly human resources, but at the same time managers in hospitals do not usually systematically plan and control the resources. Authors prove that resource management is the optimal direction in the light of institutional changes taking place in Poland.

Keywords: hospitals, budget cap, resource management.

Health technology assessment (HTA) from hospitals' perspective

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Background and Aim: Health Technology Assessment has been developed to inform national regulators and provide them with evidence for their decisions concerning remuneration of various (novel) technology. Recently, the methods have been modified to serve hospital management, above all to support them in strategic decisions. The aim of this study is to describe areas where HTA can be beneficial in the hospital environment, give some good-practice examples, and to describe possible models of hospital-based HTA.

Healthcare provider's perspective for cost-effectiveness analysis: As HTA serves remuneration decision-making, the guidelines usually require the healthcare payer's perspective. However, such an attitude is based on artificial unrealistic cost data. Instead, the C/E calculations can be based on real world data. Hospital often do not wish such data to be revealed; nevertheless, the gain in information value from such analyses is huge, especially if the results are compared with those for the payer's perspective.

Supporting strategic decisions: A slightly modified HTA can serve well in the case of strategic decision-making. A typical example is purchasing an expensive medical device, where HTA helps in technical parameter classification, purchase strategy optimization, tender formulation and bids evaluation. However, other strategic decisions (e.g. opening or closing of a department, selection and evaluation of diagnostic and therapeutic processes, etc.) can be analysed as well.

Conclusion: Generally, there are four ways for HTA implementation in hospitals. In Czech hospitals, the usual alternatives are either a full HTA unit or nothing. However, there are three other forms that can serve well especially in smaller hospitals. Recommendations will be summarized concerning HTA for medical devices.

Keywords: hospital-based HTA; medical devices; implementation; hospital strategy.

Privatization of Spa companies in Poland

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Background and Aim: Since 1989, privatization has been widely applied in Poland in different branches of the national economy. After 1999, the role of the private sector also began to increase in health care, including spa services. The basic premise for the State in privatizing some companies is to obtain funds for investment in the remaining ones. This paper is aiming to present and assess the process of privatization of the spa sector companies in Poland, which took place in the period 2001–2011, particularly in terms of its coherence with assumptions defined in law.

Methods: We analysed 23 spa companies operating in Poland divided into those subject to privatization (group B) and those excluded from privatization (group A), in accordance with the spa industry privatization programme, as of 2007. We analysed several economic factors for each company obtained from the Ministry of the Treasury, the National Judicial Register, the Central Statistical Office and the individual spa companies. The analysis included the aggregation of the collected data, with the arithmetic mean, standard deviation and median calculated. The verification of statistical hypotheses was done using the statistical significance level $\alpha \leq 0.05$. The assumptions for the privatization process have been reconstructed based on Polish legal acts regulating the activities of the spa industry and the national management policy related to this sector of the health system.

Results: We found significant differences between companies being subject to privatization and those excluded from privatization in terms of average values for: total revenue, profit, overheads, number of the employed staff and capital value. In terms of the income raised by the companies in 2007, better results were achieved in group A ($p = 0.010$). For structure of revenue, we observed that 16.5% of the total revenue was from tourism and commercial health services in group B, while for group A this was 21.5%. Contracts with the public insurer appeared to be the main source of revenue for many spa companies, with no statistical difference between groups A and B. For financial results, group A companies sustained an average loss of PLN 304 000. The group B companies made an average profit of PLN 408 000 ($p=0.005$). The average capital value of spa companies was PLN 15.9 ± 11.7 million for group B. For group A, it was significantly higher ($p=0.030$), at PLN 20.45 ± 23.40 million. We observed that group A companies employed on average almost twice as many workers as the companies in group B ($p < 0.001$).

Conclusion: The implemented spa privatization process in Poland has been chaotic, lacking a clear vision for privatization eligibility criteria and maintenance of the therapeutic potential of the spa sector. The privatization process is being conducted in a manner that does not ensure the coherence of decisions, as reflected by the amount of investment undertaken by companies being subject to privatization. The process does not guarantee the retention of the therapeutic potential remaining at the disposal of the state, particularly with respect to unique resources.

Keywords: privatization, spa sector, health policy

Role of toll-like receptors TLR-2, TLR-4, TLR-7 and TLR-9 in pathogenesis and progression of esophageal squamous cell carcinoma.

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Background and Aim: The aim of the study was to evaluate the clinical significance of tissue expression and serum concentration of TLR-2, TLR-4, TLR-7 and TLR-9 in patients with esophageal squamous cell carcinoma.

Methods: The study group consisted of 70 individuals: 32 with esophageal squamous cell carcinoma and 38 age- and gender-matched controls. The mRNA expression and protein concentration of TLRs in tissues and sera were measured by RT-PCR and ELISA tests.

Results: In esophageal cancer patients, analysis of TLR expression on mRNA level showed the up-regulated levels of all receptors in tumor tissues as compared to normal ones ($p < 0.05$ for all). Protein concentrations of all TLRs were also significantly higher in tumor than in control tissue ($p < 0.05$). A tendency towards higher protein concentrations of tumor TLR-4 in esophageal cancer patients with lymph node metastasis was observed. The concentrations of circulating TLR-4 tended to correlate with receptor tumor expression in ESCC ($\rho = 0.343$, $p = 0.054$).

Conclusions: We demonstrated differences in the expression patterns of TLRs in esophageal squamous cell carcinoma, which may contribute to pathogenesis and progression of this type of cancer.

Key words: toll-like receptors, biomarkers, esophageal squamous cell carcinoma

Competence Model Based Education in Health Management for Epidemiologists

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Background and Aim: Practice needs are to be considered when improving the quality of education in health sciences. One of the starting points is the application of competency models to govern development of curricula and educational materials. The aim of the paper is to present a range of managerial competencies required to support epidemiologists in various work positions.

Methods: The approach used definitions of competences for epidemiologists working in the area of communicable disease surveillance and response, vaccination experts and infection control and hospital hygiene professionals compiled by experts from EU member states and facilitated by the ECDC. Authors also looked at other competence models for the public health sector.

Results: Epidemiology professionals from public health institutions in both, Slovak and Czech Republic were approached with a request for responses to internet based survey. The basic domains that appear to be important for those who responded were management (programs, projects), quality improvement, leadership, teamwork and negotiation, communication including knowledge of behavioural sciences (written, oral and non-verbal communication, publicity, social marketing), education - supporting capacities and capacities of colleagues, ethics, confidentiality in working with information obtained and conflict of interests.

Conclusion: The findings from this needs assessment survey will be implemented into curricula of continuing education in epidemiology and related areas of health sciences. Educational materials as well as distance learning courses are being developed by international teams, reflecting the results from the survey. In addition to managerial skills for epidemiologists, it is also appropriate to pay attention to epidemiology competencies for managers.

Keywords: epidemiology, health management, competency model, continuing education, distance learning.

The decade of Roma Inclusion: did it make a difference to health and use of health care services?

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Background and Aim: We investigated whether the severely disadvantaged health of Hungarian Roma adults living in segregated settlements changed by the Decade of Roma Inclusion program.

Methods: We compared the results of two paired health interview surveys that we carried out using the same methodology before and after the Decade, on the general Hungarian and Roma populations.

Results: Self-perceived health status of younger Roma worsened, while it improved among older Roma. Reported experience of discrimination reduced considerably and health care utilization improved in general. Positive changes in smoking and nutrition, and negative changes in alcohol consumption and overweight were observed. Many of observed changes can plausibly be linked to various government policies, including a quadrupling of public works expenditure, banning smoking in public places, restricting marketing of tobacco products, increasing cigarette prices, and a new tax on unhealthy foods. Liberalization of rules on alcohol distillation coincided with worsening alcohol consumption.

Conclusions: We have shown that Roma remain severely disadvantaged and present an innovative sampling method which can be used to monitor changes in groups where identification is a challenge.

Keywords: Roma, Decade of Roma Inclusion, Health behaviour survey, Public policy

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Public health in Moravian-Silesian Region

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Background and Aim: One of the basic preconditions for a successful society is the health of the population. The most complete knowledge and information is necessary to purposefully increase the level of health. The presentation mentions the extent of RPHA's professional activities in relation to the region's characteristics - from the point of view of protection and public health promotion.

The priority of the professional focus of the Regional Public Health Authority is the performance of the state health surveillance within the meaning of Act No. 258/2000 Coll., On the Protection of Public Health. RPHA, however, provides other activities that are aimed on fulfilling of the basic missions of the hygienic service, which is the protection and promotion of health and disease prevention in the broadest possible context. The aim of the presentation is to inform the conference participants about activities in individual fields of competence of the regional public health authority.

Conclusions: The purpose of the presentation is to point out the importance of cooperation with local government and local government authorities as well as other institutions dealing with the issue and highlighting the importance of providing valid information to citizens and the professional public through all types of news media. As a result, the information can serve as a basis for the creation of the regional health policy and for intensifying of a cross-border cooperation aimed on protecting and promoting public health.

Keywords: Public health protection, state health supervision, cooperation

The economic burden multiple sclerosis in Slovakia compared to selected European countries

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Background: Multiple sclerosis (MS) is the most common neurological disease of younger adults between 20 and 40 years of age which mostly occurs in women. Total estimated number of people diagnosed with MS is approximately 630.000 are in Europe. Executive abilities such as planning, working memory, attention, problem solving, inhibition or mental flexibility may have a direct impact on the ability to keep their job. Patients experience deterioration in functional status and reduction of their work capacity, productivity and quality of life. The objective of this study was to compare economic burden of MS in Slovakia with selected European countries.

Methods: This review of the literature provides an overview of recent studies on the cost of MS in European countries. A computer-aided search resulted in articles in English published from 2012 to June 2017. We evaluated in our study the relationship between disability and costs where patients were stratified into those with mild, moderate and severe disability using the Expanded Disability Status Scale (EDSS).

Results: The total number of followed-up patients with MS is 6.100 in Slovakia. Total annual costs for these patient were €54.723.592. Indirect costs (€31.728.757) prevailed over direct costs (€22.994.834). The average cost per patient independently of disease severity was €8.971 in Slovakia. Overall mean costs for patients with mild, moderate and severe disease as measured by EDSS were €22,800, €37,100 and €57,500 in European countries. Average annual direct medical costs per patient ranged from €8371 (Netherlands) to €17,302 (Austria); average annual direct non-medical costs ranged from €5922 (Germany) to €16,424 (Italy), and an average Annual indirect costs ranged from €8775 (Spain) to €20,730 (France).

Conclusion: MS is a costly disease. Estimated costs for MS treatment in Europe are about € 12.5 billion. The economic impact of SM includes direct costs (medical and non-medical) and indirect costs (e.g. loss of productivity, short-term absences, early retirement). The studies estimated costs of relapse and they directly verified that healthcare consumption increases with disease severity.

Keywords: multiple sclerosis, cost of treatment.

Daily physical education in Hungarian schools

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Background and Aim: According to several recommendations of WHO daily physical education (DPE) became obligatory for all school children in Hungary since 2011. To achieve the expected health gains, daily physical education should fulfil several special health-promoting criteria. The paper shows how this was helped by an intersectoral work of the Hungarian Government between 2011 - 2017.

Methods: Basic ruling documents of public education from 2012 contain health promoting criteria of DPE, as leading PE teachers and the main NGO of sport sector are all convinced of the importance of them. Several huge projects were introduced to amend the attitude of many PE teachers and to enhance the quality of DPE.

Results: All schools were provided with a series of publications dealing with new methodology for PE teachers, including a new measurement tool for assessing physical fitness of school children. Most important part of the series is a collection of 87 interesting and health enhancing sport plays to be used out of the gym – as there are more classes of DPE than gyms. More than 7 thousand PE teachers could take part in postgraduate courses and this process is going on even now. Special posture correction is also part of these courses. Now the health, education and sport sector plan together the way of monitoring DPE.

Conclusion: Commitment of several medical professionals and the health sector followed by a good cooperation with the education and sport sector was the key component in the work for enhancing the quality of DPE.

Keywords: daily physical education, health promoting criteria, intersectoral cooperation

The use of e-Health tools in the Visegrad Group

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Background and Aim: Modern information technologies allow free and dynamic record and flow of information in various forms, which can improve medical services. As a result of intensive development of technology, the idea of telemedicine has been extended and, along with other changes, is now referred to as e-Health. According to the World Health Organization, e-Health is an effective, economical and secure use of information and communication technologies to support all activities related to the protection of health, including health services, observation systems related to fields of health, health education, development of professional literature, knowledge and research. Aim of the study: Analysis of the use of some e-Health tools in the Visegrad Group.

Material and method: The analysis was made of reports of Euro Health Consumer Index (Health Consumer Powerhouse) that were published between 2013 and 2015. Four selected countries were analyzed (the Czech Republic, Hungary, Poland and Slovakia). This choice was dictated by the availability of data for analysis. The following areas have been reviewed: having a web-based or telephoning information service that is publicly available in all parts of the country, runs 24 hours a day/7 days a week, and is interactive, e-Prescription system and the possibility of register with the doctor's via the Internet by patients (2015 only). The data obtained from the research was collected using Microsoft Excel. The descriptive statistics were used to analyze the collected data and the results were presented in tables and graphs.

Results: After analyzing available date it turns out that such a service exists, but few members of the public know about it, or it is hard to access (example the Czech Republic and Slovakia). Lack of solutions in the discussed area was found, among others, in Poland. The e-Prescription system is available but it is only offered by a few pioneering pharmacies in countries such as Slovakia, the Czech Republic and Hungary. The worst situation in this area has been recorded in Poland. Among the selected countries of the Visegrad Group it was found that the online booking system in one of them works well (Slovakia), in another one it works moderately (Hungary) and in two countries it is not good (the Czech Republic, Poland).

Conclusions: Insufficient solutions in the area of e-Health have been observed in Poland. The deepening disparity in the involvement of local authorities in the development of e-Health strategy may lead to a deeper isolation of countries where the area in question is not adequately implemented in the health system.

Keywords: e-Health, the Visegrad Group, e-Prescription system

The lifestyle of families as a determinant of V4 Countries' health – longitudinal research

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Background and Aim: Between 2004 and 2007, led by the University of Szeged (HU) and with the participation of the University of Silesia (PL), the University of Hradec Králové (CZ) and the Constantine the Philosopher University in Nitra (SK) a representative research into the Traditional and modern lifestyle elements of the families in the Visegrad Countries was performed (Benkő, 2007), revealing the predominance of traditional lifestyle practices. Since 2007 considerable social, political, economic and demographic changes affected the previously observed lifestyle elements (nutrition, leisure habits, family customs, cultural habits and the value system of families), that is why the idea of repeating this research 'ten years after' attracted the cooperating researchers.

Methods: The originally used structured assisted questionnaire was revised and completed based on experiences gained and new phenomena arising, keeping the comparability of the two researches unattended. Sampling will be done in the same towns as 10 years before: Szeged (Hungary), Rybnik (Poland), Hradec Králové (Czech Republic), Nitra (Slovakia). From each town respondents will be chosen from 5 districts, 100-100 families from each, meaning minimum 500 families in each country, minimum 300 out of which should correspond to the criteria: adult(s) with a child (regardless of age) living together in one household.

Results: New research hypotheses will be formed on the basis of the revealed decade long social, demographical, political and economic changes on the background lifestyle elements affecting the public health indicators in the Visegrad Countries.

Conclusion: The Lalonde Report (1974) has already stated that lifestyle is the strongest 'health field' determining our health. Effective health policy recommendations should be based on the knowledge of current Central-East European characteristics of lifestyle practices.

Keywords: family, lifestyle, tradition, modernity, Visegrad 4.

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Deaths due to traumatic brain injury occurring inside hospitals versus outside hospitals in selected European countries

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Background and Aim: Traumatic brain injuries (TBI) are a frequently fatal type of injuries. The most common causes are traffic injuries and falls. In developed countries, the mortality rates are decreasing in traffic accidents, but the number of injuries caused by falls is rising, partly due to the larger number of older people in the population. However, several studies focus on the analysis of deaths from hospital data without including outside hospital deaths. The aim of our study was to provide a summary of deaths resulting from brain injuries within hospital and outside hospitals, along with a comparison of selected characteristics.

Methods: We have obtained data on TBI deaths within the project CENTER-TBI (Collaborative European NeuroTrauma Effectiveness Research in Traumatic Brain Injury) from Slovakia, Austria, Cyprus, Estonia, Lithuania, Latvia, Luxembourg and Malta for the years 2012-2014. We calculated crude and standardized mortality rates by age, gender and place of death.

Results: We observed a range of mortality rates for TBI occurring within versus outside hospitals. Hospital mortality rates ranged from 9.2 to 2.6 (Lithuania - Cyprus) and outside hospitals 10.3 - 3.5 (Latvia - Malta) per 100,000 inhabitants. The most common causes of TBI deaths were traffic injuries and falls. Falls were the most often cause of death in Malta (75%), the least common in Latvia (41%). Deaths in hospital caused by traffic accidents made up the largest proportion in Malta (25%). Outside of hospitals, traffic accidents were the most common cause of TBI mortality in the Slovak Republic (43%), the least often in Latvia (20%). Outside hospitals, falls were the cause of TBI deaths most frequently in Luxembourg and Malta (36%), and least frequently in Cyprus (14%).

Conclusion: Differences in mortality rates for TBI within versus outside hospitals may have several causes. These include the possible different coding of the causes of death, the coding of part of the deaths for TBI as polytrauma as well as differences in transport infrastructure, or in recognition of severity of injuries. One limitation of our study that it is impossible to distinguish whether a patient's death occurred before coming to the hospital or after being discharged.

Keywords: traumatic brain injury, mortality, Europe, CENTER-TBI

Are disease severity, sleep problems and mastery associated with work functioning in patients with obstructive sleep apnea?

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Background: Obstructive Sleep Apnea (OSA) is associated with an increase of healthcare costs, reduced work capacity, work disability and job-related accidents. A diminished sense of mastery may be related to poor physical, mental, and social functioning and to increased mortality rates in patients with various chronic conditions. Therefore, we aimed to assess the prevalence of impaired work functioning in OSA patients. We also aimed to examine whether OSA severity, sleep-related problems and mastery are associated with work functioning in OSA patients, when controlled for age, gender and type of occupation.

Methods: We included 105 patients (70% male; mean age 47.53±9.81 years) with the diagnosis of OSA (Apnea-Hypopnea Index – AHI≥5) based on a full-night polysomnography. All patients completed the Pittsburgh Sleep Quality Index, the Epworth Sleepiness Scale, the Pearlin Mastery Scale and the Work Role Functioning Questionnaire-2.0. To analyze data multiple linear regression was used.

Findings: Impaired work functioning was present among 79% of OSA patients. OSA severity, poor sleep quality and mastery were univariately associated with impaired work functioning. Multiple linear regression analysis showed that mastery was more strongly associated with impaired work functioning than poor sleep quality. After adding mastery, the explained work functioning variance rose from 17.9% to 27.5%.

Discussion: Poor sleep quality and mastery were strongly associated with impaired work functioning in OSA patients. The study implies that screening for sleep quality in clinical and workplace environment may help to identify a reversible cause of impaired work functioning. OSA patients and their physicians should be educated about mastery and its positive association with work functioning. The findings may help to optimize management, standard treatment and work functioning OSA patients when confirmed in longitudinal studies [Grant support: APVV-15- 0719].

Keywords: obstructive sleep apnea, work functioning, nighttime sleep quality, daytime sleepiness, mastery

Anti-stigma programs in the Czech Republic: exploration of effectiveness of the current initiatives and barriers to implementation

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Background and Aim: According to recent investigations the stigmatization of people of mental illness is widespread in the Czech Republic. The aim of this study is an exploration of the content and effects of the current anti-stigma initiatives in the Czech Republic and identification of barriers to their formation, implementation and evaluation according to those who implement them.

Methods: Primary web search of the current programs was complemented by a brief survey conducted in 2016 among organizations that implement anti-stigma programs. The identification of respondents was based on both the web search and recommendations of the biggest providers of social care in the regions and selected experts on stigma of mental illness.

Results: 22 organizations out of 32 that conducted anti-stigma programs during 2015-2016 participated in the survey. There exists a developed infrastructure of organizations implementing anti-stigma programs in the Czech Republic, however, there is dearth of interventions targeting some of the key groups such as journalists, integrated rescue system workers, medical students, teachers or politicians. Except of only a few programs we don't have any evidence on their effectiveness. The most cited obstacles to the formation, implementation and evaluation of the programs according to organizations are lack of finances, lack of interest from the side of the most important stakeholders and lack of information and knowledge.

Conclusion: There exists a promising net of organizations conducting anti-stigma interventions in the Czech Republic. In the future, it would be helpful to share the current knowledge and experiences about effective interventions and develop and test the effectiveness of interventions for the specific groups that are not targeted now. Also, a methodical support of organizations in formation, implementation and evaluation of programs is needed.

Keywords: stigma, mental illness, destigmatization, Czech Republic