

# NÉPEGÉSZSÉGÜGY

A NÉPEGÉSZSÉGÜGYI KÉPZŐ- ÉS KUTATÓHELYEK ORSZÁGOS EGYESÜLETÉNEK TUDOMÁNYOS FOLYÓIRATA  
PUBLIC HEALTH RESEARCH JOURNAL OF THE HUNGARIAN ASSOCIATION OF PUBLIC HEALTH TRAINING AND RESEARCH INSTITUTIONS



97. ÉVFOLYAM 2. SZÁM

2019

VOLUME 97. NO.2.

**NKE**

# NÉPEGÉSZSÉGÜGY

A NÉPEGÉSZSÉGÜGYI KÉPZŐ- ÉS KUTATÓHELYEK ORSZÁGOS EGYESÜLETÉNEK TUDOMÁNYOS FOLYÓIRATA  
PUBLIC HEALTH RESEARCH JOURNAL OF THE HUNGARIAN ASSOCIATION OF PUBLIC HEALTH TRAINING AND RESEARCH INSTITUTIONS

97. évfolyam 2. szám  
2019  
Volume 97. No. 2.

## TARTALOM – CONTENTS

4th V4 Public Health Conference .....	219
Welcome message from the Conference Chair .....	221
Scientific Committee .....	222
Organizing Committee .....	222
Keynote speakers .....	223
Conference venue .....	224
Social programme .....	225
Conference organizers .....	226
Conference sponsors .....	226
Programme overview .....	227
Conference programme .....	228
Abstracts of the workshops and sessions .....	235
Abstracts of the poster sessions .....	260

ALAPÍTÁS ÉVE:  
1920

FŐSZERKESZTŐ:  
Ádány Róza

SZERKESZTŐBIZOTTSÁG:

Balázs Margit  
Barcs István  
Betlehem József  
Bíró Klára  
Boncz Imre  
Füzesi Zsuzsanna  
Lakatos Péter  
Kiss István  
Kósa Karolina  
Kósa Zsigmond  
Moizs Mariann  
Orosi Piroska  
Paulik Edit  
Pándics Tamás  
Repa Imre  
Kárpáti István  
Sáfrány Géza  
Sándor János  
Sántha Ágnes  
Somhegyi Annamária  
Szilárd István  
Tarkó Klára  
Veres-Balajti Ilona  
Vokó Zoltán  
Wilhelm Márta

FELELŐS KIADÓ:  
Debreceni Egyetem  
Népegészségügyi Kar

SZERKESZTŐ:  
Oravecz Attila

SZERKESZTŐSÉG:  
4028 Debrecen, Kassai út 26/b  
TEL./FAX:  
(52) 512 764

E-MAIL:  
nepegeszsegugy@sph.unideb.hu

Megjelenik negyedévente.  
Egy példány ára: 1200 Ft  
Előfizetési díj egy évre: 4800 Ft

HU-ISSN 0369-3805

NYOMDAI MUNKÁK:  
Alföldi Nyomda Zrt.  
4027 Debrecen, Böszörményi út 6.  
TEL.: (52) 515 715



# 4TH V4 PUBLIC HEALTH CONFERENCE

**25-26 APRIL, 2019**  
**DEBRECEN, HUNGARY**



**NKE**

**HUNGARIAN ASSOCIATION OF PUBLIC HEALTH TRAINING AND RESEARCH INSTITUTIONS**

**FACULTY OF PUBLIC HEALTH, UNIVERSITY OF DEBRECEN**

Address: H-4028 Debrecen, Kassai út 26/B  
Phone: +36 52 512 764





## Welcome message from the Conference Chair



*Dear Conference Participants,*

*It is a great pleasure and privilege for me to welcome you on behalf of the Scientific Committee and the Hungarian Association of Public Health Research and Training Institutions in Debrecen. The fact that now we already meet on the 4th V4 Public Health Conference clearly indicates that the important initiative in 2013 by our Slovakian partners to collect the V4 countries' public health experts together on a regular basis is truly capable of living. The V4 countries have common history, common challenges, common public health problems and we have to find common solutions together.*

*I believe we have chosen a venue that guarantees a successful conference. Debrecen is the sister city of Brno (Czech Republic) and Lublin (Poland) and hosting one of the largest and most prestigious universities in Hungary where Rudolf Schuster, the former president of Slovakia is an honorary citizen. So you can feel yourself almost at home... In Debrecen you are at a unique place, in the "Calvinist Rome", located very close to the UNESCO World Heritage site, the "puszta" Hortobágy National Park.*

*The University of Debrecen is the only higher education institution in Hungary which has a Faculty of Pub-*

*lic Health with a mission to pursue excellence in training, research and consultancy work, as well as to facilitate international collaborations. Most of the conference participants arrive from V4 countries, but the attendees from other countries are also warmly welcomed.*

*I look forward to vivid discussions, in which all contributions are important, if we are to identify and promote solutions to the public health problems in our countries.*

*I am thankful to the members of the Scientific and Organizing Committees for their work in preparation of the 4th V4 Public Health Conference.*

*I wish you a professionally fruitful and personally enjoyable stay in Debrecen.*

**Róza Ádány**

*Chair of the 4th V4 Public Health Conference  
President of the Hungarian Association of  
Public Health Research and  
Training Institutions*

## Scientific Committee

### **Róza Ádány**

Faculty of Public Health, University of Debrecen, Hungary  
President of the Hungarian Association of Public Health Training and Research Institutions, Chair of the 4th V4 Public Health Conference

### **Martin Dlouhý**

University of Economics, Prague, Czech Republic  
President of the Czech Society of Social Medicine and Health Care Management

### **Helena Hnilicová**

First Faculty of Medicine, Charles University, Prague, Czech Republic

### **Jana Loosová**

Regional Public Health Authority Liberec, Czech Republic

### **Andrzej M. Fal**

Central Clinical Hospital, Ministry of Interior, Warszawa & Wrocław Medical University  
President of the Polish Society of Public Health, Poland

### **Piotr Romaniuk**

School of Public Health, Medical University of Silesia in Katowice, Poland

### **Grzegorz Juszczak**

National Institute of Hygiene, Warsaw, Poland

### **Zuzana Katreniakova**

Faculty of Medicine, P. J. Šafarik University of Kosice, Slovakia  
President of the Slovak Public Health Association

### **Marek Majdan**

Faculty of Health Sciences and Social Work, Trnava University, Slovakia

### **Edit Paulik**

Faculty of Medicine, University of Szeged, Hungary

### **Klára Bíró**

Faculty of Public Health, University of Debrecen, Hungary

### **Károly Cseh**

Faculty of Medicine, Semmelweis University, Budapest, Hungary

### **Zsigmond Kósa**

Faculty of Health, University of Debrecen, Nyíregyháza, Hungary

### **Kinga Lampek**

Faculty of Health Sciences, University of Pécs, Hungary

### **Ilona Veres-Balajti**

Faculty of Public Health, University of Debrecen, Hungary

### **Zoltán Vokó**

Faculty of Social Sciences, Eötvös Loránd University, Budapest, Hungary

### **Srdan Matic**

WHO Representative and Head of Country Office in Czech Republic

### **Ledia Lazeri**

WHO Representative and Head of Country Office in Hungary

### **Paloma Cuchi**

WHO Representative and Head of Country Office in Poland

### **Tatul Hakobyan**

WHO Representative and Head of Country Office in Slovakia

## Organizing Committee

### **Margit Balázs**

Faculty of Public Health, University of Debrecen

### **Miroslav Barták**

Jan Evangelista Purkyně University, Ústí nad Labem, Czech Republic

### **Krzysztof Kaczmarek**

School of Public Health in Bytom, Medical University of Silesia in Katowice, Poland

### **Iveta Nagyova**

Faculty of Medicine, P.J. Šafarik University in Kosice and SAVEZ, Slovakia

### **János Sándor**

Faculty of Public Health, University of Debrecen, Hungary

### **Judit Zsuga**

Faculty of Public Health, University of Debrecen, Hungary

## Keynote speakers



**Ildikó Horváth**

*Minister of State for Health of Hungary*



**Martin McKee**

*Past President of EUPHA*



**Ledia Lazeri**

*WHO Representative and Head of Country Office in Hungary*



**Miklós Szócska**

*Former Minister of State for Health of Hungary (2010-2014)*



**Dineke Zeegers**

*Executive Director of EUPHA*



**Iveta Nagyova**

*President-elect of EUPHA*



**Katarzyna Czabanowska**

*President of ASPHER*



**Martin Dlouhý**

*President of the Czech Society of Social Medicine and Health Care Management*



**Andrzej M. Fal**

*President of the Polish Society of Public Health*



**Zuzana Katreniakova**

*President of the Slovak Public Health Association*



**Róza Ádány**

*President of the Hungarian Association of Public Health Training and Research Institutions*



## Conference venue

The conference will be held in the main building (I. and II. on the map) of the Faculty of Public Health, University of Debrecen at the Kassai Street Campus.

Address:

H-4028, 26 Kassai Street, Debrecen, Hungary

Access:

<https://nk.unideb.hu/en/node/223>

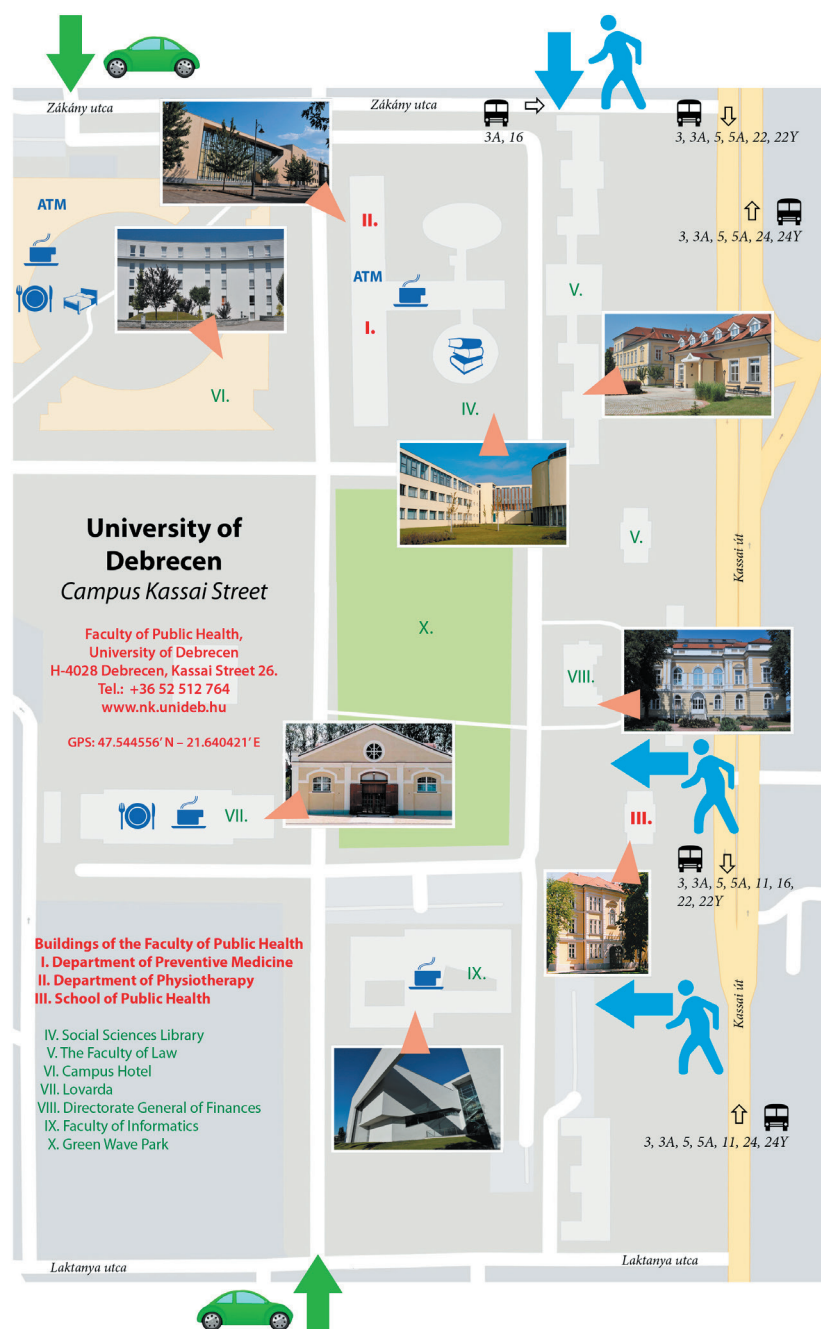
From the Debrecen Railway Station: take trolley-bus No 2 (getting off at Zákány Street)

From the city centre: take bus No 11 or 24, or trolley-bus No 3 (getting off at Zákány Street)

GPS coordinates

– Latitude: 47.544820, 47°32'41.4" N

– Longitude: 21.641276, 21°38'28.6" E



## Social programme

An excursion with dinner will be held in Hungary's oldest and largest national park, awarded by the European Destinations of Excellence (EDEN) prize, the Hortobágy "Puszta" National Park, a UNESCO World Heritage site.

Transportation from the conference venue by bus (departure time 16:15).



## Conference organizers



*Hungarian Association of Public Health Training and Research  
Institutions (HAPHI)*



*Faculty of Public Health, University of Debrecen*



*University of Debrecen*



**SOCIETY OF SOCIAL MEDICINE  
AND HEALTH CARE MANAGEMENT**  
OF THE CZECH MEDICAL ASSOCIATION OF JAN EVANGELISTA PURKYNĚ

*Society of Social Medicine and Health Care Management*



*Institute for Postgraduate Medical Education in Prague*



*Polish Society of Public Health*



*Slovak Public Health Association (SAVEZ)*



*Faculty of Medicine, P.J. Safarik University, Kosice*

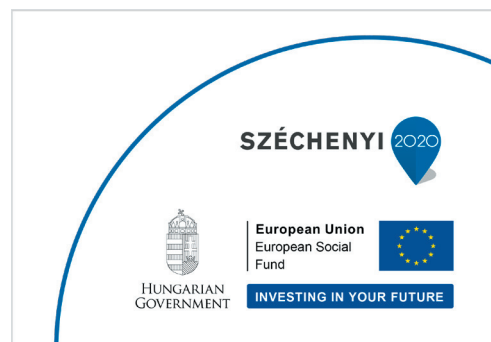


*European Public Health Association*

## Conference sponsors



*The conference is held under the auspices of Dr. László Papp,  
the Mayor of the City of Debrecen.*



*Széchenyi 2020 – European Social Fund*



Thursday, 25 April, 2019	
9.00–9.20	<b>Opening Ceremony</b>
9.20–10.50	<b>Opening Plenary Session</b>
10.50–11.10	<i>Coffe break</i>
11.10–12.30	<div>Workshop I.</div> <div>Session I.</div> <div>Poster Session I.</div>
12.30–13.30	<i>Lunch</i>
13.30–14.10	<b>Plenary Session I.</b>
14.10–16.00	<div>Session II.</div> <div>Poster Session II.</div> <div>Session III.</div> <div>Poster Session III.</div>
16.00–21.00	<i>Social program</i>

Friday, 26 April, 2019	
9.00–10.00	<b>Plenary Session II.</b>
10.00–10.30	<i>Coffe break</i>
10.30–12.30	<div>Workshop II.</div> <div>Session IV.</div> <div>Poster Session IV.</div>
12.30–12.50	<b>Closing Plenary ceremony</b>
12.50–14.00	<i>Lunch</i>

## Thursday, 25 April, 2019

### 9.00 Opening Ceremony

TEOKJ 112/II. Congress Hall

#### **Róza Ádány**

President of the Hungarian Association of Public Health Training and Research Institutions

#### **László Papp**

Mayor of the City of Debrecen

#### **Zoltán Szilvássy**

Rector of the University of Debrecen

#### **Judit Zsuga**

Dean of the Faculty of Public Health, University of Debrecen

### 9.20 Opening Plenary Session

TEOKJ 112/II. Congress Hall

#### CHAIRPERSONS:

**Róza Ádány**

**Iveta Nagyova**

#### **Ildikó Horváth**

Minister of State for Health of Hungary  
*Three generations for equity in health*

#### **Martin McKee**

Past President of EUPHA  
*Fake news – why should the public health community worry and what can we do about it?*

#### **Ledia Lazeri**

WHO Representative and Head of Country Office in Hungary  
*Revitalizing primary health care for the 21st century: more equity and better health coverage towards the Sustainable Development Goals*

10.50–11.10 Coffe break

### Workshop I. – TEOKJ 112/II. Congress Hall

#### Taxation policies regarding sugar-sweetened beverages (SSB) and other junk foods. Learning from experience

#### CHAIRPERSONS:

**Piotr Romaniuk**

**Miklós Szócska**

11.10 W I/1. .... 236

#### **Piotr Romaniuk**

*Modifying dietary behaviours with the taxation policies: a review of the existing solutions*

11.30 W I/2. .... 236

#### **Krzysztof Kaczmarek**

*Implementation of the policy: theoretical framework*

11.45 W I/3. .... 237

#### **Katarzyna Brukała**

*Policy evaluation – Key to success*

12.00 W I/4. .... 237

#### **Miklós Szócska**

*Hungarian experience: political process, policy in practice – challenges and outcomes*

12.20 **Discussion**

12.30-13.30 Lunch

## Thursday, 25 April, 2019

## Session I. – DPM II. Meeting Room

## Vulnerability and health

## CHAIRPERSONS:

**István Szilárd**  
**Andrzej M. Fal**

11.10 S I/1. .... 238

**Zsuzsa Rákossy, Zoltán Gurály, Emese Nagy-Borsy, Blanka Szeitl, István Kiss**

*Integrated development of social and health care system for homeless people*

11.20 S I/2. .... 238

**Zoltán Katz, Erika Marek, István Szilárd**

*Fighting against misleading information on vaccination – who's responsibility?*

11.30 S I/3. .... 239

**Péter Csizmadia**

*ADVANTAGE Joint Action: A comprehensive approach to promote a disability-free advanced age in Europe*

11.40 S I/4. .... 239

**Dávid Sipos, Attila Pandur, András Kedves, Veronika Varga, Melinda Csima, Imre Repa, Árpád Kovács**

*Possible predictors of burnout among radiographers*

11.50 S I/5. .... 240

**István Szilárd, Lajos Bogár, Erika Marek, Kia Goolesorkhi, Zoltan Katz**

*Migration Health as a new interdisciplinary training field in medical education*

12.00 S I/6. .... 240

**Katarina Nordeng, Dorottya Árva, András Terebessy**

*General health and alcohol consumption of Norwegian medical students studying in Norway and abroad*

12.10 **Discussion**

12.30-13.30 Lunch

## Poster Session I. – PT-0-309 Poster Hall

## CHAIRPERSONS:

**János Sándor**  
**Marek Majdan**

11.10 P I/1. .... 261

**Jacek Kozakiewicz, Aleksandra Sommerlik Biernat, Anna Lis-Święty, Tadeusz Urban**

*Presentation of the poster campaign "Imperative for a good health"*

11.20 P I/2. .... 261

**Jana Babjakova, Lubica Argalasova, Diana Vondrova, Alexandra Filova, Ivana Kachutova, Jana Jurkovicova**

*Alcohol consumption and smoking status in Slovak adolescents*

11.30 P I/3. .... 262

**Aleksandra Antoniuk, Dorota Stołtny, Edyta Fatyga, Magdalena Piłot, Sylwia Dzięgielewska-Gęsiak**

*Do we need to educate vegetarians about vegetarian diet*

11.40 P I/4. .... 262

**Erand Llanaj, Ferenc Vincze, Zsigmond Kósa, Ádány Róza**

*Macro- and micro-nutrient intake among Hungarian general and Roma adults*

11.50 P I/5. .... 263

**Aleksandra Cybulska, Edyta Fatyga, Sylwia Dzięgielewska-Gęsiak, Teresa Kokot, Małgorzata Muc-Wierżgoń**

*Evaluation of adipose tissue and body composition among Polish seniors – pilot study*

12.00 P I/6. .... 264

**Evelin Polanek, Alexandra Soós, Edit Paulik, Andrea Szabó**

*Is there any association between vitamin D and male fertility?*

12.10 P I/7. .... 264

**Szabolcs Lovas, Balázs Ádám**

*Potentially harmful chemical contamination in closed spaces of transportation and trade*

12.20 P I/8. .... 265

**Orsolya Bujdosó, László Pál, Attila Nagy, Ervin Árnay, Róza Ádány, János Sándor, Martin McKee, Sándor Szűcs**

*Assessment of health risk from consumption of recorded and unrecorded spirits containing alcohols other than ethanol*

12.30-13.30 Lunch



## Thursday, 25 April, 2019

## 13.30 Plenary Session I.

TEOKJ 112/II. Congress Hall

- Iveta Nagyova** PL I/1. .... 242  
President-elect of EUPHA  
*Knowledge to Action? Evidence-Informed Public Health in V4*
- Andrzej M. Fal** PL I/2. .... 242  
President of the Polish Society of Public Health  
*Noncommunicable diseases and demographics – a combined threat to the public health financing*
- Martin Dlouhý** PL I/3. .... 243  
President of the Czech Society of Social Medicine and Health Care Management  
*The science and art of the cost-of-illness studies: a mental health example*

## Session II. – TEOKJ 112/II. Congress Hall

## Mental health and health behaviour

CHAIRPERSONS:

**Karolina Kósa**  
**Martin Dlouhý**

- 14.30 S II/1. .... 244  
**Karolina Kósa, Éva Bíró**  
*Trends of the mental health of the Hungarian adult population between 2000-2019*
- 14.40 S II/2. .... 244  
**Csaba Erdős, Andrea Szabó, Edina Horváth, Paulik Edit**  
*Factors affecting childhood overweight and obesity among primary school students*
- 14.50 S II/3. .... 245  
**Veronika Bettina Zagraj, Anett Bartkóné Kovács, Andrea Soós, András Török, László Barkai, Andrea Lukács**  
*Psychological well-being of mothers of young children with type 1 diabetes*
- 15.00 S II/4. .... 246  
**Judit Diószegi, Péter Pikó, Zsigmond Kósa, János Sándor, Róza Ádány**  
*Taste and food preferences of the Hungarian Roma population*
- 15.10 S II/5. .... 246  
**Szilvia Fiatal, Róza Ádány**  
*Using SNP-based risk estimates in identification of susceptibility to cardiovascular diseases*
- 15.20 S II/6. .... 247  
**János Girán, István Kiss, Tibor Kiss**  
*Shaping a health-enabling and resilient urban environment*

- 15.30 S II/7. .... 248  
**Maria Ganczak, Marta Kozybska, Artur Kotwas, Bartosz Rudnicki, Tomasz Nogal, Jacek Kopec**  
*Trends in disease burden for major conditions in V4 countries*

## 15.40 Discussion

## Poster Session II. – PT-0-309 Poster Hall

CHAIRPERSONS:

**Edit Paulik**  
**Helena Hnilicová**

- 14.40 P II/1. .... 266  
**Emőke Kiss-Tóth, Małgorzata Wasilewska, Olha Sopel, Beatrix Varga, Marta Mandziuk, Olena Lototska, Péter Sasvári, Halyna Krytska, József Bergier, Andrea Lukács**  
*Life orientation of university students: an international study in Hungary, Poland and Ukraine*
- 14.50 P II/2. .... 266  
**Erika Balogh, Nóra Faubl, Zoltán Wagner, Zsuzsanna Füzesi, István Kiss**  
*Cigarette use and intention to quit among medical students in Pécs, Hungary*
- 15.00 P II/3. .... 267  
**Eszter Labancz, Katalin Balázs, Ildikó Kuritárné Szabó**  
*Comparison of pathological personality traits and quality of life in a clinical, non-clinical and undergraduate students' sample*
- 15.10 P II/4. .... 268  
**Erika Balogh, Henna Riemenschneider, András Terebessy, Ferenc Horváth, Karen Voigt, István Kiss, Zsuzsanna Füzesi, Nóra Faubl**  
*Quo vadis medicinae candidatus? Specialization and workplace preferences for medical students studying in an international environment*
- 15.20 P II/5. .... 268  
**Gabriella Nagy-Pénzes, Borbála Balogh, Éva Bíró**  
*Problematic internet activities among high school students*
- 15.30 P II/6. .... 269  
**Alexandra Sándor, Nikolett Nagy, Lilla Stella Bogdán, Gábor Papp, Judit Molnár**  
*The role of childhood traumatization and attachment characteristics in the etiology and pathogenesis of maladaptive daydreaming*
- 15.40 P II/7. .... 270  
**Enikő Csikai, László Csiba, Bernadett Balajthy-Hidegh, László Kardos, Mónika Andrejkovics**  
*Reversibility of neurocognitive performance impairment in primer hypertensive patients*

## Thursday, 25 April, 2019

## Session III. – DPM II. Meeting Room

## Health and health services

## CHAIRPERSONS:

**Klára Bíró****Zuzana Katreniakova**

14.30 S III/1. .... 249

**Zuzana Katreniakova, Daniela Berakova***What factors motivate Slovak adults to participate in regular health check-ups*

14.40 S III/2. .... 249

**Magor Papp, László Kőrösi, János Sándor, Csilla Nagy, Attila Juhász, Róza Ádány***Workforce crisis in primary health care worldwide: the Hungarian example in a longitudinal follow-up study*

14.50 S III/3. .... 250

**Kamila Kocańda***The Polish healthcare system reform implementing lump sum remuneration for healthcare services*

15.00 S III/4. .... 251

**Klára Boruzs, Zita Fekete, Viktor Dombrádi, Gábor Bányai, Attila Nagy, Robert Horne, Klára Bíró***Beliefs about medicines – concerns regarding cholesterol medication within V4 countries*

15.10 S III/5. .... 251

**Dominika Plancikova, Juliana Melichova, Veronika Zelinkova, Mark Taylor, Patrik Sivco, Martin Rusnak, Marek Majdan***Epidemiology of traumatic brain injuries in European countries*

15.20 S III/6. .... 252

**Maria Ganczak, Katarzyna Topczewska***Prevalence of HBV and HCV and risk factors for occupational blood-borne infections among paramedics from West Pomerania, Poland*15.30 **Discussion**

16.00–21.00 Social program

## Poster Session III. – PT-0-310 Poster Hall

## CHAIRPERSONS:

**Mariann Moizs****Miroslav Barták**

14.40 P III/1. .... 271

**Csaba Móczár***Hungarian managed care initiatives between 2000 and 2007: regional health outcomes of the Hungarian care organizations*

14.50 P III/2. .... 271

**Nadine Fraihat, Orsolya Varga***Effectiveness and cost-effectiveness of oral health promotion in dental caries prevention among children: a meta-analysis and systematic review*

15.00 P III/3. .... 272

**Karolína Dobiášová***Patient involvement in psychiatric care reform in the Czech Republic*

15.10 P III/4. .... 272

**Katalin Tolvay, Cintia Katona, Karolina Kósa***Dysfunctional attitudes in an adult population with high prevalence of depression*

15.20 P III/5. .... 273

**Attila Juhász, Csilla Nagy, Róza Ádány***Distribution of morbidity and mortality due to malignant neoplasms in association with the deprivation in Hungary 2010-2016*

15.30 P III/6. .... 273

**Gabriella Szörényiné Ványi, Annamária Szigeti,****Mariann Moizs, Imre Repa***The OnkoNetwork patient pathway management program used as melanoma registry. Single center experiences in Moricz Kaposi General Hospital in Hungary*

15.40 P III/7. .... 274

**Anita Barth, Balázs Nemes***The influence of socio-demographic and economic factors on willingness to receive a kidney transplant in East Hungary*

16.00–21.00 Social program

## Friday, 26 April, 2019

## 9.00 Plenary Session II.

TEOKJ 112/II. Congress Hall

**Róza Ádány** PL II/1. .... 248  
President of the Hungarian Association of Public Health Training and Research Institutions  
*Public health and public ill-health in the V4 countries*

**Dineke Zeegers** PL II/2. .... 248  
Executive Director of EUPHA  
*Challenges in the 21st century: new roles for public health professionals*

**Katarzyna Czabanowska** PL II/3. .... 248  
President of ASPHER  
*Further professionalization of the PH workforce: why is it needed and how do we do it?*

10.00–10.30 Coffe break

## Workshop II. – TEOKJ 112/II. Congress Hall

## Is there a need to strengthen the public health profession in the V4 countries

CHAIRPERSONS:

**Katarzyna Czabanowska**  
**Martin Kray von Krauss**

10:30

**Martin Kray von Krauss, Cedric Slock**

*Overview of the objectives of the workshop, the programme, and the participants*

10:45

**Katarzyna Czabanowska**

*Together for the development and professionalization of Public Health Workforce in "Vysehrad Four"*

11:00

*Rapid assessments by country*

11:30

*Strengths and weaknesses of the public health profession in the V4 countries*

12:00

*Discussion of stakeholders likely to contribute to a coalition, by country*

FACILITATORS:

**Alena Petraková** – Czech Republic W II/1. .... 253  
*Public Health workforce capacity development: International cooperation of academia with researchers, policy makers and field epidemiologists*

**Daniella Kállayová** – Slovakia W II/2. .... 253  
*Public health education and practice needs in Slovakia*

**Zuzana Katreniaková** – Slovakia

**Róza Ádány** – Hungary W II/3. .... 254  
*Establishment and development of the first independent Faculty of Public Health in the Hungarian higher education*  
**Péter Csizmadia** – Hungary

12:25

Conclusion

**Katarzyna Czabanowska, Martin Kray von Krauss**

## Session IV. – DPM II. Meeting Room

## Health literacy

CHAIRPERSONS:

**Zoltán Vokó**  
**Ledia Lazeri**

10:30 IV/1. .... 255

**Zuzana Klochanova, Robert Ochaba, Ladislava Wsolova**  
*Development of health literacy and behavior in Slovakia between 2013 and 2016*

10:40 IV/2. .... 255

**Éva Bíró, Karolina Kósa**

*Self-perceived and functional health literacy of Hungarian adults*

10:50 IV/3. .... 256

**Anikó Ujhelyiné Nagy, Katalin Balázs, Ildikó Kuritárné Szabó**

*Impacts of adverse childhood experiences on mental and somatic health in Hungarian clinical populations*

11:00 IV/4. .... 256

**Dóra Prievára, László Lippai, Veronika Mátó, Erika Tóth**

*Digital generations with digital competences – how to utilize technology in health education*

11:10 IV/5. .... 257

**Gábor Bánya, Viktor Dombrádi, Cintia Katona, Klára Boruzs****Gréta Dezső, Attila Nagy, Klára Bíró**

*Attitude towards the doctor-patient relationship in selected Central and Eastern European countries*

11:20 IV/6. .... 258

**Ilona Veres-Balajti, Bálint Molics, János Sándor, Róza Ádány**

*Physiotherapy operations in general practitioners' clusters at different levels of prevention*

11:30 IV/7. .... 258

**Péter Csépe, László Antal**

*Teaching about climate change in medical education*

11:40 Discussion



## Friday, 26 April, 2019

## Poster Session IV. – PT-0-309 Poster Hall

## CHAIRPERSONS:

**Zsuzsanna Rákossy**  
**Tomas Kundeln**

10.30 P IV/1. .... 275

**Péter Pikó, Szilvia Fiatal, Zsigmond Kósa, János Sándor Róza Ádány**

*Increased risk of Roma for the development of cardiovascular disease based on Framingham Risk Score calculation*

10.40 P IV/2. .... 275

**Nayla Mohamed Goma, Szilvia Fiatal**

*Systematic review of coronary heart diseases prediction modeling*

10.50 P IV/3. .... 276

**Nardos Abebe, Péter Pikó, Szilvia Fiatal, Zsigmond Kósa, János Sándor, Róza Ádány**

*SNP-based genetic risk score modelling suggest no increased genetic susceptibility of Roma population to type 2 diabetes mellitus*

11.00 P IV/4. .... 277

**Biborka Nádró, Anita Szentpéteri, Lilla Juhász, Ildikó Seres, Dénes Páll, György Paragh, Mariann Harangi**

*Characterizing of high-density lipoprotein structure and function in newly diagnosed, untreated familial hypercholesterolemia*

11.10 P IV/5. .... 277

**Roba Argaw Tessema, Károly Nagy, Balázs Ádám**

*Comparative assessment of cyto-and genotoxicity of glyphosate and glyphosate-based herbicides in human peripheral white blood cells using the in vitro comet assay*

11.20 P IV/6. .... 278

**Lilla Juhász, István Balogh, László Madar, Beáta Kovács, György Paragh, Mariann Harangi**

*Identifying double and triple heterozygous mutations of candidate genes in severely affected familial hypercholesterolaemia patients*

11.30 P IV/7. .... 279

**Bayu Begashaw Bekele, Péter Pikó, Szilvia Fiatal, Róza Ádány**

*Nongenetic correlates of type 2 diabetes mellitus among Hungarian Roma and Hungarian general population: comparative cross-sectional study*

11.40 P IV/8. .... 279

**Szabolcs Varga, János Sándor**

*Measuring ethnic identity in Roma health studies – The Roma Identity Scale*

11.50 P IV/9. .... 280

**Pálma Tímea Szabó, Éva Bíró, Karolina Kósa**

*Conceptual classification of health literacy tools*

## 12.30 Closing Plenary Ceremony

TEOKJ 112/II. Congress Hall

12.50-14.00 Lunch

**THE CONFERENCE IS SUPPORTED BY THE EFOP-3.6.1-16-2016-00022 PROJECT. THE PROJECT IS CO-FINANCED BY THE EUROPEAN UNION AND THE EUROPEAN SOCIAL FUND.**



## **4TH V4 PUBLIC HEALTH CONFERENCE**

### **ABSTRACTS OF THE WORKSHOPS AND SESSIONS**

PIOTR ROMANIUK

### W I/1. Modifying dietary behaviours with the taxation policies: a review of the existing solutions

*Department of Health Policy, School of Public Health, Medical University of Silesia in Katowice – ul. Piekarska 18, 41-902 Bytom, Poland  
Phone: +48 323 976 521 – E-mail: promaniuk@sum.edu.pl*

**Background:** Dietary behaviours have important impact on rising prevalence of noncommunicable diseases responsible for 71% of deaths globally each year. There is about 80 of diseases proved to be dietary dependent, which have prevalence of even more than 30% in given populations. Since they have growing impact on quality of life, disabilities, as well as economic stability of health systems, many countries seek for instruments to modify dietary habits in populations.

**Aim:** This study focus on reviewing solutions applied in different countries in terms of junk food taxation, along with basic evaluation of their efficiency in reducing consumption of products being subject to taxation and prevalence of dietary-dependent diseases.

**Results:** There is a number of examples of sugar sweetened taxation implemented in different countries around

the world, including Mexico, Colombia, Chile, or Hungary, Portugal and United Kingdom and France in Europe. Other taxes on foods exceeding given amount of components proven or supposed to have negative influence on health, like fat or salt has been tried or are planned in countries like Denmark, Hungary or Portugal. There are different models of taxation, including flat rates, percentage of the basic price and progressive rates depending on the amount of component being subject to taxation.

**Conclusions:** SSB and junk food taxes turns to be controversial and used to be subject to intensive discussions in many countries. Nonetheless, the existing evidence is that their effect in terms of assumed influence on eating behavior seems to be positive.

KRZYSZTOF KACZMAREK

### W I/2. Implementation of the policy: theoretical framework

*Department of Health Policy, School of Public Health in Bytom, Medical University of Silesia in Katowice – Piekarska 18, 41-902 Bytom, Poland  
E-mail: krzysztof.kaczmarek@autograf.pl*

**Background:** Implementation is the essential element of political process and a subject of scientific interests since 1960's. It became important part of political studies in 1970 with a development of implementation science. Gradually increasing understanding of significance of public policies for health of the population, calls for reconsideration of the implementation process in order to increase success rate.

**Aim of the study:**

- to describe general trends in development of implementation frameworks.
- to identify success factors in context of implementation of health policies.

**Methods:** Paper presents a selective overview of policy implementation frameworks depicted in papers published between 1973 and 2018.

**Results:** Policy implementation frameworks from the early stages of implementation science development

are based on linear approach to political process. In this context policy was structured into cycle of consecutive stages, starting with setting agenda, policy formulation, decision making, policy implementation and monitoring and evaluation. Development of implementation science undermined this paradigm by pointing to the fact that it is impossible to distinguish policy and its implementation, since means of implementation are incorporated into policy. Construction of implementation models and frameworks was also affected by ongoing dispute between researchers presenting top-down and bottom-up perspective, with the first group seeing implementation mainly as administrative process governed by the state, and the second one focusing on the role of implementers. Due to multiplicity of success factors authors such as Giacchino and Kakabadse suggest taking a broad perspective with interest in fields of study as diverse as policy imple-

mentation, strategic management, administrative reform, change management and project management.

**Conclusions:** 1) Policy implementation frameworks

shifted towards a holistic approach. 2) The variety of success factors forces adoption of a multidisciplinary and multi-sectoral approach.

KATARZYNA BRUKAŁO

### W I/3. Policy evaluation – Key to success

*Department of Health Policy, School of Public Health in Bytom, Medical University of Silesia in Katowice – Piekarska 18, 41-902 Bytom, Poland  
Phone: +48 504 811 975 – E-mail: kbrukalo@sum.edu.pl*

**Background/Aims:** policy evaluation is one of the most important elements of creating and improving policies, but at the same time one of the most overlooked. Evaluation is the activity which enables us to develop an understanding of the merit, worth, and utility of a policy.

**Methods:** Evaluation calls for a tailor-made approach. Policy evaluation criteria are: efficiency, effectiveness, impact, relevance, sustainability and policy consistency. The most commonly used methods of evaluating policies are: comparative analysis (ex. benchmarking), process analysis, frame reflection, impact assessment.

**Results:** Although policy of sugar tax has been used effectively in some countries, policy strategies in some areas lack a sufficient evidence base. Policy evaluation,

like all evaluation, can serve important purposes along the entire chain of the policy process (ex. building evidenced based public health or informing future policies). The exchange of experiences of countries that introduced sugar tax, it will be possible to evaluate their policies from implementation to monitoring, and developing guidelines for the sugar tax policy evaluation process.

**Conclusions:** The implementation of sugar tax is a contentious and controversial issue. A properly conducted evaluation should provide evidence of the effectiveness (or not) of the implemented solutions, so that each Member State could make an well-informed decision, the best for society.

MIKLÓS SZÓCSKA

### W I/4. Hungarian experience: political process, policy in practice – challenges and outcomes

*Health Services Management Training Centre, Faculty of Health and Public Services, Semmelweis University  
1085 Budapest, Üllői út 26., Hungary – Phone: +36 (1) 459 1500 – E-mail: igazgato@emk.sote.hu*



ZSUZSA RÁKOSY  
ZOLTÁN GURÁLY  
EMESE NAGY-BORSY  
BLANKA SZEITL  
ISTVÁN KISS

### S I/1. Integrated development of social and health care system for homeless people

*Department of Public Health Medicine, Medical School, University of Pécs – 7624 Pécs, Szigeti u. 12., Hungary  
Phone: +36 (72) 536 394 – E-mail: zsuzsa.rakosy@aok.pte.hu*

Homeless people suffer from severe health problems besides many other difficulties compared to the general population. Of them 79% has at least one chronic disease, which is 1.5 times higher than the prevalence in the reference population. Their diseases are usually neither monitored nor controlled as they rarely consult the health services. Their unhealthy lifestyle, especially smoking and alcohol consumption further worsen their health condition. One quarter of those utilizing homeless care system reported that they would not be capable for independent life because of their chronic diseases. According to the opinion of the social workers, 21% of these people would require social and mental care boarding service. In Hungary a parallel, separate health care service for homeless people is operated by the social services: “Homeless GP Service”,

“Convalescence Care”, “7-24 Health Centres”, and mobile medical service. It is more and more difficult to provide the necessary facilities after acute care and permanent shelter for the increasing number of elderly sick homeless people. Hungarian caregivers see the solution in increasing institutional facilities, and in organized screening programs, specialist care, rehabilitation, whereas in most European countries the Housing First model is proposed as a solution. This provides access to a home within a community supported by other services including administrative support, health promotion and care, social integration by a multidisciplinary team. This model has been proved to be cost-effective and in some cases cost-saving. The approach is still under fine tuning to prevent its early side effects.

ZOLTÁN KATZ  
ERIKA MAREK  
ISTVÁN SZILÁRD

### S I/2. Fighting against misleading information on vaccination – who’s responsibility?

*Department of Operational Medicine, Medical School, University of Pécs – 7624 Pécs, Szigeti út 12., Hungary  
Phone: +36 (30) 490 2646 – E-mail: zoltan.katz@aok.pte.hu*

Social media platforms and search engines dominate everyday life of the 21st century’s population. The freedom of searching and sharing information about anything, anywhere and anybody means the most remarkable hazard in spreading of misinformation and falsehoods about evidence-based (EB), effective and safe tool of disease prevention, like vaccines. This phenomenon works with high effectiveness against efforts on vaccine-preventable disease (VPD) eradication made by public health professionals. Public health professionals are in disadvantaged position compared to media experts circulate false information on VPDs via internet. Promoting EB information is an important task, but scientific publications are not understandable for general population. Misuse

the lack of scientific information for financial gain can be a harmful and health-threatening attitude. Protecting the public from harmful content is already working on social media platforms. Regulation and intervention can be achievable by algorithms to filter out and block misleading information sources or search results. For instance, both Amazon, Facebook, Pinterest and YouTube blocked all materials promoting anti-vaccination activities.

Nowadays in the European Region of the World Health Organization (WHO EURO), thousands of measles cases have been registered year by year resulted in the respite of eradication plan. European Union (EU) member states have high visibility in reported cases. Vaccine hesitancy, anti-vaccine movements gain in-

creasing influence in all societies. Thanks to mandatory vaccination schedules operative in all V4 countries,

high level of vaccination coverage has been achieved preventing serious epidemics in the region.

PÉTER CSIZMADIA

### S I/3. ADVANTAGE Joint Action: A comprehensive approach to promote a disability-free advanced age in Europe

National Public Health Center – 1097 Budapest, Albert Flórián út 2-6., Hungary  
Phone: +36 (1) 896 9209 – E-mail: csizmadia.peter@nnk.gov.hu

Demographic ageing is one of the most serious challenges that Europe is currently facing. Older people are at greatest risk of becoming frail and developing disability. However, since frailty is not an inevitable consequence of ageing, it can be prevented and treated to foster a longer and healthier life.

There are a number of initiatives taken forward by the European institutions to address these challenges but even so frailty is not yet at the top of the public health agenda. There is an urgent need to develop evidence based support to make frailty a public health priority. The concern for this situation motivated the European Commission, the Parliament and many of the Member States (MSs) to co-fund, by the Third European Health Programme of the European Union (EU) 2014-2020, the first Joint Action (JA) on the prevention of

frailty, ADVANTAGE, which brings together 33 partners from 22 MSs for 3 years.

Partners work together to summarize the current state of the art of the different components of frailty and its management, both at a personal and population level and increase knowledge in the field of frailty to build a common understanding on frailty to be used by participating MS.

The final output will be the “Frailty prevention approach” (FPA), a common European model to tackle frailty and indicate what should be prioritized in the next years at European, national and regional level and on which to base a common management approach of older people who are frail or at risk of developing frailty in the European Union.

DÁVID SIPOS<sup>1,2,3</sup>

ATTILA PANDUR<sup>1</sup>

ANDRÁS KEDVES<sup>2,3</sup>

VERONIKA VARGA<sup>1</sup>

MELINDA CSIMA<sup>2</sup>

IMRE REPA<sup>1,3</sup>

ÁRPÁD KOVÁCS<sup>1,2,3</sup>

### S I/4. Possible predictors of burnout among radiographers

<sup>1</sup> Faculty of Health Sciences, Doctoral School, University of Pécs – Pécs, Hungary

<sup>2</sup> Department of Medical Imaging, Faculty of Health Sciences, University of Pécs – Pécs, Hungary

<sup>3</sup> Somogy County Kaposi Moricz Teaching Hospital, Dr. Jozsef Baka Diagnostic, Radiation Oncology, Research and Teaching Center 7400 Kaposvár, Szent Imre út 14/b, Hungary – Phone: +36 (30) 615 3131 – E-mail: cpt.david.sipos@gmail.com

**Introduction:** Burnout may have wide negative impact on personal and professional life. Also it may have influence on the effectiveness of the healthcare system.

**Materials and methods:** Our quantitative, cross-sectional, descriptive data collection lasted from June to September 2018 using an online questionnaire. Radiology department workers who were members of the Hungarian Society of Radiographers were invited to par-

ticipate. The Maslach Burnout Inventory (MBI) was used alongside our self made questionnaire. All data were analysed using SPSS 24.0. Significance level was assumed at p value of <0.05. The research was supported by Institutional Excellence Support 2018 (17886-4 / 2018 FEKUTSTRAT).

**Results:** After data cleaning total of 404 (n=404) radiology department workers were included with the aver-

age age of 40,08 years (SD12,18; 22-70). The sample had a high mean burnout score for emotional exhaustion (34,28; SD12,98) and depersonalization (12,81; SD6,62) compared to MBI norms. Radiology department workers had high personal achievement mean (41,03; SD8,70) compared to MBI norms. The group of 31-35 years old and the group of 16-20 years spent in the healthcare system are considered to be the most

compromised group in all three dimension of burn-out. The educational level had significant influence on emotional exhaustion dimension.

**Conclusion:** Our results are similar like described in international literature. The increased value of the depersonalization and the emotional exhaustion can be an indicator for employers.

ISTVÁN SZILÁRD  
LAJOS BOGÁR  
ERIKA MAREK  
KIA GOOLESORKHI  
ZOLTAN KATZ

### S I/5. Migration Health as a new interdisciplinary training field in medical education

*WHO Collaborating Centre for Migration Health Training and Research, Medical School, University of Pécs – 7624 Pécs, Szigeti út 12., Hungary  
Phone: +36 (30) 387 1246 – E-mail: istvan.szilard@aok.pte.hu*

Since 2007 - Portugal European Union (EU) presidency - health and public health aspects of migration have become an important health policy topic for the EU and World Health Organization (WHO). Since 2008 repeated WHO resolutions and declarations have called on the attention of the Member States for developing the 'migrant sensitive' health care system. From the essential human resource capacity point of view, EUPHA's recent statement emphasizes that capacity building has to be supported by the basic educational and training programs, beyond the level of mere elective subjects and courses. However, the C2ME project has discovered that even one of the core areas: "cultural competence" is missing in the majority of undergraduate medical training programs in the EU.

University of Pécs Medical School (UPMS) endowers and results to integrate migration health into its medical education program: The number of students participating in migration related compulsory and optional training programs on Hungarian, English and German languages, is above 400 per study year. A close-ended questionnaire survey has been conducted to assess their interest and satisfaction regarding to migration health. On a five-grade scale where '5' being the best value, at every questioned aspect, the average score of responses was higher than '4'. Clearly proven, students have understood the importance of this new subject and they are satisfied with UPMS innovative training strategy. Addressing this interest, a Specialist in Migration Health postgraduate training was launched in 2018.

KATARINA NORDENG  
DOROTTYA ÁRVA  
ANDRÁS TEREBOSSY

### S I/6. General health and alcohol consumption of Norwegian medical students studying in Norway and abroad

*Department of Public Health, Faculty of Medicine, Semmelweis University – 1089 Budapest, Nagyváradi tér 4., Hungary  
Phone: +36 (20) 825 0591 – E-mail: terebossy.andras@med.semmelweis-univ.hu*

**Background:** Many Norwegian students choose to conduct their studies abroad (often in a V4 country) but few studies evaluated the impact of studying abroad on the Norwegian medical students general well-being. Our study aimed to examine the impact of

studying abroad on mental health and alcohol consumption (as a coping strategy for perceived stress).

**Methods:** Members of the Norwegian Medical Students Association were invited to answer our online questionnaire at the fall of 2018. Our survey measured

self-reported mental health symptoms (GHQ-12; SF36) and self-reported alcohol use (AUDIT-C, CAGE) among other factors.

**Results:** In total 3908 students were approached, 716 completed the questionnaire (response rate: 18.3%; 73% female). 402 participants studied in Norway, 51 in Western and 263 in Eastern European countries (254 responders in V4). Some domains of SF36 showed significant difference between students studying in Eastern vs. Western countries / home but GHQ-12 delivered no difference by study location.

Prevalence of positive AUDIT-C score delivered non-significant (Western: 56.9%, Eastern: 53.6%, home: 35.1%) while positive CAGE score delivered significant differences by study location (Western Europe:

21.6%, Eastern: 13.7%, home: 8.5%,  $X^2=10.092$ ,  $p=0.01$ ). No correlation was found neither between GHQ-12 and AUDIT-C nor between the four categories of SF36 and AUDIT-C but all four SF36 domains and CAGE showed a positive correlation.

**Conclusions:** Students studying in an Eastern (V4) country scored lower on some domains of SF36 than those studying in Norway or in a Western country so some elements of mental health are poorer among this student group. Our research showed that students tend to consume higher amounts of alcohol abroad but we could not prove correlation between GHQ-12 and consumption (neither AUDIT-C nor CAGE). Our research shows the need for measures to help this student population and to improve their mental health.

IVETA NAGYOVA

**PL I/1. Knowledge to action? Evidence-informed public health in V4 countries**

*Department of Social and Behavioural Medicine, Faculty of Medicine, PJ Šafárik University in Kosice  
Trieda SNP 1, 040 01 Kosice, Slovakia – Phone: +421 552 343 394 – E-mail: iveta.nagyova@upjs.sk*

**Issue:** Despite significant investments in health research, there remains a considerable imbalance between what is scientifically known and what is done in public health throughout the world.

**Description of the problem:** The rising burden of long-term conditions and health inequalities poses a challenge for the health systems in V4 countries, and to deal with this we need to find ways how to best achieve the translation of research evidence into routine policy and practice. Researchers are doing exceptional job in making discoveries that has the potential to improve people's health and strengthen healthcare systems. Over the last decades well-validated, cost-effective public health interventions have been developed. Yet, for several reasons, only few such interventions have been translated into policy recommendations or implemented successfully in clinical practice.

**Results:** This presentation will address the issues of ef-

fectiveness of knowledge translation (KT) strategies focusing on policy makers as well as the wider impact of KT. Through highlighting critical gaps in KT that can be addressed by integrating modern theoretical and methodological approaches across disciplines we hope to contribute to the development of effective and implementable public health interventions to address the long-term health outcomes in complex and adaptive systems in V4 countries.

**Lessons:** To conclude, despite the many accomplishments of public health, a greater attention to evidence-based approaches is warranted. The concepts of evidence-informed public health hold promise to better bridge evidence and practice. Public health professionals trained in implementation and dissemination science are needed to facilitate the translation of evidence into practice.

ANDRZEJ M. FAL

**PL I/2. Noncommunicable diseases and demographics – a combined threat to the public health financing**

*Department of Public Health, Wrocław Medical University – 51618 Wrocław, ul. Bartla 5, Poland  
Phone: +48 713 479 359 – E-mail: amfal@wp.pl*

From the WHO fact sheet:

- ▶ Noncommunicable diseases (NCDs) kill 38 million people each year.
- ▶ Almost three quarters of NCD deaths - 28 million - occur in low- and middle-income countries.
- ▶ Sixteen million NCD deaths occur before the age of 70; 82% of these "premature" deaths occurred in low- and middle-income countries.
- ▶ Cardiovascular diseases account for most NCD deaths, or 17.5 million people annually, followed by cancers (8.2 million), respiratory

diseases (4 million), and diabetes (1.5 million).

- ▶ These 4 groups of diseases account for 82% of all NCD deaths.
- ▶ Tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets all increase the risk of dying from an NCD.

NCDs threaten progress towards the UN Millennium Development Goals and post-2015 development agenda. Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to impede poverty reduction initiatives in low-income countries, particularly by increasing household costs associated with health care.



Vulnerable and socially disadvantaged people get sicker and die sooner than people of higher social positions, especially because they are at greater risk of being exposed to harmful products, such as tobacco or unhealthy food, and have limited access to health services.

When we superimpose the economic effect of ageing and increasing NCD morbidity a budget gap in health-care financing of European and most OECD countries reaches 3-4% of GDP in 2013. Measures must be taken to prevent this or to ensure extra financing.

MARTIN DLOUHÝ

### PL I/3. The science and art of the cost-of-illness studies: a mental health example

*Faculty of Informatics and Statistics, University of Economics, Prague – 4 Winston Churchill Sq., 13067 Prague 3, Czech Republic  
Phone: +420 224 09 5418 – E-mail: dlouhy@vse.cz*

**Background:** Cost-of-Illness studies are important supporting tools for evaluation of health programmes and health reforms. However, health policy decision makers lack disease-specific information on financial flows within health systems. The available cost-of-illness studies use different methodologies, so it is difficult to make direct comparisons. Moreover, the cost-of-illness studies may have various methodological errors (e.g., cost overestimation, underestimation of non-medical cost).

**Aim:** The objective of this contribution is to show how to estimate mental health expenditures by the health accounting framework and how to avoid methodological errors on the example of the Czech Republic.

**Methods:** The disease-specific expenditures in the Czech Republic are estimated within the framework of the OECD health accounts.

**Results:** The expenditures on mental health in the Czech Republic were estimated and classified according to five accounting dimensions. Mental health expenditures form 4% of total health expenditures.

**Conclusion:** We argue that the application of the standardized accounting framework will improve both the quality of international comparisons and the quality of the time series comparisons at the national level. This will be especially useful for the countries that plan resource allocation shifts from institutional to community-based care.

KAROLINA KÓSA<sup>1</sup>  
ÉVA BÍRÓ<sup>2</sup>

## S II/1. Trends of the mental health of the Hungarian adult population between 2000-2019

<sup>1</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 – E-mail: kosa.karolina@sph.unideb.hu

<sup>2</sup> Division of Health Promotion, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

**Background:** Several data have been published on the mental health of the Hungarian population by different research teams but much less information is available about the change in mental status based on comparable research methods. Our aim is to provide data on the long-time trends of mental status in Hungary.

**Methods:** Three representative surveys on the mental health of the adult population designed by the authors and implemented by an opinion polling company were carried out between 2010 and 2019. Self-filling questionnaire was used to collect information on demographic data, socioeconomic status, and validated scales of mental health. Data obtained by identical methodology were compared to those of earlier national surveys carried out in 2000 and 2003.

**Results:** Distribution of the respondents by permanent residence, age and sex in all five surveys largely reflected that of the adult population of the country. The proportion of the population struggling with se-

vere psychological distress ranged between 14.5-7.36% from 2000 to 2019 showing a decreasing trend. A significantly higher proportion of women were severely stressed compared to men in 2000 and 2003 but this female surplus became non-significant from 2010 onwards. Sense of coherence – a measure of psychological resilience – also showed an improving trend, without gender difference. Educational level and social support were found to be consistent and significant determinants of mental health between 2010-2019.

**Conclusions:** Mental health status seems to be improving among Hungarian adults in the past decade. Further research is warranted to uncover the underlying causes of this positive development.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund.*

CSABA ERDŐS  
ANDREA SZABÓ  
EDINA HORVÁTH  
PAULIK EDIT

## S II/2. Factors affecting childhood overweight and obesity among primary school students

Department of Public Health, Faculty of Medicine, University of Szeged – 6720 Szeged, Dóm tér 10., Hungary  
Phone: +36 (62) 545 119 – E-mail: erdos.csaba@med.u-szeged.hu

**Background:** According to the recent WHO estimations the prevalence of overweight and obesity among children and adolescents aged 5-19 has risen in the last decades in the world population; in the European Region the prevalence is continuously high (18-49%). In Hungary about 15% of 11-18 years old is overweight or obese. The aim of our study is to examine the determinants of childhood overweight and obesity in the framework of ecological model. This is an ongoing study, and the present analysis focuses on the dietary habits of children and their parents.

**Methods:** A questionnaire-based study has been carried out in three primary schools in Szeged (Southern Great Plain, Hungary). Children aged 9 to 12 years and their parents are involved into the project. The size of the planned sample is 300-500 children and their parents. Different questionnaires were constructed for pupils and parents. Data analyses are carried out by SPSS 24.0. The research is supported by the EFOP-3.6.1-16-2016-00008.

**Results:** According to the preliminary results (N=172) every fifth children were overweight or obese. Consid-

ering the dietary habits of children and their parents (mainly mothers) significant correlations were found in case of fruit, vegetable, fish, nuts, cereals, sweets; while no relationship was found in case of muesli, or energy drinks consumption.

**Conclusion:** The results highlight the relationship between child and parent dietary patterns, but a more detailed analysis about further determinants are needed for evolving effective interventions to reduce the frequency of childhood obesity in Hungary.

VERONIKA BETTINA ZAGRAJ<sup>1</sup>

ANETT BARTKÓNE KOVÁCS<sup>2</sup>

ANDREA SOÓS<sup>2</sup>

ANDRÁS TÖRÖK<sup>2</sup>

LÁSZLÓ BARKAI<sup>1,3</sup>

ANDREA LUKÁCS<sup>1</sup>

### S II/3. Psychological well-being of mothers of young children with type 1 diabetes

<sup>1</sup> Faculty of Health Care, University of Miskolc – 3515 Miskolc-Egyetemváros, Hungary

E-mail: zagrajbettina@gmail.com

<sup>2</sup> Borsod-Abaúj-Zemplén County General Hospital – Miskolc, Hungary

<sup>3</sup> Department of Paediatrics, Faculty of Medicine, UPJS – Kosice, Slovakia

**Background and aim:** The incidence of type 1 diabetes (T1D) is rising, especially in children under the age of five. This disease requires a continuous treatment and care from the very beginning of diagnosis. Parenting a young child with T1D is challenging and the main responsibility and burden is usually on mothers. We aimed to compare the psychological well-being of mothers bringing up young children with and without type 1 diabetes (T1D).

**Methods:** A total of 137 mothers were investigated (32.26% had children with T1D). Children aged three to seven with T1D were treated at Pediatric Diabetes Outpatient Clinic of the Borsod-Abaúj-Zemplén County General Hospital, Miskolc, (response rate was 88.14%). The controls were from kindergartens of three settlements of Northern-East Hungary. We ana-

lysed the mothers' depression, life satisfaction and well-being using SPSS 24.0 software.

**Results:** Mothers bringing up young children were less satisfied with their life (LS) ( $7.19 \pm 1.72$ ) and more prone to depression (D) ( $2.37 \pm 2.31$ ) than control mothers (LS:  $7.78 \pm 1.64$ ;  $p=0.049$ ), (D:  $1.06 \pm 1.33$ ;  $p<0.001$ ). Mothers with diabetic children reported less favourable well-being ( $54.73 \pm 20.99$ ) than their peers with healthy children ( $61.82 \pm 17.81$ ;  $p=0.045$ ).

**Conclusions:** This study assumes that mothers bringing up young children with T1D have unfavourable psychological well-being than peers with healthy children. During the routine diabetes care, mothers may benefit from psychological support provided by the health care experts.

JUDIT DIÓSZEGI<sup>1</sup>  
 PÉTER PIKÓ<sup>1</sup>  
 ZSIGMOND KÓSA<sup>2</sup>  
 JÁNOS SÁNDOR<sup>3</sup>  
 RÓZA ÁDÁNY<sup>1,3,4</sup>

#### S II/4. Taste and food preferences of the Hungarian Roma population

<sup>1</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen  
 4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (52) 512 765 / 77190 – E-mail: dioszegi.judit@sph.unideb.hu

<sup>2</sup> Department of Methodology for Health Visitors and Public Health, Faculty of Health, University of Debrecen – Nyíregyháza, Hungary

<sup>3</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>4</sup> WHO Collaborating Centre on Vulnerability and Health, Department of Preventive Medicine, Faculty of Public Health,  
 University of Debrecen – Debrecen, Hungary

**Background:** Behind the unfavorable health status of the Roma population, harmful health behavior is also supposed to exist, such as unhealthy nutrition.

**Methods:** In the framework of a complex comparative health survey of the Hungarian general and Roma adult populations living in North-East Hungary, individuals, representative of the Hungarian general (n=410) and Roma populations (n=387) were randomly enrolled. Response rates were 82% and 77.6%, respectively. In the questionnaire-based part of the survey, sweet, fat, salty and bitter taste preferences were ascertained by question items measuring taste and food preferences. Preference for sweet versus salty foods was also analyzed. Questions from the Hungarian version of the European Health Interview Survey were included as well, to assess dietary preferences by determining the quantity of added sugar to consumed foods and beverages and the frequency of salting without tasting the food. The data were examined with  $\chi^2$  tests and regression analysis.

**Results:** In harmony with previous findings, Roma reported significantly less frequent consumption of fresh fruits and vegetables than the Hungarian subjects. Roma had higher preferences for sweet and salty foods and added higher quantities of sugar to consumed foods and beverages and salted the food without tasting more often. In addition, they could be characterized by lower preferences for bitter tasting kohlrabi, grapefruit, black coffee and bitter chocolate and preferred sweet snacks versus salty ones.

**Conclusions:** The results of our study indicate that the diet of the Hungarian Roma people may be linked to taste preferences predisposing to unhealthy nutrition. This assumption needs further studies on their nutritional behavior.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund, as well as by the Hungarian Academy of Sciences (MTA11010).*

SZILVIA FIATAL<sup>1,2</sup>  
 RÓZA ÁDÁNY<sup>1,2,3</sup>

#### S II/5. Using SNP-based risk estimates in identification of susceptibility to cardiovascular diseases

<sup>1</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
 Phone: +36 (52) 512 765 / 77166 – E-mail: fiatal.szilvia@sph.unideb.hu

<sup>2</sup> WHO Collaborating Centre on Vulnerability and Health, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen  
 Debrecen, Hungary

<sup>3</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen  
 Debrecen, Hungary

**Background:** Advances in genomics have fostered huge expectations about use of susceptibility variants for prevention, diagnosis, and treatment of cardiovascular disorders (CVDs). We summarized the developments in the field from a public health perspective fo-

cusing on the applicability of data on single-nucleotide polymorphisms (SNPs).

**Methods:** Systematic review was performed. Final records were structured based on main public health domains using a four-phase framework suggested for



translational research: T1. From gene discovery to candidate health applications; T2. From health application to evidence-based practice guidelines; T3. From evidence-based practice guidelines to health practice; T4. From practice to population health impacts.

**Results:** Majority of research belongs to the T1 phase, there are only a few population-based impacts estimated. Studies suggest that an SNP is a poor estimator of risk, but an individual's genetic profile combined with non-genetic factors better predict CVD risk among certain patient subgroups. More research is needed to validate whether these genomic profiles can prospectively identify individuals at risk to develop CVDs. Research gaps were identified: little information is available on studies suggesting "Health application to

evidence-based practice guidelines"; no study is available on "Guidelines to health practice." It was not possible to identify studies that incorporate environmental or lifestyle factors in the risk estimation.

**Conclusions:** Only few cardiovascular genetic findings have led to evidence-based applications for medical/public health practice. Several studies have identified certain risk profiles based on clusters of genes. Research is still needed to validate if these genomic profiles can identify individuals at risk to develop CVDs. *This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund, as well as by the Hungarian Academy of Sciences (MTA11010).*

JÁNOS GIRÁN  
ISTVÁN KISS  
TIBOR KISS

## S II/6. Shaping a health-enabling and resilient urban environment

*Department of Public Health Medicine, Medical School, University of Pécs – 7624 Pécs, Szigeti u. 12., Hungary  
Phone: +36 (20) 566 4095 – E-mail: janos.giran@aok.pte.hu*

**Background/Aims:** While accelerated urbanization is a relevant contributor to climate change, cities are concerned about the negative impacts of climate change affecting human health and well-being. Built-up urban areas are expanding dramatically, and today more people live in urban areas than in rural settings. Consequently, the number of people potentially affected by the health risks of climate change is growing. Over the last decade, City of Pécs, Hungary, has managed a variety of utility-related measures to ensure a health-enabling environment for its residents. This presentation delivers a case study which summarises some experience of these initiatives.

**Methods:** Our case study is based on both primary data collection and secondary data analyses including, e.g. mosquito trapping and UV radiation measurement, and air pollution data analysis.

**Results:** The presentation explains the initiatives related to tackling exposure to urban dust, enhancing urban climate resilience, reducing flash flood risk posed by extreme rain events and surveillance of invasive mosquito species and other mosquito-related issues. As a result of data analysis, it has become apparent that evidence-based and utility-related measures can reduce climate change-related and other urban environment-related health risks.

**Conclusions:** Improving climate awareness is essentially necessary among elected officials and high-ranking civil servants of municipalities as well as medical students and practicing medical doctors. They are crucial agents for disseminating the up-to-date knowledge about health-related impact of climate change including the possible preventive measures and solutions.

MARIA GANCZAK  
MARTA KOZYBSKA  
ARTUR KOTWAS  
BARTOSZ RUDNICKI  
TOMASZ NOGAL  
JACEK KOPEC

## S II/7. Trends in disease burden for major conditions in V4 countries

*Department of Epidemiology and Management, Pomeranian Medical University – Żołnierska 48, Szczecin, Poland  
Phone: +48 607 602 272 – E-mail: mganczak@pum.edu.pl*

**Background:** The study objective was to compare trends in disease burden for major conditions in V4 countries; this has never been performed before.

**Methods:** Results of the GBD for 1990-2017 for V4 countries were used to assess rates and trends in: years of life lost (YLLs), years lived with disability (YLDs), disability-adjusted life-years (DALYs).

**Results:** Between 1990-2017 rates of age-standardized YLLs for all causes declined in V4 by 46.0-52.5%, YLDs declined by 1.5-6.4%, and DALYs by 30.5-34.9%. Regarding YLL, Poland and Slovakia achieved the greatest improvement in rank (from 9th to 4th and from 11th to 6th respectively) than any other CE country; the Czech Republic - the greatest improvements for DALYs (from 7th to 2nd). In both 2017 and 1990, the leading cause of YLLs and DALYs in V4 and

CE was ischemic heart disease; low back pain was the leading cause of YLDs. The top 9 causes of YLLs, YLDs and DALYs in 2017 were the same for all V4 countries. The highest observed-to-expected ratio (OER) for YLLs in 2017 was for hypertensive heart disease in Hungary (3.62) and alcohol use disorders (3.21) in Poland. In all V4 countries observed levels of YLDs and DALYs were greater than expected for falls (2.33-2.61 and 2.03-2.14 respectively).

**Conclusions:** Low geographical variation in premature death and disability in V4 was observed in 2017, although some between-country differences existed. Health in V4 has been improving since 1990; in 2017 V4 countries outperformed the CE as a whole for YLLs, YLDs and DALYs.

RÓZA ÁDÁNY

## PL II/1. Public health and public ill-health in the V4 countries

*Hungarian Association of Public Health Training and Research Institutions – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (52) 512 765 – E-mail: adany.roza@sph.unideb.hu*

DINEKE ZEEGERS

## PL II/2. Challenges in the 21st century: new roles for public health professionals

*European Public Health Association – Otterstraat 118-124, Postbox 1568, 3500 BN Utrecht, Netherlands  
Phone: +31 30 2729 709 – Email: office@eupha.org*

KATARZYNA CZABANOWSKA

## PL II/3. Further professionalization of the PH workforce: why is it needed and how do we do it?

*Association of Schools of Public Health in the European Region – UM Brussels Campus, Av de Tervueren 153, BE-1150 Brussels, Belgium  
Phone: +31 433 884 398 – Email: office@aspher.org*

ZUZANA KATRENIAKOVA<sup>1</sup>  
DANIELA BERAKOVA<sup>2</sup>

### S III/1. What factors motivate Slovak adults to participate in regular health check-ups

<sup>1</sup> Department of Social and Behavioural Medicine, Faculty of Medicine, PJ Šafárik University in Kosice and SAVEZ  
Trieda SNP 1, 040 01 Kosice, Slovakia – Phone: +421 552 343 393 – E-mail: zuzana.katreniakova@upjs.sk

<sup>2</sup> Paylab.com – Pribinova 19, 811 09 Bratislava, Slovakia

**Background:** Over the last twenty years, cardiovascular disease, stroke, lung cancer, and colorectal cancer have been the biggest contributors to adult mortality in Slovakia. These trends can be attributed to four behavioural risk factors: unhealthy diet, low physical activity, tobacco and alcohol consumption. An important preventive tool for their early detection at the individual level is regular health check-ups.

**Methods:** In October-November 2018, an online survey of attitudes and motivation to participate actively in regular health check-ups was conducted in a sample of 2312 economically active people (57% of males, 49 % from 25 to 34 years) in Slovakia.

**Results:** Over the past two years, 65% of respondents have undergone a health check-up with a general practitioner. Almost 11% did not take any preventive

check-up. Up to 46% said they should be the main initiator of the preventive check-up attendance. At the same time, they also expect support from healthcare providers. As the greatest barrier they perceived long waiting times and the impossibility for an exact date ordering. The rate of participation in selected preventive examinations - at the general practitioner, dentist, and in relation to work - was among respondents who declared support from their employer higher than among those who did not perceive support from the employer.

**Conclusions:** The findings will be used within the initiative of the Prevention Platform, which aims to improve primary and secondary prevention in Slovakia through increased participation in regular health check-ups. [Grant Support: APVV-15-0719].

MAGOR PAPP<sup>1</sup>  
LÁSZLÓ KÖRÖSI<sup>2</sup>  
JÁNOS SÁNDOR<sup>3</sup>  
CSILLA NAGY<sup>4</sup>  
ATTILA JUHÁSZ<sup>4</sup>  
RÓZA ÁDÁNY<sup>3,5</sup>

### S III/2. Workforce crisis in primary health care worldwide: the Hungarian example in a longitudinal follow-up study

<sup>1</sup> National Public Health Center – 1097 Budapest, Albert Flórián út 2-6., Hungary  
Phone: +36 (1) 476 1100 – E-mail: magorpapp@gmail.com

<sup>2</sup> National Institute of Health Insurance Fund Management – Budapest, Hungary

<sup>3</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>4</sup> Public Health Administration Service of Government Office of Capital City Budapest – Budapest, Hungary

<sup>5</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen Debrecen, Hungary

**Background:** The workforce crisis in primary care is a worldwide phenomenon. The shortage of general practitioners (GPs) in remote and rural areas seems to be the key issue of the workforce crisis.

**Methods:** Longitudinal follow-up study over the decade 2007-2016. The study involved all general practices and GPs in the period examined. Analyses were performed on changes in number, age and sex of GPs by practice type (adult, paediatric and mixed), as well as on their geographical distribution and migration

between areas characterized by deprivation index (DI) at municipality level. The association between deprivation and vacancy for GPs was studied by risk analysis. The number of population underserved was defined by DI quintile.

**Results:** It is showed that the number of general practices with unfilled GP posts was increasing exponentially, mainly in the most-deprived areas of the country. The number of GPs decreased in all types of practices, especially in mixed (by 7.7%;  $p < 0.001$ ) and paediatric

(by 6.5%;  $p < 0.001$ ) ones was shown; the number of adult practices with unfilled GP posts doubled, while the number of paediatric practices with a vacancy for a paediatrician more than tripled. The average age of GPs was also increased significantly in all types of practices. An exponential association between relative va-

cancy rate and deprivation was confirmed. As a result of the migration of GPs, in the most-deprived areas the number of GPs decreased by 8.43% [5.86-10.99].

**Conclusions:** The workforce crisis in Hungarian primary care is progressively deepening and resulting in more severe inequity in access to health care.

---

KAMILA KOCANDA

### S III/3. The Polish healthcare system reform implementing lump sum remuneration for healthcare services

*Jan Kochanowski University in Kielce – ul. Krokusowa 35, 26-026 Bircza, Poland  
Phone: +48 691 399 389 – E-mail: kamila.kocanda@gmail.com*

**Background:** In Poland the healthcare system is based on an insurance model, where a patient is a third party of a tripartite relationship, amongst the National Healthcare Fund, which finances healthcare procedures and a healthcare provider, which is responsible for performance of such procedures. A healthcare provider is bounded with the National Health Fund (the payer) with an agreement, which stipulates the conditions of medical procedures financed from public funds. Those patients, who have a right to guaranteed medical procedures, are in an insurance relationship with the payer who finances those medical services, which are contained in a so called: basket of guaranteed medical services, including identified ICD type procedures.

**Results:** The reform of the Polish healthcare system, which was enacted in 2017, implements lump sum remuneration to the overwhelming majority of healthcare services and procedures, as only few are still being financed “fee for service”.

Lump sum is defined as due amount of money in the amount determined in advance. Polish Civil Code states that the lump sum remuneration for the performance of the subject of contract has to be determined in advance, no matter what costs will be borne by the contractor. The choice of such a remuneration makes it possible to safeguard the interests of the ordering party by determining the amount for which the work will be performed, regardless of possible increases in costs.

**Conclusion:** The problem is that the health needs of the society can be determined in advance only to some extent. Namely, it is rather impossible to predict the scale of request for urgent health services, while most of the relevant medical procedures are included in the lump sum for each medical entity. Especially, when the public funds for the whole healthcare system are not sufficient.



KLÁRA BORUZZ<sup>1</sup>ZITA FEKETE<sup>2</sup>VIKTOR DOMBRÁDI<sup>1</sup>GÁBOR BÁNYAI<sup>1</sup>ATTILA NAGY<sup>3</sup>ROBERT HORNE<sup>4</sup>KLÁRA BÍRÓ<sup>1</sup>**S III/4. Beliefs about medicines – concerns regarding cholesterol medication within V4 countries**

<sup>1</sup> Department of Health Systems Management and Quality Management for Health Care, Faculty of Public Health, University of Debrecen  
4032 Debrecen, Nagyerdei krt. 98., Hungary – Phone: +36 (30) 644 3403 – E-mail: boruzsklara@gmail.com

<sup>2</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>3</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>4</sup> UCL School of Pharmacy, University College London – London, United Kingdom

**Background:** Raised cholesterol is a risk factor for cerebrovascular and cardiovascular diseases. The latest cholesterol guidelines highlight the importance of personalized risk assessments and new cholesterol-lowering drugs for people at the highest risk for cardiovascular disease.

**Aims:** The aim of our study was to investigate the possible differences in the beliefs about the necessity and concerns regarding lipid-lowering drugs among Visegrad Group countries, since cholesterol medication adherence supposed to explain the pattern of cardiovascular mortality between the four countries.

**Methods:** The Beliefs About Medicines Questionnaire was used in our research. The statistical analyses included 235 Czech, 205 Hungarian, 200 Polish, and 200 Slovak respondents, all of who had chronic diseases and were taking cholesterol lowering drugs.

**Results:** After comparing the answers of the citizens of V4 countries, no statistically significant difference

could be found regarding the concerns about the lipid-lowering drugs. However, related to the beliefs in necessity, a significant difference was shown between Poland and Hungary for the benefit of Polish participants. These results suggest, that the citizens of Visegrad Group countries do not differ regarding their beliefs about the fear of the treatment, while the beliefs about benefits are the most emphasized among the Polish citizens and less among the Hungarian citizens.

**Conclusions:** While policy makers in the Visegrad Group countries can use the same strategy to address the concerns regarding cholesterol lowering medication, the reasons behind the difference in the beliefs in necessity should be further investigated in order to implement country specific interventions.

*The research was funded by the GINOP-2.3.2-15-2016-00005 project which is co-financed by the European Union under the European Regional Development Fund.*

DOMINIKÁ PLANCIKOVÁ

JULIANA MELICHOVÁ

VERONIKA ZELINKOVÁ

MARK TAYLOR

PATRIK SIVCO

MARTIN RUSNAK

MAREK MAJDAN

**S III/5. Epidemiology of traumatic brain injuries in European countries**

Department of Public Health, Faculty of Health Sciences and Social Work, Trnava University – Hornopotočná 23, 918 43 Trnava, Slovakia  
Phone: +421 335 939 450 – E-mail: dominika.plancikova@truni.sk

**Background:** Traumatic brain injuries (TBI) are a major public health, medical and socioeconomic problem. The aim of this study was to estimate hospital discharge, mortality and YLL rates due to TBI in selected European countries.

**Methods:** Data on hospital discharges and number of deaths were obtained from Eurostat. Age-adjusted hospital discharge and mortality rates were calculated for the year 2012 and age-adjusted years of life lost (YLL) rates for the year 2013 by using the European

standard population. All rates were stratified by country, age, sex and if possible, by mechanism of injury. TBI was defined as an injury coded according to ICD-10 as S00-S09 or T90.

**Results:** In 2012, 1,375,974 hospital discharges in 24 countries and 33,415 deaths in 25 countries related to TBI were identified. The pooled age-adjusted hospital discharge rate was 287.2/100,000 (95% CI: 232.9–341.5) and the pooled age-adjusted mortality rate was 11.7/100,000 (95% CI: 9.9–13.6). In 2013, TBIs caused

17,049 deaths in 16 European countries. These translated into a total of 374,636 YLLs. The pooled age-adjusted YLL rate was 259.1 (95% CI: 205.8–312.3). Falls and traffic injuries were the most common external causes of TBI deaths and YLLs.

**Conclusions:** TBIs have a substantial impact at the individual and population level in Europe. These results may serve for policy-makers in order to plan, implement and evaluate preventive strategies, to allocate resources, and to analyse overall TBI burden in the population.

MARIA GANCZAK  
KATARZYNA TOPCZEWSKA

### S III/6. Prevalence of HBV and HCV and risk factors for occupational blood-borne infections among paramedics from West Pomerania, Poland

*Department of Epidemiology and Management, Pomeranian Medical University – Żołnierska 48, Szczecin, Poland  
Phone: +48 607 602 272 – E-mail: mganczak@pum.edu.pl*

The study objective was to estimate the prevalence of HBV/HCV and potential risk factors among paramedics.

**Methods:** A cross-sectional study was carried out from November 2018–March 2019 in 4 randomly selected ambulance stations from West Pomerania, Poland. An interviewer-administered questionnaire was used to assess risk factors for HBV and HCV infection. Anti-HBV total and anti-HCV were assessed by ELISA tests.

**Results:** Of the 129 participants, 69.8% participated in a training in infectious disease control; 14.7% had had at least one percutaneous injury (PI) in the previous year, with an estimated annual number of 2.9 needlesticks/per worker, 47.4% of them did not report it; the conviction that the source patient was not infected was the most common reason (42.1%). The most re-

cent PI was caused mostly by a hollow-bore needle (57.9%). Recapping was reported by 50.5% paramedics, irregular glove use - by 7.3%. The majority (73.6%) did not use safety engineered devices (SEDs) at work. Of all paramedics, 47.3% did not remember if they were fully vaccinated for HBV, the rest completed the 3-dose schedule. Anti-HBc were found in 6.0% (none was aware of an infection), no anti-HCV positive individuals were found.

**Conclusions:** Paramedics are at risk of occupationally acquired blood-borne infections due to PIs, mostly caused by needles. Unsatisfactory use of SEDs, needle recapping and under-reporting of PIs were main modifiable risk factors regarding HBV and HCV infections. Therefore, existing policies should be reinforced, and better surveillance for occupational risks should be instituted to minimize that occupational risk.

ALENA PETRÁKOVÁ  
HELENA KOLLÁROVÁ  
MARTIN RUSNÁK  
VLADIMÍR PRÍKAZSKÝ  
DAGMAR HORÁKOVÁ

## W II/1. Public Health workforce capacity development: International cooperation of academia with researchers, policy makers and field epidemiologists

*Department of Public Health, Faculty of Medicine and Dentistry, Palacký University, Olomouc  
Hněvotínská 3, 775 15, Olomouc, Czech Republic – Phone: +420 585 632 706 – E-mail: alena.petrakova@upol.cz*

**Background:** The importance of public health capacity development is continuously increasing. Knowledge transfer and information sharing is an integral part of this process with special focus on international cooperation, in particular of neighbouring countries with no language barriers such as the Czech Republic and Slovakia. Recently, the Faculty of Medicine and Dentistry (FMD), Palacký University Olomouc (UPOL), Czech Republic, and Faculty of Health Sciences and Social Work, Trnava University, Slovakia, established close cooperation (ERASMUS+). European Core Competences for MPH Education (ECCMPHE), developed by the ASPHER's European Public Health Core Competences Programme (EPHCCP), are used for education of medical students as well for a new public health education programme, which is ready for the academic year 2019/20.

**Aims:** Development and successful implementation of a new sustainable public health education programme

at Mgr. Degree level, based on the European Core Competences for MPH Education (ECCMPHE), developed by the ASPHER's European Public Health Core Competences Programme (EPHCCP), supported by close cooperation of public health experts from two V4 countries – Czech Republic and Slovakia.

**Results:** New two-year PH programme is ready for implementation in academic year 2019/20. The programme has blended learning structure with combination of face-to-face sessions (contact hours) and e-learning parts (non-contact hours). Curriculum of this public health education programme fully reflects recommendations of The Association of Schools of Public Health in the European Region (ASPHER).

**Conclusions:** This new education public health programme will contribute to the overall objective of improving public health in the V4 countries.

DANIELLA KÁLLAYOVÁ<sup>1, 2</sup>  
TOMÁŠ KÚDELA<sup>2</sup>  
ZUZANA KATRENIÁKOVÁ<sup>3</sup>

## W II/2. Public health education and practice needs in Slovakia

<sup>1</sup> Department of Public Health, Trnava University – Hornopotočná 23, 918 43 Trnava, Slovakia – E-mail: daniela.kallayova@health.gov.sk

<sup>2</sup> Department of Public Health, Screening and Prevention, Ministry of Health of the Slovak Republic – Bratislava, Slovakia

<sup>3</sup> Department of Social and Behavioural Medicine, Faculty of Medicine, PJ Šafárik University in Kosice and SAVEZ – Kosice, Slovakia

**Background:** Public health workforce is under the continuous transition, including public health education and training, since the first pre-graduate public health study program has been established in Slovakia at Trnava University in 1993. Any education and training program should respond the need of practice. These needs are defined internationally in sets of competencies, which graduates of public health education should possess, but practical adoption in Slovakia is still in progress.

**Methods:** Firstly, the complex self-evaluation of the public health system in Slovakia was conducted using

the EPHO tool in 2012 and 2013. A national working group consisted of 21 members under the leadership of the State Secretary of the Ministry of Health of the Slovak Republic and the WHO Country Office in Slovakia.

Secondly, the main aim of a preliminary survey was to get feedback from public health professionals who are representatives of public health system in Slovakia. The survey has been held during the April 2016 under supervision of the Ministry of Health of the Slovak Republic in all 36 regional public health authorities. The survey design was set as a name-less e-question-

naire with open-ended and closed-ended questions. The selected professionals were on the positions of regional public health officers and departments' managers with direct responsibility for public health practice.

**Results:** The most important agreed recommendations across the 10 EPHOs, also linked to public health education and practice, were: to strengthen the institutional part of the public health system by establishing and/or renewing specialized independent institutions, and to improve and broaden the further education of public health system employees.

Sixty-three public health professionals answered and described their point of view how public health education fits to the real needs in practice in Slovakia. Harmonization of competences with internationally accepted public health competences is a crucial issue for the future procedures. Weak identity of public health profession in Slovakia is a result of traditional concept of public health as hygiene and epidemiology field.

**Conclusions:** Further clarification of definition of public health, content of curriculum and competences is apparently the key challenge for public health education and training in Slovakia.

RÓZA ÁDÁNY

### W II/3. Establishment and development of the first independent Faculty of Public Health in the Hungarian higher education

*Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (52) 512 765 – E-mail: adany.roza@sph.unideb.hu*

The first faculty of Public Health in Hungary was established by the decision of the Hungarian Government on 1st December 2005, by the unification of the School of Public Health (developed in the framework of a Hungarian Government-World Bank project between 1996-2000), the Department of Preventive Medicine, the Department of Family Medicine and the Department of Behavioural Sciences of the University of Debrecen. Establishment and launching of 5 different postgraduate and one graduate training programmes as well as the development of a doctoral programme were carried out by the teaching staff of the Faculty with the effective support of the University of Debrecen and its Medical and Health Science Centre. As a result of these efforts the Faculty became a unique, internationally recognised and competitive training centre in Hungary. According to the Bologna process the Faculty has established and from 2006 and 2007 launched its bachelor and master training programmes in the field of public health and health sciences. With its 3 bache-

lor (BSc in Public Health, BSc in Physiotherapy, BSc in Dietetics) and 5 master (MSc in Public Health, MSc in Health Psychology, MSc in Complex Rehabilitation, MSc in Health Policy Planning and Financing, MSc in Health Care Management) training programmes, the Faculty of Public Health offers a rich variety of learning experience at present. The Faculty hosts the Doctoral School of Health Sciences of the University, which has two doctoral programmes since 2009 and it is responsible for three different medical specialization trainings in preventive medicine and public health, family medicine and occupational medicine, as well as for the clinical psychology specialization training. In addition the Department of Preventive Medicine of the Faculty hosts the Public Health Research Group of the Hungarian Academy of Sciences, as well as the WHO Collaborating Centre on Vulnerability and Health. The Faculty staff provides consultancy work in the field of public health and health policy development.

ZUZANA KLOCHANOVA  
ROBERT OCHABA  
LADISLAVA WSOLOVA

#### S IV/1. Development of health literacy and behavior in Slovakia between 2013 and 2016

*Department of Health Promotion, Public Health Authority of the Slovak Republic, Slovak Medical University in Bratislava  
Trnavska cesta 52, 831 01 Bratislava, Slovakia  
Phone: + 421 903 662 398 – E-mail: zklochan@gmail.com*

Level of health literacy significantly correlates with health status of the population. Improving health through the health education is an important aspect of the health promotion activities. Aim of the project was to describe a development of the main aspects of the health literacy in Slovak population.

We conducted a descriptive study among population over 15 years old, living in Slovakia in 2013 and 2016. The regional public health authorities interviewed demographic health determinants, risk behavior, and self-assessment of health among 104 respondents living in cities as well as in countryside. We applied Mann-Whitney test.

The respondents did not demonstrate significant difference in gender, age, residence, neither body mass index. However, in 2016 the respondents indicated 1,2 fold increase in suffering of non-communicable disease. We identified significant increase in oncological diseases ( $p=0,040$ ) in 2016. The eating habits were improved, but the respondents increased an intake of the caffeine ( $p=0,009$ ) and alcoholic beverages ( $p=0,022$ ), and performed any physical activity less often ( $p=0,009$ ). The respondents made a preventive examination at a dentist more often ( $p<0,001$ ) in 2016. The outcomes of the health literacy and behavior survey correspond with the health status of the Slovak population.

ÉVA BÍRÓ<sup>1</sup>  
KAROLINA KÓSA<sup>2</sup>

#### S IV/2. Self-perceived and functional health literacy of Hungarian adults

<sup>1</sup> *Division of Health Promotion, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen  
4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (52) 512 765 /77405 – E-mail: biro.eva@sph.unideb.hu*  
<sup>2</sup> *Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – Debrecen, Hungary*

**Background:** Health literacy has become the focus of scientific interest in the last few decades due to the recognition of the association between health status and health literacy. Despite its significance, only few studies have been carried out regarding it previously in our country.

**The aim** of this cross-sectional survey was to provide a snapshot of the health literacy of the Hungarian adults.

**Methods:** Data was collected by a polling company in a representative sample of 1200 persons of the adult population with a paper-based questionnaire that included items on demographic and socioeconomic data, subjective well-being, social support and two newly adapted scales in order to measure self-perceived (Brief Health Literacy Screening Tool, BRIEF) and functional (Newest Vital Sign, NVS) health literacy. The determinants of health literacy were investigated with binary logistic regression.

**Results:** The mean age of the respondents was 49,1 years (SD: 17,1 years), 46% of them were male. Based on the results of the BRIEF scale, 34% of respondents had limited, 36% marginal, 30% adequate health literacy, while the NVS test showed that 18% of respondents had inadequate, 28% limited and 54% adequate functional health literacy. From the sociodemographic determinants only with educational level was found a clear relationship.

**Conclusions:** Findings suggest that the level of health literacy depends on the used instruments, therefore the conceptual difference between the measures have to take into consideration when the researchers decide which tool will be preferred during the data collection.

*The work is supported by the GINOP-2.3.2-15-2016-00005 project. The project is co-financed by the European Union under the European Regional Development Fund.*



ANIKÓ UJHELYINÉ NAGY<sup>1</sup>  
KATALIN BALÁZS<sup>2</sup>  
ILDIKÓ KURITÁRNÉ SZABÓ<sup>1</sup>

### S IV/3. Impacts of adverse childhood experiences on mental and somatic health in Hungarian clinical populations

<sup>1</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 / 54606 – E-mail: nagy.aniko@sph.unideb.hu

<sup>2</sup> Institute of Psychology, Faculty of Humanities, University of Debrecen – Debrecen, Hungary

**Background:** According to a growing number of follow-up studies, adverse childhood experiences (ACEs), various forms of maltreatment and dysfunctional household environments, are linked to multiple adverse health outcomes such as immune diseases, cancer, mental disorders. Causal relationship has been found between ACEs and health outcomes mediated by disrupted neurodevelopment, impaired stress response and health risk behaviors. Our cross-sectional study aimed at examining the prevalence, accumulation and specific interrelatedness of ACEs in heterogeneous clinical populations. Dose-response relationship was examined between ACEs and both health-risk behaviors and intrapsychic psychological consequences.

**Methods:** Our sample consisted of self-reported healthy participants (n=117), psychiatric (n=49), oncology (n=56), immunology patients (n=51) and patients appearing in GP care (n=49). Self-report questionnaires were used in person (e.g. the ACE questionnaires, the Posttraumatic Cognitions Inventory, the Dissociation Questionnaire).

**Results:** The prevalence data showed a particular pattern in the study groups, with the highest prevalences in the psychiatric group (67% were neglected, 69% were witnessing domestic violence). Prevalences in somatic groups were located between the healthy and psychiatric groups, with the highest prevalences among oncology patients. ACEs were accumulating in clinical populations. One-third of self-reported healthy individuals reported no adversity and almost 50% experienced two or more adversities. Specific interrelatedness of ACEs was identified. Our results confirmed the dose-response relationship between ACEs and health-risk behaviors, posttraumatic cognitions and dissociative symptoms.

**Conclusions:** Overall, our study is the first cross-sectional study in Hungary on ACEs, giving strong suggestion that childhood adversity may be very common not only in clinical populations but also in healthy participants.

DÓRA PRIEVARA  
LÁSZLÓ LIPPAI  
VERONIKA MÁTÓ  
ERIKA TÓTH

### S IV/4. Digital generations with digital competences – how to utilize technology in health education

Institute of Applied Health Science and Health Development, Juhász Gyula Faculty of Education, University of Szeged  
6725 Szeged, Boldogasszony sgt. 6., Hungary – Phone: +36 (30) 336 1048 – E-mail: prieara@jgypk.u-szeged.hu

As our previous researches show (e.g., Pikó, Prievara & Mellor, 2017; Prievara, & Pikó, 2016), the intense use of the Internet and the continuous online readiness is an actual problem among teenagers and young adults. Additionally, the Internet using habits have changed drastically in recent years: The four or even more hours online spent time belongs mainly to the smartphones and mobile applications. The advantages of these new technologies are untapped in the field of health education. The purpose of our theoretical work was to highlight these possibilities given by the mobile

applications. We will introduce the international traditions and good practices of using mobile applications, focusing on programs which help in the monitoring of the regular physical activities, tracking the mood and the nutrition, checking the heart rate and the daily amount of water, analysing the quality of sleep. The other aim was to focus on the Visegrád Group of Countries (Czech Republic, Hungary, Poland and Slovakia) and analyse the effect of the researches in this special area. Nevertheless, we had to expand our search to worldwide experiences of the

health-related mobile applications because of the small amount of results.

We will advert to the social aspects of these programs as well, analysing the importance of sharing to the social networking sites and elements of gamification in

the maintenance of the users' motivation in lifestyle changes. Understanding these mechanisms will definitely help in the more efficient health education of the digital generations.

GÁBOR BÁNYAI<sup>1</sup>  
VIKTOR DOMBRÁDI<sup>1</sup>  
CINTIA KATONA<sup>2</sup>  
KLÁRA BORUZZ<sup>1</sup>  
GRÉTA DEZSŐ<sup>2</sup>  
ATTILA NAGY<sup>3</sup>  
KLÁRA BÍRÓ<sup>1</sup>

#### S IV/5. Attitude towards the doctor-patient relationship in selected Central and Eastern European countries

<sup>1</sup> Department of Health Systems Management and Quality Management for Health Care, Faculty of Public Health, University of Debrecen  
4032 Debrecen, Nagyerdei krt. 98., Hungary – Phone: +36 (30) 333 3797 – E-mail: banyai@med.unideb.hu

<sup>2</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>3</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

**Background:** Patients' rights require that providers share the decision-making process and responsibility with their patients to maintain trust, effective communication and healthy provider-patient relationship. This type of good communication between the patient and provider is regarded as an essential element for achieving positive healthcare outcomes. Attitude towards provider-patient relationship is a challenge for healthcare providers.

**Aims:** The aim of the study was to investigate the attitudes that citizens of four Central and Eastern European Countries (CEECs) hold concerning the relationship between patient and provider.

**Methods:** The Patient-Practitioner Orientation Scale was used in our research. This questionnaire differentiates between patient-centered and doctor-centered orientation toward medical practice. The statistical analysis included 4000 respondents from the Czech Republic, the Slovak Republic, the Republic of Poland

and Hungary. The sample of each country was representative by age, gender, education, region and the size of the municipality the responder was residing in.

**Results:** From the preliminary results of this study we concluded that citizens of these CEECs have a moderate attitude towards patient-centered care. Respondents were concerned about receiving all the information and the provider being empathetic, but less concerned about taking part in the decision-making process.

**Conclusions:** Policy makers in these CEECs could use this information to formulate communication strategies that suit patient preferences and perhaps re-evaluate the competencies of the different actors in the healthcare system based on the results.

**Funding:** The work is supported by the GINOP-2.3.2-15-2016-00005 project. The project is co-financed by the European Union under the European Regional Development Fund.

ILONA VERES-BALAJTI<sup>1</sup>  
 BÁLINT MOLICS<sup>2</sup>  
 JÁNOS SÁNDOR<sup>3</sup>  
 RÓZA ÁDÁNY<sup>4</sup>

#### S IV/6. Physiotherapy operations in general practitioners' clusters at different levels of prevention.

<sup>1</sup> Physiotherapy Department, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary

Phone: +36 (52) 512 765 – E-mail: balajti.ilona@sph.unideb.hu

<sup>2</sup> Physiotherapy Department, Faculty of Health Sciences, University of Pécs – Pécs, Hungary

<sup>3</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>4</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen Debrecen, Hungary

**Background:** The current structure of Hungarian health care system patients can meet other health professionals, like physiotherapists, on the next level of the system only, while Health 2020, the health policy strategy of the World Health Organization European, places emphasis on the main objectives of public health-focused primary care prevention of disease, health promotion and restoration.

**Aims:** The objective of our programme was to make physiotherapy available at all levels of health care, thus their various exercise programmes could contribute to a new health promotion and prevention service.

**Methods:** The examination of patients entering the programme was carried out at the first meeting using relevant tests and questionnaires. The next step was the physiotherapy programme (2-3 times for a period of eight weeks). Physiotherapists' services included obligatory programs like spinal training, increasing general physical status, treating movement system complains, and weight loss programs. The programme was carried out by the relevant professional guide-

lines. After the period the first examination was repeated.

**Results:** The efficiency of the physiotherapy services was proved by special questionnaires measuring health quality and surveyed with protocols based on physiotherapy examinations. The results showed significant improvement. Furthermore, analysis of the questionnaires filled out by participants showed an over 90% satisfaction rate.

**Conclusions:** We can conclude that, in accordance with the endeavours of WHO, we have found new and efficient methods to integrate physiotherapists into primary care and encourage the population to treat and prevent non-communicable diseases through health promotion programmes, facilitating a paradigm shift towards preventive activity.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund.*

PÉTER CSÉPE  
 LÁSZLÓ ANTAL

#### S IV/7. Teaching about climate change in medical education

Department of Public Health, Faculty of Medicine, Semmelweis University – 1089 Budapest, Nagyvárad tér 4., Hungary

Phone: +36 (20) 383 7117 – E-mail: csepe.peter@med.semmelweis-univ.hu

**Background:** Evidences suggest that climate change poses direct and indirect human health challenges. The WHO has estimated the anthropogenic climate change in the last 30 years already claim over 150000 lives annually. Given the dire implications for human health, climate change is of fundamental relevance to future doctors. Hungarian physicians have limited knowledge about the risks. Medical students have insufficient learning resources available on climate

change, and they are not prepared to face the issue at schools.

**Aims:** The ultimate aim is integrating climate change issues into medical education which offers an opportunity for future doctors to develop skills and insights essential for clinical practice and a public health role. In the first phase of the research a questionnaire has been accomplished by students of Semmelweis University on their knowledge and attitude about climate change.

**Methods:** The questions are about the environmental state of the Earth, the ecological crisis and climate change which causes utmost social interest. The questionnaire also includes question whether students would prefer climate change as part of their education.

**Results:** The questionnaire has been distributed to 9852 the students of Semmelweis University in March, 2019. Majority of them are expected to reply. The de-

tailed analysis of the responses is in progress and will be presented at the Conference.

**Conclusion:** Doctors and all healthcare professionals should get ready for the expected climate change and its' health effect. It is extremely important to improve the knowledge of university students on climate change and its' health consequences.

---

## **4TH V4 PUBLIC HEALTH CONFERENCE**

### **ABSTRACTS OF THE POSTER SESSIONS**



JACEK KOZAKIEWICZ  
 ALEKSANDRA SOMMERLIK BIERNAT  
 ANNA LIS-ŚWIĘTY  
 TADEUSZ URBAN

### P I/1. Presentation of the poster campaign "Imperative for a good health"

*Silesian Medical Chamber – ul. Grażyńskiego 40a, 40-126 Katowice, Poland  
 Phone: +48 604 941 840 – E-mail: olaizba@interia.pl*

The right to health and life is guaranteed by the Polish Constitution. Expecting healthcare organizers, primarily physicians, nurses, pharmacists and other healthcare professional have a duty to provide healthcare and patient will wish to accept it, has been appearing more frequently. However, patients must take responsibility for the state of health in view of the limited opportunities (despite the steady and important progress) of curative medicine available.

Aim of the paper is to present assumptions of poster campaign "Imperative for a good health".

The fourth poster campaign "Imperative for a good health" made in the context of an educational campaign "Don't live on delusions, your health is the most important thing", first launched in 2016, has been organized by the Silesian Medical Chamber. Its aim is to

improve the state of health of Polish population, disseminate and transfer of knowledge relating to certain medical issues. Posters related to the campaign are designed by physicians, published thousands of copies, and distributed to our members during the scientific conferences and events, and to medical and educational institutions.

The project "Imperative for a good health" was the initiative of the Silesian Medical Chamber, together with the Silesian Pharmaceutical Chamber, the Regional Chamber of Nurses and Midwives in Katowice, and the Polish Federation of Patients. The latter partnership has a particular value for an informed participation of patients in diagnostic-therapeutic process, and that is important for making the public health system more efficient.

JANA BABJAKOVA  
 LUBICA ARGALASOVA  
 DIANA VONDROVA  
 ALEXANDRA FILOVA  
 IVANA KACHUTOVA  
 JANA JURKOVICOVA

### P I/2. Alcohol consumption and smoking status in Slovak adolescents

*Institute of Hygiene, Faculty of Medicine, Comenius University, Bratislava – Spitalska 24, 812 72 Bratislava, Slovakia  
 Phone: +421 903 112 737 – E-mail: jana.babjakova@fmed.uniba.sk*

**Background:** Alcohol consumption and tobacco use represent the most important preventable health risk factors among youngsters with their health and socioeconomic consequences.

**Methods:** The Youth and Parents Risk Factor Behavior Survey in Slovakia (Y.A.B.S.) is cross-sectional school-based survey of students (15-19 y., N=789) and their parents (N=1,586). It originates from B.R.F.S.S. and Y.R.B.S.S., designed by CDC, USA.

**Results:** Over 60% of students consume alcoholic beverages at least once a month. There were differences in alcohol consumption (at least once a month) between groups - smokers vs. non-smokers (OR 7.30 (95% CI

3.67-14.54)), students whose fathers drink alcohol occasionally vs. non-drinkers (OR 2.14 (95% CI 1.32-3.46)), between students whose fathers often drink alcohol vs. non-drinkers (OR 3.54 (95% CI 1.61-7.77)). Less than 50% of students never have been drunk (56% of non-smokers, 7.8% of smokers). Excessive drinking was more prevalent among smokers vs non-smokers (OR 18.44 (95% 8.18-41.57), ex-smokers vs. non-smokers (OR 6.0 (95% CI 3.01-11.96)). 7.5% of non-smokers and almost every second smoker were drunk six or more times a month. The occurrence of classical cigarette smoking was 19.9 % (23% boys, 18.1% girls). 52.6% boys and 51.2% girls have tried alternative tobacco

products, 41.1% had experiences with electronic cigarettes (45.4% boys, 38.7% girls). 11.7 % of students are current ATP users (14.9% boys, 9.8% girls) and 3.2% vape EC (4.4% boys, 2.1% girls).

**Conclusions:** The project revealed a high occurrence of alcohol consumption and smoking among adolescents. There is an urgent need for targeted primary interdisciplinary prevention.

ALEKSANDRA ANTONIAK  
DOROTA STOŁTNY  
EDYTA FATYGA  
MAGDALENA PIŁOT  
SYLWIA DZIĘGIELEWSKA-GĘSIĄK

### P I/3. Do we need to educate vegetarians about vegetarian diet

*Department of Internal Medicine, School of Public Health in Bytom, Medical University of Silesia in Katowice, Poland  
Żeromskiego 7str, Bytom, Poland – Phone: +48 604 131 030 – E-mail: edytafatyga@onet.eu*

**Background:** In recent years vegetarian diet has significantly increased in popularity. Despite the advantages of vegetarian diet, it carries a risk of nutritional deficiencies and diseases if it isn't well balanced. Thus the aim of the work was to assess the nutritional knowledge among vegetarians in the aspect of participants age and education as well diet duration.

**Methods:** The study was conducted with a group of 405 vegetarians, using the author's questionnaire, which included questions testing nutrition knowledge. Respondents were divided into 6 age groups: under 20 years, 20-25 years, 26-30 years, 31-40 years, 41-50, over 50 years. Statistical analysis were done by Statistica 13.0 for Windows.

**Results:** The majority of respondents had higher education  $n=262$  (64,7%). Most respondents used to use the diet for over 5 years:  $n=152$  (37.5%). They decide

to exclude meat from their diet due to ethical and health reasons  $n=235$  (58.0%) and  $n=90$  (22.2%) respectively. The first source of the vegetarian knowledge was Internet  $n=280$  (69.1%), the second professional books  $n=96$  (23,7%). 193 (47.7%) participants had an average level of nutritional knowledge, 149 (36.8%) people showed a good level, and 39 (9.6%) very good. There was no statistically significant relationship between age and the level of nutritional knowledge ( $p=0.78$ ) and statistically significant relationship between the diet duration and education and the level of nutritional knowledge ( $p < 0.01$ ).

**Conclusions:** Average knowledge and the main source from the Internet, indicate the need for professional diet advertisements and education in the field of vegetarianism.

ERAND LLANAJ<sup>1</sup>  
FERENC VINCZE<sup>1</sup>  
ZSIGMOND KÓSA<sup>2</sup>  
RÓZA ÁDÁNY<sup>3</sup>

### P I/4. Macro- and micro-nutrient intake among Hungarian general and Roma adults

<sup>1</sup> *Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (70) 306 1279 – E-mail: erand.llanaj@sph.unideb.hu*

<sup>2</sup> *Department of Health Visitor Methodology and Public Health, Faculty of Health, University of Debrecen – Nyíregyháza, Hungary*

<sup>3</sup> *MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen Debrecen, Hungary*

**Background:** Few studies have been conducted with reference to dietary intake among adults in Hungary. In this study we assessed dietary intake of both Hungarian general (HG) and Hungarian Roma (HR) adult population.

**Aim:** The present study provides an up-to-date preview on highly health-relevant macro- and micro-nutrient intakes and dietary profile of the HG and HR adult population.

**Methods:** The study population comprised 797 Hungarian adults (HG: N=410, RR=82% and HR: N=387, RR=79%), representative in terms of geographic, sex and age distribution with the general population aged 20-64 years, from the 2018 GINOP Complex Health Survey. Energy and selected nutrient intakes were calculated based on a qualitatively validated two-day 24 hours dietary recall, adopted for the Hungarian population.

**Results:** Total daily energy and selected nutrients intake among HG and HR adult subjects are reported. Despite of the presence of underestimation effects, consumption of nutrients with high relevance to health (i.e. sugars, sodium, saturated fats, cholesterol, etc.) remains relatively high, while consumption of fibre-rich products and beneficial fatty acids appears to be low,

especially among Roma. Considering both health and environmental impact of the diet, animal-based proteins are way over the target value (i.e. 6%E) of the recent EAT-Lancet report.

**Conclusions:** The present findings signal an urgent need for public health nutrition interventions and policies, additionally to existing ones. Public health strategies to modify current dietary patterns may be favourable for improving nutrition and health, particularly within the framework of the UN Decade of Action on Nutrition (2016-2025) global work programme.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund.*

ALEKSANDRA CYBULSKA

EDYTA FATYGA

SYLWIA DZIĘGIELEWSKA-GĘSIĄK

TERESA KOKOT

MAŁGORZATA MUC-WIERZGOŃ

#### P I/5. Evaluation of adipose tissue and body composition among Polish seniors – pilot study

*Department of Internal Medicine, School of Public Health in Bytom, Medical University of Silesia in Katowice – Żeromskiego 7str, Bytom, Poland  
Phone: +48 604 131 030 – E-mail: edytafatyga@onet.eu*

**Background:** The age-related changes include increased fat mass and decreased fluids volume. However, we need to identify the elderly who have abnormal fat content. Thus the aim of the study was to evaluate adipose tissue content and body composition in Polish seniors in the aspect of assessing nutritional status and to facilitate decision-making for dietary interventions.

**Methods:** The study was conducted with 200 Polish seniors (65-87 years old). Inclusion and exclusion criteria were defined. Anthropometric measurements (height, weight, body mass index) was performed and body composition analysis were determined by Bioelectrical Impedance Analysis (BIA) using the Tanita MC-780 Body Composition Analyzer. The study protocol was approved by local ethics committee with compliance to Helsinki Declaration.

**Results:** The normal fat content had 43.0% elderly females (F) and 20,4% elderly males (M). Overweight was registered in 32,4% F and 55.1% M. Both sexes had the same percentage of obesity (F and M 24.5% each group). Increased visceral tissue was observed in 14.6% F and 44.9% M. The sufficient level of water content was recorded in 53.1% F and 45.0 % M. 55,0% F and 46.9% M had decreased fluids volume.

**Conclusions:** The incidence of dehydration and increased fat mass among Polish seniors are high. BIA may assist in the evaluation of adipose tissue in elderly otherwise good health individuals and may serve as good indicator for the assessment for the current state of nutrition. Assessment of fat mass and body composition by BIA may quickly help to make decisions for dietary interventions.

EVELIN POLANEK<sup>1</sup>  
 ALEXANDRA SOÓS<sup>2,3</sup>  
 EDIT PAULIK<sup>1</sup>  
 ANDREA SZABÓ<sup>1</sup>

### P I/6. Is there any association between vitamin D and male fertility?

<sup>1</sup> Department of Public Health, Faculty of Medicine, University of Szeged – 6720 Szeged, Dóm tér 10., Hungary – Phone: +36 (62) 545 119  
 E-mail: polanek.evelin@med.u-szeged.hu

<sup>2</sup> Institute for Translational Medicine, Medical School, University of Pécs – Pécs, Hungary

<sup>3</sup> Clinical Medicine Doctoral School, University of Szeged – Szeged, Hungary

**Background:** Infertility is a significant clinical problem, which affects 8-25% of couples worldwide. Of all infertility cases 40-50% is due to 'male factor infertility'. Vitamin D (VD) hypovitaminosis is also a global issue: approximately 70% of world's population has VD level <75 nmol/L. VD receptors and metabolizing enzymes are present within Leydig cells, which may suggest a connection between VD and fertility parameters, however, the results are contradictory.

**Methods:** In this prior search two main questions were formulated: the effects of VD supplementation on male fertility parameters (Q1), and the connection between serum VD level and male fertility parameters (Q2). Fertility parameters included: total testosterone level, free testosterone level, bioactive testosterone level, sex-hormone-binding-globulin level (SHGB), sperm concentration, sperm volume, sperm motility, progres-

sively motile spermatozoa, and semen morphology. Literature search was performed in PubMed, Embase and Cochrane Library databases to find studies published up to November 2018.

**Results:** Database search yielded 5 543 references. After screening, 20 studies remained: 4 articles for Q1 and 16 articles for Q2. According to our preliminary results VD has not any effect on male fertility, and no significant positive association could be observed between VD level and male fertility parameters, moreover the results suggest a negative correlation between VD level and sperm motility.

**Conclusions:** The preliminary results show that VD supplementation has no effect on male fertility, and further studies should be performed for establishing the suggested negative relation between VD supplementation and sperm motility.

SZABOLCS LOVAS  
 BALÁZS ÁDÁM

### P I/7. Potentially harmful chemical contamination in closed spaces of transportation and trade

Division of Occupational Health, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen  
 4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (30) 588 5366 – E-mail: lovas.szabolcs@sph.unideb.hu

**Background:** Global transportation and trade include several closed spaces, such as transport containers, truck trailers and warehouses. These closed spaces may be contaminated with harmful chemicals. The pollutants are mainly pesticide residues or volatile organic compounds released from the goods and packaging materials. In closed environments these chemicals can accumulate and lead to high levels of exposure due to the inadequate ventilation. The aim of this study was to review the regulation and practice of handling goods in containers, truck cargo holds and warehouses of logistics centres in Hungary and to investigate the knowledge and attitude of occupational health and safety pro-

fessionals and worksite managers about the problem.

**Methods:** A comprehensive systematic review was conducted in international and national legislation databases with keywords search strategy to identify legal documents that apply to health and safety of handling goods in closed transport devices and warehouses. Information on the health and safety practice of prevention from chemical exposure during handling goods in containers and warehouses was collected by semi-structured interviews.

**Results:** 4599 records were identified by the review process. 15 of them dealt with chemical pollutants in closed spaces of transportation and trade, mainly in-

directly. The completed 19 semi-structured interviews revealed that the potential exposure is poorly recognised and related risks are underestimated.

**Conclusions:** Our findings indicate that working in closed spaces of transportation and trade is an incom-

pletely regulated field of occupational health and safety. Potential health risks of chemical exposures are largely neglected that warrant evidence-based improvement of risk management.

ORSOLYA BUJDOSÓ<sup>1</sup>

LÁSZLÓ PÁL<sup>1</sup>

ATTILA NAGY<sup>1</sup>

ERVIN ÁRNYAS<sup>1</sup>

RÓZA ÁDÁNY<sup>1</sup>

JÁNOS SÁNDOR<sup>1</sup>

MARTIN MCKEE<sup>2</sup>

SÁNDOR SZŰCS<sup>1</sup>

#### **P I/8. Assessment of health risk from consumption of recorded and unrecorded spirits containing alcohols other than ethanol**

<sup>1</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (30) 313 3013 – E-mail: bujdoso.orsolya@sph.unideb.hu

<sup>2</sup> European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine – London, United Kingdom

**Background:** Alcohol-attributable mortality in certain countries of Central and Eastern Europe (CEE) remains higher than in their western neighbours. The effect of unrecorded alcohol consumption, including home-made fruit spirits have been suggested as an explanation. From the different groups of unrecorded alcohols, home-made fruit spirits are widely consumed in these CEE countries. Besides ethanol recorded and unrecorded spirits frequently contain other aliphatic alcohols (OAAs) including methanol, 1- and 2-propanol, 1- and 2-butanol, isobutanol, and isoamyl alcohol.

**Aims:** Our aim was to ascertain whether there is any difference in the amounts of OAAs in recorded and unrecorded spirits, thus, the health risk associated with their consumption.

**Methods:** The concentrations of ethanol and OAAs in recorded (n=119) and unrecorded (n=87) spirits were

determined by gas chromatography and used in a Monte Carlo type probabilistic simulation to assess the risk based on average consumption level, consumption by drinkers only and chronic heavy drinkers.

**Results:** The concentrations of OAAs in unrecorded spirits were significantly higher [median: 9896.1 mg/litre, interquartile range (IQR): 7898.3-12 634.6 mg/litre] than those in their recorded (median: 975.6 mg/litre, IQR: 136.9-4006.7 mg/litre) counterparts. Besides ethanol methanol also posed a health risk at each consumption level. The risk associated with exposure to 1-propanol, 1-butanol, and combined exposure to OAAs was higher only in chronic heavy drinkers consuming unrecorded spirits.

**Conclusions:** These findings reinforce the importance of action to address the risks associated with consumption of recorded and unrecorded spirits.



EMŐKE KISS-TÓTH<sup>1</sup>MAŁGORZATA WASILEWSKA<sup>2</sup>OLHA SOPEL<sup>3</sup>BEATRIX VARGA<sup>1</sup>MARTA MANDZIUK<sup>2</sup>OLENA LOTOTSKA<sup>3</sup>PÉTER SASVÁRI<sup>1,4</sup>HALYNA KRYTSKA<sup>3</sup>JÓZEF BERGIER<sup>2</sup>ANDREA LUKÁCS<sup>1</sup>**P II/1. Life orientation of university students: an international study in Hungary, Poland and Ukraine**<sup>1</sup> Faculty of Health Care, University of Miskolc – 3515 Miskolc-Egyetemváros, Hungary – +36 (46) 565 111 /2660

E-mail: ekdekan@uni-miskolc.hu

<sup>2</sup> Pope John Paul II State School of Higher Education in Biała Podlaska – Biała Podlaska, Poland<sup>3</sup> I. Horbachevsky Ternopil State Medical University – Ternopil, Ukraine<sup>4</sup> National University of Public Service – Budapest, Hungary

**Background and aim:** Optimism and pessimism are the opposite ends of a continuum, and successful living requires a balance between them. This study was designed to measure the life orientation (LO) of university students from three countries and find its associated factors.

**Methods:** The survey was conducted at four universities in Hungary, Poland and Ukraine in 2018. Registered full-time students completed an on-line anonymous questionnaire. From the 1965 returned questionnaires, 1917 were analysed (48.32% male, mean age is  $21.40 \pm 3.83$  y/o).

**Results:** Analysis of variance showed effect of countries on LO ( $F(2, 1914)=104.71$ ;  $p \leq 0.001$ ). Post-hoc analyses using Tukey's HSD indicated that Ukrainian students reported more optimistic view than Hungarian ( $p \leq 0.001$ ) and Polish students ( $p \leq 0.001$ ). The re-

sults of the regression indicated the three predictors explained 28.0% of the variance ( $R=0.53$ ,  $F(3,1095)=142.21$ ,  $p < 0.001$ ). It was found that depression ( $t=-16.65$ ,  $p < 0.001$ ) and stress ( $t=3.32$ ,  $p=0.001$ ) significantly predicted LO, as did physical activity ( $t=2.90$ ,  $p=0.004$ ). There was no difference between males and females regarding LO.

**Conclusions:** It seems that there are differences in students' LO from different countries and it is not necessarily connected to the economic situation of the country. It rather depends on the mental health and physical activity of the persons. Physical activity might be an effective measure for the treatment and for the prevention of psychiatric abnormalities such as depression and stress. Universities should provide sport facilities, and encourage students to be more physically active.

ERIKA BALOGH<sup>1</sup>NÓRA FAUBL<sup>2</sup>ZOLTÁN WAGNER<sup>1</sup>ZSUZSANNA FÜZESI<sup>2</sup>ISTVÁN KISS<sup>1</sup>**P II/2. Cigarette use and intention to quit among medical students in Pécs, Hungary**<sup>1</sup> Department of Public Health, Medical School, University of Pécs – 7624 Pécs, Szigeti u. 12., Hungary

Phone: +36 (72) 536 435 – E-mail: erika.balogh@aok.pte.hu

<sup>2</sup> Department of Behavioural Sciences, Medical School, University of Pécs – Pécs, Hungary

**Background/Aims:** Medical students' smoking behavior is of particular interest because it influences not only their own health but also the health of their future patients. Aim of our study is to explore the prevalence of smoking and willingness to quit among Hun-

garian medical students at the University of Pécs.

**Methods:** A cross-sectional survey was conducted at the Faculty of Medicine of the University of Pécs in 2014 and 2018 using a self-administered questionnaire among 1st, 3rd and 5th year Hungarian medical

students. To compare data from 2014 and 2018 Pearson's  $\chi^2$ -tests were performed.

**Results:** Data on smoking behaviour was available in 383 students (62.9% female) in 2014 and 357 students (64.4% female) in 2018. Prevalence of cigarette smoking was 24.0% in 2014 and 22.7 in 2018 ( $\chi^2$ -test,  $p = 0.669$ ). Current smoking status did not vary significantly between genders and among study semesters. Almost half of respondents who currently smoke have at some point attempted to stop. In 2018 one third of

smokers indicated that they wished to stop smoking. Willingness to quit was the highest among those smoking daily (54.2%) or several times a week (55.6%).

**Conclusions:** University years provide a unique opportunity for interventions to change harmful health behaviors of future physicians. Medical students who smoke should be encouraged to seek cessation treatment. Cessation programs should be offered for medical students who are interested in quitting smoking.

ESZTER LABANCZ<sup>1</sup>

KATALIN BALÁZS<sup>2</sup>

ILDIKÓ KURITÁRNÉ SZABÓ<sup>1</sup>

### P II/3. Comparison of pathological personality traits and quality of life in a clinical, non-clinical and undergraduate students' sample

*1 Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 – E-mail: labancz.eszter@sph.unideb.hu*

*2 Institute of Psychology, Faculty of Humanities, University of Debrecen – Debrecen, Hungary*

A new dimensional model of personality was developed in the fifth edition of the DSM, describing the personality on dimensional traits. A new self-report questionnaire, the Personality Inventory for DSM-5 (PID-5) was created to measure these pathological personality traits. The aim of our study is to find out the relationship between these pathological personality traits and quality of life.

Our sample includes psychiatric inpatients, members of the non-clinical population between 18 and 60 years of age and undergraduate students over 18 years. Those with acute psychosis, mental retardation and dementia were excluded from the clinical sample, whereas current or past mental disorders were criteria for exclusion in the non-clinical sample and in the group of undergraduate students. We collected data about demographic factors and psychiatric treatment

history. Pathological personality traits were assessed with the Personality Inventory for DSM-5, which includes 220 items organized into 25 traits and five domains. Quality of life was assessed by the 36-Item Short Form Health Survey (SF-36).

Based on our preliminary analysis, psychiatric inpatients had less favourable trait profiles and they reported worse quality of life compared with the non-clinical participants and undergraduate students. Significant relationships were found between pathological personality traits and the SF-36 by Spearman rank correlation and linear regression analysis, respectively. The domains of Negative affectivity and Detachment had the strongest association with the SF-36.

Our preliminary results show that increased negative emotions and withdrawal from social connections have the largest impact on the subjective quality of life.

ERIKA BALOGH<sup>2</sup>  
 HENNA RIEMENSCHNEIDER<sup>4</sup>  
 ANDRÁS TEREBOSSY<sup>3</sup>  
 FERENC HORVÁTH<sup>3</sup>  
 KAREN VOIGT<sup>4</sup>  
 ISTVÁN KISS<sup>2</sup>  
 ZSUZSANNA FÜZESI<sup>1</sup>  
 NÓRA FAUBL<sup>1</sup>

#### P II/4. Quo vadis medicinae candidatus?

##### Specialization and workplace preferences for medical students studying in an international environment

<sup>1</sup> Department of Behavioural Sciences, Medical School, University of Pécs – 7624 Pécs, Szigeti u. 12., Hungary  
 Phone: +36 (72) 536 435 – E-mail: nora.faubl@aok.pte.hu

<sup>2</sup> Department of Public Health, Medical School, University of Pécs – Pécs, Hungary

<sup>3</sup> Department of Public Health, Faculty of Medicine, Semmelweis University – Budapest, Hungary

<sup>4</sup> Faculty of Medicine Carl Gustav Carus, School of Medicine, Technische Universität Dresden – Dresden, Germany

**Background / Aims:** Examining the professional and workplace preferences of medical students studying in an international environment, in English, German and Hungarian language programs.

**Methods:** The survey was carried out anonymously in the spring of 2014 and 2016 with a self-filling questionnaire for 1st, 3rd and 5th year general medical students at the Faculty of Medicine of the University of Pécs.

**Results:** The personal characteristics of prospective doctors are fundamentally decisive for the choice of profession, of which gender, country of origin, financial situation and parental background prove to be factors

affecting the choice of field. Behind the choice of specialization, besides professional reasons, more and more lifestyle factors appear. Future doctors prefer cities to rural settlements as a place to work, and also consider working outside their home country significantly, varying in grade and language.

**Conclusions:** Continuous follow-up of the labor market's pull factors, awareness of generational transformation and the changes that take place are indispensable for the satisfactory functioning of health care, and optimally, in the course of a continuously renewing and post-change university education, thus creating the possibility of faster intervention.

GABRIELLA NAGY-PÉNZES  
 BORBÁLA BALOGH  
 ÉVA BÍRÓ

#### P II/5. Problematic internet activities among high school students

Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
 Phone: +36 (52) 512 765 / 77418 – E-mail: penzes.gabriella@sph.unideb.hu

**Background:** The internet can be used for many useful things, but internet activities may become problematic, which can have negative impacts on health, health behaviour, and social relationships. The young generation is particularly exposed to the risk of problematic internet activities. Because of this reason, our aim was to assess the problematic internet use, social networking and online gaming among high school students, and to examine the relationship between these factors and mental health and social support.

**Methods:** The target group of the research contains 9th and 10th grade students (n=236). The data collec-

tion was carried out with an online questionnaire which was based on international surveys. The determinants of problematic internet activities were investigated with binary logistic regression.

**Results:** All of the respondents were internet user, 96.6% used social media, and 54.2% was online gamer. Nearly two-fifths of students was problematic internet and 18.2% problematic social media user, 11.9% problematic online gamer. Those who had higher family (OR: 0.89; 95%CI: 0.82-0.97), peer (OR: 0.88; 95%CI: 0.80-0.97) and classmate (OR: 0.63; 95%CI: 0.49-0.82) support, appropriate self-esteem (OR: 0.20, 95%CI:

0.56-0.75), and higher life satisfaction (OR: 0.14, 95%CI: 0.03-0.64) has lower odds for problematic online gaming. While the presence of psychosomatic (OR: 1.09; 95%CI: 1.01-1.17) and depressive (OR: 14.14; 95%CI: 2.79-71.39) symptoms increases the odds of this.

**Conclusions:** Our results show that problematic internet activities are present among high school students and can be linked to social support and mental health, so it is important to prevent these problematic activities.

ALEXANDRA SÁNDOR  
NIKOLETT NAGY  
LILLA STELLA BOGDÁN  
GÁBOR PAPP  
JUDIT MOLNÁR

## **P II/6. The role of childhood traumatization and attachment characteristics in the etiology and pathogenesis of maladaptive daydreaming**

*Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 /54280 – E-mail: sandoralexandra@sph.unideb.hu*

**Background/Aims:** Maladaptive daydreaming (MD) is an addictive and compulsive fantasy activity that causes significant distress and functional impairment. Although MD was described in 2002, contributing factors to the development and maintenance of this phenomenon remained unrevealed. The main purpose of this study was to explore the potential role of adverse childhood experiences and attachment characteristics in the etiology and pathogenesis of MD.

**Methods:** Participants were recruited from the adult general population through an online platform using chain-referral sampling. Participants responded to several questionnaires, including a demographic questionnaire, a screening questionnaire for MD, the Maladaptive Daydreaming Scale (MDS-16-HU); the Traumatic Antecedents Questionnaire (TAQ) for assessing adverse childhood experiences and the Attachment Style Questionnaire (ASQ-H) for measuring adult attachment style. 221 individuals were re-

cruited, 39 of them were identified as maladaptive daydreamers.

**Results:** Our findings suggest that the prevalence of nearly all types of traumatic childhood experiences assessed by TAQ (e.g., neglect, separation, emotional abuse) is significantly higher in the group of maladaptive daydreamers compared to normal fantasizers. Additionally, regarding the attachment style of the participants we found that maladaptive daydreamers scored significantly higher on Importance of relationships for self, as well as on Ambivalence, distance from relationships, devaluation of self and they scored significantly lower on Confidence in relations compared to controls.

**Conclusions:** Our findings draw attention to the importance of childhood adversities and attachment-based deficits in the pathogenesis of MD. Based on the results we suggest the potential relevance of an attachment-focused therapeutic approach during the treatment of MD.

ENIKŐ CSIKAI<sup>1</sup>LÁSZLÓ CSIBA<sup>2</sup>BERNADETT BALAJTHY-HIDEGH<sup>3</sup>LÁSZLÓ KARDOS<sup>4</sup>MÓNICA ANDREJKOVICS<sup>1</sup>**P II/7. Reversibility of neurocognitive performance impairment in primer hypertensive patients**

<sup>1</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 – E-mail: csikai.eniko@sph.unideb.hu

<sup>2</sup> Department of Neurology, Clinical Center, University of Debrecen – Debrecen, Hungary

<sup>3</sup> Department of Psychiatry, Kenézy Gyula Hospital – Debrecen, Hungary

<sup>4</sup> Kenézy Gyula Hospital – Debrecen, Hungary

**Background:** Cardiovascular diseases (CVDs) are the leading causes of the global burden of disease and overall health loss. Worldwide prevalence of hypertension (HT) exceeds 1.3 billion persons in the adult population. The prevalence in Hungary is 2.5 million persons. HT is a potentially modifiable risk factor that can lead to target organ damages, cardiovascular events and cerebrovascular complications. The most affected neurocognitive functions are executive functions, psychomotor pace and memory.

**Aims:** We assessed the early reversibility of the neurocognitive performance impairment in newly diagnosed, primer hypertensive patients. We also compared the effects of two types of angiotensin converting enzyme inhibitors (ACE-I) on cognition.

**Methods:** 48 patients (mean age: 46.88±13.17 years; 35 males) were assessed before and after three months

of antihypertensive therapy (lisinopril/enalapril: 22:26). The diagnosis of hypertension was based on international recommendations. Each patient had normal cerebral CT scan, no comorbid diseases (e.g. heart attack, stroke and dementia), and no anxiety or depression. 24-hour ambulatory blood pressure monitoring (ABPM) and a comprehensive neurocognitive examination were performed at both baseline and follow up. Variables at baseline and follow-up were compared using paired t-test if normal distribution was satisfactory or Wilcoxon's matched pairs signed-ranks test otherwise.

**Results:** After 3 months of ACE-I therapy, cognitive improvement was observed in executive functions especially in inhibition skills and visual fluency.

**Conclusions:** Cognitive performance was improved in the initial phase of HT therapy.



CSABA MÓCZÁR

**P III/1. Hungarian managed care initiatives between 2000 and 2007: regional health outcomes of the Hungarian care organizations**

*Irinyi Health Center Kecskemét — 6000 Kecskemét, Irinyi utca 22., Hungary  
Phone: +36 (30) 229 3795 – E-mail: moczarcsa@gmail.com*

**Background:** In Hungary, since 1990, each government has tried to transform and rationalize the structure of health care. One of the reforms was the Care Managing Organization (CMO) programme introduced in 1999.

**Objectives:** The aim of this presentation is to describe the preliminary health related outcomes of the CMO in Bács-Kiskun County (Central-Eastern Hungary).

**Methods:** Cardiovascular screening programmes were organized for pre-screened and randomly selected populations of a total of 4462 persons. Data were analysed based on three aspects: describe the cardiovascular risk status of the population, compare the cardiovascular risk of pre-screened and randomly screened population and seven years after completing the programmes, regional mortality data were analysed and compared.

**Results:** 3 420 of the 4 462 screened patients belonged to the pre-screened group. The gender distribution: 1 977 (1 518) men and 2 485 (1 902) women. The average age was 47.4 years. Based on the SCORE risk as-

essment, the proportion of individuals with high cardiovascular risk was significantly higher in the pre-screened group than in the randomized group (17.4 versus 0.6%). Total mortality was 5.7 per thousand (versus national 12 per thousand), cardiovascular cause was 1.3 per thousand (vs. 6.4 per thousand). The average standardized mortality rate for cardiovascular deaths was 0.3817 for men and 0.4409 for women over the duration of the program (1999-2008); this rose to 0.42 and 0.5505 after the end of the program (2009–2012). This change was significant for women ( $P=0.0029$ , SD: 0.04).

**Conclusions:** The proportion of patients with high cardiovascular risk was significantly higher in the pre-screened population which reveals that the target group selection based on the medical history data can make the cardiovascular screening process more cost-effective. The well-organised, and funded cardiovascular preventive program can decrease the total and cardiovascular mortality of the affected area.

NADINE FRAIHAT  
ORSOLYA VARGA

**P III/2. Effectiveness and cost-effectiveness of oral health promotion in dental caries prevention among children: a meta-analysis and systematic review**

*Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (70) 256 853 – E-mail: nadine.fraihat.2018@mailbox.unideb.hu*

The objective of this study was to evaluate the effectiveness of oral health promotion programs (OHPPs) and their cost-effectiveness to improve child's knowledge on a favorable oral health behavior aiming to lower decayed missing filled teeth (DMFT) while reducing financial burden on health institutions.

An electronic search was performed in the PubMed, Embase, CEA Registry, PEDE, DARE, HTA, and NHS EED databases. Studies were restricted to human intervention published in English. The risk of bias was assessed using Cochrane Collaboration tool for randomized clinical trial, Newcastle-Ottawa Scale for ob-

servational studies, and an instrument adapted from Drummond and Jefferson was used to assess the financial cost analysis studies.

A total of 1072 references was found. Among these 45 full texts were evaluated, 8 studies included in the meta-analysis. Most studies had strong quality according to the assessment scales. The overall pooled impact of OHPPs was effective to lower children DMFT by 52% (95% CI 14%-74%, I<sup>2</sup>: 97.8%,  $P=0.013$ ), furthermore reducing the costs by 94% (95% CI 79%-98%, I<sup>2</sup>: 98.8%,  $P=0$ ). Subgroup analyses assessed the influence modification on the pooled effect through age, study design,

and study countries. Studies reported children less than 6 years old revealing no effect on DMFT, conversely children aged 6 years and above were efficient in lowering DMFT. The study design and study countries also

revealed a significant lowering effect on DMFT and cost. Thus, our comprehensive analysis of OHPPs has confirmed their reducing effect on children DMFT and the financial burden on health institutions.

KAROLÍNA DOBIÁŠOVÁ

### P III/3. Patient involvement in psychiatric care reform in the Czech Republic

*Institute of Sociological Studies, Faculty of Social Sciences, Charles University – Pod Klauďiankou 286/21, Prague, Czech Republic  
Phone: +420 731 147 170 – E-mail: karolina.dobiasova@fsv.cuni.cz*

**Background:** In the Czech Republic, the Strategy for Reform of Psychiatric Care (SRPC) was approved in 2013. SRPC addresses the problems of Czech mental health care system (e.g. insufficient availability of basic psychiatric care, concentration of care in large psychiatric hospitals and lack of community care). SRPC is currently being implemented. Psychiatric patients and their families are one of the key stakeholders.

**Aims:** The aim of this poster is to present how the patients' involvement has changed during formation and implementation of the psychiatric care reform (PCR) and to present barriers for patient involvement.

**Methods:** The study uses qualitative methodological approach. The study uses a combination of documents studying and empirical survey based on 10 semi-structured interviews with the key stakeholders of PCR.

**Results:** The role of patients has changed during realisation of the reform. According to the concept of Carman et al. (2013) patient involvement moves from patients 'consultation' to 'involvement'.

Nevertheless, the following barriers for patient involvement were identified: devaluing patients, stigma of psychiatric disease, tokenism, limited participation opportunities, lack of information, disease-related problems, lack of time, lack of finance, rivalry between different patient organizations, individuals who block the involvement process.

**Conclusion:** PCR is a good opportunity for better patients' empowerment in psychiatric care in the future, the patients are being educated and activated.

KATALIN TOLVAY  
CINTIA KATONA  
KAROLINA KÓSA

### P III/4. Dysfunctional attitudes in an adult population with high prevalence of depression

*Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 411 600 /57187 – E-mail: katona.cintia@sph.unideb.hu*

**Background:** Hungary is the EU member state that has the highest proportion of the adult population with depressive symptoms according to the latest European Health Interview Survey (10.5%). Uncovering the background of this predicament requires multiple approaches, among them measuring dysfunctional attitudes.

**Methods:** The abbreviated version of the dysfunctional attitudes scale (DAS-A-17) focusing on perfectionism and dependence was translated and validated against stress and depression measured by the DASS-21

scale in a representative sample of the adult Hungarian population (N=1200).

**Results:** The scale showed high reliability; Cronbach alpha was between 0.7-0.95; factor analysis confirmed the 2-factor structure. The subscale means of dysfunctional attitudes showed significant differences between groups at low and high risk of depression (perfectionism:  $d=8.96$  points,  $p<0.001$ ; dependence:  $d=2.34$ ,  $p<0.001$ ). Comparing the Hungarian and a Dutch sample, dysfunctional attitudes had significantly higher means in the Hungarian sample (perfectionism:  $d=8.96$  points,  $p<0.001$ ; dependence:  $d=2.34$ ,  $p<0.001$ ).

tionism:  $d=3.5$  points, dependency:  $d=0.8$ ,  $p<0.001$ ).

**Conclusions:** Combined with other questionnaires, the Hungarian version of the questionnaire for dys-

functional attitudes is suitable for identifying those vulnerable to mental illnesses, especially depression.

ATTILA JUHÁSZ<sup>1</sup>

CSILLA NAGY<sup>1</sup>

RÓZA ÁDÁNY<sup>2</sup>

### P III/5. Distribution of morbidity and mortality due to malignant neoplasms in association with the deprivation in Hungary 2010-2016

<sup>1</sup> Department of Public Health, Government Office of Capital City Budapest – 1138 Budapest, Váci út 174., Hungary

Phone: +36 (20) 383 7401 – E-mail address: juhasz.attila@nfo.bfkh.gov.hu

<sup>2</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen Debrecen, Hungary

**Background/Aims:** Last few decades the mortality due to malignant diseases is extremely unfavourable in Hungary and the burden of morbidity and mortality on the Hungarian population is strongly attributed to malignant diseases. Among males 34% and among females 47% of premature deaths are caused by malignancies. The aim of our study was to describe the spatial distribution of premature (for 15-64 years age group) morbidity and mortality risks due to malignant diseases with the highest public health importance and their association with the socio-economic deprivation at municipality level in Hungary for the years 2010-2016.

**Methods:** The cancer morbidity and mortality were mapped by smoothed indirectly standardised relative risks using hierarchical Bayesian methods (BYM model). The association between deprivation and the

morbidity and mortality at municipality level was studied by spatial regression based on BYM model.

**Results:** Significant positive association was found between the incidence of the lung cancer, lip, oral cavity and pharynx cancer for both genders and malignant neoplasm of cervix uteri and the deprivation. Inverse associations were found in case of breast cancer morbidity. In addition, significant positive association was found between the mortality of the lung, lip, oral cavity and pharynx, colorectal cancer for both genders, as well as malignant neoplasm of breast and cervix uteri and the deprivation.

**Conclusions:** On the basis of the spatial distribution of mortality and morbidity risks of different malignancies and the correlation between them regions are identified where revision and improvement of screening and/or curative care practices are urgently needed.

GABRIELLA SZÖRÉNYINÉ VÁNYI<sup>1,2</sup>

ANNAMÁRIA SZIGETI<sup>2</sup>

MARIANN MOIZS<sup>2</sup>

IMRE REPA<sup>2</sup>

### P III/6. The OnkoNetwork patient path way management program used as melanoma registry. Single center experiences in Moricz Kaposi General Hospital in Hungary

<sup>1</sup> Doctoral School of Health Sciences, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>2</sup> Moritz Kaposi General Hospital, Kaposvár – 7400 Kaposvár, Tallián Gyula u. 20-32., Hungary

Phone: +36 (20) 497 6738 – E-mail: szorenyine@kmmk.hu

In Europe a rising incidence of melanoma was shown during the past two decades. It means more than 100.000 new cases and 22.000 deaths per year due to melanoma. While in situ and locally invasive melanomas are curable by surgery, advanced disease is difficult to treat and can be lethal. The key scope is the early detection and prevention. The major sources of in-

formation on incidence for melanoma are national cancer registries. But there is only minimal data, what is not enough for an efficient prevention program.

The OnkoNetwork is an oncology patient pathway organisation. Its point to improve clinical outcomes through patient pathway management. For patients with a suspected diagnosis of a new tumour, diagnos-

tics must be completed in 30 days, and therapy must be started within 2 weeks. The system can systematically collect personal and familial anamnesis, multimorbidity, clinical parameters, risk factors, therapy on all melanoma patients, and follow-up the patients health status like a clinical database.

The recent study aims to find out if OnkoNetwork can be used as a melanoma registry also. Study collects the data of patients presented in the hospital with mel-

anoma between 2016 and 2018. Analyzing the following data: demographic, clinical and pathological characteristics, tumor-node-metastasis stage, localization, date of diagnosis, treatment, type of surgery, multimorbidity, lifestyle, habits etc.

The interpretation is in progress. 185 melanoma patients data collected. With an additional melanoma questionnaire we can use the OnkoNetwork as a clinical register and we can search for deeper correlations.

---

ANITA BARTH  
BALÁZS NEMES

### **P III/7. The influence of socio-demographic and economic factors on willingness to receive a kidney transplant in East Hungary**

*Institute of Surgery, Department of Organ Transplantation, Faculty of Medicine, University of Debrecen  
4032 Debrecen, Nagyerdei krt. 98., Hungary – Phone: +36 (30) 382 2150 – E-mail: barthanita@hotmail.com*

**Background:** Chronic kidney disease is a major public health problem that is increasingly common in developed and developing countries. In Hungary very few people choose the alternative of kidney transplantation. However, kidney transplantation is the best available treatment choice for end-stage renal disease as it offers longer survival and better quality of life.

**Objective:** The aim of the study was to determine the factors influencing patient choice of renal replacement therapy.

**Methods:** The survey included questions about socio-demographic and economic status. Moreover two health

literacy measures were administered included the Newest Vital Sign Test (NVS) and the three-item BHLS.

**Results:** A total of 97 haemodialysis patients completed the questionnaire of which 30% refuse the alternative of kidney transplantation at the moment. The factors were identified by univariate and multivariate logistic regression analysis. There was no association between gender, age, education, health literacy level and the willingness to receive kidney transplant.

**Conclusions:** With our study, we have identified a homogeneous patient group.

---

PÉTER PIKÓ<sup>1,2</sup>SZILVIA FIATAL<sup>2,3</sup>ZSIGMOND KÓSA<sup>4</sup>JÁNOS SÁNDOR<sup>2,3</sup>RÓZA ÁDÁNY<sup>1,2,3</sup>**P IV/1. Increased risk of Roma for the development of cardiovascular disease based on Framingham Risk Score calculation**

<sup>1</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen  
4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (52) 512 765 – E-mail: piko.peter@sph.unideb.hu

<sup>2</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

<sup>3</sup> WHO Collaborating Centre on Vulnerability and Health, Department of Preventive Medicine, Faculty of Public Health,  
University of Debrecen – Debrecen, Hungary

<sup>4</sup> Department of Health Visitor Methodology and Public Health, Faculty of Health, University of Debrecen – Nyíregyháza, Hungary

**Background/Aims:** Increased mortality and short life expectancy of Roma are well known epidemiological findings which can be partially explained by the high prevalence of cardiovascular risk factors among them. This study assesses the prevalence of the cardiovascular disease (CVD) risk factors (age, sex, systolic blood pressure, smoking and diabetes status, elevated total and reduced high density lipoprotein cholesterol level (HDL-C)) and the estimation of 10-year risk of development of CVD (CVD in general, coronary heart disease (CHD), myocardial infarction (MI) and stroke) and that of death from CHD and CVD based on the Framingham Risk Score (FRS) in case of the Hungarian general (HG) and Roma (HR) populations.

**Methods:** A complex health survey including questionnaire based interview, physical examination and laboratory test was carried out in 2018 on the HG and HR populations. The prevalence of different cardiovascular risk factors were defined and FRS was computed for each individual and compared between the HG (n=378) and HR (n=386) populations.

**Results:** The prevalence of diabetes was significantly higher among Roma females compared to females of

general population (17.8% vs. 7.7%;  $p=0.001$ ) while the average systolic blood pressure level was less elevated among Roma males (127.9 mmHg vs. 129.4 mmHg;  $p=0.020$ ). The prevalence of smoking (males: 63.1% vs. 33.7%; females: 67.6% vs. 31%;  $p<0.001$ ) and reduced HDL-C level (males: 40% vs. 25.9%,  $p=0.014$ ; females: 55.5% vs. 35.1%,  $p<0.001$ ) were significantly higher in both sexes among Roma. The 10-year estimated risk for development of CHD, MI and CVD and the death from CHD was significantly ( $P<0.05$ ) higher in both sexes among Roma compared to the general population while the average risk scores for stroke and death from CVD were significantly higher only among Roma men.

**Conclusions:** Our results show that both sexes in the Roma population have a significantly higher risk for 10-year development of CVD compared to the Hungarian general population.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund, as well as by the Hungarian Academy of Sciences (MTA11010).*

NAYLA MOHAMED GOMAA

SZILVIA FIATAL

**P IV/2. Systematic review of coronary heart diseases prediction modeling**

Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
Phone: +36 (20) 269 7560 – E-mail: nileoooooh@gmail.com

**Background:** Coronary heart disease (CHD) is a major public health problem. Preventive interventions are available for high risk individuals, an accurate assessment of individual's risk is needed for proper management of CHD.

**Objectives:** Provide an overview of prediction models integrated the genetic risk scores and Framingham risk function for estimating CHD risk in general population.



**Methods:** A systematic review were performed using; Embase, PubMed, Cochrane, Web of Science, and Scopus. The items of PICO were; (P): Patients with Coronary heart disease, (I): Developmental Prediction modelling, (C): Validation Prediction modelling, (O): incidence of CHD in specified time interval. We searched using the following key term; (Validation OR prediction OR predict OR risk OR prognosis) AND (ROC OR "area under the curve" OR c-statistic OR "c statistic" OR discrimination OR discriminate) AND ("coronary heart disease" OR CHD OR "coronary disease"). In this work prediction studies describing a combination of conventional and genomic risk factors estimation, developmental and validation predicting models were included.

**Results/Conclusions:** 3284 record screened by title and abstract and 886 full-text, were eligible for inclusion, Finally, 30 studies included genetic components besides the traditional one. The incorporation of genetic risk scores to Framingham provided greater discrimination and reclassification improvement in several studies reviewed, allowed to assess and predict the risk future of CHD in general population better than traditional risk factors independently, also identified the individuals with a low prognostic index in fact at increased risk of CHD events and thus may have clinical utility for effective prevention. More systematic approach to the appraisal of models and more widespread use of this study may improve CHD detection.

NARDOS ABEBE<sup>1,2</sup>

PÉTER PIKÓ<sup>1,2</sup>

SZILVIA FIATAL<sup>2,3</sup>

ZSIGMOND KÓSA<sup>4</sup>

JÁNOS SÁNDOR<sup>2,3</sup>

RÓZA ÁDÁNY<sup>1,2,3</sup>

### P IV/3. SNP-based genetic risk score modelling suggest no increased genetic susceptibility of Roma population to type 2 diabetes mellitus

*1 MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen 4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (52) 512 765 – E-mail: nardos.abebe@sph.unideb.hu*

*2 Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary*

*3 WHO Collaborating Centre on Vulnerability and Health, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary*

*4 Department of Health Visitor Methodology and Public Health, Faculty of Health, University of Debrecen – Nyíregyháza, Hungary*

**Background:** Elevated fasting glucose level (FG) or known type 2 diabetes mellitus (T2DM) were found more frequent in every age group of Roma compared to the Hungarian general population. We assessed whether the distribution of 16 SNPs with unequivocal effect on the development of T2DM contributes to this higher prevalence.

**Methods:** Genetic risk scores, unweighted (GRS) and weighted (wGRS), were computed and compared between study populations. Associations between GRSs and FG levels and T2DM status were investigated in separate and in combined study populations.

**Results:** The general population carried greater genetic risk for development of T2DM ( $GRS_{General}=15.38 \pm 2.70$  vs.  $GRS_{Roma}=14.80 \pm 2.68$ ,  $p<0.001$ ;  $wGRS_{General}=1.41 \pm 0.32$  vs.  $wGRS_{Roma}=1.36 \pm 0.31$ ,  $p<0.001$ ). In the combined model GRSs and wGRS showed significant association with elevated FG ( $p<0.001$ ) and T2DM

( $p<0.001$ ) after adjusting for ethnicity, age, sex, BMI, HDL-C and TG. In the multivariate models the effect of ethnicity was relatively strong on both outcomes (FG levels:  $\beta_{ethnicity}=0.918$ ,  $p<0.001$ ; T2DM status:  $OR_{ethnicity}=2.484$ ,  $p<0.001$ ).

**Conclusions:** The higher prevalence of elevated FG and/or T2DM among Roma does not seem to be directly linked to their increased genetic load rather to their environmental/cultural attributes. Interventions targeting DM prevention among Roma should focus on harmful environmental exposures related to their unhealthy lifestyle.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund, as well as by the Hungarian Academy of Sciences (MTA11010).*



BÍBORKA NÁDRÓ  
ANITA SZENTPÉTERI  
LILLA JUHÁSZ  
ILDIKÓ SERES  
DÉNES PÁLL  
GYÖRGY PARAGH  
MARIANN HARANGI

#### P IV/4. Characterizing of high-density lipoprotein structure and function in newly diagnosed, untreated familial hypercholesterolemia

*Department of Internal Medicine, Faculty of Medicine, University of Debrecen – 4032 Debrecen, Nagyerdei krt. 98., Hungary  
Phone: +36 (30) 582 4935 – E-mail: mharangi@hotmail.com*

**Background/Aims:** Familial hypercholesterolemia (FH) is a common hereditary disorder with extremely high plasma total- (TC) and LDL-cholesterol (LDL-C) levels and increased risk of premature cardiovascular disease. The level of serum high-density lipoprotein-cholesterol (HDL-C) is usually in the high-normal range, but the structure and function of the HDL particle is seriously impaired. Apolipoprotein M (ApoM) is HDL-associated and has several anti-atherogenic properties and was found to be decreased in FH. To date, its level was not studied in untreated FH patients.

**Methods:** We enrolled fifty-six newly diagnosed, untreated patients with heterozygous FH and thirty-two healthy controls to the study. FH was diagnosed using Dutch Lipid Network Criteria. Serum lipid parameters, ApoM levels and HDL subfractions were evaluated. ApoM level was detected by ELISA. Lipoprotein subfractions were measured by gel electrophoresis (Lipoprint).

**Results:** Significantly higher TC, LDL-C, triglyceride and Lp(a) levels was found in FH patients compared

to the control group. The serum level of ApoM was significantly higher in patients compared to controls: 3.56 (3.2-3.9) vs. 3.02 (2.7-3.2) µg/ml ( $p < 0.01$ ). There was a shift to the smaller HDL subfractions in FH patients. We found significant positive correlations between ApoM levels and small HDL subfraction levels both in the whole study population and in FH patients. In multiple regression analysis ApoM level was best predicted by TC level.

**Conclusions:** Decreased ApoM level and changes in HDL subfraction distribution may contribute to enhanced atherogenesis observed in FH patients. Our results may help to understand the role of HDL structure and function.

*Financial support and sponsorship: This research was supported by a grant from the National Research, Development and Innovation (NFKI) (OTKA 115723) and by the GINOP-2.3.2-15-2016-00062 project. The project is co-financed by the European Union under the European Regional Development Fund.*

ROBA ARGAW TESSEMA  
KÁROLY NAGY  
BALÁZS ÁDÁM

#### P IV/5. Comparative assessment of cyto- and genotoxicity of glyphosate and glyphosate-based herbicides in human peripheral white blood cells using the in vitro comet assay

*Division of Occupational Health, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen  
4028 Debrecen, Kassai út 26., Hungary – Phone: +36 (70) 243 1128 – E-mail: roba.argaw@sph.unideb.hu*

**Introduction:** Glyphosate is a nonselective herbicide extensively applied worldwide in agriculture to kill broadleaf weeds. It is solely used in glyphosate-based herbicide formulations (GBHs), the genotoxic potential of which is currently under scientific debate. Hence, our aim was to investigate and compare the

genotoxicity of active ingredient glyphosate and GBHs in human mononuclear white blood (HMWB) cells using the in vitro comet assay.

**Methods:** HMWB cells were treated for 4-h at 37°C with increasing concentrations (1-1000 µM) of glyphosate alone and in three GBHs (Roundup Mega,

Fozát 480 and Glyphos). Using comet assay, tail DNA% and tail length (TL,  $\mu\text{m}$ ) were measured to quantify DNA damage. ANOVA with Dunnett's post hoc test and Kruskal-Wallis test were used to compare DNA damage levels between the control and treated cells.

**Results:** Glyphosate alone did not induce either significant cytotoxicity or genotoxicity over the tested concentration range. GBHs induced statistically significant ( $p < 0.05$ ) increase of DNA damage from 500  $\mu\text{M}$  (Roundup Mega and Glyphos) and 750  $\mu\text{M}$  (Fozat 480); however, this observation may not be explained

by the direct genotoxic potential of the GBHs, but by the high level of cell death ( $> 70\%$ ) exerted by the formulations from 500  $\mu\text{M}$ .

**Conclusions:** GBHs have higher cytotoxic potential than the active ingredient glyphosate. This may be attributed to the interaction between the active ingredient glyphosate and other ingredients contained in the formulations. Hence, further investigation on formulations is crucial for assessing the true health risks of occupational exposures.

LILLA JUHÁSZ<sup>1</sup>

ISTVÁN BALOGH<sup>2</sup>

LÁSZLÓ MADAR<sup>2</sup>

BEÁTA KOVÁCS<sup>1</sup>

GYÖRGY PARAGH<sup>1</sup>

MARIANN HARANGI<sup>1</sup>

#### P IV/6. Identifying double and triple heterozygous mutations of candidate genes in severely affected familial hypercholesterolaemia patients

<sup>1</sup> Division of Metabolism, Department of Internal Medicine, Faculty of Medicine, University of Debrecen

4032 Debrecen, Nagyterdei krt. 98., Hungary – Phone: +36 (30) 582 4935 – E-mail: mharangi@hotmail.com

<sup>2</sup> Division of Clinical Genetics, Department of Laboratory Medicine, Faculty of Medicine, University of Debrecen – Debrecen, Hungary

**Background/Aims:** Familial hypercholesterolemia (FH) is one of the most frequent diseases with monogenic inheritance caused by various mutations in the genes encoding the low-density lipoprotein (LDL) receptor (LDLR), apolipoprotein (Apo) B100, the proprotein convertase subtilisin/kexin type 9 (PCSK9) and signal-transducing adaptor family member 1 (STAP1). We present three cases of a severely affected FH probands with double and triple heterozygous mutations of these candidate genes.

**Methods:** A 57-year-old and a 48-year-old woman and a 10-year-old boy showing severe FH phenotype with extremely high LDL-C and total cholesterol (TC) levels were enrolled. The relevant FH genes were analyzed by targeted Sanger sequencing and next-generation sequencing.

**Results:** The 57-year-old woman is heterozygous for both the pathogenic LDLR c.420G>C and a rare APOB c.10708C>T mutations. The 48-year-old woman is heterozygous for three pathogenic mutations: APOB c.1298C>T, STAP1 c.619G>A and LDLR c.662A>G. The 10-year-old boy is compound heterozygote with LDLR c.862G>A and c.2167delG mutations.

**Conclusions:** These findings are important for understanding the genotype-phenotype correlations and highlights the need to consider the presence of additional mutations in FH patients with unusual phenotypes.

*Financial support:* The work/publication is supported by the GINOP-2.3.2-15-2016-00005 and by the GINOP-2.3.2-15-2016-00039 projects. The projects are co-financed by the European Union under the European Regional Development Fund.

BAYU BEGASHAW BEKELE<sup>1,2</sup>  
 PÉTER PIKÓ<sup>1</sup>  
 SZILVIA FIATAL<sup>1</sup>  
 JÁNOS SÁNDOR<sup>1</sup>  
 ZSIGMOND KÓSA<sup>3</sup>  
 RÓZA ÁDÁNY<sup>1,4</sup>

**P IV/7. Nongenetic correlates of type 2 diabetes mellitus among Hungarian Roma and Hungarian general population: comparative cross-sectional study**

<sup>1</sup> Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
 Phone: +36 (52) 512 765 – E-mail: baybeg121@gmail.com

<sup>2</sup> Public Health Department, College of Health Sciences, Mizan-Tepi University – 260, Mizan -Aman, Ethiopia.

<sup>3</sup> Department of Health Visitor Methodology and Public Health, Faculty of Health, University of Debrecen – Nyíregyháza, Hungary

<sup>4</sup> MTA-DE Public Health Research Group of the Hungarian Academy of Sciences, Faculty of Public Health, University of Debrecen Debrecen, Hungary

**Background:** Diabetes mellitus (DM) has been increasing rampantly throughout the world. The aim of our study was to investigate and compare the magnitude of type 2 diabetes mellitus (T2DM) and associated determinants among Hungarian General (HG) and Hungarian Roma (HR) among 18-64 years.

**Methods:** Community based comparative cross-sectional survey was conducted with a sample size of 821 [HG: n=417 and HR: n=404] with random selection of study participants from each group. Biomedical, anthropometric, and clinical measurements were done with appropriately calibrated instruments. Comparative descriptive and analytic results were conducted for both populations. Finally, multivariable logistic regression was conducted to find independently associated factors with T2DM among HG and HR population.

**Results:** The prevalence of T2DM (HbA1c test  $\geq 6.5\%$ )

was significantly higher in HR than HG population with 7.7% and 14.2%, respectively. Ethnicity was also a determinant factor for T2DM in the additive model with Roma population dominance (OR=2.06, 95% CI, 1.3–3.24, p-value=0.002). Obesity was risk factor for T2DM in both populations, while elevated systolic blood pressure was risk factor for T2DM among HG population.

**Conclusion:** The prevalence of T2DM and related comorbidities were higher among HR population. Accordingly, it needs continuous and effective intervention to tackle the progress of diabetes and determinants among both populations.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund.*

SZABOLCS VARGA  
 JÁNOS SÁNDOR

**P IV/8. Measuring ethnic identity in Roma health studies – The Roma Identity Scale**

Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – 4028 Debrecen, Kassai út 26., Hungary  
 Phone: +36 (20) 512 8188 – E-mail: varga.szabolcs@sph.unideb.hu

**Background/Aims:** Relatively poor health of Roma people, Europe's largest minority is well documented. According to the absence or incompleteness of ethnic census information, there is no accurate data available on demographics of Roma population in Europe. Studies focus on Roma health mainly use dichotomous, self-assessment Roma status measures. Due to the increasing reliability problem with these measures, measuring Roma ethnic identity is not prevalent yet. Our study aimed to evolve and validate a numeric tool to mea-

sure Roma ethnic identity in Central and Eastern Europe.

**Methods:** We have developed Roma Identity Scale (RIS-11) from Multigroup Ethnic Identity Measure, used widely with high reliability. Study sample (n=143) was collected in Hajdú-Bihar County, Hungary. Participants (18-80 years old) were reached via Roma organizations in towns/villages where Roma population is overrepresented (Tiszacsege, Álmosd, Hajdúszovát and Hajdúszoboszló). All participants were classified as Roma by sampling organizers.

**Results:** The scale showed high internal consistency (Chronbach's Alpha=0.911) in the sample. Explanatory factor analysis resulted two-dimension item structure (commitment and recognition). Significant relationship was found between RIS-11 and all included Roma status measures: use of Roma language, Roma background of parents, self-assessment of ethnicity. Stronger individual ethnic identity is linked with the ability to promote own health.

**Conclusions:** We suggest future Roma health studies to use RIS-11 scale to measure ethnic identity, as an addition to dichotomous status measures. We also emphasize the development and utilization of individual motivations in Roma health prevention programs.

*This work was supported by the GINOP-2.3.2-15-2016-00005 project co-financed by the European Union under the European Social Fund and European Regional Development Fund.*

PÁLMA TÍMEA SZABÓ<sup>1</sup>

ÉVA BÍRÓ<sup>2</sup>

KAROLINA KÓSA<sup>1</sup>

#### P IV/9. Conceptual classification of health literacy tools

<sup>1</sup> Institute of Behavioural Sciences, Faculty of Public Health, University of Debrecen – 4032 Debrecen, Móricz Zs. krt. 22., Hungary  
Phone: +36 (52) 511 777 /1832 – E-mail: szabo.palma.timea@gmail.com

<sup>2</sup> Division of Health Promotion, Department of Preventive Medicine, Faculty of Public Health, University of Debrecen – Debrecen, Hungary

**Background/aims:** The importance of health literacy, capturing the knowledge and competence for health-related decision making, has been increasingly recognised, but its definition and conceptual dimensions show rather large variations between different authors. Our aim was to create a framework grounded in the model of health literacy of Sorensen et al for classifying the most frequently used tools assessing health literacy.

**Methods:** A comprehensive literature search was conducted to identify health literacy tools in English and Hungarian. Next, tools were ranked on the basis of frequency of use and use in representative samples. Tools were then put into 2 major categories depending on whether they were based on self-report (group 1) or performance measurement (group 2), and which dimension of the Sorensen model they assessed.

**Results:** Nine tools in English and three tools in Hungarian were identified that were used in representative samples for assessing health literacy. Considering the 4 steps and 3 dimensions of health literacy according to the Sorensen model along with the 2 types of assessment (self-report vs performance measurement), altogether 24 categories were created. The selected tools covered all 4 steps related to patient care by self-report, and 2 out of 4 steps by performance measurement. Regarding steps in disease prevention and health promotion, all identified tools were based on performance measurement, and none on self-report.

**Conclusion:** During the planning of health literacy surveys, the selection of assessment tools should be precisely aligned with the aim of data collection considering all aspects of our proposed framework.



# NÉPEGÉSZSÉGÜGY

A NÉPEGÉSZSÉGÜGYI KÉPZŐ- ÉS KUTATÓHELYEK ORSZÁGOS EGYESÜLETÉNEK TUDOMÁNYOS FOLYÓIRATA  
PUBLIC HEALTH RESEARCH JOURNAL OF THE HUNGARIAN ASSOCIATION OF PUBLIC HEALTH TRAINING AND RESEARCH INSTITUTIONS



97. ÉVFOLYAM 3. SZÁM

2019

VOLUME 97. NO.3.

**NKE**