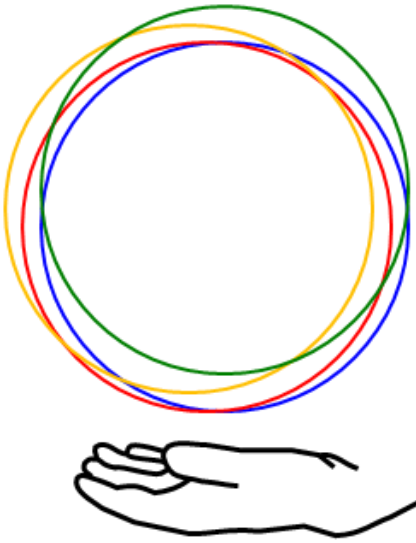
Environmental Health International

Abstract book



Global Environmental Health Faculty Forum



COIMBRA – PORTUGAL
22-26 September 2015

IFEH 1st World Academic Congress
on Environmental Health

Hosted by
College of Health Technology of Coimbra



ESTeSC
COIMBRA
HEALTH SCHOOL

IFEH

Title: Environmental Health International
Honory Editor of IFEH: Kathryn Young
Editors: João Almeida; Susana Paixão
Publisher: Coimbra Health School - Department of Environmental Health
Cover design: João Almeida
Layout and pagination: João Almeida
ISBN: 978-989-8252-23-4

Legal notice
The contents of this publication do not necessarily reflect the official opinions of the Coimbra Health School or International Federation of Environmental Health. None of this institutions are responsible for the use that may be made of the information contained in this magazine.
This book contains information obtained from authentic sources. Reasonable efforts have been made to publish reliable data and information, but the authors, as well as the publisher, cannot assume responsibility for the validity of all materials or for the consequences of their use.

Trademark notice
Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation, without intent to infringe.

Copyright notice
Reproduction is authorised, provided the source is acknowledged, save where otherwise stated.

COIMBRA HEALTH SCHOOL - ENVIRONMENTAL HEALTH DEPARTMENT
Rua 5 de Outubro
S. Martinho do Bispo
3040-854 Coimbra
Portugal

Web: www.estescoimbra.pt
Email: saudeambiental@estescoimbra.pt

INTERNATIONAL FEDERATION OF ENVRIONMENTAL HEALTH
Chadwick Court,
15 Hatfields,
London SE1 8DJ
UK

Web: www.ifeh.org
Email: secretary@ifeh.org

INDEX

International Federation of Environmental Health 3
Coimbra Health School 4
Global Environmental Health Faculty Forum 5
International Federation of Environmental Health Magazine 6
Committes 7
Photographs 8

SCIENTIFIC PAPERS

A study of the knowledge, attitudes and practices to infectious disease and occupational health of funeral directing in Ireland 18
An assessment of fecal contamination in well water in Southern Niger, Africa 19
Assessment of DNA damage on a group of firefighters 20
Bangkok Myanmar migrant workers' knowledge about analgesic use 21
Blood lead levels across pregnancy in women from major and small villages in the Central District, Botswana 22
Building ventilation as a risk factor for sick building syndrome 23
Children's play paints safety – What is the reality in Portuguese schools and at retail stores? 24
CO2 emission in the collection and transport of differentiated waste 25
Determination of T2 and HT2 mycotoxins in cereals and cereal-based products using ELISA technique 26
Differentiation of prostate cancer (C61) morbidity and mortality in the Silesian Province in Poland 27
Environmental attitudes and behavior of high school students in a city in Black Sea region in Turkey 28
Environmental exposure to polychlorinated biphenyls as a significant risk factor on the incidence of developmental disorders in children 29
Environmental Pledge Assignment: Connecting classroom lessons to behavioral changes with calculable impacts 30
Ergonomic analysis to workstations of passenger transport company 31
Evaluation of an NGO-installed water system in Haiti 32
Exploring the future role of environmental health in mitigating the impact of disasters on people with non-communicable diseases 33
Food poisoning from oysters contaminated by sewage in south east Australia 34
Food safety education in primary school: The impact of home economics teacher 35
Food safety system based on HACCP methodology in a Portuguese sausage industry 36
From Kentucky to Kenya: How international students returned home and quantified health benefits associated with water disinfection strategies 37
Hand hygiene in public toilets – a case study from Slovenia 38
Implementation of EU (Prevention of sharps injuries in the healthcare sector) Regs 2014 in the private dental sector in Ireland 39
Management of medical waste: Situation and perspectives in city of Ribeirão Preto, São Paulo, Brazil .. 40
Microbial contamination in lettuce irrigated with partially treated domestic wastewater 41
Mobile phone call effect on Heart Rate Variability is more intense during adolescence 42

Modeling the Nigerian public health competencies in developing responsive public health care systems in early filovirus (Ebola) outbreaks in developing Africa 43
National register of pollutant release and transfer as a part of the European register 44
Opened or closed communication for performance efficiency? 45
Parental awareness of safety in the homes of children under the age of five 46
Peer and parental influence on youth smoking behavior in two cities, Botswana 47
Perceptions of rock band musicians about the effects of loud music and protective practices 48
Possible impact in Rana/Pelophylax perezi by presence of estrogens using radioimmunoassay 49
Photodegradation of estrogenic hormones in aquatic environmental 50
Providing access to environment information and its protection in the Polish law - Introduction to subject 51
Quality, environment, occupational health and safety and food safety management systems - Retrospective evolution of certification 52
Radon activities of thermal water in Turkish thermal baths in Central Anatolia 53
Relationship between mental illness or intellectual disability and homeless life 54
Specific issue about Portuguese legal framework of medical waste 55
The influence of Body Mass Index on the levels of DNA damage after treadmill exercise 56
The MOBI-Kids study in young people, mobile phone use and brain tumor – the Austrian perspective 57
Understanding toxicity outcomes of kaolinite for future nanocomposites applications 58
Vapers and vaping devices – A study into the use of electronic cigarettes in Ireland 59

INTERNATIONAL FEDERATION OF ENVIRONMENTAL HEALTH

The **International Federation of Environmental Health** works to disseminate knowledge concerning environmental health and promote co-operation between countries where environmental health issues are trans-boundary. It promotes the interchange of people working in this sector and the exchange of Member's publications of a scientific and technical nature. Amongst other things, the Federation seeks to provide means of exchanging information and experience on environmental health, to hold Congresses and meetings to discuss subjects relevant to environmental health science and administration, to represent the interests of environmental health to state agencies, national governments and international organisations and to promote field studies of environmental health control.

HENNING HANSEN
President of IFEH



On behalf of the International Federation of Environmental Health, I extend a warm welcome to all delegates participating in this great congress, Global Environmental Health Faculty Forum – IFEH 1st World Academic Congress on Environmental Health. My sincere thanks and gratitude go to Coimbra Health School for hosting this important event and to the organizing Committee, chaired by Prof. Susana Paixao.

For many years, the IFEH has conducted World Congresses on Environmental Health and still is. The World Academic Congress on EH is the first of its kind. It is my vision that this and coming Academic World Congresses will bring the EH Academic Research and Educational Community and the Environmental Health Professionals and EH Practitioners even closer to each other. New research results could more easily be implemented in the general EH practice – as well as experience done by EH officers could more easily be implemented in research activities. In addition, this experience could be a guidance of where more research is needed. I would envisage further specific EH projects engaging IFEH and its member organizations in co-operation with universities being academic members of the IFEH. Such initiatives could as well be tighted up with the WHO, the UN and other organizations. Finally, I would envisage further co-operation between universities – both on research programs as well as educational curricula.

The Global Environmental Health Faculty Forum sets a splendid stage for moving co-operation even further and the congress provides great opportunities for the sharing and exchange of knowledge and skills on Environmental Health. The exceptional program includes keynote speakers, topical presentations and case studies on EH, and the congress will provide all delegates an up to date on the science of Environmental Health and the best available practices, new inputs and knowledge relevant to their work in the field of Environmental Health. The Congress by nature has a global outlook – an outlook that is emphasized with the presence of the World Health Organisation WHO and the United Nations UNISDR together with many more esteemed speakers.

The congress encompasses the celebration of World Environmental Health Day 26 September. The World Environmental Health Day was inaugurated by the IFEH in 2011. All over the Globe many activities are taking place in order to focus on the promotion and implementation of Environmental Health.

On behalf of the IFEH and together with the host, Coimbra Health School, we are pleased in welcoming you all at this unique event on Environmental Health. I feel confident in wishing you all a very successful conference in Coimbra - where you will feel the academic atmosphere of one of the oldest Universities in the World that is also World Heritage.



COIMBRA HEALTH SCHOOL

ESTeSC – Coimbra Health School is currently an organic unit of the Polytechnic Institute of Coimbra, with a history and culture of its own and presents a concept of differentiating school, looking to combine training and research in the health area. Located in Coimbra, city of knowledge and culture, and which also seeks to assert itself as a capital of health, ESTeSC is an active part in all these paths and it is in accordance with them that it educates its students. On this stroll, ESTeSC is a school that has invested in a functioning certified by quality standards. In order to do more and better, ESTeSC is the first eco-school (green flag) of European higher education, a sign that we practice day-to-day environmental sustainability.

JORGE CONDE
President of Coimbra Health School



Welcome to ESTeSC - Coimbra Health School.
ESTeSC is proud to be the host institution of the Global Environmental Health Faculty Forum. During the last year we have been working to provide the best meeting and, at the same time, add value to science and Environmental Health teaching. We hope that these days are prosperous enough to bring more knowledge, more science, but also to welcome you to Coimbra and to our school, and build the wish to visit us again. In fact, every day we work to build knowledge and to promote Environmental Health within the health sciences, but also in citizenship practices for all of us and those around us.
I thank the organizing committee, especially to Susana Paixão, for all the commitment at the organization of this meeting, that much honor ESTeSC, and the hope that will increase our projection in the world.



GLOBAL ENVIRONMENTAL HEALTH FACULTY FORUM

Global Environmental Health Faculty Forum is an event that gather even the academia as the professionals around the world. The programme was prepared in a way to bring the state of art in the science of Environmental Health and the best available practices. Join us and celebrate the World Environmental Health Day with a large network of Environmental Health people and you will feel the academic atmosphere of one of the oldest Universities in the World, that is also World Heritage.

SUSANA PAIXÃO
Chairwoman of GEHFF



The Global Environmental Health Faculty Forum (GEHFF) is the result of a challenge released by the International Federation of Environmental Health (IFEH) to our School. It was not easy to put up the 1st World Academic Congress on Environmental Health in an economic crises scenario. But when we want we can do it….

The main topic of this Forum is Urban Health. According to World Health Organization (WHO), Urbanization is one of the leading global trends of the 21st century that has a significant impact on health. By 2050, over 70% of the world's population will live in cities. To face this challenge, wide-ranging investigation is extremely important as well as the sharing of experiences, approaches and knowledge within the field of environmental health. Over these days we will together examine and reflect upon the changes and new challenges confronting health professionals, researchers and students in the wide area of environmental safety and health.

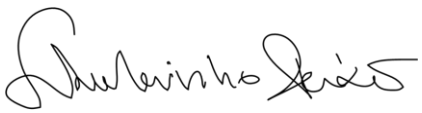
The GEHFF provides an ideal platform for debate concerning health and the environment and the rapid scientific advances which are occurring with a view to increase participation for the construction of proposals and better understanding that may safeguard a better quality of health and life to present and future generations. Therefore, the GEHFF is intended as a space for the entire technical-scientific community and all those interested in environmental health at the national and international level.

During this first Forum we will look to improve several themes developed by national and foreign specialists who have kindly accepted our invitation to participate. We are encouraged by the considerable number of specialists who are participating and tale it as a good sign for future initiatives. There will also be workshops, courses, parallel sessions of talks on more diverse themes linked to environmental health as well as discussions of posters related to these issues.

Finally i would like to acknowledge the support received from the Presidency of the College of Health Technology of Coimbra and the Polytechnic Institute of Coimbra, also the International Federation of Environmental Health our scientific sponsors as well as the valuable support from numerous other institutions and organizations, finally all my colleagues from organization committee, especially to Professor João Almeida.

In conclusion, Global Environmental Health Faculty Forum will be an event that will gather even the academia as the professionals around the world. It was prepared a programme that brings the state of art in the science of Environmental Health and the best available practices. Thanks for join us in Coimbra and celebrate the World Environmental Health Day (26th of September) with a large network of Environmental Health people.

As we say in Portuguese "o meu bem haja a todos" (thanks to everyone).



INTERNATIONAL FEDERATION OF ENVIRONMENTAL HEALTH MAGAZINE

KATHRYN YOUNG
Hon Editor of IFEH



This is certainly a landmark edition of the IFEH magazine as it marks the launch of the IFEH 1st World Academic Congress on Environmental Health hosted by Coimbra Health School, Portugal

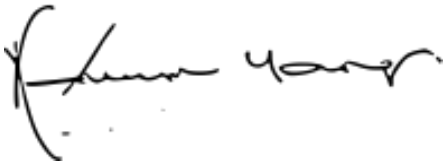
This is the first time that the Global Environmental Health Faculty Forum is presented as a stand alone initiative with the objective of bringing Environmental Health as a profession closer to the academic research community. This will ensure that evidence based research can be implemented in the general practice of Environmental Health worldwide.

An exciting and interesting program will be presented in Coimbra covering such important areas as children's exposure to polychlorinated biphenyls (pcbs) as a significant risk factor in development disorders, parental awareness of safety in the homes of under 5 years and the topic of e-cigarettes as a factor in normalizing smoking.

The Global stage is now a much smaller place than we may have thought a few years ago due to advances in technology. This has made communication at national and global levels so much easier however I feel that technology can never replace the face to face communication that one achieves at a congress such as this where partnerships can be consolidated so readily.

It is hoped that future collaborations can be initiated through these important meeting which form part of President Henning Hansen's leadership vision in promoting Environmental Health on an International Global Stage in the future.

Enjoy the congress and also the historic area of Coimbra, Portugal.



COMMITTES

CHAIRWOMAN: Susana Paixão (*ESTeSC - Coimbra Health School*)

SECRETARY: João Almeida (*ESTeSC - Coimbra Health School*)

ORGANIZING COMMITTEE

MEMBERS: Ana Ferreira (*ESTeSC - Coimbra Health School*); Ana Oliveira (*ESTeSC - Coimbra Health School*); Carolina Carvalho (*ESTeSC - Coimbra Health School*); Cristina Santos (*ESTeSC - Coimbra Health School*); Fernando Moreira (*ESTeSC - Coimbra Health School*); Hélder Simões (*ESTeSC - Coimbra Health School*); João Almeida (*ESTeSC - Coimbra Health School*); Maria Furtado (*ESTeSC - Coimbra Health School*); Marta Pinto (*ESTeSC - Coimbra Health School*); Pedro Belo (*ESTeSC - Coimbra Health School*); Roderick House (*International Federation of Environmental Health*); Sara Lopes (*ESTeSC - Coimbra Health School*); Stephen Cooper (International Federation of Environmental Health); Susana Paixão (*ESTeSC - Coimbra Health School*)

INTERNATIONAL SCIENTIFIC COMMITTEE

CHAIRWOMAN: Ana Ferreira (ESTeSC - Coimbra Health School)

MEMBERS: Andrej Ovca (University of Ljubljana, Slovenia); Aleš Krainer (*Institute of Food Safety and Environmental Health, Slovenia)*; Anna McElhatton (*University of Malta, Malta*); Bontle Mbongwe (*University of Botswana, Botswana*); Charles Treser (*University of Washington, USA*); Claudia Morgado (*Universidade Federal do Rio de Janeiro, Brazil*); Denis Bard (*École des Hautes Etudes en Santé Publique, France*); Evaldo Valladão (*Academia Brasileira de Segurança do Trabalho, Brazil*); Francisco Castiñeira (*Universidad Politécnica de Madrid, Spain*); Francisco Ferreira (*Universidade Nova de Lisboa, Portugal*); Henning Hansen (*International Federation of Environmental Health*); Jan Homma (*European Federation of Environmental Health*); Janne Lundén (*Helsinki University, Finland*); Jörn Klein (*Telemark Uniersity College, Norway*); Lúcio Cunha (*Universidade de Coimbra, Portugal*); Marta Pinto (*ESTeSC - Coimbra Health School, Portugal*); Matilde Rodrigues (*Escola Superior de Tecnologia da Saúde do Porto, Portugal*); Odair Silva (*Faculdade de Medicina do ABC, Brazil*); Paulo Nossa (*Universidade de Coimbra, Portugal*); Pedro Arezes (*Universidade do Minho, Portugal*); Ricardo Pocinho (*ESTeSC - Coimbra Health School, Portugal*); Samuel Lima (*Universidade Federal da Uberlândia, Brazil*); Sanja Kalambura (*University of Applied Sciences Velika Gorica, Croatia*); Vítor Manteigas (*Escola Superior de Tecnologia da Saúde de Lisboa, Portugal*)

HONOR COMMITEE

MEMBERS: Carlos Cidade (*Câmara Municipal de Coimbra, Portugal*); Evaldo Valladão (*Academia Brasileira de Segurança do Trabalho, Brazil*); Fernando Almeida (*Instituto Nacional Ricardo Jorge, Portugal*); Helder Simões (*Associação Nacional de Saúde Ambiental, Portugal*); Henning Hansen (*International Federation of Environmental Health*); Jan Homma (*European Federation of Environmental Health*); Jorge Conde (*ESTeSC - Coimbra Health School, Portugal*); Jorge Moreira da Silva (*Ministério do Ambiente, Ordenamento do Território e Energia, Portugal*); Pedro Mota Soares (*Ministério da Solidariedade, Emprego e Segurança Social, Portugal*)

PHOTOGRAPHS







Representants of Organizing committee and IFEH



Course "Managing Environmental Health in Disaster and Humanitarian Setting"



Course "Sustainability and Public Health"



Course "Indoor Air Quality"



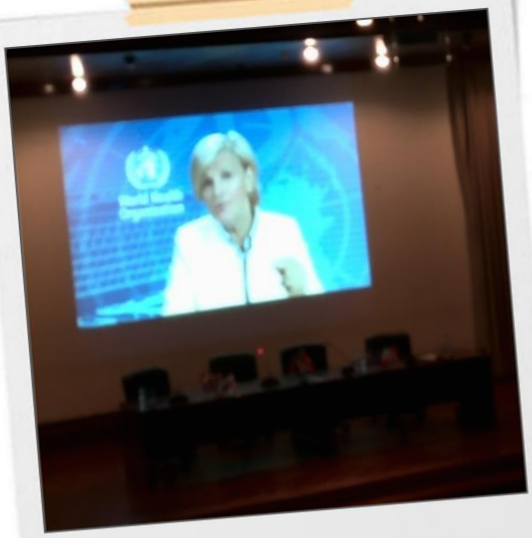
Environmental Health



Tu Na D'ESTES



Opening ceremony



Maria Neira



Peter Archer



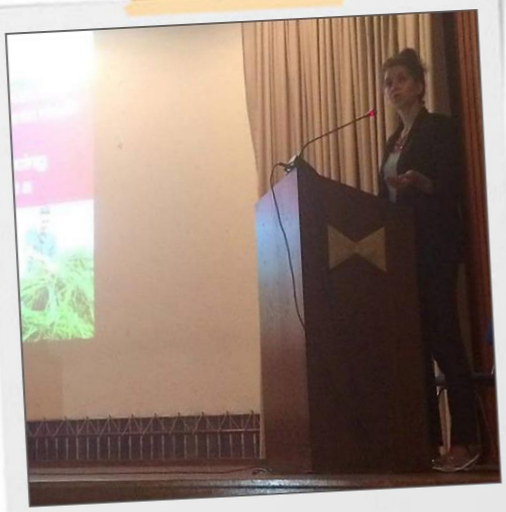
Kerri Milne



Chris Dijkens



Ana Pelerito



Amina Aitsi-Selmi



Bettina Borisch



Rita Sousa



Posters session



Technical visits



gala dinner



Henning Hansen



Les Milne



World Environmental Health Day


ABSTRACTS
(by alphabetic order of the title)

A study of the knowledge, attitudes and practices to infectious disease and occupational health of funeral directing in Ireland

A. Byrne [1]*

1 - Dublin Institute of Technology, Dublin, Ireland
* adrian.byrne01@gmail.com

ABSTRACT: How the deceased are handled and commemorated is deeply rooted in all religions and societies. Furthermore, respect for the dead has always been an integral part of Irish culture and heritage. On average, nearly 29,000 people die in the Republic of Ireland each year and for each death the process through burial or cremation generally takes 2-4 days. During this period the body can be handled by a number of persons which include emergency workers, health workers, Gardai/Police, pathology staff, mortuary staff and funeral directing workers. Furthermore, loved ones can also handle and view the body. Therefore, the handling of a deceased person involves a number of different individuals and agencies. The process of disposing of a deceased body whether with or without an infectious disease, is inevitably carried out by a Funeral Director. The Irish Funeral Industry comprises of 600 Funeral Directors with less than 100 of these being full time. There are no barriers to entry and no licensing. This is a considerable business that affects public and environmental health. Research and study on funeral directing in Ireland indicates far-reaching occupational health concerns among these professional groups.

Keywords: *Funeral Directing, Ireland, Health Protection Surveillance Centre, Infectious Disease, Occupational health and safety, Risk communication, Funeral Directors, Embalmers, Embalming*

An assessment of fecal contamination in well water in Southern Niger, Africa

M. Jones [1] & J. Marion [1*]

1 - Eastern Kentucky University, USA
* jason.marion@eku.edu

ABSTRACT: Clean water is essential for human life. This study assessed water quality in 21 different water wells in the Niamey and Dosso regions of Niger, Africa. Total coliforms (TC) and E. coli (EC) were found in 15 of the 21 (71%) well water samples, with median levels of 18 and 52 in MPN/100mL for TC and EC, respectively. Turbidity, well height, and fecal contamination were significantly associated ($p < 0.05$). The results indicate health-relevant challenges for well-using populations in the Southern region of Niger. Public health interventions are needed to prevent disease and improve the health of the residents.

Keywords: *Niger, Africa, Well Water, E. coli, Turbidity, Public Health*

Assessment of DNA damage on a group of firefighters

A. P. Abreu [1,2*]; A. Duarte [1,2]; S. Silva [2]; S. Morais [3]; M. C. Pereira [4]; A. Fernandes [5]; J. P. Teixeira [1,2*] & S. Costa [1,2]

1 - EPIUnit-Institute of Public Health, University of Porto, Portugal
2 - National Institute of Health, Environmental Health Department, Porto, Portugal
3 - REQUIMTE, Instituto Superior de Engenharia do Porto, Instituto Politécnico do Porto, Porto, Portugal
4 - *LEPABE, Departamento de Engenharia Química, Faculdade de Engenharia, Universidade do Porto, Portugal*
5 - Bragança Health School - Polytechnic Institute of Bragança (IPB), Bragança, Portugal
* paula.abreu90@gmail.com; jpft12@gmail.com

ABSTRACT: Portugal is a country at high risk for forest fires. Firefighters are exposed to many toxic combustion products that may lead to deleterious health effects. Epidemiological studies have shown positive associations between firefighting and the development of several chronic diseases, including cancer. Results from human biomonitoring studies, particularly regarding genotoxicity are limited and inconsistent. Genotoxicity evaluation constitutes a valuable tool for studying the most important occupational hazards. The aim of the present study is to evaluate both DNA damage and oxidative stress in blood of a group of firefighters compared to the general population. Data obtained provides preliminary information on human health effects of wildland firefighting exposure at genetic and molecular level. These findings may also provide new important data to serve as public awareness to the long-term health risks involving firefighting. Implementation of security and hygiene measures in this sector as well as good practices campaigns may be crucial to decrease risk.

Keywords: *Firefighters, Occupational exposure, DNA damage, oxidative stress, comet assay*

Bangkok Myanmar migrant workers' knowledge about analgesic use

A. Kyi [1*] & K. Aye [2]

1 - Bernadette de Lourdes School of Nursing Science, Assumption University, Thailand
2 - Sarasas Witaed Rimklao School, Bangkok, Thailand
* aungaungkyi@au.edu

ABSTRACT: Many people take medication without a doctor's prescription or reading the medication instructions typed on the label or any attached information leaflet. There may be several reasons for this including unregulated access to drugs, lack of awareness, lack of literacy, - and lower socio economic status. The purpose of the study is to investigate how Myanmar migrant workers, who now live and work in Bangkok, Thailand, respond about their knowledge on analgesic use, one of the most commonly used drugs for pain relief, since little is known about this issue among Myanmar migrant workers. Data was collected using a convenience sampling technique through self-administered questionnaires that assessed two key aspects with 9 items using a three Likert scale, measuring knowledge about analgesic use and the signs and symptoms of overdose. The responses (N=75) were analyzed by using both descriptive and inferential statistics. The Independent sample t-test indicated that those Myanmar workers with a higher socio-economic status were more likely to think that overdosing with analgesics would not be harmful while those with a lower socio-economic status are more likely to be aware that an overdose of analgesics can cause organ bleeding. A one way ANOVA test also suggested that Myanmar migrant workers who completed their high school education are more likely to understand that analgesics can be taken 3 days continuously while those with a lower or no formal education are more likely to perceive that an overdose of analgesic can cause fits/seizures or even unconsciousness. This independent study can be applied to design education programs to help prevent the side effects of analgesic overdose among not only Myanmar but also other migrant workers in Thailand.

Keywords: *Myanmar migrant workers, knowledge, Analgesic use*

Blood lead levels across pregnancy in women from major and small villages in the Central District, Botswana

B. Mbongwe [1*]; K. Voyi [2]; H. Rollin [2]

1 - University of Botswana, Botswana
2 - University of Pretoria, South Africa
* kuku.voyi@up.ac.za

ABSTRACT: The aim of this study is to assess prenatal exposure to lead(Pb) at different stages of gestation in a prospective cohort study of pregnant women residing in the Central District of Botswana. Possible differences in exposure between geographical locations are investigated. Initially, a total of 137 (n=137) women were enrolled at the first trimester of pregnancy and followed up at the second (n=126) and third trimesters (n=106) respectively. . Maternal blood samples were collected at first, second and third trimesters from each participant to measure blood Pb concentrations (PbB). Each participant was also required to answer a risk assessment questionnaire. PbB concentrations in the study cohort ranged from 0.5-12.90µg/dL with an overall mean ± Standard Error of Mean (±SEM) of 2.34 (±0.098) µg/dL throughout pregnancy. Mean PbB(±SEM) for the first, second and third trimesters were 1.96(±0.14) µg/dL, 2.49(±0.17) µg/dL, 2.66(±0.19) µg/dL respectively. A significant increase in PbB levels in pregnant women between the first and third trimester ($p<0.05$) was observed, with an increase of 1.6% to 5%. PbB concentrations of ≥5µg/dL were observed in 5.5%, 5.6% and 3.1% of women during the first, second and third trimesters of pregnancy respectively. PbB concentrations differed significantly with the geographical location ($p<0.05$). The highest concentrations of PbB were observed in women from smaller, poorer villages compared to bigger villages of a higher economic status ($p<0.05$). Indications are that increase in PbB levels was more a function of the socioeconomic status of women than a function of geographical location. Exposure levels and the significant increase in PbB levels during the different stages of pregnancy found in this study is of clinical importance and emphasizes the need for primary prevention and interventions to reduce prenatal exposure to lead in Botswana.

Keywords: *Blood-lead, Pregnancy, Botswana*

Building ventilation as a risk factor for sick building syndrome

M. Dovjak [1*]; A. Krulec [2], A. Krainer [2] & A. Kukec [3]

1 - UL FGG - University of Ljubljana, Faculty of Civil and Geodetic Engineering, Slovenia
2 - ISI – Institute of Food Safety and Environmental Health, Slovenia
3 - UL MF - University of Ljubljana, Faculty of Medicine, Slovenia
* mdovjak@fgg.uni-lj.si

ABSTRACT: **Background:** Improperly designed and poorly maintained ventilation systems presents one of the main causes for Sick Building Syndrome (SBS). The aim of this study is to identify and classify risk factors for SBS related to building ventilation. **Material and methods:** Comprehensive literature review was carried out studying risk factors for SBS related to building ventilation. We searched two bibliographic databases (Pub Med and Science Direct) for peer-reviewed publications from 1983 to May 2015. **Results and discussion:** Based on the results of the comprehensive literature review, the health risk factors for SBS related to building ventilation are: risk factors related to the type of ventilation system (natural, mechanical), maintenance status and functioning, qualitative and quantitative parameters of building ventilation (ventilation rate, microclimate parameters). Results indicated that occupants of naturally ventilated buildings had fewer SBS symptoms than occupants of air-conditioned ones. The reviewed studies reported that high ventilation rates resulted in lower relative risks for respiratory diseases and for SBS symptoms compared to low ventilation rates. **Conclusions:** Identification of risk factors related to building ventilation presents a first step towards integral prevention and control of SBS. Based on the results of our study the priority actions are: identification of health risk factors for SBS and their relevant parameters and also to determine the interactions between them; defining standardized methods for identifying health risk factors with sampling procedures and analysis.

Keywords: *building ventilation, health risk factors, sick building syndrome*

Children's play paints safety – What is the reality in Portuguese schools and at retail stores?

A. Rebelo [1*] & M. V. Silva [1**]

1 - Department of Environmental Health, Research Centre on Health and Environment, School of Allied Health Sciences, Polytechnic Institute of Porto, Vila Nova de Gaia, Portugal
* acr@estsp.ipp.pt; ** m.silva@eu.ipp.pt

ABSTRACT: Children's play paints, an attractive tool for preschool activities, can be classified in artist paints (gouaches, acrylics, watercolors, fingerpaints) and face paints. These products composition is not always known since not all are required to bear their ingredients in the label packaging. The present study aimed to characterize the children's play paints available in schools and retail stores and also to assess the practices involved in the acquisition, handling and storage of these products by schools and that may have impact on the product quality and safety. For this purpose were studied paints from 8 schools and 7 retail stores from Porto (Portugal), in a total of 17 popular brands. The results shows that the label information differs from product type, taking into account the legal requirements applied to each one (artist paints or face paints). The main hazards stated in the products label are related with the possibility of ingestion of small pieces that are part of the product. Only brands of face paints (60%) mentioned the potential risk to develop allergic reactions or skin irritation problems arising from their application. As regards to school practices, they are aware to the importance in purchasing products suitable for children use however, some of the behaviors during storage and handling of these products may affect their quality and safety.

Keywords: *Children, Toys, Cosmetics, Artist paints, Face paints, Safety product*

CO_2 emission in the collection and transport of differentiated waste

A. Leitão [1*]; S. Paixão [1]; N. Sá [1]; J. P. Figueiredo [1] & A. Ferreira [1]

1- IPC, ESTeSC - Coimbra Health School, Portugal
* *rita_tyta@hotmail.com*

ABSTRACT: This process of collection and transport of waste is mostly done by diesel-powered lorries that emit polluting gases. This research was an observational study, retrospective in nature, level II (descriptive-correlational).This work aims to relate the amount of waste produced by the inhabitants of a town, in the central area of Portugal, with emissions of carbon dioxide (CO_2) produced by lorries during the course of collection and transport. Considering the three years, the population average is 17541 inhabitants. This estimate of CO_2 emissions was performed with the program COPERT 4 (Computer Programme to Calculate Emissions from Road Transport), computer software that estimates CO_2 emissions from road transport. To obtain the estimated values of CO_2, this program uses as main variables the miles driven, characteristics of lorries (registration, fuel type), type of route (rural/urban /highway), speed, weather conditions including temperature and relative humidity, Reid Vapor Pressure (RVP) and the population. In relation to the CO_2 emissions produced during the collection and transport of waste, the differences were statistically significant for the Cardboard-Waste-Bank between 2010 and 2012 and between 2011 and 2012. It was noted further that the months of August were those in which greater quantities of waste were produced in the Glass-Waste-Bank (GWB - green container where we placed waste glass), as well as in the CWB and also in the Metal/Plastic-Waste-Bank (M/PWB - yellow container where we placed waste metal/plastic). However, this does not motivate an increase in the CO_2 emissions of these months. We concluded that the optimization of collection routes must be a priority commitment for the Portuguese towns, so that lorries move with full load, maximizing the processes and consequently minimizing CO_2 emissions. In this way the cost related with the transport of differentiated waste will be monetized and the environment will be less beaten.

Keywords: *Amounts collected,* CO_2 emissions, *differentiated waste*

Determination of T2 and HT2 mycotoxins in cereals and cereal-based products using ELISA technique

L. Schmidt [1*]; J. Bošnir [2], B. Čulig [2], A. Mojsović-Ćuić [1] & V. Biščan [1]

1 - University of Applied Health Sciences, Zagreb, Croatia
2 - Teaching Institute of Public Health "Dr. Andrija Štampar", Zagreb, Croatia
* schmidt_lana@hotmail.com

ABSTRACT: The aim of this study was to determine the levels of T-2 and HT-2 mycotoxins in grain, mill products and cereal-based products from samples obtained for testing at the Teaching Institute of Public Health Dr. "Andrija Štampar" in Croatia. Twenty-nine samples of grain, mill products and cereal-based products, collected using random sampling method from trade turnover in Croatia, were tested for T2 and HT2 mycotoxins. Samples were prepared according to the manufacturer's kit Romer Labs, and after preparation, the amount of T2 and HT2 mycotoxins was determined by immuno-enzymatic method (ELISA). The absorbance of the prepared samples was recorded at 450nm. The limit of detection LOD is 29 ppb for corn and 57 ppb for barley. The applied method proved to be a quick and effective for the analyzed group of samples. The results ranged from 24.00 µg/kg to 104.50 µg/kg for cereal, and from 24.00 µg/kg to 333.10 µg/kg for products based on cereals, indicating considerable contamination. The results indicated the presence of studied mycotoxins in the Republic of Croatia, therefore, to get better and more accurate results, it is necessary to analyze a larger number of various types of samples, both grains and their products, all in order to protect human health.

Keywords: *T2 and HT2, mycotoxins, ELISA*

Differentiation of prostate cancer (C61) morbidity and mortality in the Silesian Province in Poland

M. Cwielag-Drabek [1*]; E. Marchwinska-Wyrwal [1] & A. Piekut [1]

1 - Department of Environmental Health, Faculty of Public Health, Medical University of Silesia, Katowice, Poland
* mdrabek@sum.edu.pl

ABSTRACT: **Introduction**: In 2012 prostate cancer was the second most common cancer in men, mainly in the more developed countries. This type of cancer is characterized by high growth rates of morbidity, with the persistent mortality level. **Aim**: The aim of the study was to present the differentiation of morbidity and mortality of prostate cancer in the male population of Poland and in the cities and counties of the Silesian Province, the most polluted part of Poland. **Material and methods**: The incidence and mortality rates were calculated on the basis of statistical data collected from the National Cancer Registry and the Central Statistical Office of Poland. **Results**: During the analyzed period of time the morbidity and mortality of prostate cancer increased in all analyzed provinces of Poland and cities and counties of Silesian Province. Between all analyzed places the differentiation is very significant; reaching 80% between the provinces and even 600% in the Silesian Province. **Discussion**: The rapid growth of prostate cancer cases enforces the need for comprehensive preventive measures. Taking effective preventive action will only be possible if the relevant factors which have the influence on the process of carcinogenesis will be identify. **Conclusions**: The data analysis presents high dynamics of morbidity and mortality from prostate cancer in all provinces of Poland and in the Silesian Province, territorially differentiated, which may indicate the significant role of environmental risk factors in the occurrence of this type of cancer.

Keywords: *environmental risk factors, prostate cancer, incidence and mortality rates*

Environmental attitudes and behavior of high school students in a city in Black Sea region in Turkey

B. N. Değirmen [1]; L. Karaoğlu [1] ; C. Tırampaoğlu [1] & A. Okur [1]

1 - RTE, Tıp Fakültesi – Recep Tayyip Erdogan University Faculty of Medicine Public Health Department, Turkey
* leyla.karaoglu@erdogan.edu.tr

ABSTRACT: Determining the adolescents' enviromental consciousness is important to achive a sustainable environment. **Aims:** The aim of this study was to determine the 9. and 11. grades students' enviromental attitudes and behaviors in Rize city. **Methods and materials:** The study involved 635 students with a mean age of 15.5 years. Probability proportional to size cluster sampling method was used in a crossectional design. Sampling units were classes. Data were collected by administring a questionnaire to students at classrooms during May-June 2015. The questionnaire included modified green consumer value scale, questions about perceived environment assessment, enviromental behaviors, enviromental risk perceptions and personal characteristics. The modified green consumer value scale was consisted of six likert-type questions. The *scoring scale* is from 0 to *100.* Statistical analysis was performed using PASW 18.0. **Results:** Fifty five percent of the students perceived the neighborhood environment as "good". Inadequate street sidewalk and cleanliness were the most common negative perceptions of neighboorhood. Girls expressed more negative perception of cleanliness. Waste, sea pollution, emissions from tea plants, stream and air pollution were the most common perceived environmental risks. Mean green consumer value score was 66.8. Leaving the tap open while brushing the teeth (55%), not always turning the unnecessary lights off (43%), not always seperating the waste for recyling (97%) and throwing sunflower seed shells on the ground (74%) were the reported negative behaviors. Only 43% were willing to act in environmental groups.Positive environmental behaviors and willingness to act were significantly higher in those who had higher green consumer value scores. **Conclusions:** Enviromental consciousness levels among adolescents in Rize city were inadequate. Implementation of not only school health but also national environmental improvement programs were recommended.

Keywords: *neighborhood environment, green consumer, perception, high school*

Environmental exposure to polychlorinated biphenyls as a significant risk factor on the incidence of developmental disorders in children

A. Piekut [1*]; E. Marchwinska-Wyrwal [1] & M. Cwielag-Drabek [1]

1 – Department of Environmental Health, Faculty of Public Health, Medical University of Silesia, Poland
* apiekut@sum.edu.pl

ABSTRACT: Introduction. Some studies indicate that the exposure of children to polychlorinated biphenyls (PCBs) in the environment may cause negative effects on the development of cognitive and somatic functions of young organisms. Recently, sudden increase in the number of developmental disorders in children is noticed. In the same time an increase of concentration of PCB, very neurotoxic chemical, has been observed in the environment. **Aim.** The study was undertaken to investigate the hypothesis that the high coefficients of developmental disorders (R62) and psychomotor developmental disorders (R62.0) in the population of children are associated with polychlorinated biphenyls, which contaminate their place of living. **Material and Methods.** On the basis of the raw R62 and R62.0 data connected with children in selected Silesian cities, the coefficients were calculated (per 100 000 children) for the years 2009-2010.The environmental burden was estimated on the basis of annual average concentrations of PCBs in the air of 19 Silesian cities. The relationships between the incidences of R62 and R62.0 in children and environmental burden by PCBs were performed. **Results.** Significant differences in the R62 and R62.0 coefficients between the cities were indicated. The significant correlation between R62 and R62.0 and the average concentrations of PCBs in the respirable dust PM10 has been found. **Discussion.** The important role of PCB as a factor affecting the incidence of developmental disorders in children was indicated also by other authors but mostly they pointed out food as a main source of PCB in health risks. Conclusions. One of significant environmental factor affecting the incidence of developmental disorders in children is exposure to PCBs in the respirable dust PM10.

Keywords: *developmental disorders, psychomotor developmental disorders, polychlorinated biphenyls, environmental exposure*

Environmental Pledge Assignment: Connecting classroom lessons to behavioral changes with calculable impacts

A. M. Zimeri [1*]

1 - Department of Environmental Health Sciences, University of Georgia, Athens, USA
* *zimeri@uga.edu*

ABSTRACT: Since its inception in January of 2008 the Environmental Health Science Pledge Project has made an impact on the local, state, and environment of our nation. More than 600 students have participated as part of an upper level introduction to environmental health science course where they pledge to spend one week committed to being as sustainable as possible with a special focus of their choice (water use, meat reduction, fossil fuels, agriculture, plastics etc.). Students collected environmental impact and footprint data from a typical week and compared that to data obtained during a pledge week. Class data is collected and pooled at the semester end so that students can see the impact made as a group. Students are also asked to calculate the impact they would have if they imparted their behavioral changes in part or wholly for a lifetime. Many students commit to making permanent lifestyle changes as a result of this experience. Here, data that shows the impact a class can make over the course of one semester is presented in addition to post class survey data that shows that the majority of the students who participated in the environmental pledge assignment continued to modify their behavior after the class ended.

Keywords: *environmental assignment, sustainability, calculating impacts, environmental education*

Ergonomic analysis to workstations of passenger transport company

A. R. Costa [1*]; J. Almeida [1]; J. P. Figueiredo [1] & A. Ferreira [1]

1 - IPC, ESTeSC - Coimbra Health School, Portugal
* rita.costa92@gmail.com

ABSTRACT: Ergonomics is the science that allows you to adjust the workplace to man, in order to ensure efficiency and welfare directly. It was aimed the relationship between man and his environment, to optimize the work conditions. The objective of this study was to conduct an ergonomic analysis to the official sector, working out some measures to improve the quality of jobs. Ergonomic analyses imply maintaining and preventing the welfare of workers and thus allow a lack of what the improvements to be undertaken for a better execution of tasks. The study was carried out through an ergonomic analysis on site, using the methodology REBA to analyze the tasks of existing activities in the official sector. It was administered questionnaires to the employees with issues relating to personal data, historical process of progressive scale and local discomfort or pain. Finally, it was conducted an evaluation of lighting in the workplace. After collecting the data, the same have been worked in the software Ergofellow 3.0 (ergonomic risk assessment), Microsoft Excel (evaluation of illuminance) and IBM SPSS Statistics software SPSS version 22.0 (questionnaires). The results obtained indicate that a large part of the tasks of each activity, were an assessment of high risk and very high, requiring implementation of preventive measures (ex: more lightning points). It is relevant to implement measures, in order to give comfort and well-being for workers to feel ill or uncomfortable, become more vulnerable and likely to be committed in drafting failures of their tasks.

Keywords: *ergonomics; ergonomic risk assessment; postures; musculoskeletal disorder.*

Evaluation of an NGO-installed water system in Haiti

C. Graves [1]; L. Porter [1] & J. Marion [1*]

1 - Eastern Kentucky University, USA
* jason.marion@eku.edu

ABSTRACT: Clean water access is essential for public health. In underdeveloped countries where clean water access is lacking, many non-profit organizations strive to find ways to purify water at the household and community levels. This past summer a chlorination system located in a small village in Haiti, was tested for the first time since installation over a year ago. Using ColiPlates (Bluewater Biosciences, Mississauga, Ontario), we quantified the density of total coliforms and Escherichia coli in 83 water samples collected from the distribution system and adjacent surface water. Of these samples, 37 were from a single tap, 11 from surface water, and the remainder were from other locations within the system. The single tap tested was one of the most used taps in the compound, and had easy access for collection. Nearly all samples (81%) exceeded U.S. drinking water criteria of zero most probable number (MPN)/100 mL. When comparing drinking water samples to U.S. recreational water, the EPA recommends E. coli should not exceed 235 MPN/100, and 23 of 83 samples (28%) for drinking water were above single-day recreational water advisory conditions for U.S. waters. From the tap samples, 7 of 37 (19%) were above the recreational recommendations for the United States. With the information collected, recommendations were made to improve the system. Regular maintenance coupled with the addition of UV treatment are expected to eliminate or reduce the fecal contamination problem facing the village as evidenced in the observed E. coli levels

Keywords: *Water system; Haiti; E. coli; Water disinfection; Free chlorine; Water quality; Public Health; NGO*

Exploring the future role of environmental health in mitigating the impact of disasters on people with non-communicable diseases

B. Ryan [1,2,3*]; R. Franklin [1,4,5]; F. Burkle [1,6]; P. Aitken [1,7]; E. Smith [1,8]; P. Leggat [1,7] & K. Watt [1,4]

1 – College of Public Health, Medical and Veterinary Sciences, James Cook University, Australia
2 – Cairns and Hinterland Hospital and Health Service, Australia
3 – International Federation of Environmental Health
4 – World Safety Organization Collaborating Centre for Injury Prevention and Safety Promotion
5 – Royal Life Saving Society, Australia
6 – Harvard Humanitarian Initiative, Harvard University, USA
7 – School of Public Health, Queensland University of Technology, Australia
8 – School of Medical Sciences, Edith Cowan University, Australia
* benjamin.ryan@my.jcu.edu.au

ABSTRACT: Worldwide there has been a 'disease transition' from communicable diseases to non-communicable diseases (NCDs). Prominent among these are cardiovascular diseases, cancers, diabetes, asthma, arthritis and kidney diseases. This 'disease transition' highlights the need to consider refocusing disaster management for the 21st Century. NCDs are reliant on public health infrastructure such as medications, equipment, services, housing, water, food, waste and sanitation. Damage to this infrastructure places the health and well-being of people with NCDs at great risk. To identify options for mitigating this risk, focus groups were conducted with environmental health professionals in Queensland, Australia. The aim was to explore the future role of the environmental health profession in mitigating the impact of disasters on the treatment management and care for people with NCDs. The research found environmental health professionals are well-placed to have an integral role in helping mitigate the impact of disasters on people with NCDs.

Keywords: *Disaster, environmental health, non-communicable diseases*

Food poisoning from oysters contaminated by sewage in south east Australia

J. M. Wood [1*] & G. Robertson [2]

1 – Lecturer Environmental Health, School of Health Science. University of Tasmania, Australia
2 – Senior Environmental Health Officer, Sorell Council, Tasmania, Australia
* j.m.wood@utas.edu.au

ABSTRACT: South East Australia is an ideal place to grow oysters. Following a major outbreak of Hepatitis A in 1997 in New South Wales, State Governments in Australia tightened up on controls to manage any future such outbreaks. In Tasmania, the industry is regulated under the Tasmanian Quality Assurance Program and appeared to be managed well. Then in 2013 another incident of food poisoning occurred, this time by the Rotavirus. The incident lead to 500 cases of food poisoning and was another major setback to the oyster industry and a dent in the confidence of the State Government jurisdictions in managing food safety. The work of local Environmental Health Officers assisted greatly in identifying the source of sewage contamination and a year later the industry has only just fully recovered. The lessons of the importance of rigorous food safety remain ever vigilant.

Keywords: *oysters, food poisoning, sewage contamination* (*3* to 5 keyword in italic)

Food safety education in primary school: The impact of home economics teacher

A. Ovca [1]*; M. Jevšnik [1] & P. Raspor [2]

1 - University of Ljubljana, Faculty of Health Sciences, Zdravstvena pot 5, SI-1000 Ljubljana, Slovenia
2 - University of Primorska, Faculty of Health Sciences, Polje 42, SI-6310 Izola, Slovenia
* andrej.ovca@zf.uni-lj.si

ABSTRACT: Focused on educating pupils in food and nutrition, the home economics teacher plays a vital role in the educational system on primary level. The main purpose of this study is to investigate teachers' understating of food safety concepts, the importance of food hygiene and food safety with regards to individuals' later lives, teaching methods and barriers to teach food safety topics. The results among 168 respondents reveal positive differences compared to the general population regarding understanding of food safety concepts; however, the situation remains far from ideal. Teachers' experience, educational background and their personal preferences towards food safety topics were identified as the crucial factors, not only influencing teachers' attitude, but also in enabling the overcoming of barriers identified. Among these, deficiencies in teachers' formal education and the technical facilities necessary to teach home economics on a practical level were identified. Discrepancies between policy makers and teachers were also detected.

Keywords: *Food safety, Food hygiene, Education, Teachers, Home economics*

Food safety system based on HACCP methodology in a Portuguese sausage industry

A. Baltazar [1*]

1 - IPC, ESTeSC - Coimbra Health School, Portugal
* *ana.santos@estescoimbra.pt*

ABSTRACT: Food safety is a growing concern among consumers in developed countries. In this context, food safety occupies a place of increasing importance to the informed consumer, knowledgeable and aware of what they want and especially what they do not want to eat. This is also the social and economic context that is arising in some markets, the opportunity to offer differentiated or specific products to a specific consumer audience, that can (and want) to pay for the difference. Here fits the traditional products, that are associated with the idea of choosing products that are not produced by the mass industry. Traditional products have a strong relation with the art of “know-how”. This study aimed to develop a food safety system in an industry of Portuguese sausages, in Leiria’s district. To do this, we used the methodology based in Hazard Analysis and Critical Control Points (HACCP) to assess hazards and quantify the risks that may affect consumer health. The study was conducted over four steps based on the standarts of the HACCP Plan. This work identified a number of gaps in the food safety system of the organization under study, as well as definied the strategies to improve the operation and ensure the safety of meat products marketed.

Keywords: *HACCP, food safety, meat products, food industry*

From Kentucky to Kenya: How international students returned home and quantified health benefits associated with water disinfection strategies

J. Marion [1*]; B. Cheruiyot [1] & P. Sigilai [1]

1 - Eastern Kentucky University, USA
* jason.marion@eku.edu

ABSTRACT: Many international students come to the U.S. to obtain an education that will enable them to assist in addressing the most significant challenges in their native lands. Some students come to EHS programs concerned about waterborne diseases, a leading cause of death worldwide, and in these situations, numerous research opportunities are available using simple field-based survey methods and microbiological techniques. Given that few epidemiological studies have evaluated any of the rapidly expanding household disinfection strategies being implemented all over the world, student-collected results can be very beneficial. In our study, we used a 28-day retrospective design to ascertain disease prevalence and water disinfection practices in Kenya's Great Rift Valley. Using a survey administered orally in the native language of the two students (Swahili and Kalenjin), we obtained health and exposure data from 159 households representing 846 individuals in January 2013. Multivariable logistic regression demonstrated decreased odds of vomiting (odds ratio = 0.40; 95% confidence interval (CI): 0.19 – 0.85), sore throat (OR = 0.55; CI 0.31 – 0.98), nausea (OR = 0.40; CI = 0.17 – 0.94), and fever (OR = 0.47; CI = 0.22 – 0.98) among those drinking publically treated water compared to those drinking untreated water. Among those without treatment, their odds of vomiting decreased when water was filtered (OR = 0.24; CI 0.09 – 0.66), and when two or more home treatment methods were used (OR = 0.20; CI 0.06 – 0.72) compared to those drinking untreated water. Increasing E. coli densities were associated with increasing odds of diarrhea (OR = 1.5; CI 1.0-2.0), but not vomiting. This study demonstrates international students can collect awesome data and multiple household treatment methods likely reduce human illness.

Keywords: *Kenya; drinking water quality; E. coli; epidemiology; gastrointestinal illness; private water; international health; teaching; mentoring*

Hand hygiene in public toilets – a case study from Slovenia

G. Jereb [1*]; P. M. Globokar [1] & M. Jevšnik [1]

1 - University of Ljubljana, Faculty of Health Sciences, Ljubljana, Slovenia
* gregor.jereb@zf.uni-lj.si

ABSTRACT: Hand washing is the simplest and the most important measure to prevent the transmission of infectious diseases. Despite awareness of the importance of hand washing, people do not wash their hands properly or often enough, but mostly not always when it's needed. The purpose of this paper is to present the hygiene habits of Slovenians after using public toilets in major shopping centers in various towns in Slovenia. The results are compared with the results of similar studies conducted in different countries around the world. Discreet observation of hand washing was carried out in public rest rooms in shopping centers in some major cities across Slovenia, including 1,680 survey participants. The users of public toilets were not aware that they were observed. Poor hygiene practices of the survey participants were identified. As many as 12% of observees did not wash their hands after using public toilets, among which 20% were male and 6% female. The comparison of the results to similar studies in Slovenia and abroad shows that poor hygiene practices are prevailing in all the observed countries, indicating that on average more than a third of men and 10% of women do not wash their hands after using the public toilets. Given the importance of hand washing as a basic hygiene measure, the results produced by the study are extremely worrying and necessitate implementation of various programs to raise awareness and knowledge about proper hand hygiene.

Keywords: *hand washing, hygiene, public toilets*

Implementation of EU (Prevention of sharps injuries in the healthcare sector) Regs 2014 in the private dental sector in Ireland

J. Angier [1] & S. Boyd [1*]

1 - Dublin Institute of Technology, Ireland
* sara.boyd@dit.ie

ABSTRACT: Needlestick injuries (NSI) or other sharps injuries are known as an occupational hazard among health care workers (HCW) and dental health workers (DHW). The exposure to blood borne viruses (BBV) can be incidental or may arise from everyday tasks performed by personnel. The European Union (Prevention of Sharps Injuries in the Healthcare Sector) Regulation 2014 was introduced to lower the risk of exposure to blood borne viruses among HCW. The aim of this project was to measure the level of implementation and compliance of the private dental sector in Dublin with the 'Sharps Regulation 2014'. Evaluation was performed using a Dental Sharp Survey (DSS) to assess personnel awareness (n=40). A Dental Sharp Audit (DSA) was conducted in 10 private dental surgeries to measure the level of compliance with the Regulations. The results from this study indicate a high percentage of percutaneous injuries among dental personnel were caused by sharp disposal 46%, with 18% by suturing and instrument cleaning. The minority of the injuries (9%) were caused by burs handling and respectively Local Anaesthetic (LA) injection. Overall compliance with the new 2014 Regulations was recorded higher than the personnel awareness especially among senior dental practitioners. The findings of this study confirmed that the dental professionals are at high risk of the infection with BBV, and that there is limited access to modern technology (needle free injections systems) which decreases risk of exposure to BBV.

Keywords: *sharps injuries; dental sector; field study*

Management of medical waste: Situation and perspectives in city of Ribeirão Preto, São Paulo, Brazil

S. C. André [1*] & A. M. Takayanagui [2]

1 - UFSCar, DEnf – Federal University of São Carlos, Brazil
2 – USP, EERP – University of São Paulo, Brazil
* silviacarla@ufscar.br

ABSTRACT: The Brazilian legal guidelines Resolution 306/2004 and Resolution 358/2005 defines the management of Medical Waste (MW) as a set of procedures for managing, planned from scientific and technical basis with the objective of minimizing waste production and ensure a safe handling. This study aims to analyse the Plans of Management of Medical Waste of Hospitals of the city of Ribeirão Preto-São Paulo, Brazil. Research descriptive and documental, using quantitative variables. The research was conducted in 11 hospitals of the city of Ribeirão Preto, Brazil. To conduct the analysis of the PMMW was used a check-list and to make the data analysis, for each category was calculated the percentage of positive responses. For this it was necessary to determine a classification by scores: satisfactory (above 70% of positive responses), regular (50% to 70% of positive responses) and unsatisfactory (below 50% of positive responses). This research was conducted after of the approval of the Research Ethics Committee of the University of São Paulo. This results revealed an unsatisfactory situation with regard to the requirements demanded by Resolution 306/2004 of the National Health Surveillance Agency for the elaboration of a PMMW, can infer that in practice there is also an inadequate management of the MW. Highlights that according to the Resolution 306/2004, every establishment generator of MW must elaborate the PMMW, in which must contain all the information about the type of the handling realized in practice, the type of treatment offered to different groups of MW and final disposal. It is emphasized that all the Plans analyzed had some characteristics and/or stages copied in full of the Law and did not describe as were performed in the hospital. This research considers the need for a more efficient and frequent inspection of the health authorities in order to analyze the handling of the MW, especially in hospitals.

Keywords: *public health, environmental health, management of medical waste, medical waste*

Microbial contamination in lettuce irrigated with partially treated domestic wastewater

P. Makkaew [1*]; M. Miller [2]; H. J. Fallowfield [1] & N. J. Cromar [1]

1 - Health and Environment, School of the Environment – Flinders University, Australia
2 - OzFoodNet, Communicable Disease Control Branch, Department of Health and Ageing, South Australia, Australia
* makk0005@flinders.edu.au

ABSTRACT: Water scarcity is becoming a serious problem worldwide resulting in the increasing reuse of wastewater in agriculture. However, wastewater irrigation poses potential health risks due to the possible presence of pathogens which could contaminate agricultural products, particularly salad crops which are consumed raw. This study was conducted to assess the microbial contamination in terms of *Escherichia coli (E. coli)*, in lettuce grown with partially treated domestic wastewater in four different irrigation system beds; open spray, spray under plastic sheet cover, open drip and drip under plastic sheet cover. Samples of lettuce for each irrigation system bed were collected during the growing season in week 4, 5, and 6. Samples of the treated wastewater being used for irrigation were collected weekly over the same period. Results show that *E. coli* concentration in wastewater samples ranged from 141 – 962.6 (489.8 $\pm$ 391.6) MPN/ 100 ml. All lettuce samples from spray beds were positive for *E. coli*, whereas no *E. coli* was detected in lettuce from drip beds. No statistical difference ($p > 0.05$) was detected in *E. coli* concentration between the open sprayed bed lettuces and plastic sheet covered bed lettuces. These results will be incorporated in to a health risk assessment of the consumption of wastewater irrigated salad crops.

Keywords: *Wastewater irrigation, Microbial contamination, Lettuce*

Mobile phone call effect on Heart Rate Variability is more intense during adolescence

S. Geronikolou [1,2*], A. Chamakou [2], G. Chrousos [1,2], C. Kanaka-Gantenbein [1], D. Cokkinos [2]

1 - First Department of Paediatrics, University of Athens Medical School, "Aghia Sophia" Children's Hospital, Athens, Greece
2 - Biomedical Research Foundation Academy of Athens, Athens, Greece
* sgeronik@bioacademy.gr

ABSTRACT: Aim: The European Health Risk Assessment Network on Electromagnetic Fields (EMF) Exposure suggested in its 2012 report: "Present pediatric and adolescent populations represent the first generation of Europeans to be exposed to diffuse EMF since fetuses and neonates are expected to be more sensitive to the radiofrequency fields (GSM)". Autonomic nervous system (ANS) disturbances (expressed by heart rate variability (HRV)) often predict or reflect disease entities and, thus are subject of this study. Subjects' age and duration (minutes) of mobile phone call are supposed to predict the mobile phone call potential effect on the HRV. **Method**: Five studies including 124 healthy subjects (age 15.3-28,4 (24.3±5.2)) been exposed and recorded in supine position before and/or sham versus exposure (mobile phone call lasting 5-32 minutes) are included in this small scale meta-analysis. Two separate meta-regressions were conducted with CMA software in order to search for possible predictors of the size effect of HRV. Subjects' age and the minutes of exposure have been evaluated as potential predictors. **Results**: The fixed effect OR= 0.9, Hedges g= -0.052, CI95% [-0.229, 0.125], heterogeneity I^2=63%. The goodness of fit model presents limited significance for age (p=0.05), but is insignificant for the duration of mobile phone call (p>0.05). **Conclusions**: The ANS of the adolescents (been exposed since birth) is limitedly more affected than the adults' (been exposed later in their life). On the contrary ANS seems not to be disturbed significantly as soon as a mobile phone call lasts up to 32 minutes. The results endorse the EFHRAN 2012 suggestion for studying extensively youngrsters but reveal the need to study their electromagnetic exposome, combined with their developmental stage.

Keywords: *Mobile phone exposure; Heart Rate Variablity; Autonomic Nervous System; Adolescents; Children*

Modeling the Nigerian public health competencies in developing responsive public health care systems in early filovirus (Ebola) outbreaks in developing Africa

A. Akeni [1*]; B. Aigbogun [1] & C. Ekuaze [1]

1 - University of Benin, Nigeria
* akeniaustin@yahoo.com

ABSTRACT: Recent re-emergence of the Filovirus Ebola outbreak in West Africa has stare up a narratives of a poor health and economies infrastructures of the developing countries of these West African states. The narratives hold that Infectious diseases pose a huge public health challenges in the spaces where contacts with largely unknown reservoir occurs, and were poor early warning systems as well as preparedness are handicapped by slow mobilization of responsive public health care resources. Complicated by fear of the viruses becoming endemic; the work understudies the recent Ebola virus in West Africa, and the Nigerian responsive case study. The work focuses on development of the Nigeria model of a responsive systemic Public Health engagement in improving potentials for containment of infectious disease outbreaks at the national level. We argued that as the Nigerian case; that there was inherent capacity for development of quick responsive system model after the resource capacity of any national health care system which ultimately determined spreads of infectious disease as it defines the difference between stemmed case of outbreak or full epidemic, as success depends on how swiftly resources can quickly be made available in stemming new outbreaks.

Keywords: *Ebola; Public health; Modeling*

National register of pollutant release and transfer as a part of the European register

L. Wengler [1]; I. Adrych-Brzezińska [1]; E. Adamska-Pietrzak [2*] & P. Popowski [3]

1 - Department of Medical Law, Medical University of Gdansk, Poland
2 - Independent researcher, Poland
3 - Department of Public Health and Social Medicine, Medical University of Gdansk, Poland
* adamska.ewa@gmail.com

ABSTRACT: National Register of Pollutant Release and Transfer is a part of European Pollutant Release and Transfer Register, established by Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006. This article presents basic goals and values, which accompanied to European legislator when creating the aforementioned regulation, as well as it highlights the main functions of the established register. One of its main functions is the socialization of environmental protection through public access to reliable knowledge and information about the area, as well as the aggregation of high-quality, reliable and comparable data. This allows for more efficient operation of both the European Union and Member States aimed at building current and future environmental and climate change protection strategy. National Register as an element of a European Pollutant Release and Transfer Register meets the basic goals the European legislator has set to this tool. Therefore the Register serves primarily, though not exclusively, in supporting the improvement of environmental performance. It also allows public access to information on pollutant releases and transfers of pollutants and waste off-site, which is all the more important in view of one of the objectives of the European legislator, according to which increased public access to environmental information and the dissemination of such information contribute to a greater awareness of environmental matters, a free exchange of views, more effective participation by the public in environmental decision-making and, eventually, to a better environment and climate. This article presents also the Polish provisions introduced for the purposes of the execution of the Regulation, as well as it presents the legal means enabling the transfer of information collected on the national level, through the National Register to the European level.

Keywords: *National Register of Pollutant Release and Transfer; European Pollutant Release and Transfer Register; socialization of environmental protection, climate change, environmental protection*

Opened or closed communication for performance efficiency?

A. Krainer [1]*; M. Dovjak [1] & A. Krulec [1]

1 - Institute of Occupational, Food and Environmental Hygiene, Ljubljana, Slovenia
* ales.krainer@stavba2020.si

ABSTRACT: Communication between “shelter” and “outer” space was during human evolution generator of the selection and formation of living environment, of selection of the location, position and geometry of the building and structure of the envelope and as such an interesting manipulation sphere. Communication is needed to trigger physical, physiological and spiritual responses which are a consequence and combination of all senses performance: sight, touch, taste, warmth and coolness and their processing in the brain – control system. Communication needs space it could not perform without the possibility of extension, contraction and movement. Improvement of the communication is man’s apotheosis. Vitruvius presented two thousand years ago bioclimatic design philosophy. From the conceptual point of view until today nothing happened. Of course it is necessary to mention that tradition and its influence on the architecture and building technology cannot be a sample for design of new living and working environment but a model, presentation of the system in the real world, for his understanding, anticipation and feasible management, for the method how to do it. In the dichotomic view we distinguish opened and closed systems. Our earthly problem is the selection between two options: opened, represented by bioclimatic design and closed, represented by so called “pasivhaus standard”. Eventually, wrong decisions are the consequence of manipulated, bad or broken communication, as well as different crises: from apparent crisis in the construction industry to greenwashing with corresponding quality of built environment. In Principle 1 of Rio Declaration 1992, »Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.” Rational energy use, which is more often than not understood as the smallest use of energy is only one of sustainability factors, far from being the most important.

Keywords: communication*, bioclimatic design, environmental health, role of individual.*

Parental awareness of safety in the homes of children under the age of five

S. McLoughlin [1] & L. Shaw [1*]

1 - Ulster University, School of the Built Environment, Northern Ireland, UK
* l.shaw@ulster.ac.uk

ABSTRACT: Home safety is the awareness to make your home a safe environment. The task of risk assessing and implementing safety procedures is usually the roll of the parent to ensure a home is without risk or hazard. The home is a complex, interactive environment that operates within a dynamic social setting". In the UK accidental injury to children under 4years of age is a main cause of uptake of emergency health care services. Accidents are the leading cause for loss of life of children with under 5's being most at risk at home It is estimated that the cost to society of home accidents in the UK to be £45billion. This research involved the investigation of interventions aimed at improving home safety for young children. The research found that there remains a need to increase awareness of home safety aimed to protect young children. Interventions (particularly home visits) and provision of free equipment are welcomed. However demand exceeds the capacity to deliver home assessments leading to undue delay and children remaining exposed to unnecessary risks in their own homes. In addition equipment may not be used or installed due to lack of tools and/or skill.

Keywords: *home, safety, children, accident.*

Peer and parental influence on youth smoking behavior in two cities, Botswana

B. Mbongwe [1*]; R. Tapera [1]; N. Phaladze [1] & A. Lord [2]

1 - University of Botswana, Botswana
2 - Good Business, UK
* bontle.mbongwe@gmail.com

ABSTRACT: Background: Social influences can promote or discourage adolescent tobacco use or smoking behavior. This study assesses the effect of peer and parent influences on youth smoking in Gaborone and Francistown cities in Botswana. Methods: A descriptive cross-sectional study using structured self-administered questionnaires was employed among 2554 school-age youth in standard aged 12 to 18 years. Data were analyzed by age and gender. Knowledge, attitudinal, behavioral and behavior intention questions on smoking and the use of tobacco and tobacco related products, were asked. Specific questions about attitudes, peer and parental behavior, and the youth's smoking behavior were included. Chi-square statistical analyses and Odds Ratios were computed utilizing SPSS version 21. Results: Twenty-nine percent (29%) of students had tried smoking. A strong association was observed between having tried smoking and having a parent, guardian, care giver or close friend who smokes ($p < 0.001$). Participants who had mothers/female guardians or caregivers who smoke were 2.7 times more likely to have tried any form of tobacco (OR 2.7, CI: 1.59- 4.59) whilst those with fathers/male guardians who smoke were 1.7 times more likely to have tried smoking cigarettes (OR 1.7, CI: 1.4- 2.1). Conclusions: This study shows that peer and parental smoking, have an influence on children's likelihood to engage in smoking behavior. The results have implications for programming and call for a review of current smoking prevention messages on the dangers of smoking to realize tobacco control interventions in Botswana.

Keywords: *Youth; Smoking; Botswana.*

Perceptions of rock band musicians about the effects of loud music and protective practices

M. A. Rodrigues [1*] & J. Almeida [1]

1 - Department of Environmental Health, Research Centre on Health and Environment, Allied Health Sciences School of Polytechnic Institute of Porto, Porto, Portugal
* mar@estsp.ipp.pt

ABSTRACT: Rock band musicians are an important group in what regards to the exposure to high sound pressure levels. They can be exposed to loud music, which can result in hearing damages. However, there are very few studies focused on this issue. In view of this, this study attempts to analyze the perceptions about musicians in relation to the loud music risks, as well as to characterize their preventive behaviors and health effects. To analyze this issue, a questionnaire was applied to 14 musicians belonging to three garage rock bands. The results showed that group rehearsals and concerts are considered the noisiest activities and the sound pressure levels at individual practices are seen as low. Guitar and drums were identified as the noisiest instruments and the piano was seen as the instrument that produce lower sound levels. The results also showed that only a part of the musicians were concerned with the health effects related to the exposure to high sound levels and the majority of them reported do not use hearing protection. The findings of this study emphasize the need to give more attention to these groups, informing them about the risks and on the need of risk reduction measures.

Keywords: *musicians, risk perception*, *rock, sound pressure levels*

Possible impact in *Rana/Pelophylax perezi by p*resence of estrogens using radioimmunoassay

A Fonseca [1*]

1 - IPC, ESTeSC - Coimbra Health School, Portugal
* paula_fonseca@estescoimbra.pt

ABSTRACT: **Introdution**: Determination of estrogens is fundamental for risk assessment regarding the endocrine disrupting effects in the health public and aquatic environment (Ying *et al.*, 2002). In last years, has been increased the concern about health of aquatic fauna living in waters containing dynamic levels of estrogenic compounds, in part responsible for disruption of reproduction and development in some wildlife populations, altering blood hormone levels, reducing fertility and fecundity, masculinisation of females and feminization of males, low-level exposures also cause similar effects in human beings (Park *et al*., 2004). **Aim**: Determination of blood estrogens concentration in *Rana/pelophylax perezi* male. **Materials and Methods**: The amphibians used in this study were *Rana/pelophylax perezi*, sexually mature male in total of 24 adult (figure 1). Six sites were studied in four locations in Portugal Central Region, two control groups and four target groups in rivers, the four target groups are located at the Mondego river (GPS 40ºN 21.928; 8ºW 44.661), the Vouga river (GPS 40ºN69.125; 8ºW 59.015), the Cértima river (GPS 40ºN 49.465; 8ºW 48.290) and the Arunca river (GPS 39ºN 91.343; 8ºW 62.961). All sites were situated downstream from WWTP´s outputs. The two control groups (control group I and control group II) were located in Coimbra in two domestic sources, with the GPS coordinates 40°N 19.770; 8ºW84.714 and 40°N 20.931; 8ºW 84.173, respectively, located outside the influence area of waste water treatment plants (WWTPs) outputs. Were used radioimmunoassay method in blood/serum fraction of the amphibians to determinate blood estrogens concentrations. **Results and Conclusions**: Concentrations between 53-101 pg/ml were founded for estrone (figure 2), and 37-149 pg/ml for estradiol (figure 3) in Rana/Pelophylax perezi male. Were also made the comparison between pairs of experimental groups and the number of people who are served by the rivers (figure 4).However, the information of impacts of estrogenicity on wildlife populations is still limited to a few species of animals.

Keywords: *Rana/Pelophylax perezi, estrogens, environmental health, public health*

Photodegradation of estrogenic hormones in aquatic environmental

A Fonseca [1*]

1 - IPC, ESTeSC - Coimbra Health School, Portugal
* paula_fonseca@estescoimbra.pt

ABSTRACT: **Introduction:** The estrogens monitorization in the environment has been coming to win great interest, especially due the fact of frequent detection in waste waters treatment plants (WWTP), waters for human consumption, rivers, lakes, etc., at concentrations in the order of µg L^{-1} and ng L^{-1} (Neamtu *et al*., 2009) The presence of these compounds in water can cause several adverse effects in the physiology of human like modulating or disrupting the endocrine system. Because of the importance and impact of these estrogenic hormones on environmental systems, several studies have been developed on the efficacy and factors influencing natural degradation processes, using a solar simulator (Leech *et al*., 2009). Many investigations try to find the experimental conditions that maximize the degradation of these compounds and simulate the degradation process on the environment. **Aim:** The aim of this study was to evaluate the natural direct solar radiation on estrone, estradiol, estriol and ethinylestradiol at concentrations of 0.1g L^{-1}. The degradation kinetics of each estrogen was investigated, which gives us a better understanding on the degradation behaviour of the estrogens discharged into the environment and them persistence. **Materials and Methods**: Direct solar radiation was used in this degradation study during 126 days. The irradiation experiment was performed at Coimbra city (GPS 40ºN 11.885; 8ºW 27.650) using quartz tubes. Sunlight radiation varied during the experimental period, with an average irradiance value of 5.2 KWh/m2. The reagents of the stock solutions were dissolved in methanol. All the dilutions were made with an aqueous solution containing sodium borate 10 mM and cholic acid sodium salt 100 mM. The solutions were kept on closed glass vials. An appropriate aliquot of the individual and mixed stock solution was diluted to give the working solution of estrogens at 10 mg L^{-1} prior UV-Visible and Capillary Electrophoresis analysis. **Results and Conclusions**: This study demonstrates that estrone, estradiol, estriol and ethinylestradiol can be slower degraded by natural direct solar radiation (figure 1), however with the natural variations in solar irradiance, we would anticipate variability in rates degradation under natural conditions (figure 2). On the basis of current evidence, degradation in the environment is expected to take several days when circumstances are optimum, or to be far slower in ideal circumstances.

Keywords: E*strone; Estradiol, Estriol; Ethinylestradiol; Photodegradation; UV-Visible; Capillary Electrophoresis*

Providing access to environment information and its protection in the Polish law - Introduction to subject

L. Wengler [1], E. Bandurska [2*], P. Popowski [2], M. Zarzeczna-Baran [2] & E. Adamska-Pietrzak [3]

1 - Department of Medical Law, Medical University of Gdansk
2 - Department of Public Health and Social Medicine, Medical University of Gdansk
3 - Independent researcher
* ebandurska@gumed.edu.pl

ABSTRACT: For a long time now, we observe an increased activity of legislators of both - European and Polish law system creators in the area of environmental protection, especially in the context of the climate change. Such protection is especially important from the perspective of creating conditions for healthy living, leisure and social development, as well as enjoying the esthetic experience of contact with nature. Environment protection requires not only action from the public authorities, although these are crucial, but also development of environmental awareness represented by societies and creation of mechanisms that might allow a society for an active and effective cooperation with the government, or even taking independent action to obtain the discussed aim. This article presents the basic Polish law sources, which are in force and are concerning providing information about environment and its protection, the rules of such providing, the group of entities authorized to such information and the entities obliged to provide such information. The authors seek to determine the exact definitions of issues mentioned above, its relations with public information and outline the conditions in which the public authority can refuse providing access to such information. In this article the authors also make an attempt to determine the range in which the legislator realizes the constitutional right of every person to access information about environment and its protection

Keywords: *environment, climate change, public information, provide information*

Quality, environment, occupational health and safety and food safety management systems - Retrospective evolution of certification

A. Cravo [1]; A. Baltazar [1]; S. Paixão [1] & J. Almeida [1*]

1 - IPC, ESTeSC - Coimbra Health School, Portugal
* joaoalmeida@estescoimbra.pt

ABSTRACT: With technological advancement, the global growth and the growing prospects of human life, the concept of industrial development has changed. This change, along with the economic globalization process and increasingly competitive markets, has led many organizations to extend their business area, making it more comprehensive and differentiated in comparison with their competitors. During the last years a new organizational culture in Europe has been arising, concerning the management paradigm. Initially, limited to the industrial sector, but quickly spread to other activity sectors. This spreading resulted essentially from the economic globalization process and progressively competitive markets, which led to a lot of organizations implementing more comprehensive quality, environmental, occupational health and safety and food safety management systems. Being a strategic decision of high importance for the competitiveness and for the survival of the organizations, the diffusion of management systems already hit their values, on December 31 of 2013. About 1.110.000 organizations certified according to ISO 9001, 251.000 according the ISO 14001, 54.000 on the OHSAS 18001 and 26.047 according to ISO 22000. In the present article it will be presented the retrospective evolution of management systems certificates worldwide as well as their evolution process.

Keywords: *management systems, certification, quality, environment, occupational health and safety, food safety*

Radon activities of thermal water in Turkish thermal baths in Central Anatolia

M. Erdogan [1*]; K. Manisa [2]; S. Taylan [1] & V. Zedef [3]

1 - Selcuk University, Faculty of Science, Physics Department, 42070 Konya, Turkey
2 - Dumlupinar University, Faculty of Science and Art, Physics Department, 43100 Kütahya, Turkey
3 - *Selcuk University, Faculty of Engineering, Department of Mining Engineering, 42070 Konya, Turkey*
* merdogan@selcuk.edu.tr

ABSTRACT: Since ancient times, Turkish thermal baths are used for therapeutic purposes by local people (From pre-Roman to Present). Workers and visitors in Turkish thermal baths are exposed to radiation from radon and short-lived daughters. For this reason, radon (^{222}Rn) activity concentrations in the thermal waters of 11 Turkish thermal baths located at Central Anatolia were measured by using AlphaGUARD PQ 2000PRO radon gas analyzer. It was also shown the relation between the thermal water resources and the geological structure of the area. The radon concentrations were found to be between 0.33 and 17.76 Bq l^{-1} for autumn and winter seasons of 2012. We also calculated effective doses related to inhalation per treatment in the Turkish thermal baths for the two seasons. The calculated minimum and maximum effective doses per treatment was found to be range of 0.07-1.9 fSv for mean radon activity of two seasons.

Keywords: *Central Anatolia, radon, effective dose, thermal water*

Relationship between mental illness or intellectual disability and homeless life

A. Nishio [1,2*]; R. Horita [1]; T. Sado [1,3]; H. Ueki [2]; S. Mizutani [4]; T. Watanabe [5]; K. Matuura [6]; O. Tamura [7]; R. Uehara [8] & M. Yamamoto [1,9]

1 - Heath Administration Center, Gifu University, Gifu, Japan
2 - Department of Psychopathology, Division of Neuroscience, Graduate School of Medicine, Gifu University, Gifu, Japan
3 - Faculty of Health Promotional Sciences, Tokoha University, Hamamatsu, Japan
4 - Department of Nursing, Nihon Fukukushi University, Mihama, Japan
5 - Midori Hospital, Gifu, Japan
6 - Kanazawa Johoku Hospital, Kanazawa, Japan
7 - Hokkaido Labor Hospital, Sapporo, Japan
8 - Yoshida Hospital, Nara, Japan
9 - Department of Psychopathology, Division of Neuroscience, Graduate School of Medicine, Gifu University, Gifu, Japan
* a_nishio@gifu-u.ac.jp

ABSTRACT: [Background] Several studies reported the prevalence of mental illness or intellectual disability of homeless was high. However, few studies have investigated how the mental illness or intellectual disabilities have an influence on the homeless people life. Cross-sectional studies focusing on mental problem among homeless people should be required. In this study, we comprehensively assessed the impact of mental problems on the homeless people life in Nagoya, Japan. [Methods] The subjects were 18 homeless men. We diagnosed their mental illness and intellectual disability and divided them into three groups: I, without mental problems; II, with mainly mental illness; III, with mainly intellectual disability. We also interviewed them using two questions: “Why did you fall into the street life?” and “Why is it difficult with you to get out of the street life?” We analyzed the relationship between the reasons of falling into or difficulty getting out of homelessness and the mental or intellectual disabilities. [Results] Five, five, eight of the 18 participants were categorized into three groups. Individuals in Group I tended to have financial problems including debt and did not to want to resolve their current homeless state. Group II individuals had difficulties involving human relationships. Group III individuals appeared to be unaware of their current situation and unable to resolve their homelessness. [Conclusion] This study showed that the needs of homeless people varied with their mental conditions. Appropriate support should be considered based on their mental or intellectual disabilities.

Keywords: *homeless, mental illness, intellectual disability, WAIS-III*

Specific issue about Portuguese legal framework of medical waste

M. Sampayo [1]; S. Paixão [2]*

1 – IPC, ESTGOH - Portugal
2 - IPC, ESTeSC - Coimbra Health School, Portugal
* supaixao@estescoimbra.pt

ABSTRACT: This study is based on analysis of the Portuguese framework on the management of medical waste and aims to understand some of the inconsistencies of this legal normative in particular as regards the transport of such waste by healthcare professionals in the users home service. Hospital waste are transported to facilities in order to be treated. In legal terms, is the waste producer, or holder, who must - in accordance with the principles of waste management hierarchy and the protection of human health and the environment - to ensure the handling of waste, and for this purpose resort for example, a licensed entity which carries out collection operations and / or treatment of waste (paragraph 5 of article 5 of Decret-Law nº 73/2011). Having regard to the provisions of paragraph 1 of Article 23 of Annex II of Decret-Law nº 73/2011 and in conjunction with the provisions of subparagraph o) of Article 3 of the same law, the waste transport activity does not require licensing as a waste management operation. The waste transport is regulated by Ordinance nº 335/97, at which point 2 stipulates that the transport of waste can only be done by the waste producer, entities that eliminate or value waste, entities responsible for management of hospital hazardous waste, municipal waste management by the responsible entities and yet, companies licensed for the carriage of goods for hire or reward. These wastes must be accompanied by the relevant waste tracking guides, according to the provisions of paragraph 1 of Article 5 of the Ordinance nº 335/97. Duty guaranteed by the producer and holder of the waste. What is the regime that applies to a nurse or hospital auxiliary visiting the site of the housing of a user of the National Health Service and carries out its own activities of his profession at that location? Should be subject to medical waste production regime and hence be registered as waste conveyor? Is the health care facility who must fulfill these requirements and take responsibility either by the production of waste, either by its transport between the place of production and its facilities? It is in this case obliged to take responsibility including the fines that an irregular transport of such wastes can determine. Or, simply, waste is considered the responsibility of the user whose residues are classified as urban and delivered to municipal services which, by law, are not subject to any special procedure? In the latter case, we considered to be the one that actually occurs we are faced with a solution that constitutes a danger to public health because material which when used in a hospital environment is classified as Group III or IV (hazardous waste) has "expressed ticket" for municipal waste!

Keywords: *Medical waste; Hazards; Transport; Legal framework*

The influence of Body Mass Index on the levels of DNA damage after treadmill exercise

A. Duarte [1,2*]; A. P. Abreu [1,2]; D. Silva [3]; A. Moreira [3]; J. P. Teixeira [1,2] & C. Costa [1,2]

1 – Department of Environmental Health, Portuguese National Institute of Health, Porto, Portugal
2 – EPIUnit – Institute of Public Health, University of Porto, Porto, Portugal
3 – Immunoallergology Department, Centro Hospitalar de São João, Porto, Portugal
* ana.duarte.msc@gmail.com

ABSTRACT: Obesity is considered the epidemic of the 21st century and represents one of the most serious challenges for Public Health. The practice of regular exercise is understood to be an important part of the solution, but it is also believed to increase the DNA damage in some situations. The aim of this study is to characterise the alterations in DNA damage after a treadmill exercise and to investigate the possible influence that body mass index (BMI) may have on these levels. Study population consisted of 26 subjects, between 18 and 35 years old, and were assigned to different groups according to their BMI: normal weight, overweight or obese. All participants underwent a treadmill exercise test using the classic Bruce protocol, and alkaline and oxidative versions of the comet assay were performed to detect DNA damage. The results suggest a decrease in genetic damage after exercise as well as an inverse association between BMI and genetic damage after exercise although they are not statistically significant. In order to achieve an accurate and more reliable understanding of this matter more studies are needed to explore other possible confounding variables. Thus, aside widening the study population to include a larger number of participants and a more representative sample of the population, future studies should consider the influence of nutrition and timing of samples' collection after the physical challenge.

Keywords: *Body Mass Index, Obesity, DNA damage, Oxidative Stress, Exercise*

The MOBI-Kids study in young people, mobile phone use and brain tumor – the Austrian perspective

H. Hans-Peter [1*]; A. Wöhrer [2]; L. Damm [1]; G. Wanek [1]; U. Leiss [3]; S. Weis [4]; J. Buchroithner [4]; R. Rieger [5]; C. Freyschlag [6]; B. Furtmüller [7]; P. Wallner [1] & M. Kundi [1]

1 - Institute of Environmental Health, Center for Public Health, Medical University Vienna, Austria
2 - Institute of Neurology, Medical University Vienna, Austria
3 - Department of Pediatrics, Medical University Vienna, Austria
4 - Wagner-Jauregg Provincial Neuropsychiatric Clinic, Austria
5 - State Hospital Gmunden, Austria
6 - Department of Neurosurgery, Medical University Innsbruck, Austria
7 - State Hospital Kufstein, Austria
* hans-peter.hutter@meduniwien.ac.at

ABSTRACT: The popularity of mobile phone (MP) use even among (very) young children is growing. Public concern has been raised regarding adverse health effects, particular in children. MOBI-Kids, a multinational case control-study, investigates effects of childhood/adolescent exposure to EMF from mobile telecommunications technologies on brain tumor risk in 14 countries. Aim of the study is to include approximately 1,000 brain tumor cases (10–24 years of age) and two matched controls for each case (appendicitis patients). A detailed questionnaire based on the INTERPHONE study protocol, simplified and extended for younger subjects, was administered by trained interviewers. Exposure assessment includes use of communication technologies and exposure to non-communication sources of EMF. Country specific results will be integrated into sensitivity analyses. The implementation of this study posed a number of methodological challenges (addressing ethics concerns, many involved hospitals, eligibility issues etc.) resulting in a loss of over a year of field work in Austria, where 25 cases and 50 controls were recruited. Interestingly the proportion of long term users are higher than expected: approximately 14% of all subjects have used a mobile phone for 10 years or longer. Childhood radiofrequency EMF exposure is a concern. The CEFALO study on brain tumors in children demonstrated a significant trend of increasing risk with increasing time since first use based on operator data. Epidemiological studies on children are increasingly difficult to conduct (ethical and methodological constraints). MOBI-Kids will likely be the last comprehensive study on this issue.

Keywords: *Austria*, *brain tumors, case control-study, children's and adolescents health*, *mobile phone use, public health*

Understanding toxicity outcomes of kaolinite for future nanocomposites applications

M. J. Bessa [1,2,3,*]; J. J. Reinosa [4]; J. F. Fernández [4]; M. A. Bañares [5]; J. P. Teixeira [3,6] & C. Costa [3,6]

1 - Institute of Biomedical Sciences Abel Salazar, University of Porto, Porto, Portugal
2 - Engineering Faculty of University of Porto, University of Porto, Porto, Portugal
3 - Department of Environmental Health, Portuguese National Institute of Health, Porto, Portugal
4 - Electroceramic Department, Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain
5 - Catalytic Spectroscopy Laboratory, Instituto de Catálisis y Petroleoquímica, CSIC, Madrid, Spain
6 - EPIUnit-Institute of Public Health, University of Porto, Portugal
* mjbessa8@gmail.com

ABSTRACT: Clay minerals are layered silicates used in nanocomposite applications due to their unique physico-chemical properties. In the present work it is intended to evaluate the *in vitro* cytotoxicity of a type of clay mineral, kaolinite, in a hepatocellular carcinoma human cell line to understand if this is a suitable and non-toxic substrate for the immobilization of nanoparticles. For this purpose, the clay mineral characterization was performed using dynamic light scattering and scanning electron microscopy techniques, while the MTT and Alamar Blue assays evaluated effects on cellular viability and comet assay estimated the genotoxic potential. Results obtained suggest that micro-sized kaolinite particles are not a suitable substrate for the immobilization of nanoparticles, since this mineral induced a reduction on cell viability and DNA integrity of the HepG2 hepatic cell line. However, more *in vitro* studies are required to better understand the mechanisms of cellular interaction and uptake of the kaolinite minerals. To improve the toxicity of these clay particles, organic compounds can be used to modify the surface of these particles and, therefore, create a more suitable material for immobilization on future nanocomposite materials.

Keywords: *clay mineral, nanotoxicity, cytotoxicity, genotoxicity, nanocomposites*

Vapers and vaping devices – A study into the use of electronic cigarettes in Ireland

R. Harris [1] & S. Boyd [1*]

1 - School of Food Science & Environmental Health, College of Sciences & Health, Dublin Institute of Technology, Ireland
* sara.boyd@dit.ie

ABSTRACT: We have entered the electronic age of smoking, appropriately known as “vaping”, with the use of electronic cigarettes. Smokers know of the many adverse health associated with smoking through the use of graphic images on cigarette packages and numerous health warnings. Currently there is no adequate regulation regarding electronic cigarettes however the revised Tobacco Products Directive in 2016 will define the steps that member states must take to regulate the distribution, sale and supply of Electronic Cigarettes, in particular the sale of liquid nicotine. The aim of this paper was to get an insight into why electronic cigarettes have become such a popular device with the general public. In conjunction with this, an assessment of why smokers have opted to vape was completed along with their selection, understanding and knowledge of vaping devices. Sixty percent of vapers were unaware of any legal debate regarding electronic cigarettes. Their lack of interest in health warnings was attributed to their fear that if they took account of the health warning messages associated with electronic cigarettes that they would be tempted to return to smoking regular tobacco products. In total, 72% of vapers reported that “health” and “cost” were the two main factors they took into account when deciding to vape. Interestingly, 84% revealed self-perceived improvements in their health since they quit smoking and began vaping. The current craze among the vaping community is the PV – a personal vaping device also called a mod. In conclusion the need for adequate legislation regarding the manufacturing, sale and supply of electronic cigarette products is required. The overall concern from health experts internationally is that the electronic cigarettes market has been infiltrated by the tobacco industry. Nicotine is a poison that should be sold in a controlled manner.

Keywords*: Electronic cigarettes, vaping, health and cost*





COIMBRA HEALTH SCHOOL - ENVIRONMENTAL HEALTH DEPARTMENT
Rua 5 de Outubro
S. Martinho do Bispo
3040-854 Coimbra
Portugal

Web: www.estescoimbra.pt
Email: saudeambiental@estescoimbra.pt

INTERNATIONAL FEDERATION OF ENVRIONMENTAL HEALTH
Chadwick Court,
15 Hatfields,
London SE1 8DJ
UK

Web: www.ifeh.org
Email: secretary@ifeh.org