

Newsletter: May 2013

MEDICHEM: Occupational and Environmental Health in the Production and Use of Chemicals

Founded 1972 in Ludwigshafen, Germany

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Message from the Secretary

Dear Colleagues:

After a bit of a hiatus, I'm pleased to be sending you this Newsletter with information on this year's MEDICHEM Congress, which will be held in Istanbul, Turkey, 19-21 September 2013. Details from Board Member and Chair of the local organizing committee in Istanbul, Dr. Vedat Mizrahi, are below.

Featured in this Newsletter is a special report from our colleague, and Board Member Dr. Martina Piasek, who highlights presentations by MEDICHEM members that are available in the *Journal, Archives of Industrial Hygiene and Toxicology*. Dr. Piasek was guest Editor for this issue. Also included in this Newsletter is a new column – "Journal Watch" – from another of our Board Members, Dr. Avi Wiener, providing opinions on current topics that will hopefully be of interest to the membership.

Please submit to me any news, upcoming meetings, or articles of interest to the members.

MEDICHEM 2013 – Istanbul, Turkey – See you there!

Submitted by Dr. Vedat Mizrahi



On behalf of the Organizing Committee it's my great pleasure to invite the international occupational health community to participate in the **XLIth MEDICHEM Congress**, to be held in Istanbul, Turkey, September 19-21, 2013.

Istanbul is a beautiful city joining the two continents, Europe and Asia. Istanbul was always an important city of trade, culture and tourism. In the past the city was the capital of many civilizations as the Roman, Byzantine, Ottoman empires and still is the biggest city of Turkey with its 12.500.000 population. Istanbul is easily reached as it has direct connections with almost any country in the world by air, rail, road or water. In addition, Istanbul is one of the leading cities in the world with the impressive natural beauties as The Bosphorus and the Golden Horn, its architecture and lots of culture, including famous museums Hagia Sophia museum dated from the 6th century and the Topkapı Palace, lots of touristic attractions and shopping like the Grand Bazaar containing more than 4000 shops inside. Turkey is a fast growing country and in the recent years its trade and industry were growing exceptionally. In parallel to these developments, Occupational Health and Safety legislation and practice are improving very rapidly in the country.

Of course, we hope that for you as occupational health professionals, the main reason to attend the congress will be its scientific programme in combination with the opportunity to meet with colleagues from all over the world to exchange ideas and practices in the field. The theme we have chosen for MEDICHEM 2013 is **“Nanotechnology and New Practices in Occupational Health.”** In the multidisciplinary field of occupational health various rapid developments, such as the emerging technologies and specially nanotechnology but also ‘evidence-based’ medicine, and ethical issues raise the question what implications these changes may have for our day-to-day working practice. We hope to address some of technical aspects of these questions on the first day, whilst on the second day the practical implications will be discussed from a variety of angles. We hope this will offer you a unique opportunity to get abreast of new developments and their practical implications. In addition, the social events will provide an ideal opportunity

for all participants to discuss and debate their own special interests and priorities with experts and colleagues.

We sincerely hope that you will plan to come to Istanbul in September. We are sure that MEDICHEM 2013 will provide you with intense interaction with your peers and induce new ideas for your own work.

For registration and hotel reservations, please look at our website and fill the registration form at: <http://www.turkekspres.com.tr/travelform/>. Credit card details will be requested confidentially once registration request received by the agency.

We are looking forward to welcoming you in Istanbul!

Dr. Vedat Mizrahi, Chair Organizing Committee MEDICHEM 2013

	Early registration	Late registration
	Until 19 July 2013	20 July to 19 Sept 2013
MEDICHEM Member*	590 Euro	690 Euro
Non-Member*	650 Euro	750 Euro
Retired MEDICHEM Members*	250 Euro	350 Euro
Accompanying Person**	100 Euro	120 Euro
Gala Dinner with show	included	included
City sightseeing and Grand Bazaar	included	included

*The fee includes: Excursion to Unilever factory, opening ceremony and reception with cold and warm buffet, participation in the all conference programme, two lunches, coffee, beverages and snacks during morning and afternoon breaks, city sightseeing tour and Grand Bazaar visit, Gala Dinner (with beverages included) and Turkish folcloric dances and belly dance show.

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Hotel information and a preliminary program can be found on the MEDICHEM website:

<http://medichem.org/congresses/default.asp>



Full papers MEDICHEM Congress, Heidelberg, Germany available
Archives of Industrial Hygiene and Toxicology: Volume 63, No. 2, June 2012

Submitted by Dr. Martina Piasek



The MEDICHEM Congress was held in Heidelberg, Germany, June 2011, under the theme “Occupational Health in a Changing World” and a MEDICHEM Mini-Symposium was held in November 2011 in Vienna, Austria entitled “Occupational Carcinogens: Exposure Scenarios and Health Risks.” Six papers from these international meetings are available and freely accessible online as full text-articles in *Archives of Industrial Hygiene and Toxicology, Volume 63, Number 2, June 2012* (at: http://hrcak.srce.hr/index.php?show=toc&id_broj=6720&lang=en). The last pages of the issue are devoted to the extended report on MEDICHEM 2011, written by Dr. Maren Beth-Hübner, a very active and successful Congress chief organizer.

Reproduction of the front page of the journal issue with an original computer graphic and links to the entire issue, table of contents with links to abstracts and full texts of all published papers, guest editor’s foreword, and the Congress Organizing and Scientific Committees chair’s report are included.

Publishing of these papers in a theme MEDICHEM section within the regular journal’s issue has been the result of a successful and coordinated international action. MEDICHEM Board Chairman, Dr. Thirumalai Rajgopal and the Board members, together with Dr. Maren Beth-Hübner, approved in Heidelberg the offer of the journal's editors to ask the Congress participants to submit their presentations in the form of manuscripts to be considered for publication in *Archives of Industrial Hygiene and Toxicology* (Zagreb, Croatia) under the journal’s terms and conditions. Subsequently, Dr. Robert Winker extended the same offer of publishing presentations in the journal to the presenters of Viennese Mini Symposium as its chief organizer. Both MEDICHEM and the journal agreed that I should take over as a guest editor. I would like to acknowledge that during the entire process of the call for papers,

manuscript collection, extensive correspondence with authors and expert reviewers, and the final procedure of editorial decision-making and preparing manuscripts for publishing, I had the continuous help of *Archives'* chief editors and professional helpers. First and foremost was editor-in-chief Nevenka Kopjar and technical editor Zelimira Vasilic; for manuscript and copy editing and secretarial assistance Dado Cakalo and Zeljana Pavlakovic; and for all needed technical assistance Vesna Lazanin. It should be pointed out that the journal's publisher – Institute for Medical Research and Occupational Health (IMROH) in Zagreb, Croatia, has a long-standing connection with both MEDICHEM and ICOH activities that go far back to 1970's, including: organization of the ICOH Congress in Croatia 1978 in Dubrovnik, as former IMROH's Director Marko Šarić is an honorary MEDICHEM member; the late Birgitta Haeger-Aronsen, the first MEDICHEM Secretary in the early 1970s, was Corresponding member of the Department of Medical Sciences at Croatian Academy of Science Arts in Zagreb; and in 2007 IMROH hosted a mid-tem meeting of the MEDICHEM Board members in conjunction with a successful half-day Mini-Symposium.

My special gratitude goes to several MEDICHEM Board members who are also the journal's Advisory Board members, for their active participation in the hard work of manuscript preparing, reviewing, and/or providing all other necessary and valuable advice in particular matters that came up along the processes of editing the papers. These colleagues are Drs. Michael Nasterlack, Robert Winker, Diane J. Mundt, and Stephen W. Borron.

On behalf of the journal editors, I wish to thank all authors for submitting their manuscripts as well as all expert reviewers who readily responded to our request and sent us their critical opinions and suggestions on manuscripts that were considered for publication in the journal. I hope that we all, including Board members, meeting organizers, authors, reviewers, and editors, can share the satisfaction of this cooperative action. I also look forward to MEDICHEM members recognizing *Archives of Industrial Hygiene and Toxicology* as a journal to be considered for submission of their manuscripts not only in connection with MEDICHEM meetings.

Please access the link below for updates in the Table of contents in Archives of Industrial Hygiene and Toxicology, Vol.63 No.2: http://hrcak.srce.hr/index.php?show=toc&id_broj=6720



JOURNAL WATCH

Edited by Avi Wiener, MD

Institute for Occupational and Environmental Medicine, Rambam (Maimonides) Medical Center, Haifa, Israel, and Faculty of Civil and Environmental Engineering, Technion – Israeli Institute of Technology (IIT), Haifa, Israel.

Screening for Lung Cancer

Although heavy smoking continues to decline, millions of former smokers remain at risk for lung cancer¹. Mass screening of high-risk groups by means of chest radiography with or without cytological analysis of sputum specimens has shown no reduction in lung cancer mortality. The National Lung Screening Trial Research Team funded by the National Cancer Institute, published in August 2011 that the use of low-dose CT (LDCT) of the chest performed annually reduced mortality from lung cancer by 20% as compared with the use of plain radiography of the chest². LDCT screening was associated with a high rate of false positive results; complications from invasive diagnostic evaluation procedures were uncommon with death or severe complications occurring only rarely.

Comment: Low-dose-CT (LDCT) enables high resolution volumetric imaging possible in a single breath-hold at acceptable levels of radiation exposure. Diagnosis of lung cancer at early stage increases the chances for longer survival time. The reduced exposure to radiation and the low incidence rate of severe complications justify the risk of false positive results. There are two high-risk groups for lung cancer among workers: former 25 pack-year smokers, and asbestos workers. I recommend screening these groups for lung cancer by means of chest LDCT. It is believed that future technological advances in this imaging system will further reduce the risk from radiation, and decrease the rate of false positive results.

1. *Prabhat J., Ramasundarahettige C., et al: 21st-Century Hazards of Smoking and Benefits of Cessation in the United State. NEJM 2013; 368:4:341-350.*
2. *The National Lung Screening Trial Research Team: Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening. NEJM 2012; 365:5:395-409.*

Screening for Prostate Cancer

A man in his lifetime has about 16% (1 in 6) chance of being diagnosed with prostate cancer (PC). When compared with all causes of death in men over age 45, PC ranks fifth (3.3%). Since the 1980's, screening for prostate cancer has been practiced by periodic digital rectal examination (DRE), and the Prostate Specific Antigen (PSA) test. It was believed by most of the authorities dealing in public health that early-stage disease, when treated promptly, prolongs life duration comparing late-stage diagnosis. Six recent epidemiologic studies provided data

that questioned this rationale. The SEER¹ registry showed that 10-year risk of death among men with early stage PC who were cared for without attempted curative therapy (8%) was significantly lower from competing causes (60%) regardless of tumor grade. The European Randomized Study of Screening for Prostate Cancer (ERSPC)² compared PC incidence rates and mortality incidence rates between screened and unscreened groups of men aged 50 to 74 years during median follow-up of 9 years. Mortality was 20% lower in the screened group. Nevertheless the absolute difference between the screened and unscreened groups was only 0.7 deaths per 1000 men suggesting that 1,410 men would need to be screened approximately twice over a period of 9 years to prevent 1 death from PC. Two additional years of follow up of the ERSPC⁴ revealed that the estimated number needed to screen would be 503. Results from the Göteborg, Sweden, randomized screening trial³, which included ERSPC subjects, showed a greater reduction (31%) in the risk of death from PC with screening. Nevertheless the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial⁴ showed no benefit of screening for PC. It should also be mentioned that the results of the PLCO study could have been biased, as more than 40% of enrolled subjects had undergone at least one PSA test in the 3 years before study enrollment. Discussing the usefulness of screening for PC in life saving does not encompass the potential complications of positive PSA or DRE tests. Patients suspected of having PC will undergo trans-rectal biopsies guided by ultrasound imaging and if cancer is detected radical prostatectomy might be offered as the ultimate treatment. Biopsies might cause bladder bleeding and even obstruction by clots and urinary sepsis. The surgery might cause impotence and urinary incontinence in almost half of the patients. One should also consider mental stress, anxiety and depression as serious complication of both the screening tests and its potential outcome. Above all it was shown recently that among men with localized prostate cancer, radical prostatectomy did not significantly reduce all-cause or prostate-cancer mortality, as compared with observation, through at least 12 years follow-up⁶. These outcomes signify that screening for PC results in over-diagnosis. Over-diagnosis is the term used when a condition is diagnosed that would otherwise not go on to cause symptoms or death. Cancer over-diagnosis may have of one of two explanations: the cancer never progresses, or the cancer progresses slowly enough that the patient dies of other causes before the cancer becomes symptomatic⁷.

Comment: Until the results of these studies were published, physicians forcefully encouraged men to undergo periodic DRE and PSA tests. The conflicting data concerning the usefulness of screening for PC and the uncertainty regarding the benefits of radical prostatectomy, combined with the harmful side effects of prostate biopsy and removal and the anxiety that follows, raise the need for new guidelines in the prevention and management of PC. I recommend adopting the guidelines of the American Urological Association (AUA)⁸ and American Cancer Society (ACS)⁹. Both organizations encourage shared decision making between patients and clinicians and periodic DRE and PSA testing, especially when patient's life expectancy is at least 10 years.

The ACS¹⁰ also recognizes the challenges in helping men achieve informed decision making and list a number of publicly available written and Web-based screening decision aids.

1. Lu-Yao GL, Albertson PC, et al: *Outcomes of Localized Prostate Cancer Following Conservative Management. JAMA 2009;302:1202-9.*
2. Schroeder FH, Hugosson J, et al: *Screening and Prostate-Cancer Mortality in a randomized European Study. NEJM 2009;360:1320-8.*
3. Schroeder FH, Hugosson J, et al: *Prostate-Cancer Mortality at 11 Years of Follow-up. NEJM 2012; 366:11: 981-90.*
4. Hugosson J, Carlsson S, et al: *Mortality Results from the Goetteborg Randomized Population-based Prostate-Cancer Screening Trial. Lancet Oncol 2012;11:725-32.*
5. Andriole GL, Kerkhgoof M, et al: *Mortality Results from a Randomized Prostate-Cancer Screening Trial. NEJM 2009; 360:1310-9.*
6. Wilt Timothy J, Brawer Michael K, et al: *Radical Prostatectomy versus Observation for Localized Prostate cancer. NEJM 2013; 367:3:203-213.*
7. Welch H. Gilbert, Black C. William: *Overdiagnosis in cancer. J Natl Cancer Inst 2012;102:605-613*
8. *Early detection on prostate cancer and use of transrectal ultrasound. In: American Urological Association 1992 policy statement book. Baltimore: American Urological Association, 1992.*
9. Mettlin C, Jones G, Averette H, et al: *Defining and updating the American Society guidelines for the cancer-related checkup: Prostate and endometrial cancers. CA Cancer J Clin 1993;43:42-46.*
10. Wolf AM, Wender RC, Etzioni RB, et al: *American Cancer Society guideline for the early detection of prostate cancer: update 2012. CA Cancer J Clin 2012;60:70-98.*

Mesothelioma in Mice due to Carbon Nanoparticles

Engineered single-wall carbon nanotubes (SWCNTs) are a class of nanoparticles being actively evaluated for myriad industrial and biochemical applications. Exponential growth in the use of SWCNTs potentially can expose a large number of workers. A recent report described the induction of mesothelioma in p53^{+/-} mice by multiwall carbon nanotubes. Exposure to SWCNTs induced reactive oxygen species generation, increased cell death, enhanced DNA damage, and H2AX phosphorylation, and activated poly(adenosine diphosphate-ribose) polymerase (PARP), Ap-1, NFkB, p38, and Akt in a dose dependent manner. These events recapitulate some of the key molecular events involved in mesothelioma development associated with asbestos exposure¹.

Comment: This and, probably other research demonstrate the harmful effects of nanoparticles in animals. We should keep in mind that the use of carbon nanotubes might be dangerous to workers.

1. *Pass Harvey I., Vogelanz Nicholas J., Nahn Steven M., and Carbone Michele: Benign and malignant mesothelioma. In: Vincet T. DeVita, Theodor S Lawrence, Steven A. Rosenberg (Editors): Cancer, Principles & Practice of Oncology. 9th edition, Lippincott Williams & Wilkins, 2011, Page: 2056.*



Welcome to New Members

Dr. Anna Alekseeva (Russia)

Dr. Dieter Junker (Germany)

Dr. OS Mphofu (South Africa)

Dr. Simon Ryder-Lewis (New Zealand)

Dr. Nomiya Tetsuo (Japan)

Nurse Aysegul Yuksel (Turkey)