1st International Conference on

OCCUPATIONAL & ENVIRONMENTAL HEALTH

"International Collaboration and Capacity Building"

Organized by

OHS-MCS & Department of Community Medicine, MAMC

SOUVENIR

Venue

Auditorium, National Science Centre

Near Gate No. 1, Pragati Maidan, Bhairon Road, New Delhi - 110001, INDIA

1-2 March 2013, New Delhi, India

Conference Patron

Dr. Jagdish Prasad
Director General Health Services,
Ministry of Health and Family Welfare, Govt. of India

ADVISORS

Dr. V M Katoch, Secretary Department of Health Research & Director General ICMR, New Delhi
Dr. J K Das, Director National Institute of Health & Family Welfare, New Delhi
Dr. Satendra, Director SAARC Disaster Management Centre and National Institute of Disaster Management, New Delhi
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Dr. Sudan Singh, Director General Medical Education & Training, Uttar Pradesh Government
Dr. D K Raut, Director Professor, VMMC, New Delhi
Dr. N K Yadav, Medical Officer Health, Municipal Corporation of Delhi
Dr. P K Sharma, MOH, New Delhi Municipal Corporation
Dr. Pankaj Arora, Specialist Emergency Medicine, Royal North Shore Hospital Sydney, Australia
Dr. Yogindra Samant, Chief Medical Officer, Norwegian Labour Inspection Authority, Norway

ORGANIZING COMMITTEE

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Dr. Himanshu Chauhan, Assistant Director, Epidemiology, National Centre for Disease Control, Govt. of India

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Dr. O P Kansal, Advisor, Injection Safety, BD Syringe, New Delhi

SHEILA DIKSHIT
CHIEF MINISTER

सत्यमेव जयते

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D.O.NO.: 030/CM1/3001
Dated : 07-02-2013

MESSAGE

*I am happy to learn that the **Maulana Azad Medical College (MAMC) and OHS-MCS** is organizing **1st International conference on Occupational and Environmental Health** from **1st to 2nd March, 2013 at National Science Centre, New Delhi.** The theme of the conference **"International Collaboration and Capacity Building"** is of quite relevance. It gives me added pleasure to know that a souvenir is also being brought out.*

I am sure that it would provide a platform to Healthcare Sector to connect with the countries across the world. I do hope that the participants from all over the country and abroad would interact on medicine and medical industry for upgrading their knowledge and skills to enhance their utility to the medical sector.

Please accept my best wishes for the success of the Conference.

Sheila Dikshit

(SHEILA DIKSHIT)

World Health Organization
Regional Office for South-East Asia

Mahatma Gandhi Marg, Indraprastha Estate, New Delhi-110002, Tel: 91-11-23370804, Fax: 91-11-23370197, Website: www.searo.who.int

Message from Dr Samlee Plianbangchang, Regional Director, WHO South-East Asia Region at the 1st International Conference on Occupational and Environmental Health

Occupational Health and Safety Management Consultancy Services, and Department of Community Medicine, Maulana Azad Medical College, New Delhi, 1–2 March 2013

In view of the high disease burden attributable to occupational exposures and environmental factors in the WHO South-East Asia Region, I am happy to note that this important conference is being convened.

The theme for your conference of "International collaboration and capacity-building" is particularly relevant given the rapid and unprecedented changes we experience globally.

Healthy populations are central to human progress and sustainable development. Environmental health includes all those aspects of human health that are determined by physical, chemical, biological, social and psychological factors in the environment. The occupational environment is the place where we spend a substantial part of our lives. Improvements in both environmental and occupational health are central to efforts to ensuring global sustainable development.

Health is both a global as well as national public good. Cross-border threats can take many forms and can threaten travel, trade and economic growth. Rapid urbanization, which we witness in many countries in our Region, can foster unhealthy slum environments, unhealthy lifestyles and changing patterns of consumption which contribute to the unacceptable growing burden of noncommunicable disease that we witness. Climate change not only increases the frequency and intensity for national diseases but also, in the longer term, threatens all of our basic needs for health – clean air, safe drinking-water, a secure food supply, and adequate nutrition and shelter.

Gathering the scientific evidence for the burden of disease caused by the environment is a compelling part of our advocacy for future improvements.

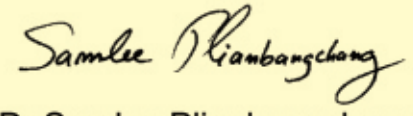
The Rio Declaration on sustainable development provided an overwhelming impetus for international cooperation, and we have witnessed the signing of many multilateral agreements and treaties that bind countries together to help rectify common problems. Climate change, the unsound management of chemicals and the threats of specific highly hazardous chemicals have been given particular prominence in this regard.

The successful finalization of a new global treaty, the Minamata Convention, to ensure the proper management of mercury, is the latest international environmental treaty. Capacity-building in the health sector will play an important part in implementing this treaty, which focuses in particular on protecting the health of women and children, and through them our future.

However, mercury contamination is just one of the many chemical problems facing countries in WHO's South-East Asia Region. As responsibilities to address environmental hazards lie predominantly outside the public health arena, full cooperation and collaboration are needed with responsible agencies for agriculture, environment, transport, energy, and urban planning among others. This multisectoral approach is vital to ensure health in all policies.

Improving the health of workers, who represent more than half of the world's population and are major contributors to the economic and social development, is also a high priority for WHO. The WHO Workers' Health: Global Plan of Action (2007–2015) provides much needed framework for cooperative actions by countries to address priority occupational health issues. Adopting a primary health care approach is also promoted to achieve a greater coverage of occupational health needs.

I am confident that this conference will assist in raising the importance of tackling both environmental and occupational health in the context of international frameworks that ensure improvements in health remain the central goal.



Dr Samlee Plianbangchang
Regional Director

सत्यमेव जयते

डॉ विश्व मोहन कटोच
एम डी, एफ एन ए एससी, एफ ए एम एस, एफ ए एससी, एफ एन ए
सचिव, भारत सरकार
(स्वास्थ्य अनुसंधान विभाग)
स्वास्थ्य एवं परिवार कल्याण मंत्रालय एवं
महानिदेशक, आई सी एम आर

Dr. Vishwa Mohan Katoch
MD, FNASc, FAMS, FASc, FNA
Secretary to the Government of India
(Department of Health Research)
Ministry of Health & Family Welfare &
Director-General, ICMR

भारतीय आयुर्विज्ञान अनुसंधान परिषद
(स्वास्थ्य अनुसंधान विभाग)
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
वी. रामलिंगस्वामी भवन, अंसारी नगर
नई दिल्ली - 110 029 (भारत)

Indian Council of Medical Research
(Department of Health Research)
Ministry of Health & Family Welfare
V. Ramalingaswami Bhawan, Ansari Nagar
New Delhi - 110 029 (INDIA)

MESSAGE

It has been a pleasure to convey our greetings to OHS-MCS and the Department of Community Medicine of Maulana Azad Medical College for organizing 1st International Conference on Occupational and Environmental Health in India.

Occupational health and healthy work environment are essential for individuals, communities and countries, as well as for the economic growth of each enterprise. It is appropriate to develop measures that would help in minimizing work related hazards, injuries and deaths. It is also of paramount consideration that worker's health is determined not only by occupational hazards, but also by social and individual factors. It is important to generate adequate information regarding risks so as to suggest standard guidelines and create innovative solutions for providing preventive care to the workers.

Environmental factors, on the other hand, cause a major proportion of global burden of disease. Spread of climate sensitive diseases like malaria, dengue, extinction of plant and animal species and increased threat of calamities are glaring issues that require intervention. This conference would generate opportunities for people to influence their lives and future by participating in decision making and by voicing their concern on an international platform.

I extend my best wishes for the success of this conference and believe that the outcome would help in moving forward to deal with occupational and environmental health at a larger level.

(V.M. Katoch)

Dr. Jagdish Prasad
M.S. M.Ch., FIACS
Director General of Health Services

सत्यमेव जयते

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
स्वास्थ्य सेवा महानिदेशालय
निर्माण भवन, नई दिल्ली - 110 108
GOVERNMENT OF INDIA
MINISTRY OF HEALTH & FAMILY WELFARE
DIRECTORATE GENERAL OF HEALTH SERVICES
NIRMAN BHAWAN, NEW DELHI-110 108
Tel : 23061063, 23061438 (O), 23061924 (F)
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दिनांक/Dated..... 18th Feb. 2013

MESSAGE

I am glad to learn that the 1st International Conference on Occupational and Environmental Health is being organized at New Delhi from March 1-2, 2013.

The theme of the Conference-"International Collaboration and Capacity Building" in Occupational and Environmental Health corroborate is the need of the hour. As a Nation which is rapidly progressing in all aspects of development, we surely need to address the issue of occupational and environmental health for the larger interest of our working people and all other citizens as well. Moreover we need to prepare ourselves for the health impacts of the climate change which is somehow going to affect each one of us. The subject of Occupational and Environmental Health is basic ingredient of "Health for All" which we all need to work for and achieve. Ministry of Health & Family Welfare is always concerned with the health of working population and committed to national and international mandates.

I congratulate the organizers of the conference, Occupational Health and Safety Management Consultancy Services, New Delhi and Department of Community Health, Maulana Azad Medical College, New Delhi for conceptualizing the event and making it a reality. I am sure that this unique opportunity provided by this conference will be gainfully utilized by all the participants, which in long run shall strengthen Occupational and Environmental Health in India.

I extend my best wishes to the organizers and participants and wish the conference all success.

(Dr. JAGDISH PRASAD)

प्रो. जयन्त दास, एम.डी.
निदेशक
Prof. Jayanta K. Das, M.D.
Director

आरोग्यम् सुखसम्पदा

राष्ट्रीय स्वास्थ्य एवं परिवार कल्याण संस्थान
National Institute of Health & Family Welfare

MESSAGE

I am extremely happy to know that the OHS-MCS and Department of Community Medicine, Maulana Azad Medical College, New Delhi is organizing the 1st International Conference on Occupational and Environmental Health on 1-2 March, 2013 at National Science Centre, New Delhi.

The theme of the conference "International Collaboration and Capacity Building" would surely offer excellent opportunities for discussion, exchange views, ideas and share information on the subject.

The deliberations of the Conference will help the public health professionals, scientists, professional from environmental health etc. in the country in providing a new vista of horizon in improving Occupational and Environmental Health through strengthening collaborations and capacity building.

I congratulate the organizers and faculty members of Department of Community Medicine, Maulana Azad Medical College, New Delhi for organizing this Conference and wish the Conference a grand success.

Prof. Jayanta K. Das

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(ISO 9001-2008 CERTIFIED)
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Website : www.esic.nic.in

DR. S.R. CHAUHAN, M.S. (Surgery)
Medical Commissioner

MESSAGE

It gives meimmense pleasure to know that the Occupational Health and Safety Management Consultancy Services, New Delhi and the Department of Community Medicine, Maulana Azad Medical College are organizing the 1st International Conference on Occupational and Environmental Health in New Delhi on March 1st&2nd, 2013.

ESIC has already been working on health and safety of various groups of workers engaged in manufacturing units. The task is huge as ESIC caters to more than 5 lac industrial units. Managing the occupational health of such a large group of workers requires inter-sectoral coordination and cooperation. This conference would be able to bring various stakeholders to participate in delivering occupational health services on a common platform.This is indeed a wonderful initiative to strengthen occupational and environmental health in the country and ESIC wholeheartedly supports thisendeavor.

Iappreciate the efforts of the organizers for drawing the attention of the physicians on this very important aspect of medical science which is hardly taught to the medical students. I wish all the success for this conference.

Dr. S.R.Chauhan

Maulana Azad Medical College & Associated
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Dr. A. K. Agarwal
Professor of ENT
Dean (Additional Director General of Health Services)

12th February 2012

MESSAGE

I happy to know that Department of Community Medicine, Maulana Azad Medical College, New Delhi and Occupational Health and Safety Management Consultancy Services, New Delhi are organizing the 1st International Conference on Occupational and Environmental Health at New Delhi on March 1-2, 2013.

I am sure that this Conference will provide a platform for mutual collaboration between public health professionals and researchers in the field of public health in general, as well as environment and health by bringing a group of international experts from the environment and health research community together.

I congratulate the organizers of the conference and wish the conference all success.

(Dr. A. K. AGARWAL)

पं. दीनदयाल उपाध्याय विकलांग जन संस्थान
(सामाजिक न्याय और अधिकारिता मंत्रालय, भारत सरकार के अधीन)
Pt. DEENDAYAL UPADHYAYA
INSTITUTE FOR THE PHYSICALLY HANDICAPPED
(Under Ministry of Social Justice & Empowerment, Government of India)
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4,Vishnu Digamber Marg, New Delhi-110 002

निदेशक
DIRECTOR

दिनांक/Dated 20.02.2013

MESSAGE

I am glad to know that the Department of Community Medicine, Maulana Azad Medical College and "Occupational Health & Safety Management Consultancy Services", New Delhi are organizing the 1st International Conference on Occupational and Environmental Health at New Delhi on March 1-2, 2013.

Occupational health and promotion refers to the total process of revolving problems, the treatment of troubled employees and correction of dysfunctional work conditions, the utilization or re-utilization of the employee suffering from the effects of stress or some form of diagnosed occupational illness.

Looking at the theme of the Conference "International Collaboration and Capacity Building" and the topics to be covered in the conference, the qualitative content of the discussions can be perceived.

I believe this Conference will provide a platform for mutual collaboration between public health professionals and researchers in the field of public health in general, as well as environment and health by bringing a group of international experts from the environment and health research community together.

I congratulate the organizers for observing this international event and express my heartiest wishes for the success of this important Conference.

Kumar 20/2/13

Dr. Dharmendra Kumar

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barry.kistnasamy@nioh.nhls.ac.za

MESSAGE

Congratulations from the National Institute for Occupational Health in Johannesburg, South Africa on the convening of this important 1st International Conference on Occupational and Environmental Health in New Delhi, India. It comes at an important time in your history given the need to increase the capacity of occupational health, safety and environmental health professionals to meet the health and safety needs of India's workers in the formal and informal economy. Your conference brings together participants from across the world and India to share experiences, learn good practice and enhance networks and partnerships as we continue to create a better life for all and especially for the workers.

We are extremely happy to participate in this conference and look forward to the continued links with the Occupational Health & Safety Management Consultancy Services and Department of Community Medicine at the Maulana Azad Medical College.

Dr Barry Kistnasamy
Executive Director

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Website : www.iihmrdelhi.org

MESSAGE

It gives me immense pleasure to know that the OHS- MCS and Department of Community Medicine, Maulana Azad Medical College, New Delhi are organizing the **1st International Conference on Occupational and Environmental Health** on March 1- 2, 2013 at National Science Centre, New Delhi.

Though a good progress has been made in clinical and public health, the occupational and environmental health are lagging behind in this aspect. The annual incidence of occupational disease is estimated to be more than 1.5 million per year resulting about 1,21,000 occupational disease associated deaths in India alone (*Leigh et al; 1999*). Besides around 50,000 deaths per year in agriculture sector alone were estimated. This report is the tip of iceberg as most of the incidents of occupational diseases are either not reported or not diagnosed properly. There is an immediate need for continuous efforts by various departments formulate tangible action plans for diagnoses and treatment of occupational hazards and monitoring environment changes and positioning themselves accordingly.

International Institute of Health Management Research, Delhi is doing its bit on environmental health and climate change. We have started a **Centre for Climate Change and Environmental Health** which works at documentation, research and advocacy besides capacity building in this important area. I am confident that this conference will come out with various steps needed to be taken on various issues dealing with occupational and environmental health.

I wish success for the conference and look forward to participating in this important event!

Lakhwinder P Singh, D Phil (Oxford)

Director

Director Professor and Head,
Department of Community Medicine,
Maulana Azad Medical College, New Delhi

मौलाना आजाद मैडीकल कालेज
तथा संबंधित लोक नायक चिकित्सालय,
गोबिन्द बल्लभ पन्त चिकित्सालय एवं
गुरू नानक नेत्र केन्द्र, नई दिल्ली–११०००२
MAULANA AZAD MEDICAL COLLEGE
and Associated Lok Nayak Hospital,
Govind Ballabh Pant Hospital and
Guru Nanak Eye Centre, New Delhi-110002

MESSAGE

I am pleased to be a part of the First International conference on Occupational and Environmental Health. This event marks a step towards achieving and maintaining worker's health and environmental sustainability. We hope that the brainstorming sessions would bring out some of the most innovative solutions to the current problems.

United Nations conference on Sustainable development has shared a vision to promote an economically, socially and environmentally sustainable future for our planet. The mainstreaming for sustainable development at all levels is necessary to achieve a common goal of human development. This would require democratic decision making, good governance and implementation of rule of the law, along with an enabling environment at national and international level. International collaboration to seize and create opportunities for sustainable development is an essential step in narrowing the gaps between developed and developing countries. The assimilated knowledge and skills can then be worked out on national, state and local levels and some specific challenges can then be ingeniously dealt with. Coalition of various stake holders like people, scientists, government, civil societies and private sector, alone can lead us towards our common goal.

In a similar way work on Occupational health has started in many pockets of various nations. Only if we can bridge the gap of knowledge through international collaboration, we can succeed in achieving workers' well-being. Majority of Indian work force is employed in informal/unorganized sector, which makes it even more challenging to have a national level registration system for work related morbidities. Moreover, there are many social problems like child labor, gender inequality, and extreme poverty which force people to take risky jobs.

I hope this conference will help us reach some concrete suggestions for the policy makers, to help them improve the Occupational and Environmental Health. I offer my best wishes for the event to be a great success.

Dr.G.K.Ingle

Dr. D. K. Raut
MBBS; MD; FIPHA
Honorary Secretary

Indian Public Health Association – Delhi State Branch
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MESSAGE

Several international and national deliberations have made it evident that environment-and-health concerns are rising higher on the broad environment and development agenda and that of public health issues are predominantly making a niche on the environmental agenda and vice-versa. It is estimated that 24% of the global disease burden and 23% of all deaths can be attributed to environmental factors which can be prevented through environmental modification. Developing countries including India carry disproportionately high environmental burden of disease, with the total numbers of healthy life years lost per capita as a result of environmental burden being 15 times higher in developing countries than in developed countries. The UN Millennium Development Goal (MDG) – 7 is specifically set to ensure environmental sustainability.

Work related deaths, diseases and injuries remain at unacceptably high level and results in an economic loss amounting to 4-5% of GDP. There is a need to promote workers' health in all occupations by strengthening the capacity to assess and modify the occupational risk factors.

In spite of India's rapid economic development, the country still faces the risks arising out of the traditional environmental hazards such as unsafe water supply and sanitation and indoor air pollution. Modern environmental hazards arising of the unplanned urbanization, air and noise pollution, industrial waste, solid waste, chemicals, fertilizers and pesticides used in agriculture etc have compounded the problem. A number of efforts have been made in environmental policy making, framing legal measures, assessing and mitigating the hazards and community education both by the Government line departments and NGO sectors. Creating evidence based research and its communication for policy making, capacity development in environmental and occupational health, and mechanisms for collaboration however still needs to be discussed and strengthened.

In this context, I congratulate the OHS-MCS and Department of Community Medicine, MAMC for organizing ***"1st International Conference on Occupational & Environmental Health."*** I hope that the efforts towards strengthening the international cooperation and capacity building will continue. I compliment the organizers and wish their endeavour all success.

Dr. D.K. Raut
Honorary Secretary
Indian Public Health Association
Delhi State Branch

CENTER FOR INQUIRY

Delhi Branch: 46, Masih Garh, PO: New Friends Colony,
New Delhi 110025, INDIA

Dr. Innaiah Narisetti
Chairman, Center for Inquiry, India

MESSAGE

Health is vital for total development of personality. Hitherto it was neglected and taken for granted. The scientific attitude and methods came in handy for all round improvement of health problems. India was obsessed with belief systems, religious superstitions which became main hindrance to health improvement.

Glad that people are slowly and gradually are accepting the scientific attitude in health and occupational problems. There is lot of scope for widening the research field in health sphere. Government should not entertain the populistic unscientific unproven health systems. Due to pressures the elected governments are compromising with unproven medical care systems. This should be stopped. The only criteria should be scientific method and proof.

It is hightime that children should be inculcated with scientific method from primary education. They should be free to question, inquire and probe any matter without inhibition. They should not be sent to earn their livelihood. There should be no compromise in the matters of health. It is more important for working people. We are aware of occupational and human rights violation in various workplaces throughout the world and demand that it should stop immediately. We are happy to collaborate with this conference on occupational and environmental health because we hope that such initiative will focus on health problems of workers and its solution.

On behalf of Center for Inquiry we wish the conference with flying colors and grand success.

Dr. Innaiah Narisetti

Preconference Workshop on

On-site & Off-site Disaster Preparedness for Chemical Emergencies

Jointly organized by
National Institute of Disaster Management&
Maulana Azad Medical College, New Delhi

Venue: National Institute of Disaster Management, New Delhi
Date : 28 February 2013

9 30 AM – 10 00 AM	**Registration**
10 00 AM – 11 15 AM	**Inaugural Session** Welcome Address *Dr. Anil K. Gupta* Special Address *Dr. Satendra, Executive Director NIDM* Special Address *Prof. Jugal Kishore, MAMC* Inaugural Address *Dr. K.C. Gupta* Vote of Thanks *Dr. Asis Mittal*
11 15 AM – 11 30 AM	**High Tea**
Technical Sessions	
11 15 AM - 12 45 PM	RAPD™ Risk Awareness Perception & Decision Making *Anthony Arrons*
12 45 PM – 1 45 PM	**Lunch**
01 45 PM - 02 15 PM	Cont… RAPD™ Risk Awareness Perception & Decision Making *Anthony Arrons*
02 15 PM - 03 45 PM	Medical Preparedness and response with focus on Mass Casualty Management in Disasters & Health Issues of Disaster Responders *Dr. Pankaj Arora*
03 45 PM – 04 00 PM	**Tea Break**
04 00 PM – 04 30 PM	Legal Framework for Chemical/ Industrial Disaster Management *Sreeja S. Nair, Assistant Professor, NIDM*
04 30 PM – 05 00 PM	Role of Telemedicine in Disaster Health Care Management *Dr. MR Survade, Director Hemaclean*
05 00 PM - 05 30 PM	**Valedictory Session**

1st International Conference on Occupational & Environmental Health: 1-2 March 2013
Theme of the Conference: International Collaboration and capacity building
Venue: National Science Centre, New Delhi

Tentative Scientific Program Free papers

<table>
<tr><th colspan="4">Day I: 1 March, 2013</th><th></th><th colspan="4">Day 2; 2 March 2013</th></tr>
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Session: Poster I : Dr. Tapas</td><td></td><td></td><td></td><td></td></tr>
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Dr. Sumeena</td><td>12.00pm –1.30 pm</td><td colspan="4">Scientific Session V: Polices and Legal Framework in OH:
Dr. Pratap Kumar Jena, Dr. Drishti</td></tr>
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Dr. Meenakshi, Dr. Anuradha</td><td>3.45pm-4.45pm</td><td colspan="4">Panel Discussion: Prioritizing opportunities for International collaboration
Dr. Neha, Ms. Swati,</td></tr>
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Dr. Pallavi</td><td>Conference Hall 1
Free Paper Session II:
Dr. Jitendra</td><td>Conference Hall 2
Free Paper Session III:
Dr. Deepshikha</td><td>4.45pm-5.30pm</td><td colspan="4">Best Paper Award Ceremony; Valedictory and Closing Ceremony
Dr. Tanu, Dr. Pallavi, Dr. Drishti, Dr. Tapas</td></tr>
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1st International Conference on Occupational & Environmental Health 1-2 March 2013, New Delhi

Scientific Program and Free Papers

Day 1: Ist March 2013	
9.00am-9.30am	Registration
9.00am-9.30m	**Foyer**
	Poster Session 1 (Display): Poster on Occupational Health & Safety
Chairs	**Dr. VK Gupta,** Director Professor MAMC, New Delhi **Dr. Prasuna J,** Professor LHMC, New Delhi **Dr. Manish Chaturvedi,** Associate Professor Sharda University, NOIDA
Rapporteur	**Dr. Tapas** **1.** **Zubia Veqar**-Risk factor assessment scales: A Comparative analysis **2.** **Veena Sharma**-Assessment of pattern of use and the effect of online social networking on student nurses in a selected college of Nursing in Delhi **3.** **Arshi Talat**-Hazardous Effect of Carcinogenic Substances on Occupational Cancers **4.** **Sumitava Talukdar**, Subir Kumar Talukdar-Occupational Hepatocellular Carcinoma: A Review 5. Vikrant Mohanty, Ananya Mahajan, **Neha Jain**-Work related musculo-skeletal disorders among Dental Students **6.** **Aditya Paliwal**, Dr.R.Rajesh,Surat-Occupational Health Services and Development **7.** **Anuradha Chauhan**, Kishore, J Anand T, Ingle GK. "Work related satisfaction and mental disorders amongst welders in east Delhi" for Poster presentation. **8.** **Kye Mon Min Swe**, Malaysia – Medical Student's Perception on Needle stick injury and preventive measures **9.** **Akshata Jain N**-Occupational Health Hazards in Mining: An Overview **10.** **Garima Rawat, Parul Mutneja**, Vikrant Mohanti. Latex Allergy**:** An under rated health hazards **11.** **Kajal Dungerwal**-A Study on Quality of Life of Employees in the Energy Sector **12.** **Sudhanshu Mahajan**, M.M.Ghate- Health profile of workers working in pharmaceutical industry **13.** **Shaheen Akhtar Khan**, Veena Sharma, Madhavi Verma- Assessment of Computer related Health Problems among Post-Graduate Students
9.30-11.00	**Inauguration of the Conference**
11.00-11.30	**Tea (NSC Cafeteria)**
11.30-12.00	**Poster Session 1: Continue…**
12.00 pm–1.30 pm	**Scientific Session I: Epidemiology of occupational and environmental conditions and diseases**
Chairs	**Dr. J K Das, Director NIHFW New Delhi** **Dr. Raj Kumar, Professor & Head, Patel Chest Institute, Delhi University**
Rapporteur	**Dr. Sumeena**
Key Note **Speakers**	**1.** **Tor Erik Danielsen,** Head of Department of Occupational and Environmental Medicine, Oslo University Hospital, Norway - Global Occupational Health **2.** **Sidhyartha Mukherjee,** School of Medical Science and Research, Sharda University- Epidemiology of Stone Polishing Workers in Anand District of Gujarat

	3. **Rajat Kapoor,** USA - Occupational Exposure and Effect on Lungs 4. **Trul O,** Chandima P A, Malhotra R, Kishore J. Duke-NUS Graduate Medical School Singapore - Health problems of immigrant women employed as Foreign Domestic Workers: a systematic review
	1.30 pm – 2.30 pm Lunch (Cafeteria NSC)
2.30 pm – 3.30 pm	**Scientific Session II : Technology and Infrastructure for Assessment and diagnosis of diseases**
Chairs	**Dr. M R Surwade, Director, Hemaclean** **Dr. D K Raut, Director Professor VMMC, New Delhi and Secretary IPHA Delhi**
Rapporteurs	**Dr. Neeta Kumar ICMR; Dr. Charu**
Speakers **Free Papers**	1. **Dr. Inakshi Naik, NIOH, Johannesburg, South Africa-**Management of chemical exposure in workplace: Role of a biological monitoring laboratory 2. **Dr. Mukesh Khanna,** CMO, Ranbaxy Labs –Occupational health Issues in Pharmaceutical manufacturing 3. **Mughda Tiwari,** NIOH, Ahmadabad - Study of cytokine levels in sputum of cotton dust exposed workers 4. **Shushtarian, S. Masoud. Shojaei** A, Islamic Azad University-Retinal damage in turner workers of a factory exposed to intraocular foreign bodies using Electrooculogram.
3.30pm-3.45pm	**Tea (NSC Cafeteria)**
3.45pm – 4.45 pm	**Scientific Session III: Technology and infrastructure for Health Hazards Risk Management**
Chairs **Rapporteurs** **Speakers**	**Dr. Muzaffar Ahmad,** Member National Disaster Management Authority **Prof. CS Pandav,** Professor & Head Center for Community Medicine AIIMS, New Delhi **Dr. Sukumar Das,** CMO Adani Power **Dr. Meenakshi; Dr. Anuradha** 1. **Anthony Aarons** (LJM, Australia) – Risk Awareness – A move to consequence thinking and human capital protection 2. **Ms. Kalavati Channa,** NIOH, South Africa – Pesticide exposure in South Africa 3. **Brajendra Mishra**, Consultant Epidemiologist, Chirayu Medical College, Bhopal - Environmental and Health impact of MIC leak and consequences in Bhopal after a quarter century 4. **Tyagi SK**, CPCB- Effects of Air Pollutants on Human Health, National Ambient Air Quality Standards & Air Quality Management in India
4.45pm – 5.30 pm	**Auditorium** **Free Paper Session I: Nuclear and Electronic related Occupational & Environmental Safety**
Chairs **Rapporteur** **Invited Speaker** **Free Paper**	**Mr. Sanjiv Pandita, Executive Director, Asia Monitor Resource Center, Honkong** **Dr. Pratik Kumar, Additional Prof and In-Charge Deptt of Medical Physics AIIMS** **Ms. Nitika Gautam** 1. **Dr. R. Deolalikar**. Retrospective Analysis of Health Profile of Employees of Nuclear Power Corporation of India – Operating Sites N.P.C.I.L. *[1995 – 2010]* 2. **Nidhi Bhatnagar,** Rajesh Gupta, Ravneet Kaur, Manoj Grover, Chandigarh- Radiation Hazards from the Modern Information Communication Technology Equipments: An imminent public health threat!

	3. **Monika Sharma,** MM Singh, GK Ingle. Knowledge, Attitude and Practices regarding E-Waste in a resettlement area of East Delhi 4. **Shaheen Akhtar Khan** - Assessment of computer related health problems among Post-graduate students
4.45pm – 5.30 pm	**Conference Hall 2A** **Free Paper Session II: Occupational Health issues**
Chairs	**Dr. Anubha Mandal,** Prof, Delhi Engineering College **Dr. Jyoti Khandekar,** Professor LHMC
Rapporteur	**Dr. Jitendra K Meena**
Free Paper	1. **Charu Kohli** - Non-Communicable Disease Risk Profile of factory workers in Delhi 2. **R Krishna Kumar**, R Monica, PP Santanam -Establishing pre-employment vision standards for Goldsmiths 3. **Randive A S** - Assessment of occupational hazards in mechanics working in garages of Pune city 4. Lanjewar PP, **Lanjewar SP**, A study of cashew-nut processing industry workers in Southern India. 5. **Anuradha, Chauhan.** Work profile and hazard exposure amongst welder in east Delhi
4.45pm – 5.30 pm	**Conference Hall 2B** **Free Paper Session III: Occupational Health issues**
Chairs	**Dr. Ramachandra Kamath** Prof & Head Manipal **Dr. OP Rajoura,** Associate Professor UCMS
Rapporteur	**Dr. Deepshikha Verma**
Free Paper	1. **Mayanka Gupta** - Safety Design Considerations in Living Environments of Elderly 2. **G. Rajesh** - Willingness to participate in disaster management among general dental practitioners in Mangalore 3. **Shantanu Sharma,** Anand T, Kishore J, Banerjee B, Ingle GK, Dey BK-A Study on Lifestyle disorders in healthcare workers in Delhi 4. N. A. Toppo, Dr. P. K. Kasar, Dr. Rajesh Tiwari, Dr. A. R. Tyagi, Dr. Sambit Pradhan, Dr. Vikrant Kabirpanthi, **Dr. Jyoti Tiwari**, Pritesh Thakur,Jabalpur-A Study on Respiratory Health Status of People Living in the Vicinity of Coal Based Power Plant of Singrauli. 5. **Nayani Makkar,** Tany Chandra, Prachi Agrawal, Harshit Bansal, Simranjeet Singh, Tanu Anand, Rajesh Kumar. Evaluating awareness and practices pertaining to radioactive waste management among Scrap dealers in Delhi

2nd March 2013	
9.00 AM-10.00AM	**Auditorium** **Free paper Session IV: OHS in Health Care Institution**
Chairs	**Dr. S K Rasania**, Dir Professor LHMC, New Delhi **Dr. Sunil Juneja,** Associate Professor Obs & Gyne DMC Ludhiana **Dr. Moreshnee Govender,** Prog Manager in School of Mining Engineering South Africa
Rapoorteur	**Dr. Charu**
Free Papers	1. **Neeta Kumar**, Meenakshi. Health needs and literacy of the construction site workers and homeless in Delhi 2. **Neha Gupta,** Jugal Kishore. Work-related Musculoskeletal Pain among Dental Professional 3. **Almas Binnal** - Insights into radiation hazards and protection measures among Indian dental practitioners 4. **Sachin M Kharat** – Occupational Hazards in Nurses of Private hospital in Pune City 5. **Amruta Barhate** - Assessment of work process and the occupational hazards involved in the manufacture of Hepatitis B vaccine. 6. **Kajal Dungerwal,** Gandhi Nagar – Noise attitude, sensitivity level, motor and mental performance: An Empirical study on noise exposed Indian workers
9.00AM-10.00AM	**Conference hall 2A** **Free Paper Session V: Environment health issue**
Chairs	**Dr. S Nagesh** Director Professor LHMC **Dr. Charan Singh,** Sr. Public Health Specialist, Govt of NCT Delhi
Rapporteur	**Dr. Anjana**
Free Papers	1. **Vinod Joon,** NIHFW – Rapid Urbanization and Changing disease patterns in south-east Asia Region 2. **JMKB Jayasekara**, Sri Lanka – Geographical distribution of chronic kidney disease of unknown origin in Sri Lanka in the region of irrigation reservoirs 3. **Sharvari Ubale,** Chhattisgarh – Biomedical Waste Management: A Study of Knowledge, Attitude, Behavior and Practices of the Staff in the Public hospitals of Chhattisgarh 4. Paras Agarwal, **Sumeena**, SV Singh, GK Ingle, A Kapoor. Dental Fluorosis – An underestimated Public Health Challenge; evidence from Rural Delhi 5. **Priyanka Rai**, Rewa – Economic impact due to automobile air Pollution linked diseases in Rewa
9.00AM-10.00AM	**Conference hall 2BFree Paper Session VI: Psychological & mental health issues**
Chairs	**Dr. GS Meena,** Director Professor, MAMC, New Delhi **Dr. Nirmal Verma,** Associate Professor JNMC Chhattisgarh
Rapporteur	**Dr. Anshul**
Free Papers	1. **Meena JK**, Banerjee B. A Study of Psychological well-being among doctors in a government hospital of Delhi 2. **Seema Rani**, Delhi-Burnout and Job Satisfaction among health professionals 3. **Dinesh Raja**, Delhi – Predictors of stress, anxiety and depression among call handlers employed in international call centres in National capital region 4. **Abhishek Singh**, Haryana - A cross sectional study on Workplace Stress among Nursing staff at a Tertiary Care Teaching Hospital in Haryana 5. **Ramachandra Kamath**. Contact dermatitis among Cashew Factory Workers in South India

9.00AM-10.00AM	**Foyer Poster Session II: Poster Presentation on Environmental Health & Safety**
Chairs	**Dr. SK Bhasin,** Professor Community Medicine, UCMS, Shahadara **Dr. Rajesh Kumar,** Associate Professor MAMC **Dr. Vikrant Mohanty,** Assistant Professor MAIDS
Rapporteur	**Dr. Pallavi**
Posters	1. **Jayasekera JMKB**, Dissanayake DM, Adhikari SB, Palitha Bandara. Geographical distribution of chronic kidney disease of unknown origin in Sri Lanka in the region of irrigation reservoirs 2. **Nabeel Ahmed**-Knowledge and Attitudes on Anti tobacco measures imposed under 'the Cigarettes and other Tobacco Products Act 2003' among Rural Men in Northern India. 3. **Nuzhat Fatema** and Hasmat Malik-Hospital Information System (HIS) User Needs Analysis: A software survey 4. **Randhir Kumar,** Anu Bhardwaj, Shalini Devgan, S K Ahluwalia, Jyoti Rani-Prevalence of needle stick injuries & knowledge, attitude and practice regarding risk of HIV infection through accidental needle stick injuries among nurses in tertiary care hospital MMIMSR, Mullana district Ambala, Haryana. 5. **Raman Sharma**, Meenakshi Sharma, Ratika Sharma, Vipin Kaushal-Human Mercury exposure, Health Impact and Safety and Preventive measures. 6. **Shekhar Grover**. Mercury Spills: safety considerations and initiatives 7. **Harshika Kumari**, Vinod Joon, A Chandra, SC Kaushik, TS Bhatti-Chulha Smoke and its effect on Health 8. **Bikash Chetry** Knowledge, Awareness and Practices towards Disaster in Urban Slums: A study in Balmiki Basti, Delhi Gate 9. **Sunil K. Juneja**. 21st century: Still fighting against tropical diseases! Dengue – A concern during pregnancy especially in working women. 10. **Zubia Veqar** -Postural Analysis of Laptop Computer Users: A review 11. **Vivek Sharma**, Vikrant Mohanty-Green Healthcare: Eco Friendly Dentistry 12. **Yashika Ved.** Complications and Ailments of the Mind That Impact Everyday Health at Workplace 13. **Mukherjee Roop**, Anubha Mandal. Occupational Health Hazard and Mitigation during repair and maintainence of water supply network.
10.00-11.30AM	**Auditorium** **Scientific Session IV: Preventive Methodologies in Occupational health**
Chairs	**Dr. A K Sood**, Dean NIHFW, New Delhi, **Dr. Sandeep Kaushal,** Asst Dean, Professor & Head Pharmacology, DMC, Ludhiana
Rapporteurs	**Dr. Paras Agarwal; Dr. Shantanu Sharma**·
Speakers	• **Dr. RC Jiloha**, Director Professor & Head Psychiatry GB Pant Hospital-Stress Management • **Dr. Dharmendra Kumar**, Director DDU Institute of Physical Handicapped: Rehabilitation of Occupational Disability • **Dr. Pankaj Arora**, Specialist Emergency Medicine, Royal North Shore Hospital Sydney, Australia - Urgent Care in Workplace accidents • **Shivani Chowdhury Salian**, Dr. Sujata Yardi (P.T), Resham D. Parikh- Prevention of Common Health Related Problems in Female Constables in Mumbai, India.
11.30 am–12.00 noon	Tea/ Coffee

12.00 noon–1.30 pm	**Scientific Session V: Polices and Legal Framework in OH**
Chairs **Rapporteurs** **Speakers**	**Dr. Jaideep Singh Kochher**, Joint Secretary NHRC **Dr. Suneela Garg,** Director Professor Community Medicine MAMC **Dr. Pratap Kumar Jena, PHFI; Dr. Drishti** • **Dr. MC Mehta,** Senior advocate Supreme court: Environmental Law in India • **Dr. B Ramaswamy,** Occupational health & safety issues for working children • **Dr. S S Waghe,** Director Medical, DGFASLI, Central Labor Institute, Mumbai - Occupational health - Role of regulatory bodies. • **Murukutla N**, Turk T, Malik V, Kunzru D, Mullin S. World Lung Foundation. Addressing the tobacco epidemic in India through evidence based health communication. • **Dr. Furkan Ahmad**, Asso Prof Indian Law Institute: Environment & Management Of Hazardous Substances:Law and Policy In India
1-30 pm - 2.15 pm	**Lunch (NSC Cafeteria)**
2.15 pm - 3.30 pm	**Scientific Session VI: OHS in Informal sector**
Chair **Rapporteurs**	**Dr. Ratan Singh,** Former Professor and Head Community Medicine, USA **Dr. Ravindra Agarwal,** CMO and Nodal Officer, DHS, Govt of NCT Delhi **Dr. Tanu Anand; Dr. Tapas** • **Mukesh Gulati,** Executive Director Foundation for MSME Cluster, New Delhi: OHS Issues and challenges in MSME foundries • **Dr. Barry Kistnasamy** Executive Director NIOH, South Africa: Occupational health and Informal sector workers • **Dr. R S Tiwari,** President, Labor Resource Centre – Safety and health concerns of unorganized Informal workers • **Dr. Eram Rao,** Associate Professor Delhi University: Occupational Health and Safety concerns of Food Vendors in Delhi
3.30pm-3.45	**Tea (NSC cafeteria)**
3.45pm- 4.45pm	**Panel Discussion: Prioritizing opportunities for International collaboration**
Panelists **Rapporteurs**	• **Dr. GK Ingle,** Director Professor & Head Dept of Community Medicine MAMC • **Dr. Bary Kistnasamy,** Executive Director NIOH • **Dr. S S Waghe,** Director Medical, DGFASLI, Central Labor Institute, Mumbai • **Dr. Inakshi Naik,** NIOH, Johannesburg, South Africa • **Dr. Dharmesh Lal,** Associate Dean, IIHMR, New Delhi • **Dr. Tor Erik Danielsen,** Norway • **Anthony Aarons,** Executive Manager LJM Australia **Dr. Neha, Ms. Swati,**
4.45 pm- 5.30 pm	**Certificate distribution for Best paper Award from each session, Valedictory and Closing Ceremony :** **Chief Guest: Dr. LS Chauhan, Director NCDC, Ministry of HFW, Govt of India** **Dr. Tanu, Dr. Pallavi, Dr. Drishti, Dr. Tapas**

Invited Speech

The Safety Journey: a Culture of Change

Anthony Aarons
Medical & Occupational Health Officer, Ranbaxy Laboratories Ltd., Punjab.

A journey through time as we explore the history of safety in western society; why safety became important and what pressures drove that change. Ultimately we discover that good safety creates more efficient and productive businesses. Moreover we find the moral imperative in business has had an influence on people's perception of safety in all aspects of their lives.

Second talk

Risk Awareness - A move to consequence thinking

Abstract - How traditional approaches to risk have been flawed and we as humans miss opportunities to ensure major incidents never happen. We explore two models of Risk Management to learn from the mistakes of the past and more effectively protect ourselves in the future -Reason's Swiss Cheese Model and the Bird Model of Injury Reduction v.s. Fatality Reduction

Third Talk

Human Capital Protection

Abstract - A discussion on how focus on preventive health in the workplace can create significant cost savings for business. By testing certain assumptions that our people are in fact our most important asset and by improving their health we improve our profitability.

Environmental and Health impact of MIC leak and consequences in Bhopal after a quarter century

Brajendra Mishra and Nalok Banerjee
Department of Community Medicine, Chirayu Medical College, and National Institute for Research in Environmental Health (NIREH- Indian Council of Medical Research), Bhopal, MP.
Email- drbmishra@yahoo.co.in

More than a quarter century has passed since Methyl Iso Cyanate disaster took place at Union Carbide's Sevin manufacturing plant at Bhopal on the night of 2nd /3rd December 1984. Mainly MIC along with toxicants led to immediate death of 3,787 persons. Besides it also killed cows, goats, dogs, cats and chickens. It led to widespread defoliation in trees and contaminated the atmosphere. Disaster led to accumulation of toxicants in the form of unused chemicals dumped in premises and possibly mixed in water, toxic substances in food chain especially of animal origin and toxic substances in human body. These toxic pileups led to fear of ill effects on target organs in particularly, and on general health including development of cancers and congenital malformation in offspring of gas affected population. However, after a quarter century with available information it appears most of the ill effects have not occurred. Present paper on the basis of extensive reviews is an attempt to examine the future impact of leftover toxic materials and a review of the disease/s being seen among exposed population and indicate remedial measures if any available.

Retrospective Analysis of Health Profile of Employees of Nuclear Power Corporation of India – Operating Sites N.P.C.I.L. [1995 – 2010]

Deolalikar R.
Certifying Surgeon, NAPS

Abstract: Nuclear Power Corporation of India Ltd (NPCIL), has completed its 25 years of formation. It was formed on the September 17th, 1987. NPCIL today has 20 operating units, and 6 units under construction. **Scope:** The scope of this study is to cover the health profile of the regular employees at the NPCIL Operating sites, based on the Annual Medical Examination (AME) reports available at respective sites. **Aim:** To compare and contrast the health data of our plant employees vis-à-vis other national studies, and regional studies published in peer reviewed Medical Journals. **Methodology:** Retrospective analysis of occupational health data as available in employee's periodical medical examination files. **Observations:** Prevalence of Hypertension is more than Diabetes in the NPCIL Operating sites' employees, but both are less than those found in other studies. The prevalence of coronary heart disease is far too less than found in various studies. The prevalence of COPD is again far less than the other studies, The prevalence of Anaemia is very negligible. It speaks volumes about the good nutritional status of employees. There are currently forty live cases of Cancers amongst working & retired employees, whereas total Forty eight cases of Cancers have deceased so far. All the Epidemiological surveys, conducted at respective sites, bear significance as they were carried out by Tata Memorial Hospital, Mumbai in association with Medical Colleges near the sites. These surveys were with prime focus on two important aspects - Cancer and Congenital Malformations. All the surveys concluded that both these were not in any way excess over those found in the general population. **Conclusion:** The data as available shows that the health of the employees working in NPCIL Operating Sites has been comparable to other studies conducted elsewhere across the country, also with particular studies conducted in the respective states, and does not show any variation in disease pattern nor do they have additional risk factors by virtue of their employment & work.

International Conference on Occupational and Environmental Health Environment & Management Of Hazardous Substances: Law and Policy In India

Furqan Ahmad
Associate Professor, Indian Law Institute, New Delhi

Indian Constitutional law is unique in the sense that right to clean environment and right to health have been read as part of the fundamental right to life enshrined in the Constitution and Article 39 of the Directive Principles calls upon the State to secure, inter alia, that "the health and strength of workers, men and women…are not abused". Apart from this, Article 48A, inserted after the 42nd amendment, states that "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country". It is also a fundamental duty of each citizen, under Article 51A(g), to "protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures".

Other than the foregoing constitutional provisions, a lot of attention has been paid to the adverse impact of new technology and hazardous substances on our environment yet we know that the use of the same is inevitable and even if precautions are taken to protect the world at large from harm yet not much attention has been paid to the health of those workers who are engaged in such industries or make use of the technology and hazardous substances.

The legal framework for dealing with, inter alia, hazardous substances, hazardous chemicals and biomedical wastes comprises of the various rules made under the Environment (Protection) Act 1986 and their amendments. In matters of accidents, mishandling and pollution, there are several statutory and common law remedies which are available such as those under Common law Principles, Criminal law as well as special legislations like Water Act, Air Act and Environment Protection Act as well as Factories (Amendment) Act 1987 for the protection of occupational and environmental health by ensuring clean environment. As for providing immediate relief to victims the Public Liabilty Insurance Act is also worth mentioning.

Apart from this, Courts in India have exhibited remarkable sensitivity and a sense of urgency which is apparent from the evolution of doctrines such as the Principle of Absolute Liability and the Deep Pocket Theory as also the incorporation of the Precautionary Principle and the Polluter Pays Principle. Courts have also relaxed the traditional rules of locus standi by embracing the concept of Public Interest Litigation thereby allowing activists and NGOs to approach Courts for redressal of grievances even where their own rights may not be specifically infringed. On the recommendation of the Law Commission, National Green Tribunal has been set up for dealing with environmental matters which have of late become more and more technical and complex thereby necessitating involvement of experts as part of the Tribunal for the purpose of proper adjudication of environmental disputes particularly those involving hazardous substances, scientific and medical technicalities and problems created by Environment Impact Assessment data.

Policy makers are acutely aware that development and research can not be halted yet the same can not be allowed to harm environment and human health and our legal framework as also the judiciary have tried to achieve a balance between the interests of industrial progress, human health and environmental inviolability.

Capacity Building for Occupational Health

Kistnasamy B
Executive Director[1] & Compensation Commissioner[2]
[1] National Institute for Occupational Health, National Health Laboratory Service,
[2] Department of Health, South Africa

Contextualises occupational health within rapidly changing health and education systems and complex labour markets with demographic shifts, inequality, differential burden of health and disease, significant technology advances and human resource constraints. Presents the power of transnational flows of knowledge, skills, and values, while stressing the need to adapt (rather than adopt) such global public goods to local circumstances. Moves beyond traditional silos and focuses on three key occupational health professions together – occupational medicine, occupational health, nursing, and occupational hygiene – while recognizing the importance of other professions to the delivery of occupational health services. Offers a vision and specific recommendations on how to achieve transformative learning of occupational health professionals through recognizing educational interdependence and harnessing the power of globalization in a rapidly changing world.

Occupational Health and Informal Sector Workers

Raises awareness about the informal sector and sensitises policy makers and various stakeholders and role-players about the sector; describes the size, shape and scope of the informal sector and the occupational health and safety issues faced by workers in this sector. Identifies some groups working in the sector within India and globally. Makes recommendations on enabling interventions for workers in the informal sector under the ILO **safe work – decent work agenda.**

Occupational Health Management in Pharmaceuticals Manufacturing

Mukesh Khanna
Medical & Occupational Health Officer, Ranbaxy Laboratories Ltd., Punjab.

Introduction: Since Globalization the magnitude of API manufacturing is ever increasing. In March 2010, the production of Bulk drug (domestic & exports) was close to Rs 100000 crores. India's pharmaceutical industry is now the third largest in the world in terms of volume. Pharmaceutical MNCs are outsourcing their business especially APIs due to strengths in Cost-effectiveness, competence & compliance. The FGs may be life saving for patients but can be dangerous for workers. Since most of the API manufacturing is based on chemical synthesis, the hazards involved in manufacturing are immense. Occupational Hazards associated with API manufacturing include exposures to chemical, Physical, biological and ergonomic agents. The major hazards are due to chemical agents. The occupational hazards in API manufacturing are due to enormous use of chemicals, which mainly include solvents, gases, and dusts. The occupational impact on health can be Reproductive, mutagenic, Toxic, sensitizers, irritants & so on. There are different challenges in handling & manufacturing of highly potent drugs like Oncology drugs, CNS depressants, Immunosuppressant & hormones etc. The other challenge is with respect to OELs (Occupational Exposure limits) which is not available for the new products & intermediates. Since the OEL data is available with the innovator companies, it is difficult for the Indian generic companies to put control measures. **Conclusion:** Problems with highly potent products & non-availability of OELs can be mitigated with implementation of Control Banding containment of Hazardous substances. Effective medical Surveillance program should be implemented in controlling, monitoring & evaluating any exposure. Biological Monitoring with exposure monitoring can help to control the substance in the work environment.

Addressing the tobacco epidemic in India through evidence-based health communication

Murukutla N, Turk T, Malik V, Kunzru D, Mullin S.
World Lung Foundation, Director, Research and Evaluation, Country Director, India

Background: Tobacco is a significant public health menace affecting not only users of the product, but also non-smokers who are exposed to toxic tobacco smoke and tobacco industry workers who suffer the ill-health from tobacco handling and exposure. 35% of Indian adults use tobacco; 52% report toxic second-hand smoke (SHS) exposure at home and 29% report SHS exposure at public places. Workers in the tobacco industry are likewise exposed to serious occupational hazards: workers involved in tobacco harvesting tend to have higher nicotine levels in their urine; bidi rollers have reported exacerbated illnesses, like tuberculosis; and even storage of bidis in the homes has been associated with food spoilage, nausea and headaches. With a projected 1.5 million annual deaths from tobacco-related causes by the year 2020, tobacco control has therefore emerged as a critical public health and development priority. **Intervention:** International policy-frameworks, including the Framework Convention for Tobacco Control and the World Health Organization's MPOWER policy package, offer evidence-based interventions to reduce tobacco prevalence. These include policy/ ecological interventions such as the increases in tobacco taxation, passage of tobacco-free laws in public and work places, and bans on tobacco advertising and promotion. Additionally, a critical population-level intervention is the education of the public on the harms of tobacco use and exposure. World Lung Foundation (WLF), a core partner in the Bloomberg Initiative to Reduce Tobacco Use, has since 2008 worked closely with national and state governments in India (and in 20 other countries) on the use of strategic and evidence-based health communication to address the tobacco problem. Guided by research and science in the development and evaluation of messages, and with the latest technology and planning tools for communication delivery, WLF has assisted governments in airing effective mass media campaigns. To date, these campaigns have focused on tobacco consumption and SHS exposure in specific. **Results:** Across these studies, a consistent pattern of findings has emerged. Messages that are graphic and focus on the health harms of tobacco are the most effective across populations in prompting thoughts of quitting and avoiding exposure to tobacco. Mass media campaigns that are evidence-based have significant reach in India, including in rural areas and among low SEC groups. Awareness of these mass media campaigns has been associated with greater knowledge about the harms of tobacco, more anti-tobacco attitudes, and greater cessation behavior. It has also been associated with greater support and compliance with smoke-free laws. **Conclusions:** Population-level health communication campaigns are effective in addressing the tobacco epidemic in India. Strategic and evidence-based use of mass media campaigns can result in reduced tobacco prevalence and lower exposure to the toxic harms of tobacco smoke. **Implications:** Health communication programs can be effectively used to address the tobacco problem more comprehensively. Guided by existing evidence and experience, and synchronized with national campaigns, communication programs can be developed to address tobacco-related issues within workplaces and other local settings. Strategies for such expansion of health communication programming will be discussed.

Management of Chemical Exposures in the Workplace: Role of a Biological Monitoring Laboratory

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Biological and environmental monitoring of chemical exposures has become an integral part of the health risk assessment process in occupational and environmental health settings. It involves the measurement of hazardous substances or their metabolites in body fluids to estimate the extent to which a person has been exposed to a substance, and the resulting effects on the person's health. With the state-of-the-art analytical technology which are currently available, dose monitoring as well as biochemical and biological effect monitoring can be estimated with high accuracy and precision. This presentation will focus on how biological monitoring can be used by health professionals as a valuable tool for assessing chemical exposures in the workplace. It will emphasise the design and requirements of the biological monitoring programme and laboratories, additionally, the presentation will cover various technical aspects, quality assurance and challenges and benefits in establishing the laboratory.

Common Health Related Problems in Female Constables in Mumbai, India

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Background: Job of a female constable is very demanding physically as well as mentally as it ranges from desk job to general daily proactive patrol activities to specific criminal activities. Because there is a wide range of activities involved in police work, there are many health and safety issues which come with this occupation. Apart from the hectic job, being a woman, mother, wife, daughter, they have additional responsibility towards their homes. Long hours of sitting, standing and walking without taking rest or breaks, facing harsh conditions like intense sunlight, dry, humid conditions, rains that too sometimes without the use of the adequate protective devices places an immense stress on their body and sometimes their immune system may give in leading to various health related problems. Most of the times they neglect their pain, tiredness, sufferings because they have no time left for themselves. And in-spite of it all continue to work for their family as well as the department. This may reduce their quality of the work also. Not being able to give justice to their work may add up to their frustration and irritation level. **Materials and Methods:** A cross-sectional questionnaire survey comprising a population of 100 female Police constables from Crawford Market Police Station, Lamington Road and Opera house Police Station was performed to assess levels of strain associated with a series of potential home and work related stressors. A battery of questions specific to the job demands of females police constables was constructed and validated after a thorough job analysis in the Department of Physiotherapy, Padmashree Dr D.Y Patil University, Nerul, Navi Mumbai, India. **Results:** Occupational stressors rank most highly within the population of female constables were not specific to policing, but to organizational issues such as the demands of work impinging upon home life, lack of consultation and communication, lack of control over workload, inadequate support and excess workload in general. Most of the female constables were overweight falling under BMI range of 20-24. 44 % of female constables were married so they have to do the dual task of being a wife and a working woman. Most of them did not suffer from any major ailments except acidity / constipation /loose motion/dehydration because of faulty eating and drinking habits, 55 % of them thought that they do not get proper time to have their food and had irregular eating habits. It was also observed that 56% of female constables had never got their medical check up done. Knee pain (20%) and lower back pain (20%) was the most common musculoskeletal joint problem, followed by shoulder pain (12%), neck pain (10%) and ankle and foot pain (10%). A few complained of other joint pain like upper back pain (9%), elbow pain (3%), wrist and hand (4%), hips and thigh pain (2%). Urinary tract infection (33%), menstrual cycle dysfunction (38%) out of which 23% felt that the problems affected the quality of work and 38% felt that their work affected the menstrual cycle pattern in their work setting. 52 % of subjects found their job stressful but were able to cope up with it while 36% of the subjects found their job stressful are not able to cope up with it. And 12% of them did not find their job stressful. 24% of the study subjects felt that the skin condition they are suffering from was because of their job and 10% of the study subjects felt that the skin condition they are suffering from is not job related. **Conclusion:** This study confirms findings of organizational culture and workload as the key issues in female police constables. Given that the degree of symptomatology appears to be worsening, management action is required to explore the possible interventional strategies for its reduction.

"Effects of Air Pollutants on Human Health, National Ambient Air Quality Standards & Air Quality Management in India"

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Human activities have had a detrimental effect on the makeup of air quality. Activities such as driving cars and trucks, burning of coal, oil and other fossil fuels, and manufacturing chemicals have changed the composition of air by introducing many pollutants such as dust, smoke, sand, pollen, mist, and fly ash. Gases include substances such as carbon monoxide (CO), sulfur dioxide (SO2), nitrogen oxides (NO2), polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs). Both biogenic and anthropogenic sources emit these pollutants into the air. Exposure to air pollution is associated with numerous effects on human health, including pulmonary, cardiac, vascular, and neurological impairments. Exposure to air pollution can cause both acute (short-term) and chronic (long-term) health effects. The health effects vary greatly from person to person. High-risk groups such as the elderly, infants, pregnant women, and sufferers from chronic heart and lung diseases are more susceptible to air pollution. Children are at greater risk because they are generally more active outdoors and their lungs are still developing. Both gaseous and particulate air pollutants can have negative effects on the lungs. General health effects of both criteria & hazardous air pollutants (HAPs) will be discussed in the paper besides National Ambient Air Quality Standards (NAAQS) for twelve air quality parameters notified in november, 2009 by Govt. of India and air quality management issues in India.

Key Words: Air Pollution, Acute (Short-Term) and Chronic (Long-Term) Health Effects, Criteria Pollutants, Hazardous Air Pollutants(HAPs), National Ambient Air Quality Standards (NAAQS), Air Quality Management.

Occupational Exposure and Effect on Lungs

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In the population of 1.2 billion, approximately 63% of the Indian population is identified as working population. Out of this 90 percent is employed in agriculture and 10% is employed in organized/ Industrial sector. An average working class person spends around 10 hours of a working day at workplace, which makes the environment and occupational exposure and the health effects of prime concern. Health effects of occupational exposure are related to the type of occupation, particles/ raw material and patient related factors. Lungs are considered as one of the common sites for exposure and often become a limiting factor in the worker's ability to work. Pneumoconiosis, Work related asthma, Emphysema, Hypersensitivity pneumonitis are some of common occupational associated lung diseases. A detailed history and physical exam of the patient helps in diagnosing these diseases. International Labor Organization has developed tools for accurate identification and diagnosis of Pneumoconiosis. Silicosis, Asbestosis and Coal workers disease are commonly seen Pneumoconiosis and have significant clinical, social and financial importance. Early diagnosis and prevention of these diseases can significantly reduce their incidence and prevalence. Presence of a 4-tier prevention with primordial, primary, secondary and tertiary can help.

Several Guidelines exist to control the level of exposure. Strict implementation is required. Annual physical exam with spirometry and Chest X ray will help in early diagnosis of these diseases. Improving worker education about the health effects of work exposure may help in improving worker compliance with personal protective devices to limit exposure.

Healthy work environment leads to a healthy work force,healthy work force leads to a healthy industry and a healthy industry leads to a healthy economy. We cannot have one without the other.

Good Occupational Health
A key-factor for well-functioning CSR?

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Background: CSR is a wide term describing how companies manage business processes to produce an overall positive impact on society. Decent work is an important element of CSR, but often working conditions are underestimated as a key competitive factor for businesses. Occupational health has a solid scientific basis. However, lack of implementation of knowledge creates unnecessary adverse health effects among workers.
Presentation: The author will share thoughts of models for CSR, globalisation, fair trade, sustainable investments, and development from his European perspective. Could CSR be more than a cost, or a charitable deed, and more often become a source of development, opportunity, innovation, and competitive advantage (fig. 1)? Would an international effort to strengthen the enforcement of good labour standards be a key CSR issue as the different consequences of globalisation have been more acutely felt?

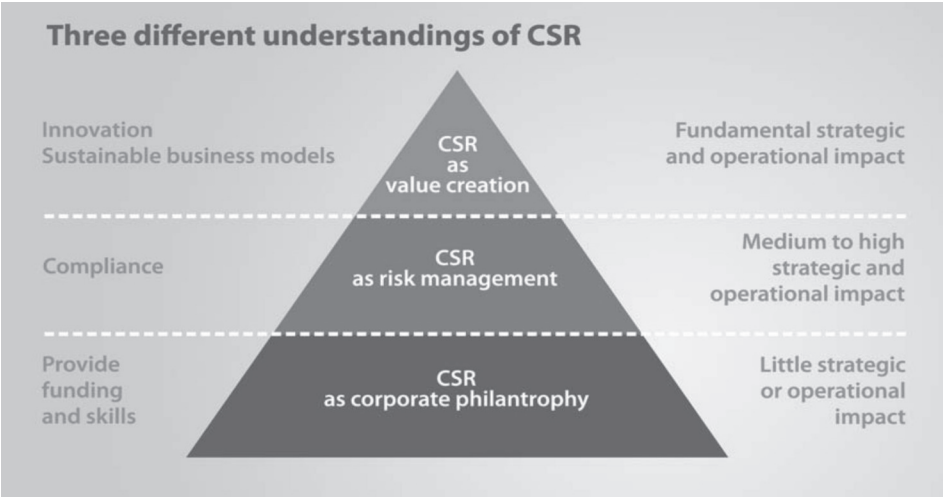

Illustration:Ministry of Foreign Affairs, Norway.
Source: UN Global Compact.

Health problems of immigrant women employed as Foreign Domestic Workers: a systematic review

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Foreign domestic workers (FDWs) usuallycomprise women from economically less developed countries migrating to work in households in economically advanced countries. A considerable amount of literature examines the socio-economic and political implications of such migration. However, much less is known about the health problems of FDWs because of their unique set of work and living circumstances. Methods: A systematic database search, utilizing PubMed, EBSCO Host and Google Scholar and bibliographic search, was conducted to identify data-based literature related to the health and health problems of female FDWs published between 1990 and 2012. Two authors independently extracted relevant information from the identified literature, which was then reconciled and finalized by all authors. Results: Most of the identified articles and reports included studies focused on FDWs from traditional labor-sending countries like the Philippines, Sri Lanka and Indonesia. Only a few focused on African or east European countries. Most studies were either medical record reviews (of time of entry/annual medical examinations) or questionnaire basedsurveys on convenience samples of FDWs. The key themes ofthe studies were occupational hazards and work conditions, mental health, infectious diseases and health behavior. FDWs were underpaid, had very little social interaction and had very long working hours. Reported occupational health problems ranged from musculoskeletal pain to breathing difficulties associated with caregiving and multiple household tasks. Psychiatric illnesses included acute and transient psychotic disorder, reaction to severe stress and depressive symptoms mostly attributed to work stress, separation from family and caring for a sick person. Intestinal parasitic infections were the most often infectious diseases studied; common infections included Hookworm, Trichuris trichiura and Ascarsislumbricoides. Physical, psychological and sexual abuse were also reported. FDWs possessed sub-optimal levels of knowledge on HIV/AIDS and cervical cancer. Conclusion: Female FDWs face numerous health problems related to their work. Social isolation and lack of support in the host country aggravate these problems. Studies including more representative samples and focusing specifically on health concerns and issues experienced by FDWs are needed in order to better understand the occurrence and the severity of the health problems identified. Concerted efforts targeting FDWs directly, through their employers or throughthe governments of labor-sending and receiving countries are required to ensure that health and safety of FDWs are protected within the household of the employer.

Oral Presentation

A cross sectional study on workplace stress among nursing staff at a tertiary care teaching hospital in Haryana

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Background and Objective: Stress among healthcare staff especially the nursing profession is becoming a common occurrence in most public health services. The present survey was therefore conducted to find out the level and different sources of workplace stress among nursing staff. Materials and methods: The cross sectional study was carried out among 50 female staff nurses working in different departments at a Tertiary Care Teaching Hospital in Haryana during December 2012. Stratified random sampling technique was adopted to include nurses working in various departments of hospital. Workplace stress was assessed by Williams and Cooper's (1998) Pressure Management Indicator. SPSS 11.5 was used for data analysis. Descriptive statistics like means, standard deviations, proportions and frequencies were calculated. Results: Out of total, majority (66%) were serving as full time whereas 34% were working on contract basis. The mean working hours in a week were 54.12±6.35 hrs. On the scale of mental well being, the mean score for State of mind, Resilience and Confidence level were 16.33±4.17, 15.12±3.12 and 8.86±3.55. These scores were more than their corresponding standard scores; 20.67, 17.66 and 10.37 respectively. Similarly the mean score for Physical Symptoms and Energy Level were 9.68±2.12 and 10.45±3.65. The standard score on these subscales are 14.95 for both the categories. Mean score of the sample were almost very less as compared to standard values. On the scale for sources of pressure, the mean score on workload was 21.15±5.25 and on personal responsibility the mean score was 16.31±3.67. The mean scores of participants on all these items were more than the standard scores. Conclusion: The findings indicate that the nursing staff at this workplace has a high index of stress. Majority of it generates from the administrative disorganization rather than from the personal or the monitory factors.

Insights into radiation hazards and protection measures among Indian dental practitioners

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Background: Since the discovery of X-rays, the harmful effects of radiation are as well appreciated as the useful effects. Dental practitioners who administer ionizing radiation must familiarize themselves with the possible risks that radiation exposures entail, methods used to control exposure and reduce dose. Inappropriate use of ionizing radiation might endanger the health of both patient and dental health professionals. There are no studies reported in the scientific literature which have explored various issues related to radiation protection among Indian dental practitioners. **Aims and objectives:** The present study was undertaken to assess the knowledge and attitudes of dental practitioners towards radiation hazards and protection measures. The present study was also conducted to evaluate the willingness of dental practitioners to participate in radiation protection training. **Methodology:** A questionnaire method was employed to assess the knowledge and attitudes of private dental practitioners in Mangalore towards radiation hazards and protection against the same.

Questionnaire also enquired about their willingness to undergo training in radiation protection. Data on demographics of participants was collected. **Results:** The average age of respondents was 32.56 years and a total of 54.67% of them were males. Preliminary analysis indicated that mean knowledge and attitude scores among respondents was 59.38% and 84.13% respectively. Overall, 96% of respondents were willing to undergo training in radiation protection. Conclusions: Low knowledge about radiation protection, high attitude and high willingness to undergo training regarding the same was observed among private dental practitioners. The present study highlights the need to develop specific training programs for dental professionals in Mangalore. This might contribute significantly towards improved patient care and enhanced occupational health of dental health professionals.

Assessment of work process and the occupational hazards involved in the manufacture of Hepatitis B vaccine

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Introduction: Bacteria and viruses are widely used in biotechnology for manufacture of vaccines. Since the production of small pox vaccine in the 18th century continuous researches are going on for the production of newer vaccines for protection of humanbeing. In the process of Hepatitis B vaccine manufacturing, many processes are involved like handling of various materials viz. glass materials, S.S. materials, Gas flames, steam, soaps, detergents and chemicals, bacterial cultures. Hepatitis vaccine manufacturing process comes under category of Biosafety Level no. II, which is less hazardous to human beings but some injuries do occur during the process of handling of various materials used, handling of small animals for vaccine testing.
Objectives: 1) To assess the work process, environment, the chemicals and instruments involved in the manufacture of Hepatitis vaccines. 2) To determine any harmful effects involved in this manufacturing process on human life. **Material and methods:** Study design- Observational study. Study area – Serum institute of Pune. **Study population–**All the persons working in the Hepatitis vaccine manufacturing department of study area. **Study technique :** After obtaining prior permission from the serum institute of Pune, the procedures and techniques involved in the manufacture of Hepatitis vaccine were observed for a period of one year from Jan 2010 to Dec 2010 and all the workers were interviewed for injuries during the procedures. **Results-** Out of the total 36 injuries observed during the year, 28% were fall down cases, 22% were glass injuries, 6% of scalds, 33% were animal bite and scratch injuries, 11% were cases of allergic dermatitis. **Conclusions :** Good manufacturing and standard operating procedures recommended for vaccine manufacturing authority are strictly followed and recorded at each steps, hence there were no acute or chronic health disorders caused in this process.

Work profile and hazard exposure amongst welder in east Delhi

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Background: Welders are exposed to number of hazards which make them vulnerable to various health problems. However, very little data is available on their work profile and hazard exposure. **Objective:** 1. To assess the work profile and exposure related to various hazards at workplace amongst welders residing in East Delhi; 2. To study the prevalent medical illnesses amongst them. **Material and methods:** It was a cross-sectional study conducted amongst 50 welders residing in East Delhi. Data was collected using a pre-tested questionnaire containing items to assess the socio-demographic profile, their medical history and individual hazard exposure. Data was analyzed using SPSS 16.0. **Results:** The mean age of the participants was 30.43±12.97 years. Majority of the participants were educated upto primary level (42.9%) and were in regular employment (71.4%). The median income of the study population was Rs. 6000/month. Out of the total 50 participants, 40% found their work to be physically hard while 42.9% felt it to be dangerous. Majority were involved in lifting weight. The predominant nature of work for majority was manual. Nearly 89% of the respondents replied that they are maximally exposed to smoke followed by heat (31%). Assessment of medical history revealed that most of them were suffering from eye related symptoms followed by skin conditions. **Conclusions:** Nearly two-fifth of the respondents found their job to be dangerous and physically hard. They were being exposed to at least one hazardous substance at their work place.Majority of them complained of eye symptoms. Thus there is a need to undertake further research for studying various job related factors affecting health of this cadre of workers.

Non-Communicable Disease Risk Profile of factory workers in Delhi

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Introduction: Non communicable diseases are becoming more prevalent in India. The data for presence of non communicable diseases and its risk factors among factory workers is deficient in India. **Materials and methods:** A cross sectional comparative study was carried out among 37 factory workers and equal number of comparable subjects from general population. Screening for presence of diabetes along with its risk factors was made in both the groups using pretested predesigned WHO STEPS questionnaire in rural area of Delhi. Data was analyzed using SPSS version 16 software. The estimation of risk in two groups was done with calculation of Odd's ratio. P value less than 0.05 was considered significant. **Results:** A total of 74 participants were included in the present study. Hypertension and diabetes was present in 13.5% and 5.4% of factory workers and 4 (10.8%) and 3 (8.8%) in non-factory subjects. 7 (18.9%) factory and 8 (21.6%) non-factory subjects fell in category of current smoker or smokeless tobacco users. HDL levels were found abnormal among 1(2.7%) case and 9 (24.3%) controls (p value 0.01). Behavioral risk factors -alcohol consumption and fruits and vegetable intake were significantly different among two groups. **Conclusion:** Factory workers were having better profile than non-factory subjects except for risk factors such as alcohol intake and inadequate fruits and vegetable intake. However healthy worker effect phenomenon cannot be ruled out.

Work-force and mesothelioma in the Monfalcone shipyards, Italy

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The Monfalcone district, northeastern Italy, shows a high incidence of asbestos-related mesothelioma. Working in the shipyards was identified as the principal cause of mesothelioma in the area. The present study is aimed at evaluating mesothelioma risk among Monfalcone shipyard workers in different periods, and at describing the features of the observed mesotheliomas. People hired at the Monfalcone shipyards in 1942, and in the period 1950-1971 were identified by surveying the shipyard roll. Mesotheliomas diagnosed at the Monfalcone and at the Trieste Hospitals in the above persons were reviewed. Occupational histories, and data on lung asbestos body amounts were obtained from the hospitals archives. A total of 7,194 workers were hired in the examined periods. People hired in 1970-71 (1,378 persons) have not yet been evaluated. Among the remaining 5,816 workers, 71 mesothelioma cases were diagnosed between 1978 and 2012. The primary site of mesothelioma was pleura in 70 cases, and peritoneum in one case. Necropsy findings were available in 53 cases. The highest mesothelioma prevalence was observed among workers hired in the period 1950-59 (1,403 workers and 35 mesothelioma cases), especially among persons employed at young ages (14-19 years). The latency periods, elapsed between first exposure to asbestos and mesothelioma diagnosis, ranged between 25 and 68 years. Lung asbestos bodies isolated in 43 cases ranged between 150 and 886,000 bodies per gram of dried tissue. In the present study, mesothelioma prevalences varied markedly from one period to another. Since investigations on asbestos disease in Monfalcone started in 1979, several mesotheliomas developed before this date probably remained unidentified. Regarding people hired in 1960-69, sufficient latency periods have not elapsed. Data regarding people hired in 1950-59 plausibly are the most reliable.

Predictors of Stress, Anxiety And Depression amongst Call Handlers employed In International Call Centres In National Capital Region

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Background: Call handlers employed in call centres repeatedly undergo stress in their day to day life because of odd working hours, tight work schedules, unhealthy food habits, customers' wrath etc. Stress at work in turn can lead to anxiety, depression and insomnia. The present study was conducted to find out the prevalence of Stress, Anxiety and Depression among call handlers employed in International Call Centres in National Capital Region and to identify the predictors of Stress, Anxiety and Depression. **Methodology:** A cross sectional questionnaire based survey was conducted amongst 375 call handlers in the age group 18-39 years employed in International call centres in National Capital Region. Stress, Anxiety and Depression levels among call handlers were measured using a validated Depression, Anxiety and Stress scale (DASS-42). Univariate analysis was done to find out the association of Stress, Anxiety and Depression with socio-demographic and other factors like work schedule, sleep quality and lifestyle among these call handlers. Variables with $p < 0.25$ were included in multiple logistic regression and 3 models were developed each for Stress, Anxiety and Depression. **Results:** The overall prevalence of Stress, Anxiety and Depression among call handlers were 46.7%, 57.1% and 62.9% respectively. Sleep quality, travel time to office, unavailability of relaxation facilities

were predictors of Stress and Depression. In addition, workload was a predictor for Depression and total number of daily calls attended, irregular food intake and work duration for Stress. Presence of physical ailments, absence of hobbies, temporary employment and distance travelled to reach office daily were significant predictors found for Anxiety. Conclusion: Call handlers face a high burden of Stress, Anxiety and Depression. Henceforth, public health specialists need to pay adequate attention to their health problems.

Willingness to participate in disaster management among general dental practitioners in Mangalore

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Introduction: Recent times have witnessed a significant increase in the number of disasters in India. Manpower shortage can be a major impediment in disaster management. This calls for inclusion of professionals other than conventional medical professionals for effective management of disasters. Dental professionals might constitute an important reserve of healthcare workers who might contribute to effective disaster management. The present study was conducted with the aim of assessing private dental practitioner's willingness to participate in disaster management, their knowledge, attitude, behaviour and perceived effectiveness regarding disaster management. **Methodology:** All private dental practitioners in Mangalore city were included and were invited to participate in the study. Willingness to participate in disaster management and their knowledge, attitude, behaviour and perceived effectiveness about disaster management were assessed by questionnaire method. Demographic information of participants was also obtained. **Results:** Preliminary analysis indicated that 96% of respondents were willing to participate in disaster management and their mean knowledge, attitude, behaviour and perceived effectiveness scores were 51.88%, 38.40%, 75.50% and 53.20% respectively. **Conclusions:** High willingness to participate in disaster management, high attitude scores, low knowledge, behaviour and perceived effectiveness scores about the same was observed among private dental practitioners in Mangalore. Including dentists in disaster management might pave the way for effective management of disasters, especially in developing countries like India with scare resources.

A Study on Respiratory Health Status of People Living in the Vicinity of Coal Based Power Plant of Singrauli

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Introduction: India is the third leading producer of coal and Singrauli district of (MP) is emerging as the power hub of India, especially for Thermal power plants. The main emissions from coal combustion are Carbon dioxide, Nitrogen oxides, Oxides of Sulphur, Chlorofluorocarbons and air borne inorganic particles such as fly ash, soot and other trace gases. Need was felt to know what are effects of these emissions among people living in vicinity of coal based power plant and this study was planned with the objective to know the status of respiratory illnesses among people living in the vicinity of coal based power plant of Singrauli.

Methodology: A Cross sectional study was conducted in six villages of Singrauli District that were selected according to distance from power plant with in 10 Km radius. Infants, children (1-15yr), adults (16-50yr), Elderly (>50yr), 10 of each group (40 from each village, Total of 240) were randomly selected as study subjects. Data was collected through interview, history taking and General examination. **Results:** Most of had problems of cough, rhinitis, breathlessness and wheeze. Respiratory infections were in 56.66% infants, and of them most i.e. 52.94% had recurrent cough-cold and ARI (pneumonia) in 29.41%. Around 50% of <5 children and 32.14% of 5-15yr had recurrent ARI. Maximum 28.13% 1-4 children had history of hospitalization and nearly 44.44% had reason for hospitalization is ARI and Asthma. In 5-15 years 17.86% and in Infants 20% were hospitalized due to ARI (pneumonia). In adult group 31.67% had cough, 30% had rhinitis, 28.33% had expectoration, and 21.67% had dyspnoea. Maximum elderly people had complain of chronic coughing (51.66%), breathlessness (45%), expectoration (40%), dyspnoea (28.33%), Rhinitis(25%). Complain of breathlessness, dry throat, black colour sputum, hemoptysis, and wheeze is also common. Conclusion: This study provides a valuable summary about the burden of respiratory illnesses in this community, and with further research also helps to plan better protective health interventions.

Noise attitude, sensitivity level, motor and mental performance: An Empirical study on noise exposed Indian workers

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Background: Noise is 'unwanted sound', unwanted here indicates that there are individual differences in perceiving the same. One may like a particular sound while the other may not like the same sound, hence its relative and becomes 'noise' for the others. In the occupational environment, noise is a major noxious factor. 14 %-25% of the variance in workers irritation was reported through physical noise measures (Kjellberg et al, 1998, 1990).There is an acute impairment in the performance of the noise exposed workers. Noise affects them by making it more difficult in terms of increased effort and energy utilized to complete the same task. **Methods:** A total of 100 noise exposed workers were selected using quota sampling. Another group of 70 subjects was selected as a control subject who was not exposed to noise, for the comparison of the noise exposed subject's, All the subjects were exposed to two questionnaires namely Weinstein's Noise Sensitivity (Hindi Version) and Noise Attitude Scale to assess their levels towards the noise. These subjects were working in a continuous noise working place where the noise level ranged from 85 to 95 dBA. The age of the subjects ranged from 22-55 years and noise exposure ranged from 1 to 25 years. They were also given psychological performance test to assess the effect of noise on their performance. Two tests, namely: Digit symbols, Memory (forward and backward) were administered to comprehend the motor and mental performance of the subjects. These tests were given to both the groups to complete the work in a given time period. These tests were administered by trained technical personnel in standardized conditions. **Result:** The trend of data indicates that most of the workers are not much sensitive to the noise; this may be due to the exposure of the noise or lack of knowledge and awareness about the ill effect of the noise. This attitude is divided in the five point scale, from very negative to very positive towards noise. Majority of the subjects have shown moderate attitude towards noise. Sensitivity and attitude of the individuals is being affected by their personality, education, culture, the place of work, etc. The preliminary data of control group and exposed group (age-wise) was compared, it was found that some of the group showing significant differences in their performance.

Occupational and life style related risk factors of chronic kidney disease of unknown etiology in Sri Lanka: case control study

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Health professionals in Sri Lanka have noticed high occurrence of a new form of chronic kidney disease of unknown etiology (CKD-U) in farmers of North Central Region (NCR). Aim of the study is to identify the risk factors related to agriculture and daily life as it is useful in prevention. Basic demographic information were collected from 11322 CKD-U patients in community renal clinics and Potential agricultural risk factors and other related information were collected from recently diagnosed and biopsy proven 274 CKD-U patients and 274 healthy age and sex matched controls that were randomly selected. The relative risk of each factor was compared in terms of Odds ratios (ORs) and 95% confidence intervals (CI) by applying the linear logistic model. Involvement in agricultural activities, low preventive measures against agrochemicals, high cultivating land area(>2 hectares) and cultivating lands without hiring labours were identified as significant contributory risk factors for CKD-U ($P<0.01$). The combination of cultivating high land area without hiring labours was significant risk factor for the disease ($p<0.01$).High cultivating land area with labours and low cultivating land area without labours were also contributed($p>0.01$). In addition to the agricultural activities, smoking, regular alcohol consumption and family history of CKD-U were identified as other life style related contributory factors. Male farmers over the age of 35 yrs have a strong occupational risk for CKD-U probably due to long term exposure to the etiological agents. Some agricultural activities indicating intense physical activity is significantly related for CKD-U. Further studies are indicated to identify the effect of dehydration and physical exertion on the renal functions of these individuals. Low levels of preventive measures in the agrochemical usage related to the disease indicate interventions to educate the farmers on safe agrochemical usage.

Establishing Pre-employment Vision Standards For Goldsmiths

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Background: The process of jewellery making involves working with tiny visual tasks at closer working distances, which demands high visual ability. **Aim:** Aim of the study was to establish vision standards for Goldsmiths. **Methods:** Visual task analysis of goldsmiths was carried out in different locations and the minimum visual demands placed by the job were determined based on the observations and using nomogram for visual acuity requirement. Depending on the importance of certain visual functions to perform the job, criteria for visual competency was laid down. Visual abilities of goldsmiths were tested in order to determine their visual capability status (competent/incompetent) - based on the previously laid criteria. Job competency status of goldsmiths was determined based on supervisors' grading with respect to the workers quality and quantity of production. Visual competency and job competency of goldsmiths were then compared to establish vision standards. **Results:** Visual task analysis was carried out in 91 workstations. Near visual acuity, near phoria status, near point of convergence, accommodative amplitudes and stereopsis for near were found to be critical visual functions to perform the job. Visual abilities of 113 goldsmiths were tested. Based on the criteria set, 44.7% of goldsmiths were found to be visually competent. Job competency status of 30 goldsmiths was obtainable, in which 18 (60%) were found to be highly job competent. No significant association was found

between the two groups of visual and job competencies. **Conclusion:** The vision standards so obtained could be used as minimum visual requirements at the entry level of the employee.

A study of cashew-nut processing industry workers in Southern India

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Background: India is a global leader in cashew exports accounting for over 60% of the world's total cashew trade. Not much attention has been given to mechanization of the production process simply because cashew factories have traditionally been labour intensive and relatively cheap. **Aims and Objectives:** i) To determine the occupational health status of the workers with special reference to the potential health hazards from the cashew processing, ii) To recommend preventive and control measures wherever necessary. **Materials and methods:** A multicentric study was carried out at various cashew processing plants viz Srikakulam, Prakasam, East Godavari etc in Andhra Pradesh from Nov 2009-2010. A pretested questionnaire was used to collect information regarding the manifestations due to occupational exposure and subjects were investigated for vision by Titmus Vision Tester and PFT with recently calibrated computerized spirometer. Total 246 study subjects were randomly selected from various processing frying, steaming, roasting, supervisory and administrative units. **Results:** Amongst all, 87 were male and 159 were females. Majority of them belonged to 36-45 yrs age group (35.89%), had occupational exposure less than 10 yrs (48.71%), had poor nutritional status (46.15%), occupational dermatoses (56.15%) on one or both hands in younger age who ignored use of PPE than experienced workers. Visual abnormalities and anaemia were present in 38.46% and 68.20% respectively, 19 workers had mild restrictive respiratory morbidities. **Conclusions & Recommendations:** Processing of cashew nuts is notifiable under "Dangerous processes & operations" under Section 87 of Factories Act, 1948.Study recommends regular screening of workers by a certifying surgeon for anaemia, dermatoses, PFT, visual problems and notification . Personal hygiene, PPE use should be mandatory. **Key Words :** Cashew-nuts, rural, industry, notifiable.

Retinal damage in turner workers of a factory exposed to intraocular foreign bodies using Electrooculogram

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Damages caused by an intraocular foreign body (IOFB) to the visual system, mainly the retina, mostly occur during certain occupational activities. Turners are among the laborers who are mostly exposed to IOFB. The aim of the present work is to survey the effect of IOFB on the visual system, mainly the retina. Fifty laborers of a turner factory who were exposed to IOFB were selected. Electrooculagraphy (EOG) was recorded in all the laborers. Besides these workers 50 laborers with no incidence of IOFB were also selected & were also tested using EOG. The results obtained in two groups were compared together to search for the possible changes in two groups. The Arden Index (AI) of EOG patterns was 2.1 ± 0.7 and 1.9 ± 0.6 in case & control groups respectively. It is reported that EOG originate from Retinal Pigment epithelium (RPE) in retina, therefore from the results of present study one can conclude that IOFB does not affect RPE layer of retina which will be discussed in detail in full paper. **Key words:** Electrooculogram, intraocular foreign body, retinal damages, turner's workers

Safety Design Considerations in Living Environments of Elderly

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Introduction: India, particularly the cosmopolitans are facing the consequences of ageing population, a cause for alarm. According to the census (2001), both the share and size of elderly population is increasing over time. From 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026. Elderly spend more time in the interior spaces of home than their younger generation. While constructing residential places for living whether homes or institutions (old age homes) people need to be more updated and diligent to take into consideration the safety measures. This article provides an overview of existing safety interventions implemented at home living environments. The article will also review some studies and suggest a road-map for future action. **Methods:** literature Review, additional focus group sessions. **Results:** Researchers have shown that elderly residential homes are unsuitable to live because of lack of safety measures considered while designing these homes which can pose serious health risks. While designing living environments for elderly major deliberation taken into consideration are their declining visual, auditory, and kinesthetic senses. Some important design features are adequate lighting, thoughtful placement of furniture, adequate and safe storage of personal belongings along with need for non-slippery floors, call buttons in bathroom and bedrooms, grab rails, ramps, open spaces for movement & corner-less furnishings and shelves. Results from studies suggest that the design of physical environments plays a significant role in improving the health and quality of life of elderly. **Discussion:** One should be sensitive to the special housing needs of elderly. Ergonomics should be an integral part while designing these institutes. Moreover in the entire chain of building these homes

Knowledge, Attitude and Practices regarding E-Waste in a resettlement area of East Delhi

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Introduction: E-waste is collected and processed for disposal in urban slums of the metropolis of India by untrained workers without using personal protective equipment, which are detrimental not only to their health but also to the environment. **Objectives:** To study the knowledge, attitude, and practices of e-waste handling and management among the workers involved in e-waste handling and management in East district of Delhi (Seelampur and Shastri Park). **Material and Methods:** A community based cross-sectional study was conducted among workers involved in e-waste handling and management in Seelampur and Shastripark. Participants included 253 e-waste handlers were selected by simple random sampling method. Information was collected using a pre-tested questionnaire from the workers after getting written informed consent. Information was collected on the knowledge of safe handling and management of e-waste and health hazards. Data was expressed in proportions. **Results:** None of them were aware about various heavy metal released from various e-waste items. Apart from general hand washing; none of them were found using any face mask, gloves or any protective measure during e-waste handling. Many workers were involved in breaking CRTs. **Conclusion:** E-waste handlers' poor knowledge and practices regarding e-waste disposal necessitate the need for creating awareness on this aspect.

Study of cytokine levels in sputum of cotton dust exposed workers

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Introduction: The textile mill workers are continuously exposed to cotton dust, which is a complex bio-aerosol consisting of fragments of the cotton plant, bacteria, fungi and mineral salts, and silica derived from the soil, endotoxin, mycotoxins, and tannins, all of which are capable of initiating an inflammatory response. Inhalation of cotton dust may cause severe acute pulmonary and systemic inflammation, which may lead to different respiratory disorders such as byssinosis, respiratory tract irritation, which is marked by chest discomfort, cough, or dyspnea. Activated inflammatory processes may favour lung injury by generating reactive oxygen species or by secreting cytokines and chemokines. **Methodology:** Total 200 workers of cotton ginning factories were included in the study. Medical examination and Pulmonary function test was prformed before taking the sputum of workers. Induced sputum method was used for collection of sputum. Estimation of levels of pro-inflammatory cytokines i.e. IL-1 β, IL-4, IL-6, IL-8, IL-10, IL-12, TNF α, INF γ and TGF β1 was done in sputum of cotton dust exposed workers by using bead based protein array. **Results**: Increased levels of IL-1 β, IL-6, IL-10, TNF α, INF γ was observed in cotton dust exposed workers. **Discussion**: Sputum examination has become an important non-invasive method for direct investigation of the degree of lower airway inflammation. Higher levels of pro-inflammatory cytokine i.e. IL-1 β, IL-6, IL-10, TNF α, INF γ in sputum may be associated with cotton dust related lung pathogenesis patterns.

Work-related Musculoskeletal Pain among Dental Professionals

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Background: Work-related musculoskeletal (MS) disorders are problems of the musculoskeletal system that significantly cost workplace problems thus affecting occupational health, productivity and career of the working population. Like all other professionals, DP are exposed to occupational health hazards which predispose them to develop a multitude of health problems. **Objective:** To study the prevalence and associated factors of MS pain among the DP. **Methodology:** Self-administered questionnaires consisting of demographic data and MS pain related data, were distributed to different groups of DP namely clinical instructors, Post Graduate Dental students, Interns and dental hygienists working in various dental institutes of Delhi. **Results:** Out of 82 questionnaires distributed, response rate was 85.5% (n=70). Among 70 respondents, those with MS pain were 19(34.5%) clinical instructors, 14(25.5%) postgraduate students, 12(21.8%) Intern and 10(18.2%) dental hygienists. Their mean age was 28.6 ± 4.7 years old. The MS pain found respectively was shoulder pain 67.3% (n = 37), neck pain 58.2% (n = 32), upper back pain 52.7% (n=29) and low back pain 58.2% (n = 32). The associated factor of cervicobrachial pain (shoulder pain combined with neck pain) was working status, as 94% (n=18) clinical instructors, 78% (n=11) postgraduate student and 100% (n=10) dental hygeinists were associated with cervicobrachial pain, which was statistically significant. The impacts of MS pain among the dental personnel included usage of pain relieving medication (89.1%), seeking medical evaluation (43.6%), reduction in working hours (78.2%),) and work absence (41.8%), either frequently or infrequently. The

treatments of MS pain utilized to alleviate those impacts were analgesics (85.5%), physical therapy (34.5%) and rest (41.8%) respectively. Despite high prevalence of MS pain and its adverse impact, 45.5% (n=25) of DP did not do physical exercise at all and 47.3% (n=26) DP did it irregularly. **Conclusion:** Cervicobrachial pain was the most prevalent MS pain among the DP and working status was associated with their MS pain problems. The impact of MS pain was predominantly usage of pain relieving medication and reduction in working hours. Strategies should be recognized and set as a policy to reduce the ongoing occupational problems and promote healthy behaviors among DP. **Keywords:** Prevalence, Musculoskeletal, Pain, Dental Professionals.

Evaluating awareness and practices pertaining to radioactive waste management among Scrap dealers in Delhi

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Introduction: With nuclear technology rapidly taking the spotlight in the last 50 years, radiation accidents seem to be a harsh reality of the modern world. The Mayapuri Radiation leak accident of 2010 was, by a long shot, the worst radiation accident India has ever had to deal with. Two years thereafter, a study was designed to assess the awareness and practices regarding radioactive waste handling among scrap dealers in this locale and the rest of the city. **Methodology:** The study population consisted of 209 apparently healthy volunteers (from 108 scrap dealerships) that included 108 shop-owners and 101 shop-workers segregated as Group A consisting of 54 dealerships in the Mayapuri scrap colony and Group B consisting of 54 dealerships from the rest of the city (divided into 9 districts). The interview schedule consisted of items to asssess their knowledge, attitude and practices pertaining to radioactive waste. **Results:** Awareness about radioactive waste varied significantly with level of education (p=0.024), socio-economic scale (p=0.005), age of the respondent (p=0.049) and work experience (p=0.0452). Knowledge of the symbol for radioactivity varied significantly with SE status (p=0.038). Scrap dealers dealing in ferrous metals (significantly more than the scrap dealers not dealing in ferrous metals) were aware of mitigation and response in the event of a radiation hazard and radiation detection monitors. The larger dealerships in Mayapuri were better equipped in terms of record maintenance (p=0.030) and dispatch of waste (p=0.031). They also actively undertook regular preventive general medical check-ups (p=0.038). **Conclusions:** Observations suggest that awareness about radioactive waste and the possible hazards of radioactivity was higher in the more educated respondents, higher socio-economic groups, those in this profession for a longer duration and greater within Mayapuri than at other locations. This may be suggestive of either witness-based learning or an agency-based response to the 2010 accident. The scope for improvement is, evidently, great and much work is still required to ensure immunity to such disasters in the future.

Radiation Hazards from the Modern Information Communication Technology Equipments: An imminent public health threat!

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Background: With exponential growth in ICT (Information, Communication and Technology) sector, world is experiencing an extraordinary phenomenon of change in inter-personal communication. Unprecedented growth in communication industry has resulted in dramatic increase in number of communication towers, base stations etc. They are continuous source of radio-frequency radiations. The looming threat of exposure tends to increase with increasing number of mobile phone users, base stations and newer complex modular patterns introduced in the mobile phone technology. **Objective**: To review existing debate on public health hazard of radiations emitted from the mobile phones and base stations. Preventive measures in consideration were also reviewed. **Method**: Review of policy documents, declarations, recommendations and publications on health impact of radiations from mobile phones and base station. **Results:** Electromagnetic radiation generated is non-ionizing in nature. There is wide raging public debate on the potential effects of mobile phones and base stations on health. Scientific literature provides conflicting evidence, inconsistent across different studies. Health outcome is influenced by the characteristics of radiation, host and environment. Indians are more susceptible to radiations as compared to the European counterparts. Guidelines set by International Commission on Non-Ionizing Radiation Protection (ICNIRP) for limiting exposure to electromagnetic fields are also debatable across countries. Several preventive measures are in pipeline e.g. Restriction on installation of mobile towers, Specific Absorption Rate restricted to 1.6 watt/kg and displayed on mobile handsets, etc. **Conclusion**: There is widespread concern on radiation generated by mobile phones and base station. Close analyses of scientific studies reveal that there are small number of well-controlled studies. Robust cohort studies are needed to establish long term health effects of cumulative radiation exposure.

Economic impact due to automobile air Pollution linked diseases in Rewa

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Nowadays air over major cities throughout the world has become over burdened with gases produced by automobiles. The death rate due to automobiles pollution is increasing rapidly in the metropolitan areas. Every year an estimated 800,000 people die prematurely from illnesses caused by outdoor air pollution worldwide. They compare cost-of-illness (COI) and willingness-to-pay (WTP) estimates of the damages from minor respiratory symptoms associated with air pollution using data from a study in Rewa in 2010-2011. The present study is an attempt to exploit air problems and diseases caused by the automobile air pollution and its cause economic problem by the treatment of disease. We conclude from our results that blood pressure, ENT (Eye, nose and throat), fatigue, gastrointestinal diseases and cancer were highly correlated with lead distribution. We also conclude that the motor vehicles/ automobiles now constitute the main source of air pollution. On the basis of observation Bus stand sites is highly polluted than the Sirmour chauk in which respiratory problem recorded 45.24% at sirmour chauk and 48.73% at Bus stand and expenditure is maximum on Bus stand i.e. 572244 Rs. than the Sirmour chauk 509537 Rs.

Contact dermatitis among Cashew Factory Workers in South India

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Background: The cashew tree (Anacardiumoccidentale), is native to northeastern Brazil, but was brought to India by the Portuguese in the 1500's. India is today the largest producer and exporter of cashew kernels in the world. Over 65 per cent of the world export of cashew kernels is accounted for by India. It is a versatile industrial raw material being used in preparation of resins, varnishes, paints, plastics, insecticides, brake linings, wood preservatives etc. Anacardic acid and cardol the main cashew nut shell liquid (CNSL) components, are responsible for contact dermatitis acting is both irritants and sensitizers and are the main cause of occupational contact dermatitis in cashew nut workers. Cashew processing is a traditional export oriented labour-intensive industry with limited use of technology. Cashew processing involves cutting the outer shell to separate the edible portion. The steps include cleaning, soaking, roasting, cutting the outer shell, drying the kernels, grading and packing. The workers are exposed to awkward positions during processing in the cashew factory. Hence they are prone to develop various health problems because of their occupation. **Objective:** To assess the prevalence of occupational diseases among workers of a cashew factory in coastal Karnataka, South India. **Methodology:** A Cross-sectional study was conducted in a cashew factory at Karkalataluk, in coastal Karnataka. The research team interviewed and examined 247 workers working in various sections of cashew processing using a pre-tested semi-structured questionnaire. The data was analysed using SPSS 16 software. **Results:** The common health problems of cashew factory workers were contact dermatitis (41.7%), followed by musculoskeletal discomfort (30.7%) and respiratory diseases (11.3%). Of the 247 workers 106 (42.9%) were working in the cutting section of the process. Of these 73% had lesions only on the left hand, 23 % only on the right hand and 4.0% on both hands. Musculoskeletal complaints of pain (14%) and joint pain (34.9%) were found to be maximum in the workers of the cutting section. **Conclusion:** Among the workers in the cashew nut factory occupational disorders were found to a major concern (contact dermatitis, musculoskeletal and respiratory diseases). These morbidities can be reduced by mechanisation, use of gloves (especially in the cutting section), pre-placement and periodic examinations. **Key Words:** Cashew processing sections, Cashew Nut Shell Liquid, occupational disorders, contact dermatitis.

Assessment of occupational hazards in mechanics working in garages of Pune city

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Introduction: Combustion of fuels emits nitrogen dioxide ,sulphur dioxide ,carbon monoxide, lead and indirectly contributing to ozone formation.Nitrogen dioxide if inhaled it forms nitric and nitrous acids which irritates and damage lining of airways and also same with sulphur dioxide. Carbon monoxide combines with haemoglobin and induces systemic hypoxia.Ozone may exacerbate the respiratory symtoms in those having obstructive airway disease. Objectives: (i) To study respiratory symtoms and lung functions in mechanics working in garages exposed to vehicular emissions. (ii) To find out morbidity due to respiratory diseases in garage workers.

Study Design: Cross sectional study **Study Area:** Randomly selected vehicle repair garages in Pune city. **Study period:** Two months **Study population:** workers working in garages as mechanics in study area **Methodolgy:** A predesigned pretested questionnaire about health profile was filled by interview technique. Detailed clinical examination was done.Pulmonary function tests were carried out at the place of work using a dedicated spirometer of MAESTROS. Parameters studied were forced vital capacity, forced expiratory volume first second, and mid expiratory flow rate. **Results:** Out of 46 non smokers, 25 were asymptomatic and out of 7 smokers 4 were asymptomatic while 21 nonsmokers and 3 smokers having one or more symptoms like cough, expectoration, wheezing, tightness in chest and non-respiratory symptoms. Spirometer showed four workers having obstructive lung diseases amongst non smokers. **Conclusion:** The study among mechanics working in garages exposed to products of combustion of fuels have effects on lung functions. However in some workers cigarette smoking remains a confounding factor.

Study of morbidity pattern among the workers of jute mill in eastern Nepal

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Background: The occupational disease burden is growing exceptionally. In developing and newly industrialized countries, exposure to high levels of chemicals and dusts, hard physical work, heat stress is common. The workers of jute mill are susceptible to various morbid conditions. Objective: To find out morbidity pattern among jute mill workers. Method: Cross-sectional study was conducted in Arihant Multi-Fibers Ltd., located in industrial corridor of eastern Nepal. Nine hundred subjects were enrolled from jute processing departments using systematic random sampling technique. The data was collected using pre-tested semi-structured questionnaires, general physical examination. Arterial blood pressure, height, weight and visual acuity of distant vision were measured. Analysis of data was done using SPSS V12.0. **Results:** The highest number of workers (23.8%) was in age group of 25-29 years among 900 workers. About 17 % workers were illiterate. The most of the workers (41.6%) were working for less than 5 years of duration. About 46 % workers were tobacco chewers. About 84 % of workers did not practice any kind of Personal Protective Equipments. The prevalent morbid conditions were underweight (21%), acute upper respiratory infection (14.2%) headache (10.7%), injuries (10.3%), hypertension (10.1%), gastritis and duodenitis (9.8%), refractive error (9.7%), hearing problem (8%), pain in limb (7.4%), low back pain (7%). **Conclusion:** Underweight, acute respiratory tract infection, headache and injuries were common among the jute workers. Practice of personal protective equipment was not satisfactory in the factory.

Occupational Hazards in Nurses of Private Hospital in Pune City

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Introduction: Nurses are the principal group of health care personnel providing primary health care and maintaining links between individuals, families, communities and health care system. Nurses improve quality and access to health care and add quality to outcome of care. Nurses deliver a wide assortment of services to patients, providing the first line of care, and teaching patients how to care for themselves. In short, nurses not only provide direct patient care, they are also key in preventing injuries and illness that require hospitalization and medical intervention. **Objectives:** 1.To study occupational hazards in nurses.2.To study general health status of nurses. **Methodology: Study design:** Interventional study. **Study area:** Randomly selected one private hospital in Pune City. Study period: One month. **Study population:** 48 nurses, out of which 15 male and 33 female. **Study tool:** A detailed model questionnaire is formed which includes the queries about: History and General health Parameters, Enquiring about the exposure, Use of personal Protective measures, General Examination, Systemic Examination. **Result:** Physical hazards like Needle prick injuries were commonly seen (35.36%).Chemical hazards like Latex allergy were seen in (12.48%).However miscarriages were seen in (16.64%) of cases .Biological hazards like pulmonary TB had developed in 4.16%.Most common ergonomic hazards were low backache and neck pain in our study. Nurses using Preventive measures like Gloves (66.58%), Mask (58.24%),Washing hand with sterillium before handling patient (41.60%),Tetanus Toxic (27.04%) and Hepatitis B Vaccine (66.56%). **Conclusion:** The study shows that nurses are exposed to various occupational hazards like physical, chemical biological in the workplace.

Burnout and Job Satisfaction among health professionals

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Introduction: Modern life has brought tremendous stress on employees at work place. Organizational Role Stress (ORS) is a kind of stress. Burnout (BO) is a manifestation of stress and strain at workplace. Job Satisfaction (JS) is the employee's affective response to the job. Objectives: To find the relationship of ORS, burnout and job satisfaction in nurses and doctors. Methods: A descriptive survey was conducted among nurses and doctors working in ESI hospital, Delhi through convenient sampling. Hundred nurses and doctors were surveyed using Pareek's ORS scale, Maslach BO inventory and Smith & Kendell's Job Descriptive Index. To analyze the data descriptive and inferential statistics were applied. **Results:** Mean ORS score for nurses (68.04) was more than the doctors (61.10) though the difference was not statistically significant. ORS and emotional energy (EE) were positively related and was significant (r=.301, <0.01). ORS and DP were negatively correlated but not statistically significant (r=-.187). ORS and PA were negatively related (r=-.392) and significant at p<0.01. ORS and JS were negatively correlated (r=-.268) and significantly at p<0.01. The research studies show that with the increase in work pressure, demanding nature of profession and other work related aspects, ORS was present in health professionals. It was more in nurses than in doctors. As role stress increases it leads to decrease in emotional energy making a person inadequate to deal with the stressful situation. Thus, the ORS and EE are positively related. DP is detachment from others. **Conclusion:** Burnout workers

treat their clients like objects. When a person encounters role stress at workplace, he is likely to evaluate his surroundings in unhealthy way which leads to job dissatisfaction. So there is negative relationship between ORS and JS. Therefore ORS has its impact on health professionals. It leads to serious adverse effects like burnout and job dissatisfaction which negatively affect employees and the organization. Therefore, there is a need of stress management at workplace.

A study on lifestyle disorders in health care workers in Delhi

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Background: Non-communicable diseases are now one of the common emerging set of diseases. People with sedentary lifestyle are prone to obesity and obesity is the root cause of all cardiovascular diseases Health care workers like doctors, nurses is another set of population with sedentary lifestyle and hence prone to obesity and its consequences. To the best of my knowledge, there is still paucity of knowledge on lifestyle disorders in this segment of population. **Objective:** To assess the prevalence of lifestyle disorders amongs health care workers. **Methodology:** Study design: a cross-sectional study. Study Area: a secondary level hospital in north district of Delhi. Study population: all health care workers including doctors, nurses, paramedics working in the hospital at the time of survey. Study Tool: A pre-designed, pre-tested, semi-structured, self-administered questionnaire, containing items to assess demographic information, smoking and drinking habits, eating habits and physical activity will be used. Height, weight, waist circumference, blood pressure, hip circumference, biochemical test will be taken using validated methods. Data will be analyzed using Epi-info software package. Results: of the total 180 health care workers in the hospital, 110 gave the consent for the interview and investigations. Of those 110 interviewed, I have compiled the result of 40 so far. There were 15% males and 85% female staff. Mean age of the subjects was 22 years. The mean fasting blood sugar, cholesterol ,triglyceride, weight ,height were 93.225 mg/dl ,161.5 mmol ,120 mmol, 60 kg,158 cm respectively. Median fasting blood sugar, cholesterol, triglyceride are 94 mg/dl, 149 mmol, 110 mmol respectively .Average intake of fruits was 5 days per week . Rest of the data analysis is under process.

Biomedical Waste Management: A Study of Knowledge, Attitude, Behavior and Practices of the Staff in the Public hospitals of Chhattisgarh

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Introduction: Biomedical waste has serious impacts both in terms of health and environmental Pollution. The impacts are higher in the staff working in the hospitals which generate as well as manage the biomedical waste generated. Effective means of biomedical waste management involves effective knowledge of the medical and paramedical staff. A study of status of employee's awareness about biomedical waste management will help the authorities in formation of strategy and take policy decisions for improving the

status of biomedical waste management in state. **Objective:** To assess the Knowledge, Attitude and Practices of medical, paramedical and managerial staff regarding Biomedical Waste Management in the Government Hospitals of Chhattisgarh. **Methodology:** The study was cross sectional. Both qualitative and quantitative assessments were made. Participants attending the training for biomedical waste management were taken as sample for the study. A total of 421 participants from 18 districts attended the training and were selected as study subjects. Primary data was collected with the help of semi structured pretested, peer reviewed questionnaire. The questionnaire was filled by the participants as pretest before the commencement of the training. In-depth Interviews were conducted with the state authorities to cross check the results found and avoid bias at the questionnaire level. **Results:** The average knowledge level was very less with an average score of 2.54 out of 10. The average scores for the no. and types of bins used (0.61 out of 1) was higher than the knowledge for categories (0.15 of 1), rules (0.37 of 3) and segregation (1.34 of 5) for biomedical waste. The knowledge levels were found to be higher in the nursing(3.03) staff than doctors(2.58) or, RMA,s(1.69) or other managerial staff(2.97) ($P<0.001$).Almost all (96%) had positive attitude attitudes towards the biomedical waste management and felt it to be an important issue. 46.07 % respondent's selected deep burial as the method to dispose of biomedical waste, 19.51% chose burning their waste as the option, and 22.49% selected both deep burial and burning as the option for disposal. 4.88% disposed the waste by CBMWF, and no proper segregation practices were performed.

Dental Fluorosis - An underestimated Public Health Challenge; evidence from Rural Delhi

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Background: Oral health problems are one of the most widespread chronic morbidities globally. India is among the 23 nations around the globe with reported oral health problems due to excessive fluoride in drinking water. Fluorosis has become an important public health challenge where dental fluorosis is the most sensitive sign of prolonged fluoride exposure. There is paucity of data on prevalence of dental fluorosis in endemic areas of Delhi. **Objectives:** 1. To assess oral health status of school children 7 to 15 years of age. 2. To study the prevalence and severity of dental fluorosis among the study subjects. 3. To study the risk factors associated with dental fluorosis. **Materials And Methods:** Middle school students in two government schools of NW district of rural Delhi i.e. Pooth Khurd and Barwala which are endemic for Fluorosis. The children underwent oral examination in broad day light by a senior dentist from MVH, Pooth and classified by Dean's index on severity of fluorosis. Data regarding socio-demographic parameters and dental health practices was also obtained. Total 194 students have been enrolled so far. Fluoride Ion-Selective Electrode Method was used for assessing the fluoride concentration in water samples collected from the children's homes and schools. **Results :** The mean age was 11.1 years (SD 1.57). Males and females constituted 60.3% (117) and 39.7% (77) respectively. Children started brushing at 2-3.5 (84.1%) years, 3.5-5 (15.9%) years and 168 (86.6%). The frequency of brushing varied from irregular (6.7%), to regularly (93.3%) i.e. once a day (77.8%) and twice a day (15.5%). Fluoridated toothpaste was used in majority (80.4%). 53.6% gave history of consuming manufactured beverages like carbonated drinks, fruit juices, nectars etc from their community. The source of drinking water in majority

was supply water (79.4%) while the highest fluoride levels were found in Hand pump (2.35-2.54 ppm) and Bore well (1.78-2.78 ppm) sources. The overall prevalence of dental fluorosis in the study sample was 71.1%.Community fluoride index (CFI) was calculated to be 0.711. Severity of dental fluorosis was calibrated according to the Dean's index and it was found that majority of fluorosed population belonged to mild (30.9%) followed by moderate (28.4%) and severe fluorosis (6.4%). **Conclusion :** This study establishes the association between prevalence of dental fluorosis and high fluoride levels in drinking water. There is an imperative need to upgrade the quality of drinking water to lower the burden of dental fluorosis in this rural community.

Occupational Infections and Preventive Measures: An Update

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There are many infections which are closely associated with certain occupations, whereby the workers are put at a higher risk of being contracted with certain infections in the work setup. Occupational hazards are classified as being either physical (high temperature or pressure) or chemical (organic solvents and chemicals) or biological (virus, bacteria, fungi) hazard. Sometimes the prevalent occupation-associated life-style results in higher risk of exposure to the infections. These hazards vary amongst different work-setups. Biological hazards are particularly important in industries like agriculture, livestock, healthcare, slaughtering, etc. The doses as well as frequency of exposure are important factors that need to be considered. Physicians very often miss the thin but important link between an infection and the workplace setup, either due to difficulty in linking the infection to the setup or lack of awareness thereof of the physician. Precautions should be carefully taken for avoiding these occupational infections/diseases. There can be many channels for micro-organisms to evade the body to cause infection, such as through inhalation, direct skin contacts and mucous membrane. The need of sophisticated molecular tests has been a bottle-neck for proper diagnosis and reporting of such cases. However this needs to be addressed for proper implementation of precautionary measures. Various occupational safety laws also direct the patients to claim monetary compensation under certain cases. The benefits also extend to those who are totally or partially disabled as a result of the infection. There should be proper monitoring for accurately tracking all cases of occupationally acquired infections, which may or may not lead to death of the patient. This article provides a brief review of few of the common occupational infections like tuberculosis, Streptococcus suis infection, parenterally contracted viral hepatitis, Legionnaires disease, Acquired Immunodeficiency Syndrome (AIDS), Q fever, etc, and some of the effective preventive measures which can be implemented to prevent these infections.

Rapid urbanization and changing diseases pattern in South-East Asia Region

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The urban population in South-East Asia region is growing rapidly at the rate of 4-5% per year. It is posing a threat to the existing health infrastructure. Most countries in the region are passing through epidemiological transition and are facing the dual burden of traditional and modern diseases. The health status within the city is not evenly distributed rather the poor bear the greatest burden of diseases. The uncontrolled urban growth puts strains on food and water supplies, on the availability of safe housing and on health care services. Migrations from rural to urban areas bring in numerous psychosocial problems resulting in increased incidence of crime, accident, drug abuse, alcoholism, smoking, suicide, sexual problems etc that ultimately affects the health of its dwellers. There is a huge gap between community needs and the existing public health services. Cities in the SEA region need inter-sectoral coordination to address the health problems so as to develop healthy cities in the region. **Keywords:** Urbanization; South-East Asia region; Urban health; Communicable diseases; Non-Communicable diseases.

Poster Presentation

Occupational Health Hazards in Mining: An Overview

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Mining is the extraction of valuable minerals or other geological materials from the earth. Life cycle of mining involves exploration, design, construction, operation/extraction, processing, engineering services and maintenance, closure and rehabilitation / remediation. This series of stages of extraction in the mining and metals sector will pose a potential risk to health and wellbeing. The aim of this study is to illustrate systematically and proactively the range of health problems/hazards that can occur in relation to the various types of exposures in mining and metals workplace, assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers. Introduction Mining of stone and metal has been done since pre-historic times. Mining is an ancient occupation, long recognized as being arduous and liable to injury and disease. The lifecycle of mining consists of exploration, mine development, mine operation, decommissioning and land rehabilitation. The nature of mining creates a potential negative impact on the human health both during the mining operations and after the mining. Occupational Health Hazards in Mining are classified into five categories and are explained in detail

Work related satisfaction and mental disorders amongst welder in east Delhi

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Background: Welding occupation is considered hazardous because of exposure to fumes and heat. Welders had commonly shown respiratory, neurological, skin and eye problems however there is lack of data on their mental health and satisfaction level of their work. **Objective:** To assess the work related satisfaction and presence of mental disorders amongst welders residing in East Delhi. **Material and methods:** It was a cross-sectional study conducted amongst 50 welders residing in East Delhi. Data was collected using a pre-tested self-administered questionnaire containing items to assess the socio-demographic profile, their medical history, satisfaction level and occupational stress. Data was analyzed using SPSS 16.0. **Results:** The mean age of the participants was 30.43±12.97 years. Majority of the participants were educated upto primary level (42.9%) and were in regular employment (71.4%). The median income of the study population was Rs. 6000/month. Out of the total, 40% found their work as boring while 53% replied their work to be tiring. On item pertaining their owners' behavior, 48.5% felt that their owners' were not compatible with them. Nearly a quarter of them did not have good relationship with their co-workers. Nearly 31% said that they are not having good sleep while 34.5% are having stress. Out of total 50 respondents, 14.3% had suicidal thoughts and nearly 37% were into substance abuse. **Conclusions:** Nearly half the respondents did not have good satisfaction level related to work. The presence of high percentage of suicidal thoughts and stress amongst welders highlight the need for interventions to overcome stress and other mental complaints amongst welders. Further, there is a need to improve the working environment to ensure high productivity and satisfaction levels amongst the workers.
Keywords: Welders, Occupational Health, Mental health, satisfaction level.

Hazardous Effect of Carcinogenic Substances on Occupational Cancers

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Occupational cancer is caused wholly or partly by exposure to a carcinogen at work and is a serious problem in industries. Studies of occupational exposure to various carcinogens have made major contribution to our understanding of human carcinogenesis. Carcinogen mainly includes certain viruses, hormones, chemicals, and naturally occurring minerals, alcohol, & solar radiation. The amount of cancer related to occupational exposure varies with types of cancer and the most commonly affected site is skin, lungs, bladder, & blood forming organs. Statistically nearly 75 % of occupational cancers are skin cancer and are occupational hazards among gas workers, coke oven workers, tar distillers, oil refiners, and dye stuff makers. Lung cancer is a hazard in gas industry, asbestos industry, nickel & chromium work, arsenic roasting plants, in mining of radioactive substances & cigarette smoking is proved carcinogens for lungs. Bladder cancer is known to be caused by aromatic amines, which are metabolized in body and excreted in urine. Dyeing, rubber, gas & the electric cable industries are associated with bladder cancer. Exposure to benzol, roentgen rays & radioactive substances give rise to leukemia. The most authoritative list of carcinogens were published by the International agency for research on cancer (IARC), American conference of governmental industrial hygienists (ACGIH), and US National toxicology program (NTP). It has been found that one - third of the factors identified as definite or probable human carcinogens where first investigated in workplace & these exposures have major influence on working population. Our studies on occupational cancers are based on the relationship between exposure & risk of developing cancer in human population, taking into account age, tobacco smoking, drinking alcohol, physical activities, and sexual transmission. Further more work has to be done in this field to examine relationship between an exposure & the risk of developing occupational cancers.

Knowledge and preparedness for disaster in an Urban Slums

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Introduction: Disaster can cause damage to life and property and destroy the economic, social and cultural life of people and environment. Disaster can be natural or man-made disaster. In India disaster occurs throughout a year, however, people don't have much knowledge about prevention of disaster and management at the time when disaster strikes. **Objectives:** The objective of the study was to find out the knowledge and prepared of the people living in urban slums about the disaster. **Methodology:** This was a quantitative research which was done in the urban slums of the Balmiki Basti and it was done through house to house survey in the community and the questionnaire was pre-designed. A total of 100 peoples were interviewed and the various information about them like the Socio-Economic status, basic amenities available in their houses, Knowledge, Awareness, Practices towards disaster were gathered. The Modern Kuppuswamy's socio-economic scale to find out the socio-economic status of the people living in the community was followed and used. A total of 100 families were selected through systematic random sampling method. After collection of data SPSS version 16 has been used to analyze the data. After data collection the researcher made a power-point presentation regarding

preparedness about various disasters to the community people. A focus group discussion was also conducted among the community people in relation to disaster management. **Results:** Out of 100 respondent 20% of people are illiterate, 22% have studied up to primary or middle school , 34% are skilled worker and lot of variation has been seen in the income but majority of them earn 6000-7000 thousand per month. Among them 58% is Domicile of Delhi where 64% of them are Hindu. And have all the basic amenities available in their houses. And 61% knows about disaster and know when disaster can occur in the community and 83.7% think that the community and their family is at the risk of disaster according to them any disaster can occur anytime. 77.6% of people know about earthquake and flood and 70.1% knows what to do be done at the time of disaster. And the most important thing found from the analysis of the research was that majority of the community people (78.5%) know the helpline number or whom to contact at the time of disaster. Whereas 72% think their family is well-prepared for the disaster and 60.1% think that the community is well prepared for the disaster and 68% of the community has first-aid available in their house. **Conclusion:** The study suggests that the community people have less knowledge about disaster and even if some has knowledge about disaster they have wrong information about disaster. Measures should have taken to make them aware about the disaster and how to save their life if any disaster occurs in the community. **Keywords:** Knowledge, preparedness, disaster, urban slum.

Latex allergy: An under-rated health hazard

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Dentists and their patients are constantly exposed to many occupational health problems, one amongst them being latex allergy. Studies have shown that healthcare workers (HCW) are three times more prone to latex allergy with the prevalence amongst dental students being 5%. The present paper explores latex allergy in dental professionals, screening test and various recent alternatives available in India. Latex is derived from the sap of the rubber tree. In dental practice, latex is found in many dental products like gloves, rubber dam, suction tips etc. Latex allergy develops after repeated exposure to products containing latex through direct skin contact or inhalation of airborne allergens (commonly from powdered gloves). Reactions to latex range from mild irritant contact dermatitis to potentially life-threatening hypersensitivity. Allergy may present as Type I or Type IV hypersensitivity reaction.The incidence of latex allergy may be reduced by using latex alternatives (vinyl, nitrile and neoprene) and powder-free, low-protein gloves. Owing to the potential hazardous impact over the health professionals, early diagnosis and prevention of contact with suspected items is the key to minimize latex allergy.

Chulha Smoke and its effect on Health

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About ninety percent of rural households in the developing countries rely for cooking and associated space heating on simple household chulhas using unprocessed biomass fuels such as wood, dung cake and crop residue. According to the 61st round of the National Sample Survey, 84% of rural households in India rely on biomass as their primary cooking fuel. These fuels are used even in the areas with access to modern fuels. Traditional fuels, as presently used have inherent disadvantages. Collection is arduous and time-consuming, combustion is difficult to control and cooking methods capture only a fraction of the fuel's available energy. The use of solid fuels for cooking and heating is likely to be the largest source of indoor air pollution. Indoor air pollution is a major public health problem in developing nations, where it accounts for much of ill health and over a million deaths annually As women are primarily responsible for cooking and as children often spend time with their mothers while they are engaged in cooking activities, women and young children are disproportionately affected. World Health Organization indicate that worldwide, indoor air pollution ranks second behind high blood pressure on the percentage of ill health accounted for by various risk factors. Burning solid fuels emits carbon monoxide, particulates, benzene and formaldehyde. Exposure to these pollutants, especially small particulates, is widely believed to be a risk factor for a number of health damages, including acute respiratory infections, chronic obstructive pulmonary disorder, cancers, cataracts, and low birth weight. Actual exposure levels experienced by women and children during cooking are much higher than the recommended international and national safer limits. World Health Organization has estimated that indoor air pollution claims 5,00,000 lives in India every year. This paper evaluates the extent to which indoor air pollutants like total suspended particulate and carbon-monoxide are generated from various fuel/stove combinations commonly used in North India and the threat to health posed by the burning of solid biomass fuels for cooking. **Key Words:** Biomass, Chulha, Health impact, Indoor air pollution, Smoke.

A Study of Psychological well-being among doctors in a government hospital of Delhi

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Introduction: Several studies have suggested that doctors are more likely to be affected by psychological illnesses because they experience multiple stressors be it physical, mental, emotional in their daily work including-shift-work stress, role con?icts and ambiguity, responsibilities in patient care, disturbed sleep pattern and poor social life etc. Poor mental health among doctors is a serious issue because of its critical consequences for health care delivery . **Objective:** To study the prevalence of psychiatric morbidity among doctors in government hospital of Delhi. **Methodology:** Study Design: Cross-sectional study. Study Area: Maharishi Balmiki Hospital, Pooth khurd. Study Population: All 89 doctors working at Maharishi Balmiki Hospital. Study Tool: GMHAT/PC (Global mental health assessment tool – primary care version) will be used for conducting interviews. It is

a validated and extensively used computer based tool which has been developed to assist Health Professionals to make a quick, convenient and comprehensive standardized mental health assessment. Prior consent will be taken and confidentiality will be maintained during study. **Results:** Mean age of the participants was 31.2 years. Prevalence of various symptoms (all grades) based on interview were- Anxiety 57.1%, Depression 34.2%, Mania 25.7%, Personality Disorders 20%, Psychosis 17.1%, Obsessive compulsive disorder 17.1%, Phobia 14.2% etc. 40% of the were taking alcohol and 8.5% of them reported drug abuse. **Conclusion:** Above tentative results show significant prevalence of various kinds of psychiatric morbidities among doctors which needs to be further researched to identify determinants and raise awareness regarding mental health among them.

A Study on Quality of Life of Employees in the Energy Sector

Kajal Dungerwal

Introduction: The main objective of this research work is to study the Quality of Life (QOL) of employees working in the energy sector. Since much effect on the mental health is caused by the substances and surrounding environment and on the similar grounds this study demonstrates an association between the nature of job and its impacts on the psychological state **Methods:** An empirical study is being undertaken with the psychophysical approach. Placing primary importance on the perception of an individual, the WHOQOL instrument is used. The instrument in a straightforward environmental application of the psychophysical approach, it asks people how they feel about a specific environment. Data was collected from employees of various energy industries to comprehend their QOL **Results:** The research findings show that there is a strong correlation between the Environmental conditions and QOL. Furthermore perceptual variation in terms of gender, age , and working conditions in various energy sectors was observed Discussion: The mental well being of an individual is determined when there is a psychological equivalent of the physical stimuli and to test the same, Quality of life survey was done. The findings are important for increasing employee satisfaction, employee engagement, talent development and talent retention in the industries and also for the discipline of environmental psychology by providing it an opportunity to further research in the field of occupational health.

Geographical distribution of chronic kidney disease of unknown origin in Sri Lanka in the region of irrigation reservoirs

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Background: The investigators in Sri Lanka have noticed frighteningly high incidence of an apparently new form of chronic kidney disease of unknown etiology (CKDu) in some parts of Sri Lanka. Histopathological studies have revealed a tubulo interstitial nephritis at early stage of the disease which is suggestive of a toxic etiology. However, the lack of sufficient epidemiological studies made the identification of the etiological agent difficult. Aim of the present study is to investigate the geographical distribution of CKD-U using modern GPS

and GIS mapping. **Methodolgy:** Community based information of 14630 patients was collected and used for GIS mapping using AR 9.2 software and 1000 households of CKU-u patients for GPS mapping. GIS mapping indicated five high prevalent areas in the region namely Medawachchiya, Padaviya , Girandurukotte , Medirigiriya and Nikawewa. Low prevalence of the disease was noted in communities who consume water from natural springs for drinking. In all five areas the distribution is related to stagnant irrigated water. Most of the affected villages are located below the level of the reservoirs and canals. GPS mapping showed most of the cases are located below the level of some reservoirs and some are related to the irrigation canals. **Result:** All the high prevalent areas are clustered around reservoirs of the irrigation system. The epidemiological data on geographical distribution infers that while older foci of CKD-U are persisting, there is an emergence of new foci of CKD-U with the time. The presence of the affected villages located below the level of the reservoirs and canals indicated the possibility of irrigated water draining to the shallow wells of the households which is the source of drinking water. A similar pattern of distribution of endemic nephropathy was described in Balkan region along the Danubi river in low altitude areas where water stagnates.

Medical Students' Perception on Needle Sticks Injury and Preventive Measures

Kye Mon Min Swe, Ratana Somrongthong, Amit Bhardwaj

Introduction: Needle stick injury is major cause of blood borne infections transmitted among health care personals. Methods: Qualitative study. Results: Most of the participants had knowledge on the diseases transmitted by contaminated sharp objects. For universal precaution measure, students were uncertain about the needle recapping. Regarding perception, all participants agree that every health care workers have a risk of needle sticks injury but it can protect by following universal precaution measures. They all agree on the issue that after getting infection due to needle stick injury, the health care workers should change the job that has less exposure to blood and the information about injury should not keep confidential.

Knowledge and Attitudes on Anti tobacco measures imposed under 'the Cigarettes and other Tobacco Products Act 2003' among Rural Men in Northern India

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Introduction: Tobacco is the most important preventable cause of death and disease among adults. In 2003, The Central Government passed the Cigarettes and Other Tobacco Products Act (COTPA) applicable to all tobacco products. Public awareness of the ban on smoking in public places was very low and as a result, there were widespread violations. **Objectives:** To assess prevalence of smoking and to assess the knowledge and attitude of men towards anti tobacco measures imposed under cigarette and other tobacco products act 2003. **Methods:** The present cross sectional study was carried out in the rural field practice area of the department of community medicine, MMIMSR, Mullana among men aged = 18 years for a period of 6 months from July to December using pretested self-administered questionnaire. Responses of 714 men were included in the

study. Data was analyzed using SPSS and valid conclusions were drawn. **Results & Discussion :** The prevalence of smoking was 39.7% and among them 77.8% were regular smokers. The prevalence of smokeless tobacco was 32.4%.There was a biphasic trend in age and smoking pattern. 94.2% of the study population were aware of the COTPA 2003, 91.2% were aware of prohibition of smoking in public place and 78.0% knew the age limit below which sale of tobacco products was banned. 27.8% of smokers were reported that their smoking habit got reduced to some extent because of the act, 3% reported that they had totally quit smoking but majority (69.2%) of them reported that act didn't had any impact on their smoking habit. **Conclusion:** Preventive steps like behavioural change communication, fiscal measures and further more strong enforcement of the act are needed in order to achieve desired results of COTPA act.

Health needs and literacy rates of the construction site workers and homeless in Delhi

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Background: This observation is an important updation of status of a marginalized community which comprises 1.5% (1.5 lac) with different living conditions, health status, lifestyle and health needs in the population of Delhi. **Observations:** A total of 877 people were covered in six free medical check-up camps. Majority of the population were migrant workers from neighboring states after not being able to farm in their village, adverse living condition in night shelters, under flyovers, roadside jhuggis and unorganized slums were analyzed to update health status, needs and health literacy. No structured questionnaire was used however questions such as- what is their health problem, from where they seek medical aid, how economical is it, how beneficial it is in terms of preventing a disease were asked. Camps in collaboration with a government aided NGO were held from November, 2012 to January, 2013 at the following construction sites: Kalakaji flyover Camp- covered 96 people comprised of 13 adult males, 48 women of which 6 were pregnant, 5 adolescents, 30 children (1 month - 12 yrs) JNU campus Camp- covered 245 persons included 113 adult females-of which 13 were pregnant. Hauz Khas village slum dwellers- covered 113 people included 68 were children, 23 adult females of which 5 were pregnant, 12 adult males, 10 adolescents) Munirka night shelter- covered 87 people included 24 adult females, 23 adult males, 34 children, 6 adolescents. Kusum Pahari- covered 340 people. **Major concerns**: In children, upper respiratory infections (34%) were commonest of morbidities followed by pain in abdomen (28%) and malnutrition anemia (20%) and 18% were other than that. In adults, joint pain (30%), indigestion & acidity (34%), loss of vision (8%) headache (7%), anemia (6%) ruled the chart. Morbidity was mainly due to alcoholism (15%). At each site, 2-3 young (20-30 years old) males presented with jaundice and liver failure. All the sites reported liquor intake in males as common. There is a huge gap in information of the health facilities and government schemes. People prefer nearby chemists, local private doctors for immediate health needs as they cannot afford to go to government facilities as it is unaffordable to them in terms of time and daily wage. Pregnant women (wives of construction site workers approximately 34 of them were not aware of family planning facilities. None of them had adopted contraception in spite of having 4-5 live children or the youngest child being 2-3 month old. Expenses of alcohol took away a major part of the income at homeless sites there is need for de-addiction and hence onsite counseling. **Conclusion:** A huge gap in health literacy means and services for construction site workers and homeless in Delhi. Alcohol which is easily available needs to be restricted. There is a need for regular mobile health services in this kind of migratory population.
Key Words: Health needs, literacy, homeless, construction site workers.

Work related musculo-skeletal disorders among dental students

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Background: Occupational health hazards are common in many sectors and are on the rise due to many factors. Musculoskeletal disorders (MSDs) have become a significant issue and are proving costly to the workplace, productivity and occupational health. Every 2 out of 3 dental professionals experience occupational musculoskeletal pain. MSDs accounts for the most common reason for early retirement in dentists. **Aim of the study:** To assess prevalence of MSDs, their associated risk factors and knowledge of ergonomics in a dental institution in Delhi, India. **Methodology:** A cross sectional study was conducted using self administered close ended questionnaire among dental students. The questionnaire assessed risk factors like body mass index, ergonomic positions and knowledge along with occurrence of musculoskeletal symptoms. A pilot survey was conducted to assess the validity and reliability. The data was tabulated using MS Excel and Chi-square and Student t test were used to analyze data utilizing to SPSS Version 17.0. **Results:** Out of total of 102 respondents 97 participated in the cross sectional study of which 41% were males and remaining females. 34% of the participants were house surgeons and 28% were post graduates. No significant mean difference of BMI was observed in presence or absence of pain in the last 12 months among the respondents. (P value 0.17). No significant age difference was observed among the respondents in presence or absence of pain in the last 12 months. (p value 0.10). There was significant difference among female respondents with pain in the last 12 months as comparison to male. (P value 0.014). Significant number of post graduates presented with pain in comparison to other groups. (P value 0.06). **Conclusions:** The dental students are also exposed to risk of MSDs at an early age. Ergonomics intervention may have greater impact in prevention and incorporation of training in the curriculum would help them in the long run.

Hospital Information System (HIS) User Needs Analysis: A Software survey

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Hospital Information Systems (HISs) are a very important factor to support the quality of patient care. They are supposed to make the right information and knowledge available to the right people, in the right place, at the right time and in the right form. To improve a HIS, its current state needs to be known. In this paper, an overview of HISs software was presented. Several HISs software are structured and in some countries already validated approach for modeling and analyzing HISs. The HIS of an Indian Hospital shall be modeled in this case study to investigate the applicability of HISs software and a list of HIS software was presented. This paper reviews 81 hospital information systems (HIS) software and 16 HIS worldwide vendors. It provides an overview of software applications and vendors. Paper also presents a methodology to determine the best HIS that has met the end user expectations. It also provides a good method, we can judge how the HIS software and vendors have been assessed.

Occupational Health Services and Development

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Occupational Health Services is a requirement of industries as per Factory act .The main components of Occupational Health Services are well-equipped occupational Health Center,Pre-employment, Periodic medical checkup ,work exposure risk assessment, prevention of OH hazards, medical surveillance programs. The Best practices of Quality standards, innovative occupational Health related programs Occupational Health Procedures, Reporting systems, policies, legal compliance, participation in national and international forums are the main important tools of development in the field of Occupational Health ,which strengthen the Occupational health services of Industry. Reliance Industries Limited with its Top management support has established the standards and laid down the structured processes with assignment of individual responsibility matrix at sites. The designed processes of medical services have transformed the existing Occupational Health services into some new projects which not only brand the image of company but also help in development of business growth. Reliance industries limited has launched various new innovative initiatives like CASHe(Change agents of safety health and environment) program, Structured Extensive health awareness programs ,community awareness programs, sensitization workshops on Occupational Health for private practitioners ,Quality compliance(NABH/NABL accreditation, Industrial hygienist practices, standardized Audit system, DuPont &IMS implementation, achievement of various national and international awards ,Special program on Work life management is started at all RIL sites and missionaries of this program are made for continuous improvement in work life balance, Task based job work analysis, Stress management program. Occupational Health services and its development in the field of occupational health is a great linkage between employee and employer. It not only enhances business growth of organization but also contributes for maintaining good health of employee and his family.

Human Mercury exposure, Health Impact and Safety and Preventive measures

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Introduction: Mercury is ubiquitous in health care. Mercury distribution in the environment has been a focus of scientific attention because of the potential health risks posed by mercury exposure. Human being can be exposed to mercury all routes viz. Ingestion, Inhalation and Dermal affecting every organ system of the body.
Results and Discussion: To be mercury-free is not only an ethical motivation to protect people and the environment, cut the costs, but also provides protection to life by reducing occupational exposures and releases of mercury to the air, water and land from wastewater discharges, spills and land fillings. Public education and promoting safer, non-mercury alternatives can raise awareness about the risks associated with easily preventable sources of toxicity rather the medication and surgical intervention for the management.

Prevalence of needle stick injuries & knowledge, attitude and practice regarding risk of HIV infection through accidental needle stick injuries among nurses in tertiary care hospital MMIMSR, Mullana district Ambala, Haryana

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Introduction: Injuries from occupational accidents are associated with agents of biological risk, Needle stick injuries are one of the most serious occupational accidents among nurses due to the possible severe consequences, such as the transmission of infectious diseases and inducing of mental impairment. These incidents potentially predispose the most important of which is hepatitis c virus (HCV), hepatitis B virus (HBV) and human immune deficiency virus (HIV). **Objective:** To assess the prevalence & knowledge, attitude and practice regarding risk of HIV transmission through accidental needle stick injury amongst nurses in MMIMSR hospital Mullana, Ambala. **Material & methods:** A cross-sectional study was conducted among 200 nurses at a tertiary care hospital in Ambala, A semi structured questionnaire was used to interview the study participants at their work place. Participants were asked to recall needle stick injuries & risk of knowledge through it. Data were collected by using axel, Statistical analysis was done with SPSS software. **Results:** Around 1/3rd nurses had experienced a needle stick injury in the last one year. Needle stick injuries were equally distributed across different work experience periods. Hollow bore needles were responsible for 3/4th of needle stick injuries followed by suturing needles 1/5th). As far as use of personal protection was concerned only 2/3rd of were wearing gloves at the time of the injury. 1/9th were not even aware that virus could be transmitted through infected needle. 2/3rd were not aware of correct method of disposal of disposable needles and syringes Around 1/4th said that they would promote active bleeding at the site of injury and 1/3rd said they would take post-exposure prophylaxis. Recapping was the most common cause of niddle stick injuries, 2/3rd of these visited a doctor in the first 24 hours after exposure. **Conclusion:** There is therefore an urgent need at the hospital level to have a uniform needle stick injuries policy covering safe work practices, safe disposal of sharps, procedures in event of needle stick injury, training including pre-employment training, monitoring and evaluation of needle stick injuries and procedures for reporting needle stick injuries.

Occupational health hazard and mitigation during repair and maintenance of water supply network

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Water supply system network & Waste Water collection system is one of the most important life line for modern living. To keep the network running 24x7, preventive and breakdown maintenance at the quickest possible instance is being done, so as to prevent wastage of the precious natural resource as well as prevent pollution due to leakage of sewer mains. As a matter of fact, the repair and maintenance carried out mostly by unskilled or semiskilled work force, face lots of health hazard.The Occupational Health Hazard can be categorized according to nature of repair, type of repair, type of pipe to be repaired and the time of repair.During repair of water mains, the work force is exposed to hazards like accidental hazards (since most of the water

pipelines are located beneath major traffic roads), exposure to seepage and contaminated water, exposure to high water pressure, working inside excavated trenches, as well as exposure to obnoxious gases emanating from the nearby generator set, gases emanated from firewood , molten lead during leading caulking of joints. Also, the workers are exposed to injuries due to mechanical activities (tools and plants), exposure to fine particles generated during grinding and polishing of pipelines, exposure to flash welding and even electrocution, while working in confined trenches.Repair of Sewer pipelines pose serious health hazard as far as exposure to toxic and inflammable gases is concerned apart exposure to pungent and filthy site conditions. Hence, it is of utmost importance to carry out a comprehensive Aspect Impact Assessment and take adequate measures to ensure an effective and efficient mitigation of Health Hazards.

Assessment of Computer related Health Problems among Post-Graduate Students

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Background: Computer related health problems are increasing worldwide. The study was conducted to assess computer related health problems among Post-graduate students and to develop a Self Instructional Module for prevention of computer related health problems in a selected University situated in Delhi. **Methods:** A descriptive survey with co-relational design was adopted. A total of 97 samples were selected from different faculties of Jamia Hamdard by multi stage sampling with systematic random sampling technique. **Results:** Among post-graduate students, majority of sample subjects had average compliance with computer related ergonomics principles. As regards computer related health problems, majority of post graduate students had moderate computer related health problems. Self Instructional Module developed for prevention of computer related health problems was found to be acceptable by the post- graduate students.

Mercury Spills: Safety considerations and initiatives

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Mercury is a silvery, odourless, highly volatile, metallic element, which is in liquid form at room temperature. If ingested, mercury is highly toxic to human health. Mercury exposure from occupational, environmental and contaminated food is a significant threat to public health. A number of health products do involve mercury, such as sphygmomanometers, thermometers, GIT devices and dental amalgams. Being handled in a number of equipments, accidental mercury spills are not uncommon. In the Hazardous Substances Emergency Events Surveillance program (HSEESP) conducted in USA, mercury spills have been reported to be the 3rd most common amongst the hazardous substances incidents. Since mercury gets easily absorbed through skin and emits toxic vapours, handling of mercury spills is of significant weightage. Exposure to mercury affects the skin, kidney, eye, nervous system, and the respiratory system. Specific signs of mercury poisoning include emotional

instability, cognitive and memory loss, speech problems, and ataxia. Preventive aspects include barring the use of mercury based equipments and usage of alternative devices (digital thermometers, aneroid BP instruments, etc). Management of mercury spills is based on the amount dispersed. If little amount has been spilled, it should be picked up with index card or firm paper wearing nitrile gloves. Use of vacuum cleaner is contraindicated. If larger amounts are dispersed, environmental safety personnel's should be contacted. Owing to the potential health hazards, Govt of India included mercury handling in Environment (Protection) Rules, 1986. In India, the quantitative assessment of mercury usage is scarce, so the level of focus needs to be increased. Today, many government hospitals in Delhi have stopped procurement of mercury containing equipments. Guidelines have been issued by DGHS in March, 2010 and are being included in Indian Public Health Standards. Proper handling of mercury is essential to safeguard health professionals and is a vital public health issue.

Health profile of workers working in pharmaceutical industry

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Introduction: Newer advances in pharmaceutical industry which is an important component of health care systems create new concerns for protecting health and safety of workers. Many different biological and chemical agents are used in the pharmaceutical industry. It is necessary to identify problems that may be unseen in the handling of therapeutic materials or drugs. **Methodology:** Study design: Cross sectional study. Study area: Randomly selected pharmaceutical company in Pune. Study period: 11 July 2012 to 21 august 2012. Study population: The total numbers of employees included in the study period were 84. Study technique: A predesigned, pretested structured questionnaire was filled by interview technique. Detail general and systemic examination was done. The parameters checked were height, weight, pulse, B.P, vision, colour vision, urine (routine), blood sugar fasting and Hb. **Results:** 35% employees were in the age group of 21-25 years;24% employees were in the age group of 26-30 years and only 1% were in the age group of 41-50 years. The employees in the exposure group of 1-2 yrs. were 35% and in 3-4 years were 33%. More than 6 years of exposure is seen only in 6% of cases.73% of employees were undernourished and only 25% have normal BMI.2% of employees who were obese were diabetic. 52% of employees were unskilled and only 37% were skilled employees.6% of employees complained of acidity and dyspepsia. General weakness was complained by 10%.2% of employees complained of burning and watering of eyes. Conclusion: No major health problems were found in the study subjects.

21st century : Still fighting against tropical diseases! Dengue - A concern during pregnancy especially in working women

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Dengue is the most prevalent mosquito born infection worldwide. Dengue fever is a viral disease spread by the Aedes aegypti mosquito, which bites during daylight hours. The disease is common in tropic and subtropic regions and is often confused with malaria. With the increased rate of adult dengue fever victims, the number of infected pregnant women has also increased. Severe dengue illness during pregnancy is associated with major adverse outcome of maternal deaths, perinatal deaths, preterm births and haemorrhages in labour. In case of infection close to term, there is a risk of vertical transmission. Hence the knowledge of its diagnosis and timely management is of vital importance. Dengue infection can present four different clinical syndromes: undifferentiated fever, classical dengue fever, dengue hemorrhagic fever and dengue shock syndrome The effects of dengue fever on pregnancy have not been researched thoroughly, so comprehensive data is not available. It is advisable for pregnant women to avoid travelling to areas where dengue fever is common, such as the Caribbean, Central America and south-central Asia. If travel is necessary, pregnant women should take measures to reduce the risk of mosquito bites. To avoid being bitten by a dengue fever carrying mosquito, women should wear long pants and long sleeves, and stay away from standing water and use mosquito nets while sleeping. The working women are more at risk as at their work places because of mosquito in abundance and there may be no mosquito repellents used, stagnant water in cooler's , their uniform's etc. We report our experience of managing pregnancy complicated by dengue.

Occupational Hepatocellular Carcinoma: A Review

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Cancer is one of the leading causes of deaths worldwide, 19% of which are attributed to the environment and results in 1.3 million deaths annually. 107 carcinogens (such as benzene, cadmium, arsenic, tobacco, radiations) have been identified by WHO International Agency for Research on Cancer (IARC), asbestos being a major player. Most of these risks are preventable, unlike in other forms of cancer. A persona?Ts risk of developing cancer is influenced by various factors like age, sex, habits and health. Liver is the most common site of tumor origin. Hepatocellular carcinoma (HCC) is the third leading cause of cancer-related deaths. The relationship between occupation and liver cancer has not been extensively studied however. Approximately 80% of HCC patients have had an established history of chronic liver disease and infection with hepatitis B virus (HBV) and hepatitis C virus (HCV). Nonalcoholic steatohepatitis (NASH), obesity, diabetes and smoking also increase the risk of HCC development significantly. Currently, only vinyl chloride monomer (VCM) and trichloroethylene (TCE) have been documented with carcinogenic effect on human liver. Very limited evidences on HCC risk factors are provided by epidemiological studies, although some correlate increased risk of HCC development with exposure to particular chemicals like pesticides, polychlorinated biphenyls, asbestos and arsenic. Recent developments indicate clearly that liver is the target for few other carcinogens as well. Various medical literatures have been consulted for the purpose of identifying related articles associating HCC with occupational exposure in different work settings. The limited number of studies, coupled with the diagnostic accuracy and potential

factors (like other infections, alcohol abuse, and immune status) limits the interpretation of current findings. More detailed investigations in this regard are required for assessing the actual risk of accidental/occupational carcinogen exposures. Proper health surveillances should be at place, for target workers in a particular setup, focusing on detection of any changes in key enzymes like alkaline phosphatase, gamma-glutamyl transferase and transaminase, and bilirubin levels. In the event of considerable alterations in these, hepatic ultrasound examination and alpha-fetoprotein level measurements should be implemented to facilitate the early detection of toxic liver diseases such as HCC in workers. This article provides a brief review of current knowledge about potential carcinogens and the risks associated with each, as regards to HCC in particular

Assessment of pattern of use and the effect of online social networking on student nurses in a selected college of Nursing in Delhi

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Introduction: The trend of the social networking has been increasing by the day among all groups and student nurses are no exception. If on any given day or at any time they are not able to network through social networking website, they feel unhappy, frustrated, empty, lonely, uninformed and disconnected. Social networking becomes a priority over academics, co-curricular activities, out-door games and sports, face to face socialization with family and friends. With increasing pressure to perform well in academics, the first thing to get compromised due to social networking among adolescents and young adults is studies. **Objectives:** To assess the pattern of social networking among student nurses and also the effects of it on their studies. **Methods:** A descriptive was carried out taking the systematic random sample of 50 student nurses studying in D.G.N.M, B.Sc.(Hons.) nursing and M.Sc. nursing programs in a selected college in Delhi. The tool used for the study was pre-tested and semi-structured questionnaire. **Results:** 50% of students had neutral effect of online social networking on them, that is, on their studies and social relationships. 48% of student nurses had positive effects of online social networking, while only 2% showed negative effects. 32% students surfed online social networking sites once daily and once a week each on an average, 16% used it more than once a week and 20% used it once in a month. 40% of students used online social networking 1-2 hours per day on an average, where as 38% used it for less than 1 hour a day. Only 4% used it for more than 6 hours a day. For communicating and socializing with friends, 42% of students preferred phone call as a way of communication and socialization with friends and 22% of them preferred SMS. As far as face to face or in person meeting was concerned, 18% of students used this way of socializing. The minimum number of online social contacts or friends was 4 and maximum number was 1000. **Conclusion:** nursing students are using social media which may be affecting their academic performance adversely. Therefore, there is need of inculcating right values among them for healthy lifestyle.

Green Healthcare: Eco Friendly Dentistry

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Role of environmental health has never been understood more widely than it is understood today. 'Green Economy' is new and rapidly evolving concept today. It focuses on providing justice through initiatives such as reducing green house emissions, increased use of renewable energy resources, conservation of natural resources and energy and minimization of waste. On an average a healthcare facility uses 2.1 times more energy than the typical commercial office building. Today many countries around the globe are applying principles of sustainable energy designs to help themselves and the environment. Studies have shown that although building new facilities and retrofitting old ones to be eco-friendly pose economic and operational challenges. 'GREEN HEALTHCARE': Eco Friendly Dentistry forms a major part of this movement. It requires careful planning and construction of a green facility in accordance with Leadership in Energy and Environmental Design (LEED) guidelines along with focus on energy conserving methods such as 1) Altering certain clinical techniques and materials 2) Efficient water management and Focus on renewable sources of energy 3) Regulated Waste Management Program 4) Use of daylight lighting and natural ventilation

Complications and Ailments of the Mind That Impact Everyday Health at Workplace

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We exist in and we are a part of a constantly unfolding, changing and transforming world. Over the last decenniums, workplaces have agonized a great pact of upheaval which has distraught individuals' capacity to work and retain their jobs, correspondingly unnerving their mental health. Most Hyper-industrialized including industrialized & lesser technologically advanced nations have experienced workplace transformations that have been influenced in substantial part, by economic, legal, political, technological, & demographic issues. These turbulences embracing Globalization, privatization, Urbanization laterally with liberalization of trade regulations have stimulated organizations to operate aggressively, creating high-pitched work performance environments to compete in a global economy. Subsequently, these vicissitudes have bought about, a noteworthy increase in mental health complications amidst workers. This study aims at exploring the complications of mind, In particular adjustment, mood disorders, depression, anxiety, stress, insomnia, Impulse control disorder, psychotic disorders, substance use disorder & eating disorders that accounts for most of the common psychopathologies hammering individuals everyday health at workplace. Besides this, it is designed to provide current, practical information for employers to assist with intervening in response to ailments of the mind among their employees. Theoretical underpinnings related to mental problems etiology and intervention is briefly summarized along with the impact of these ailments on everyday health & at workplace. Conclusively, at the end findings from recent studies evaluating individual-level interventions to combat the disorders of mind are highlighted, and specific recommendations are made regarding intervention. It is important that our managers and organizations nurture their human resources and help build a climate in which the mental health needs of the workforce are recognized and appropriately treated. **Keywords:** Workplace disorders, mental ailments, interventions, everyday health, coping mechanism

Postural Analysis of Laptop Computer Users: A review

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All over the world the usage of laptop computers has increased by multifold over the years. Laptop computers have their screens attached to the keyboard hence the usage requires working in constrained body postures and movement. Because of its inherent property of portability it can be used in various postures like lying on the floor, sitting on the dining table etc. This has brought about multitude of changes in posture which in turn has lead to an array of musculoskeletal problems. Substantial work has been done on postural changes associated with desktop computers but is sparse for laptop computers. Ergonomic guidelines have been issued for desktop computers but not for laptop computers. Cornell university issued a statement (2004) explaining the postures. The reason is simple-with a fixed design, if the keyboard is in an optimal position for the user the screen isn't and if the screen is in the optimal position the keyboard is not. Consequently, laptops are excluded from the current ergonomic design requirements because none of the designs satisfy this basic need. Laptop computer usage leads to a variety of changes in the spinal and upper limb postures. This in turn leads to a number of cumulative trauma disorders like impingement syndromes, medial and lateral epicondylitis, radial, cubital and carpal tunnel syndromes, cervical and lumbar disc disorders etc. This paper is a humble attempt towards understanding the changes in posture with laptop computers and the musculoskeletal complications which arise because of it.

Risk factor assessment scales: A Comparative analysis

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Musculoskeletal disorders are the most commonly seen disorders amongst occupational health disorders. The incidence is increasing because of industrialisation and change in the work profile. A positive relationship has been reported in the literature between exposure to stressful factors like abnormal posture, excessive force and repetition. Thus it is widely accepted that prevention is the best strategy to deal with these cumulative stress disorders. This makes assessment the most important part of the prevention strategy. There are various scales which have been developed over time like OWAS, REBA, RULA etc. These scales can be broadly questionnaire type subjective assessment, systematic observation or objective direct measurement scales. Each of these scales can be working on a specific area. Even though objective direct measures are more effective in assessing observational scales are used more often because of ease of application, relatively inexpensive and almost as reliable as objective measures. This article will be throwing some light on the existing scales like Rapid upper limb assessment (RULA),Quick exposure check(QEC), Job Strain Index(JOS)etc. It will be deliberating on the scales , their advantages and disadvantages and finally a comparison based on the literature. This will enable us to understand these scales in a better manner and finally chose them effectively when required.