#### Pre-conference Workshop 1

## A practical approach to manage OH for Nursing Professionals 24-25 September 2014

# at Department of Community Medicine, Maulana Azad Medical College New Delhi, India

#### Program Schedule:

#### DAY 1 24<sup>th</sup> September 2014; 08h30 – 18h00

Time	Торіс	
08h30- 08h45	Opening, welcome and introduction	
08h45-09h00	Introduction to the course	
09h15- 09h30	Pre workshop assessment	
09h30-10h15	Introduction to occupational health – scope, challenges, role players in India	
10h15-11h00	Introduction to occupational health and disease	
11h00-11h30	ΤΕΑ	
11h30-12h15	Overview of the Occupational Health and Safety Acts, legislations, compensation system and resources in occupational health in India	
12h15-12h45	Role of PHC nurses in Occupational health	
12h45- 13h15	Introduction to occupational hygiene	
13h15-14h00	LUNCH	
14h00-14h45	Occupational hazards and risk assessment	
14h30-15h00	Qualitative risk assessment	
15h15-15h45	Control measures in occupational hygiene	
15h45 – 16h00	TEA	
16h00-16h30	Case study: Agricultural setting: Virtual walkthrough	
16h30-17h00	Virtual walkthrough: Hospital laundry/ Video film on work place	
17h00- 17h30	Exercise in identifying hazards from virtual walkthrough	
17h30- 18h00	Occupational Health of HCW	

# DAY 2 25<sup>th</sup> September 2014; 09h00 – 18h00

Time	Торіс	
09h00-09h30	Review of day 1	
09h30-10h15	Occupational lung disease (pneumoconiosis, cancers, COPD)	
10h15-11h00	Occupational lung disease (silicosis, TB, asbestosis)	
11h00-11h30	ΤΕΑ	
11h30-12h00	Occupational asthma	
12h00-12h30	Occupational skin disease	
12h30-13h00	Occupational exposure to chemicals	
13h00-13h30	Noise induced hearing loss	
13h30- 14h15	LUNCH	
14h15 –14h45	Principals of ergonomics and MSD	
14h45-15h15	Physical hazards in occupational health	
15h15-15h30	TEA	
15h30- 16h15	Introduction to Occupational history	
16h15- 16h45	Exercise on taking occupational history	
16h45- 17h15	Ethics for nurses in occupational health	
17h15 – 17h30	Post course evaluation	
17h30- 17h 45	Course evaluation	
17h45- 18h00	Discussion- Thanks	

# Pre-conference Workshop 2 Environmental Health - Disasters Risk Analysis & Planning 24-25 September 2014 at National Institute of Disaster Management, New Delhi

Program Schedule:

9 45 AM - 10 00 AM	Registration
10 00 AM – 11 15 AM	Inaugural Session
	Welcome Address
	Dr. Satendra, ED NIDM
	Programme Prespective
	Prof. Jugal Kishore, MAMC
x .	Special Address on
	Disasters and Environmental Health Issues
	Dr. Raveendran, Ministry of Health
	Special Address
	Mrs. Neelkamal Darbari, JS Admin, NDMA
	Inaugural Address
	Shri G.V.V Sarma, JSDM, MHA
	Vote of Thanks
	Dr. Anil K. Gupta, NIDM

#### 11 10 AM – 11 15 AM High Tea

#### **Technical Sessions**

Technical Session I Issues	Disaster Management and Environmental Health
11 15 AM - 11 50 PM	Vulnerability Profile & Disaster Management (Institutional and Legal) Framework
11 50 PM - 12 30 PM	Sreeja S. Nair, Assistant Professor, NIDM Environmental Health dimensions of Disasters and current scenario.
12 30 PM - 01 10 PM	Dr. Anil K. Gupta, Head PPCCI, NIDM Occupational Health Issues in Industries with special focus on Industrial disasters. Dr. Ashish Mittal, CEO, Occupational Health and Safety Management Consultancy Services, New Delhi
01 10 PM - 02 00 PM	Lunch
Technical Session II	Environmental Health and Key Sectors of Intervention.
02 00 PM - 02 30 PM	Water and Sanitation Issues in disasters: Preparedness and Response (Director Safety and Disaster Management, DJB, 011-23519057)
02 30 PM - 03 00 PM	Food Security and minimum standards of food during disasters

	Tee
03 00 PM - 03 30 PM 03 30 PM - 04 00 PM	AFPRO Disaster and Waste Management Issues (CPCB) Epidemiology of Disasters and Vector Control (Dr. Dhariwal, NCDC)

04 15 PM - 05 15 PM Panel Discussion

#### DAY 2: 25 September 2014

Technical Session III	Environmental Health and Key Sectors of Intervention
10 00 AM - 10 45 AM	Shelter and Disasters Hari Kumar, Geo-Haz International
10 45 AM - 11 30 AM	Responders Safety and Disaster Management Dr. Saurabh Dalal, Consultant, NIDM
11 30 AM – 11 45 AM	Теа

# 11 45 AM - 12 30 PMPanel Discussion12 30 PM - 01 00 PMFeedback and Valedictory Session

#### 01 00 PM - 02 00 PM Lunch

#### **Program Schedule**

#### 2nd International Conference on Occupational & Environmental Health: 26 - 28 September 2014 Theme of the Conference: Mainstreaming of Occupational & Environmental Health Venue: NDMC Auditorium, New Delhi

Day I: 26 September, 2014 (Friday)			
Registration	9.00 AM-10.00AM		
Inaugural Session	10.00 am – 11.30 am		
11.30 am - 11.45 noon <b>Tea/Coffee</b>			
11.45 am – 1.00 pm	Scientific Session I: Mainstreaming at Planning and Policy Level (Plenary Session) Main Auditorium		
Chairs :	Dr. J K Das, Director, NIHFW, New Delhi		
	Mr. DC Anand - Former District judge and Working as member judicial VAT Appellate Tribunal		
Speakers			
	Dr. Paek Domyung (Korea) "Health and Safety Progress in Korea, Brief History and Lessons"		
	Mr. Swaminath, Retired IAS "Current policy and planning issues on workers health and safety and remedial measures"		
Dharmendra Kumar, Director, DDU Institute of Physical Handicapped "Disability and Rehabilitation policy and planning of government for workers"			
12.45pm-1.00pm	Discussion		
Rapporteurs	pporteurs Dr. Tanu Anand, MAMC, Dr. Akanksha Tomar MAMC		
1.00 pm – 2.00 pm <b>Lunch</b>			

2.00 pm – 3.30 pm	Scientific Session II : Mainstreaming at Implementation Level (Plenary Session) Main Auditorium			
2:00 pm - 2.40 pm 26 <sup>th</sup> Sept 2014	Part I - Special Session: Tobacco Cessation at workplace Main Auditorium			
Chairs :	Dr. GK Ingle, Director Professor & Head, Community Medicine, MAMC			
Speakers	Dr. R. C. Jiloha, Director Professor Psychiatry, G B Pant Hospital "Epidemiology of tobacco use and its pharmacological management"			
	Dr. Rakesh Chadda, Professor Psychiatry AIIMS "Non-pharmacological management of Tobacco use"			
Rapporteur	Dr.Dinesh Kataria, Professor Psychiatry LMHC, Dr. Neha Gupta, SRF, MAMC,			
2:40 pm - 3.30 pm <b>26<sup>th</sup> Sept</b>	Part II - Mainstreaming at Implementation Level (Plenary Session)			
Chairs :	Dr. CS Pandav, Professor & Head, CCM, AIIMS			
	Dr. P. K. Sharma, MOH, NDMC			
Speakers	Dr. Amod Kumar, St. Stephen Hospital - Occupational Environment: An Ongoing Calamity			
	Dr. UC Ojha, Director Institute of Occupational and Environmental Health, "New Initiative in OHS by ESIC and Vision Ahead"			
	Dr. OP Kansal Advisor Injection Safety BD, "Mainstreaming of Occupational & Environmental Health in Implementation level"			
Rapportuers	Dr. Tapas JR MAMC, Dr. Anuradha Chauhan JR,			
	3.30 pm -3.45 pm <b>Tea/Coffee</b>			
3.45 pm – 4.45 pm 26 <sup>th</sup> Sept	Scientific Session III: Mainstreaming at Research & Education Level (Plenary Session) Main Auditorium			
Chairs :	Dr. L. S. Chauhan, Director, NCDC, Delhi			
	Dr. Brahm Prakash, CMD Northern Railways,			
Speakers	Dr. Tor Erik Danielsen, Oslo, Norway "Changes in Europe - Specialist training in Norway – Status and trends"			
	Inakshi Naik, NIOH South Africa "Training of Occupational Health Professionals for Delivery of Occupational Health Services in South Africa			
	Dr. P K Sishodiya (Rtd Director NIMH) "Role of academic and research institutions in Occupational & Environmental health"			
Rapporteur	Dr. Urvi Sharma, SR MAMC, Dr. Sunita JR MAMC			
4:45 pm - 5:45 pm 26 <sup>th</sup> Sept	Free Paper Presentation (Oral)			

	Free Paper Session 1		
	Theme I: Epidemiology of environmental diseases - I	Main Auditorium	
	Chairs: Dr. Nagesh Director Professor LHMC New Delhi		
	Dr. Anil K Gupta, Asso Professor & Head Planning NIDM		
	Rapporteurs: Dr. Urvi Sharma SR MAMC, Dr. Rajkamal JR MAMC		
	Free Paper Session 2		
	Theme I: Epidemiology of occupational and environmental diseases - II	First Floor HALL A	
	Chairs: Dr. Sanjay Gupta, Professor NIHFW		
	Dr. OP Rajoura Associate Professor Com Med UCMS, Delhi		
	Rapporteurs: Dr. Deepshikha JR LHMC; Dr. Sriram JR MAMC		
	Free Paper Session 3		
	Theme I: Epidemiology of occupational and environmental diseases - III	First Floor HALL B	
	Chairs: Dr. Anubha Mandal, Professor, DTU,		
	Dr. AK Bagga, Scientist D, ICMR, New Delhi		
	Rapporteurs: Dr. Jitender Kumar Meena JR MAMC; Rahul Anand Student DTU		
	6:00 pm - 9:00 pm Cultural Program followed by Dinner		
	Day II: 27 September2014 (Saturday)		
9.00am – 10.00am 27 <sup>th</sup> Sept 2	014 Oral and Poster Presentation		
	Poster Session 1		
	Theme I: OH of Health Workers	First Floor Foyer	
	Chairs: Dr. S. V. Singh, Professor, MAMC		
	Dr. Neeta Kumar, Scientist D, ICMR		
Rapporteurs: Dr. Charu SR MAMC, Dr. Amit JR MAMC			
Free Paper Session 4			
	Theme II: Children and adolescent workers; Women, Work & Health (can go as Vulnerable population	on) Main Auditorium	
	Chairs: Dr. Sunil Juneja, Dean DMC, Ludhiana		
	Dr. Harish Pemde, Professor Pediatrics LHMC New Delhi		
	Rapporteurs: Dr. Deepak LHMC, Ms. Farah Rufeda College of Nursing Jamia Hamdard		

2 <sup>nd</sup>	International Conference on	Occupational & Environmental Health	26 -	28 September 2014

Theme III: OH of Health Workers -1   First Floor HALL A     Chairs: Dr. vibha, Director Professor, LHMC, New Delhi   Dr. Rajesh Kumar, Professor, MAMC, New Delhi     Rapporteurs: Dr. Anuradha Chauhan JR, Dr.Anshul Goel   Free Paper Session 6     Free Paper Session 6   First Floor HALL B     Chairs: Dr. TK Jena Director School of Health Sciences IGNOU   Dr. Prasuna J, Professor LHMC     Rapporteurs: Dr. Drishti JR MAMC, Dr. C. Vankumha JR MAMC   Rapporteurs: Dr. Scientific Session (V : Mainstreaming in MSME Sector (Plenary Session)   Workshop for NDMC Sanitary Engineers     10.00 am - 11.00 am   Scientific Session D (V : Mainstreaming in MSME Sector (Plenary Session)   Morkshop for NDMC Sanitary Engineers   First Floor Hall A     10.00 am - 11.00 am   Dr. Suneela Garg, Director Prof., MAMC   Inauguration: Dr. PK Sharma, MOH, NDMC   Inauguration: Dr. PK Sharma, MOH, NDMC     Chairs   Dr. Suneela Garg, Director Prof., MAMC   Introduction: Dr. PK Sharma, MOH, NDMC     Speakers   Mr. Satish Sinha Associate Director Toxic Link "Occupational health challeges in the unorganized sectors in India" Ravi Praksh/Pradeep Naryanan - Praxis, New Delhi "Down the Drain" Mr. Bechu Giri, AITUC Haryana President "Role of trade unions in workers" health and safety demand"   Health Problems among sanitary staff: Dr. Mahinda, Australia     Rapporteurs   Ms. Seema Rani Assist Prof Jamia Hamdard, Dr. Meenakshi Max Hospital,   Lintoum - 11.15 am Tea/ Coffee <th></th> <th>Free Paper Session 5</th> <th></th>		Free Paper Session 5	
Chairs: Dr. Vibha, Director Professor, LHMC, New Delhi     Dr. Rajesh Kumar, Professor, MAMC, New Delhi     Rapporteurs: Dr. Anuradha Chauhan JR, Dr.Anshul Goel     Free Paper Session 6     Theme III: OH of Health Workers - II     Chairs: Dr. TK Jena Director School of Health Sciences IGNOU     Dr. Prasuna J, Professor LHMC     Rapporteurs: Dr. Drishti JR MAMC, Dr.C.Vankumha JR MAMC     10.00 am - 11.00 am     27 <sup>th</sup> Sept 2014     Main Auditorium     Chairs     Dr. Suneela Garg, Director Prof., MAMC, New Delhi     Main Auditorium     Chairs     Dr. Suneela Garg, Director Prof., MAMC, New Delhi     Main Auditorium     Mirs Sepakers     Dr. Suneela Garg, Director Prof., MAMC, New Delhi     Mr. Satish Sinha Associate Director Toxic Link "Occupational health chailenges in the unorganized sectors in India" Ravi Praksh/Pradeep Naryanan - Praxis, New Delhi "Down the Drain" Mr. Bechu Giri, AITUC Haryana President "Role of trade unions in workers' health and safety demand"     Rapporteurs   Ms. Seema Rani Assist Prof Jamia Hamdard, Dr. Meenakshi Max Hospital,     Health Problems among sanitary staff: Dr. Mahinda, Australia		Theme III: OH of Health Workers -I	First Floor HALL A
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11.00 am – 11.15 am <b>Tea/ Coffee</b>	Rapporteurs	Ms. Seema Rani Assist Prof Jamia Hamdard, Dr. Meenakshi Max Hospital,	
		11.00 am – 11.15 am <b>Tea/ Coffee</b>	

11.15 am – 12.15 pm	Scientific Session V: Mainstreaming in MNCs (Plenary Session)	Workshop for NDMC Sanitary Engineers
27 <sup>th</sup> September 2014	Main Auditorium	First Floor Hall A Continue
Chairs	Mr. Omkar Sharma, Regional Labour Commissioner, Shram Shakti	Dr. Jugal Kishore Professor MAMC "Prevention of Ergonomic
	Bhavan	Problems in workers"
	Dr. Sukumar, Adani Ahmdabad	
		Dr. Ashish Mittal, CEO OHMCS "Prevention of Occupational
Speakers	Dr. Niti Paul, CMO, HCL "Mainstreaming of Occupational Health in	and Environmental Health Problems"
	Corporate Sector"	
	Dr. S K Tyagi, CPCB, New Delhi - Air Pollution Trend in Indian Cities and	
	Regulatory Mechanism	
	Dr. Nereshni , Ampath, South Africa "Chemical Exposures and	
	guidelines to Biological Monitoring"	
	Mr. R Sreedhar, Environics, New Delhi "Miners health"	
Rapporteurs	Dr. Shantanu Sharma, JR MAMC; Dr.Pooja Ahlawat JR MAMC	Dr. Kalika JR MAMC
12.15pm-1.15pm	Special Scientific Session Technology in health sector	
27 <sup>th</sup> September 2014		
Chairs :	Dr. SK Rasania, Dir Professor & Head Community Medicine LHMC New De	elhi
	Dr. Lim Jack Fang, Ministry of Health, Malaysia	
Speakers	Dr. Punita Sodhi, Professor Ophthalmology MAMC, "Using Different tech	niques to diagnose color blindness in workers"
	Dr. BN Mirsa, Dept. of Community Medicine. R D Gardi Medical College, U	Jjjain. MP "Mainstreaming 'equipment fallacy for efficient health care' –
	sphygmomanometer at the eye of the storm"	
	Mr. Vikas Verma Consultant Engineer "Time to dissect smart phones"	
Papportuors	Dr. Drichti IP Community Modicing, MAMC, Dr. Icha Goyal IP I HMC	
Napportuers	1 15 pm - 2 00 pm Lunch	
	1.15 pm-2.00 pm <b>Lunch</b>	
2.00 pm – 3.15pm 27 <sup>th</sup>	Scientific Session VI: Mainstreaming in Informal Sector (Plenary Sessio	n) Main Auditorium
September 2014		
Chair :	Dr. R. S. Tiwari, Retired Labour Commissioner	
Co Chair :	Dr. R. S. Rajput, RLI, DGFASLI	
Speakers	1. Mahinda Seneviratne, Australia - Capability building to deliver OEH ser	vices in the Informal Sector
	2. Charu Garg, IHD, New Delhi - Are we moving towards Universal Health	Care for informal workers in India?
	3. J John, CEC, New Delhi/ Dr. Vinayaraj V. K - Behind the Glitter: A Study	of Occupational Health Hazards in the Home-based Bangle Works in
	Firozabad and Brass Works in Moradabad"	
	Mr. Mukesh Gulati Executive Director, Foundation for MSME Cluster "Oc	cupational Health and safety of foundry workers"
Rapportuers	Dr. Pallavi Boaro JR MAMC; Dr. Akanksha Tomar JR MAMC;	

	3.15 pm - 3.30 pm <b>Tea/Coffee</b>	
3.30 pm- 4.30 pm	Panel Discussion: Industry Commitment & Resources to achieve OEH goals	
Panelists	Tor Erik, Ina Naik, Mahinda, Mukesh Gulati,	
4.30 pm- 5.45 pm <b>27<sup>th</sup> Sept</b>	Free Papers and Poster Presentation	
	Free Paper Session 7	
	Theme IV: Risk Assessment	Main Auditorium
	Chairs: Dr. Sandeep Kaushal, Dean, DMC &H Ludhiana	
	Ms. Sreeja Nair, Assoc. Professor, NIDM	
	Rapporteurs: Dr. Shweta Arora SR LHMC; Dr. Varun Kumar VMMC	
	Free Paper Session 8	
	Theme V - Lifestyle diseases and Psychosoical factors at work place	First Floor HALL A
	Chairs: Dr. Harjinder Kaur, Director Principal SGRD College of Nursing Punjab	
	Dr. Charan Singh, Public Health Specialist, DHS	
	Rapporteurs: Dr. Naveen J. Prabhu, JR Community Medicine, MAMC, Ms. Bharti Rufeda College of Nursin	g Jamia Hamdard
	Free Paper Session 9	
	Theme VI –Mental Health at workplace	First Floor HALL B
	Chairs: Dr. Dinesh Kataria, Professor, Department of Psychiatry, LHMC	
	Dr. Manish Goel, Associate Professor LHMC	
	Rapporteurs: Dr. Neha Gupta MAMC; Dr. Madhan, JR MAMC	
	Poster Session 2	
	Theme II: Occupational & Health Related Issues: Air & Water Pollution, Noise, toxic metal exposure	First Floor Foyer
	Chairs: Dr. M. M. Singh, Professor, MAMC	
	Dr. Ashu Khanna, Consultant, Occupational Health	
	Rapporteurs: Dr. Disha Meena JR MAMC; Ms. Ummi Rufeda College of Nursing Jamia Hamdard	
	Day III: 28 September 2014 (Sunday)	
9.00am- 10.00am 28 <sup>th</sup> Sept 2	2014 Oral and Poster Presentation	

	Poster Session 3	
	Theme III: Occupational eye problems; Occupational & Environmental diseases; Occupational accidents	& injuries; OH laws
		First Floor Foyer
	Chairs: Dr. Vikrant Mohanty, Asooc. Prof., MAIDS	-
	Mrs. Nirmala Singh, Vice Principal, College of Nursing, RML Hospital New Delhi	
	Rapporteur: Dr. Mohit Batra JR MAMC, Dr. Dr. Piyush JR MAMC	
	Free Paper Session 10	
	Theme VII: Innovative Practice in OH: Promoting health and Wellbeing at work	Main Auditorium
	Chairs: Dr. Ramesh Kumar, CMO, NDMC	
	Dr. Manish Chaturvedi, Professor, Sharda University	
	Rapporteurs: Dr. Sumeena MAMC; Dr. Neha Jain LHMC	
	Free Paper Session 11	
	Theme VIII: Environment related issues	First Floor HALL A
	Chairs: Dr K Madan Gopal, Senior Technical Expert, Indo-German Social Security Programme – IGSSP.	
	Dr. Manish Goel, Associate Professor LHMC	
	Rapporteurs: Dr. Uday Bhaskar JR MAMC; Dr. Sakshi LHMC,	
	Free Paper Session 12	
	Theme IX: Miscellaneous	First Floor HALL B
	Chair: Dr. S.K. Bhasin, Professor, UCMS	
	Dr. Ranjan Das, Professor Com Med LHMC	
	Rapporteur: Dr. Kalika JR MAMC; Rishabh Anand MBBS student MAMC	
10.00 am – 11.45 am	Scientific Session VII: Mainstreaming of Rehabilitation of OEH affected people (Plenary Session)	Main Auditorium
28 <sup>th</sup> September 2014		
Chairs	CK Tyagi, NHRC, New Delhi	
	Sanjiv Pandita, AMRC Hongkong	
Speakers	Dr. Apo Leong, Senior Adviser to Asia Monitor Resource Centre (AMRC) "Rehabilitation policy in Hongkong	"
	Mr. Sanjay Parikh, Advocate Supreme Court	
	Jagdish Patel, Director PTRC Vadodara "Mainstreaming of Rehabilitation of OEH Affected People: Relief & F	Rehabilitation; Care & support"
	Dr. Swati Bhave, Former Professor Pediatrics, Director AACCI "Occupational Health Problems among ATC w	orkers of airports and ",
Rapportuers	Dr. Anshul Shukla, MAMC; Dr. Ruchira JR MAMC	
	11.45 am – 12.00 noon <b>Tea/ Coffee</b>	

12.00 noon – 1.00 pm	Award distribution and Closing Ceremony	Main Auditorium
Closing remark Best Paper Awards Chief Guest	Dr. GK Ingle, Director Professor & Head, MAMC Dr. Deepak K Tempe, Dean MAMC	
Rapportuers	Dr. Tanu Anand SR MAMC; Dr. Tapas MAMC	
	1-00 pm - 2.30 pm <b>Lunch</b>	

# Free Oral Paper Presentation Schedule

## 2nd International Conference on Occupational & Environmental Health: 26 - 28 September 2014

#### Theme of the Conference: Mainstreaming of Occupational & Environmental Health Venue: NDMC Auditorium, New Delhi

Time   Free Paper Session I     Theme I: Epidemiology of Environmental diseases; DM   Venue: Main Auditorium     4:45-5:45 pm   Chair: Dr. Nagesh Director Professor LHMC New Delhi     Co chair: Dr. Anil K Gupta, Asso Professor & Head Planning NIDM     Despertments Dr. Unit Sharma CR MAMC, Dr. Baikamal IB MAMC
Theme I: Epidemiology of Environmental diseases; DM   Venue: Main Auditorium     4:45-5:45 pm   Chair: Dr. Nagesh Director Professor LHMC New Delhi     Co chair: Dr. Anil K Gupta, Asso Professor & Head Planning NIDM     Description: Dr. Unit Sharma CR MAMAC Dr. Baikamal IB MAMAC
4:45-5:45 pm Chair: Dr. Nagesh Director Professor LHMC New Delhi Co chair: Dr. Anil K Gupta, Asso Professor & Head Planning NIDM
Co chair: Dr. Anil K Gupta, Asso Professor & Head Planning NIDM
Departments Dr. Linui Sharma SD. MANAC, Dr. Daikamal JD. MANAC
Rapporteurs: Dr. Orvi Sharma SR MAIVIC, Dr. Rajkamai JR MAIVIC
S. No. Title Author Abstract
No.
1 Forecasting malaria cases using climatic factors in Varun Kumar 7
Delhi, India: A time series analysis
2 Disaster Relief Workers:- Health Issues Isha Goyal 19
3 Sanitation: India's journey to curb open Drishti Sharma 20
defecation
4 Environmental Hygienic conditions of the food Pallavi Boro 26
service establishments in a medical college
campus in Central Delhi
5 Measurement of uranium concentrations in Komal Badhan 25
drinking water for assesment of health risks
6 Knowledge and Use of Personal Protective Udhaya 96
Measures Against Mosquito Borne Diseases in a Bhaskaran
Resettlement Colony of Delhi
Time Free Paper Session 2
Theme I: Epidemiology of Occupational diseases-I Venue: First Floor Hall A
4:30-5:30 pm Chair: Dr. Sanjay Gupta, Professor NIHFW
Co chair: Dr. OP Rajoura Associate Professor Com Med UCMS, Delhi
Rapporteurs: Dr. Deepshikha JR LHMC; Dr. Sriram JR MAMC
S. No. Title Author Abstract
NO.
1 Occupational health hazards among teaching Ram Prasad 1
Community -A Questionnaire based survey
2 An epidemiological cross-sectional comparative Rajat Sana 5
study of morbidity profile in an automobile
manufacturing unit
3 Comparative study of Work profile and hazard Anuradha 24
exposure amongst weiders of Orban and Rurai Chaunan
Delni
4 Occupational Health Problems in 11 Industry Monalisha 43
Workers in Bangalore Sanu
Drivers in Delhi

	6	Socio-demographic factors affecting the health status and morbidity among rickshaw pullers in central area of Delhi	Mohit Batra	64	
Time	Free Pap	er Session III	I	<u> </u>	
	Theme I:	Epidemiology of Occupational diseases-II Venue	: First Floor Hall E	5	
4:30-5:30 pm	Chair: Dr	. Anubha Mandal, Professor, DTU,			
	Dr.	. AK Bagga, Scientist D, ICMR, New Delhi			
	Rapporte	eurs: Dr. Jitender Kumar Meena JR MAMC; Rahul Ana	and Student DTU		
	S. No.	Title	Author	Abstract No.	
	1	A case control study on Byssinosis among Textile mill workers in Ahmedabad city. India	S.K Chauhan	46	
	2	Assessment of Health Status of CFL Factory workers in Himachal Pradesh	Ashu Khanna	48	
	3	Occupational Hazards and Safety Assessment of Construction Workers: An Overview	Sri Nagesh Malvati	49	
	4	A study to assess the determinants of occupational hazards among workers in machine tool manufacturing factory in selected industrial area, Batala Punjab (India)	Harjinder Kaur Kang	54	
	5	A study on exposure related health problems in textile industry	Suman Bahadur Singh	58	
	6	Musculoskeletal disorders among textile mill workers of Ahmedabad city, India	Arohi Chauhan	72	
	7	A study of the health profile of rubber plantation	Tapas Nair	94	
		Day 2: 27 <sup>th</sup> Sept. 2014 (Saturday)		<u> </u>	
Time	Free Pap	er Session IV			
	Theme II	: Occupational health of Vulnerable population Ve	nue: Main Audito	rium	
9:00-10:00 am	Chairs: D	r. Sunil Juneja, Dean DMC, Ludhiana			
	Dr. Harish Pemde, Professor Pediatrics LHMC New Delhi				
	Rapporte	eurs: Dr. Deepak LHMC , Ms. Farah Rufeda College of	<sup>f</sup> Nursing Jamia Ha	amdard	
	S. No.	Title	Author	Abstract	
	- 1	l Una laboratoria de la laboración Marcal	Deiewi Chelwe	NO.	
	1	Health status of child laborers in Nepal	Rajani Shakya	28	
	2	"Pattiwork" Handicraft (A study in Aligarh City, UP)	Saban Khan	50	
	3	Family Planning: Is the Key Hidden In the Work Profile of the Urban Indian Women?	Menaal Kaushal	78	
	4	Assessment of the living conditions and physical health profile of house maids in resettlement colonies of Central Delhi	Akanksha Tomar	80	
	5	Lifestyle habits among women members of a spouse welfare association of a Government Public Sector Unit (PSU) in Mumbai, India	Rishabh Anand	87	
	6	Estimation of fertility among Bidi Workers of District Sagar of MP	Arun Verma	110	

Time	Free Paper Session V       Theme III: Occupational Health of Health Workers-I     Venue: First Floor Hall A				
9:00-10:00 am	Chair: Dr. Vibha, Director Professor, LHMC, New Delhi Dr. Rajesh Kumar, Professor, MAMC, New Delhi Rapporteurs: Dr. Anuradha Chauhan JR, Dr.Anshul Goel				
	S. No.	Title	Author	Abstract No.	
	1	Study to assess the Knowledge, Attitude and Practices of Biomedical Waste Management among health care personnel at tertiary care hospital in Haryana	Vikas Gupta	3	
	2	Epidemiology of needle stick injuries from a tertiary care centre from rural Uttar Pradesh	Pawan Goel	39	
	3	Assessment of Injection Safety Standards in a selected Primary and Community Health Care Centre in Bhopal.	Aditya Thakur	40	
	4	A study to assess the knowledge and practices of universal health precautions among the interns of Gauhati Medical College, Guwahati.	Manjit Das	52	
	5	Effect of training on knowledge, attitude and practices regarding Universal Precaution among Nurses Working at a rural Hospital, Delhi, India	Madhan Kumar Velu	88	
	6	Effectiveness of training on Knowledge, Attitude, Behaviour and Practices of health care workers regarding universal precautions and biomedical waste management in ESIC Hospital Basaidarapur, Delhi.	Piyush Gupta	89	
Time	Free Pap	er Session 6			
_	Theme II	I: Occupational Health of Health Workers-II Ver	nue: First Floor Ha	II B	
9:00-10:00 am	Chair: Dr Dr Rapporte	. TK Jena Director School of Health Sciences IGNOU . Prasuna J, Professor LHMC eurs: Dr. Drishti JR MAMC, Dr.C.Vankumha JR MAMC			
	S. No.	Title	Author	Abstract No.	
	1	Workplace violence against doctors in a tertiary care hospital in Central Delhi	Tanu Anand	21	
	2	Musculosketal disorders in dental health care provider	Nilima Sharma	112	
	3	Potential side effects of back scatter of ophthalmic lasers	Sonal Dangda	41	
	4	Perceived occupational hazards and opinion regarding their prevention among medical interns in a tertiary care institution in Delhi- a qualitative study	Pooja Ahlawat	61	
	5	Rural posting: perception, acceptance and plausibility	Manasvi Gupta	77	
	6	Occupational and environmental hazards in nurses	Sriram Thangavelu	86	

Time	Free Pap	er Session 7			
	Theme IV: Risk Assessment Venue: Main Auditorium			ium	
4:30-5:30 pm	Chair: Dr. Sandeep Kaushal, Dean, DMC &H Ludhiana				
	Co chair: Ms. Sreeja Nair, Assoc. Professor, NIDM				
	Rapporte	eurs: Dr. Shweta Arora SR LHMC; Dr.Varun Kumar VN	ЛМС	T	
	S. No.	Title	Author	Abstract	
				No.	
	1	Hazard identification & Occupational Health risk	Rajat Saha	6	
		assessment for risk prioritisation to adopt control			
		measures in an automobile industry			
	2	Risk of occupational exposure to chemical	Deepak	17	
		pesticide among farmers of Chitwan district of	Gyenwali		
		Nepal			
	3	Human Physical Drudgery Index (HPDI): A	Pratibha Joshi	37	
		Subjective Assessment Tool for Measuring			
		Women's Drudgery in Agriculture		60	
	4	Environmental Exposure to Persistent	Madhu Anand	69	
		Organochiorine Pesticides and Risk of Breast			
	-	Cancer in Indian Females.	Dhaanandua	75	
	5	Significance of uses of personal protective	Singh	75	
		equipments during application of	Singn		
	6	Organophosphale pesticides	Kanika Makkor	100	
	0	Deptistry: Revisiting the Common Energy	Kallika iviakkei	109	
	7	Environmental effects of personal protective	Charu Kahli	00	
	/	measures against mosquitoes		05	
Time	Eroo Dan	ar Session VIII			
Time	Thome V	/·   ifestyle diseases and Psychosoical factors at wor	k nlaco		
	inclue v	· Elestyle discuses and i sychosolear factors at wor	Venue: First F	loor Hall A	
4:30-5:30 pm	Chair: Dr. Hariinder Kaur. Director Principal SGRD College of Nursing Puniab				
	Co chair: Dr. Charan Singh, Public Health Specialist, DHS				
	Rapporteurs: Dr. Naveen J. Prabhu, JR Community Medicine, MAMC, Ms. Bharti Rufeda				
	College o	of Nursing Jamia Hamdard	, , , , , , , , , , , , , , , , , , ,		
-	S. No.	Title	Author	Abstract	
				No.	
	1	Morbidity profile and health seeking behavior	Jitendra Kr.	35	
		among law enforcement personnel working in a	Meena		
		metropolitan district of India			
	2	A study of morbidity profile amongst police	Junti Boruah	63	
		personnel in Lakhimpur (Assam) with special			
		reference to hypertension and its associated risk			
		factors.			
	3	Prevalence of Tobacco Use among medical	Anshul Goel	85	
		college staff in Delhi			
	4	Prevalence of substance use and stress related	Naveen	91	
		problems among security personnel working in a	Prabhu		
		medical college in Delhi			
	5	A Study of the Substance Use Patterns and	Anshul Shukla	95	
		associated Risk Factors Amongst Construction			
		Site Workers in NCR Delhi			
	6	Association between Emotional Intelligence and	Vipul Yadav	100	
		Perceived stress among dental students			

Time	Free Paper Session 9				
	Theme VI: Mental health at workplace Venue: First Floor Hall B				
4:30-5:30 pm	Chair: Dr	. Dinesh Kataria, Professor, Department of Psychiatry	y, LHMC		
	Dr. Mani	sh Goel, Associate Professor LHMC			
	Rapporte	eurs: Dr. Neha Gupta MAMC; Dr. Madhan, JR MAMO	2		
	S. No.	Title	Author	Abstract	
				No.	
	1	Mental Health Status of Nurses working in	Mintu Bharali	53	
		Gauhati Medical College & Hospital			
	2	Comparative analysis of Mental Health Status of	Sumeena	68	
		Housewives and Day-shift Working women in	Vasundhra		
		Rural Delhi, India			
	3	Occupational and environmental stress among	Kalika Gupta	76	
		doctors in a teaching hospital			
	4	Impact of occupational stress and salivary	Mansi Atri	79	
		cortisol on periodontal disease amongst skilled			
		industrial worker-a clinical and laboratory study			
	5	Prevalence of mental health problems and	Amit Kumar	92	
		depression among security personnel in a			
		medical college in Delhi			
	6	Perceived Sources of Stress among	Shekhar	101	
		Undergraduate Dental Students in a Dental	Grover		
		Institution in North India			

		Day 3: 28 <sup>th</sup> Sept <i>,</i> 2014 (Sunday)			
Time	Free Paper Session 10 Theme VII: Innovative practices in OH; Promoting health & well being at work				
	Venue: Main Auditorium				
9:00-10:00 am	Chair: Dr. Ramesh Kumar, CMO, NDMC				
	Co chair:	Dr. Manish Chaturvedi, Professor, Sharda University	,		
	Rapporte	eurs: Dr. Sumeena MAMC; Ms. Anupam Rufeda Colle	ge of Nursing, Jan	nia Hamdard	
	S. No.	Title	Author	Abstract	
				No.	
	1	Results of colour vision testing in Delhi male	Punita	9	
		subjects with use of anomaloscope	Sodhi/AMit K		
			Chawla		
	2	Innovative Practices in Occupational Health at a	Umang	11	
		Large Scale Petrochemical Industry - Task Based	Kothari		
		Health Risk Assessment			
	3	Knowledge, attitude, practices among food	Disha Meena	22	
		handlers regarding food hygiene working in			
		establishments in medical college of Delhi.			
	4	Personal hygiene and self-reported hand washing	Neha Gupta	27	
		practices among food handlers of a medical			
		college in Delhi.			
	5	A Quasi-experimental study of assess the	Ashu Kesar	55	
		effectiveness of structured teaching module on			
		the knowledge of staff nurses regarding Hospital			

	1				
		Acquired Infections (HAI) in Guru Nanak Mission			
		Hospital, Dhahan Kaleran,SBS Nagar (Punjab).			
	6	Relationship between Occupation and morbidity	Neeta Kumar	99	
		prevalence in a North Indian site			
	7	The effects of night shift schedules on nursing	Anjana Verma	38	
		personnel working in a hospital			
Time	Free Pap	er Session 11			
	Theme IX	K: Environment related issues Venue: First Floo	r Hall A		
9:00-10:00 am	Chairs: D	r K Madan Gopal, Senior Technical Expert, Indo-Gerr	man Social Securit	y Programme	
	– IGSSP.				
	Dr. Mani	sh Goel, Associate Professor LHMC			
	Rapporte	eurs: Dr. Tapas MAMC; Dr. Sakshi LHMC,			
	S. No.	Title	Author	Abstract	
				No.	
	1	Rapid Urbanization in India and its effect on	Vinod Joon	2	
		Human Health			
	2	Indoor Air quality Assessment at the record	Lim Jac Fang	13	
		office, Hospital T, Sabah	U		
	3	Health impact assessment of ambient air	Enkhiagral	30	
	-	pollution of among children Ulaanbaatar city	1.9.		
	4	A Proteomic approach for early detection of	Ruchika Jain	51	
	-	candidate biomarker for Noise Induced Hearing			
		Loss in Indian mine workers.			
	5	Household air pollution and its adverse health	Shweta Arora	60	
	5	effects –a comparative risk assessment.	Sinteta / a ora	00	
	6	Health and Environmental Hazards of Electronic	Anwesha	71	
	°,	Waste (F-waste) in India	Borthakur		
	7	Household Fuels consumption and it's effects on	Sunita Dhaked	81	
	,	health status of the workers in Delhi	Sunta Dhakea	01	
Time	Free Pan	er Session 12			
- Thine	Theme X: Miscellaneous Venue: First Floor Hall B				
9.00-10.00 am	Chair: Dr. S.K. Bhasin, Professor, LICMS				
5.00 10.00 am	Dr. Banian Das Professor Com Med LHMC				
	Rannorteur: Dr. Kalika IR MAMC· Rishabh Anand MRRS student MAMC				
	S No		Author	Abstract	
	5. NO.		Addion	No	
	1	Medical tourism in India: challenges and	Deenak	29	
	T	opportunities	Deepak	29	
	2	Use of hand held YPE equipment - challenges in	Dhannetiya Daari Krishnan	22	
	2	bealth and cafety	F dall Klishindi	52	
	2	Human Eactors and Pohaviour Safety	Ankit	74	
	5	Human Factors and Benaviour Safety		74	
			, 'DDai Wai		
	4	Indine content of some commercial table salts in	Kiyawa SA	84	
		Kano – Nigeria as a factor affecting dietary iodine			
		levels			
	5	Occupational Health & Safety Management	S K Sethi	104	
		Systems	5. K. Setti	107	
	6	Road Safety in India: An Investigation	Mayank	107	
	Ĭ		Kumar	107	

## **Free Poster Presentation Schedule**

#### 2nd International Conference on Occupational & Environmental Health: 26 - 28 September 2014 Theme of the Conference: Mainstreaming of Occupational & Environmental Health

Venue: NDMC Auditorium, New Delhi

POSTERS

		Day 2:27 <sup>™</sup> Sept, 2014 (Saturday)		
Time	Poster S	ession I		
9:00-10:00 am	Theme I	Theme I: OH of Health Workers Venue: First Floor Foyer		
	Chairs: D	Chairs: Dr. S. V. Singh, Professor, MAMC		
	C	Dr. Neeta Kumar, Scientist D, ICMR		
	Rapport	eurs: Dr. Charu SR MAMC, Dr. Amit JR MAMC		
	S. No.	Title	Author	Abstract
				No.
	1	An epidemiology of reported needlestick injuries	Lim Jac Fang	14
		among health care workers in Sabah health		
		government facilities from 1999 - 2008 and a		
		state initiative in the area of needle stick injuries		
		prevention.		
	2	Prevalence of Depression among Post Graduate	Harashish	15
		Residents in a Tertiary Health Care Institute,	Jindal	
		Haryana		
	3	A study on needle stick injury among the nursing	Debjyoti	18
		staff of a tertiary care hospital	Mohapatra	
	4	A Study to Assess Perceptions and Determinants	Kalpana	31
		of Noncompliance regarding Universal	Sangwan	
		Precautions Among Nursing Staff of a Tertiary		
		Care Hospital, Rohtak Haryana.		
	5	Prevalence and pattern of substance abuse	Madhur	33
		among undergraduates of a medical college in	Verma	
		Haryana.		
	6	Needle -stick injuries among residents in a	Soumya Sahoo	34
		tertiary care hospital of Haryana		
	7	Prevalence and pattern of substance abuse	Gaurav	57
		among under-graduate students of a medical	Kamboj	
		college in Haryana		
	8	Perception of Biomedical Waste Management	Sanchit	65
		(BMW) among Dental Health Care personnel of	Pradhan	
		various Dental Colleges in NCR, India – a KAP		
		study		
	9	Lifestyle habits of first year medical students in a	Vankhuma	82
		medical college in Delhi, India		
	10	Depression among first year medical	Ruchira	97
		undergraduate students in a medical college in	Pangtey	
		Delhi		
	11	Needle Stick Injury Reporting Behaviour and Risk	Puneet	102
		Perception among Sanitation Staff in Tertiary	Chahar	
		Care Hospitals.		

Time	Poster Se	ession II				
	Theme II	Theme II: Occupational & Health Related Issues: Air &Water Pollution, Noise, toxic metal				
	exposure	9	Venue: First Floo	r Foyer		
4:30-5:30 pm	Chairs: Dr. M. M. Singh, Professor, MAMC					
	D	Dr. Ashu Khanna, Consultant, Occupational Health				
	Rapporteurs: Dr. Disha Meena JR MAMC; Ms. Ummi Rufeda College of Nursing Jamia					
	Hamdard					
	S. No.	Title	Author	Abstract		
				No.		
	1	Mainstreaming Occupational Health- A Study on	Rajat Saha	8		
		KAP & treatment compliance perspective for				
		morbidity risk factor control & lifestyle				
		management				
	2	Epidemiological lesson learnt: Diarrheal outbreak	Ramesh	16		
		investigation in a remote village of District	Verma			
		Rewari (Haryana), India				
	3	Work related satisfaction and mental disorders	Anuradha	23		
		amongst welder in East and North Delhi	Chauhan			
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# Invited Speeches

# **INVITED SPEECHES**

#### Are we moving towards Universal Health Care for informal workers in India?

#### Charu Garg

#### International Consultant and a Visiting Professor, Population Health and Nutrition Program at Institute for Human Development, New Delhi

The 12<sup>th</sup> Five year plan has emphasized the strategy to move towards Universal Health Care (UHC) for its population. The three keys aspects of UHC are increased coverage for population receiving health care services, increased availability of services for population covered and increased financial protection for those covered under health care programs. This presentation looks at these 3 key aspects of coverage and analyses whether the recent government programs have been able to provide UHC for over 430 million informal workers in India, which is over 91% of India's workforce. While the evidence points towards increased coverage, but the depth of coverage in terms of service availability and financial protection is still very low. Increased coverage will improve utilization and outcomes only with improved service availability (Physical, financial and quality), and by removing demand and supply side barriers. Raising awareness, removing stigma, and education about risks of occupational diseases among workers can improve demand for care. Supply side interventions such as risk assessments at workplace, early screening and detection, and better trained doctors at first point of contact are required to prevent the onset of disease and seek early treatment to reduce costs associated with terminal stages of treatment. In working towards UHC, it is important to integrate certain essential occupational health interventions and services into the delivery of comprehensive and people-centered primary health care and provide all workers, especially those in the informal sector, agriculture, small and medium enterprises, migrant and contractual workers with access to people-centered health services that can respond effectively to their specific health needs and expectations.

#### **Occupational Environment: An Ongoing Calamity**

#### Amod Kumar

#### Senior Consultant, Department of Community Health, St. Stephan Hospital, New Delhi

402 million strong Labour force of India is more than the total population of over all the countries except China and India. It is more than the population of nations of sub Saharan Africa. Out of these workers 90% work in unorganised sectors. The economy of India works in a way that the fruits of development seldom reach to this section of the society. Unfortunately the labours, who are the builders of the nation invariably live under international poverty line of less than 2\$ per capita per day. Most of the labour force in India works in extremely unsafe and hazardous environment. Rarely are they provided with PPEs, most of which are not suited to Indian hot weather. Issues of sufficient lighting, ventilation, and levels of dust and noise etc. are invariably unaddressed. No wonder the labours remain sick, develop lifelong disabilities and die early. Besides huge economic burden on the nation, it amounts to a national sin from the ethical point of view.

This mammoth occupational crisis needs a multi pronged strategy. Government needs to drastically improve the social security programme, dissociate it from the taxation and related governance mechanisms. There has to be investment in research for developing appropriate and affordable PPEs. A massive investment is needed in prevention and health education. The ESIC needs to network with private sector to improve quality of services. We also need to develop an accreditation system which could inform the buyers that the product has been made safely without endangering human life.

#### Changes in Europe - Specialist training in Norway – status and trends

#### **Tor Erik Danielsen**

#### Head of Department, Member of the National Board of Occupational Medicine, National Representative in UEMS Occ. Med. Oslo University Hospital, Department of Occupational and Environmental Medicine

#### What is going on in Norway?

Fifty three percent of workforce is covered by OHS in Norway. OHS trend from employed personnel to external services. It has increased the capacity in the five regional hospital departments. There are increased numbers of specialist candidates in occupational medicine. There is recent revision of Work Environment Act in Norway helps development of occupational health.

Undergraduate training

- 50-70 hours of teaching in two of the medical schools (Trondheim and Bergen).
- 4-10 hours at the other two (Oslo and Tromsø).

Capacity in Norwegian Medical Schools has more than doubled from 1990 to 2010 (310 to 650). Number of Norwegian students in foreign medical schools has increased from 550 to 2750 from 1994 to 2010. There are 16 % foreign doctors working in Norway (3650). 288 approved specialists in occupational medicine (50% retired or not active). OHS doctors (converted to full time): 500 in 2000 to 280 in 2012.

#### Postgraduate training

#### Current status

- Facilitated by the Medical Association
- 44 recognised specialities in Norway
- Occ. Med. one of three specialities under primary health
- For each specialty there is a specialty committee who are responsible for the content of the training and for the accreditation of hospitals for graduate medical education.
- The Norwegian Directorate of Health is granting approvals for new specialists.
- The Medical Societies work closely with these institutions.

#### Postgraduate training in Occupation Medicine

- Requirements for residency:
  - Five years with at least one year as a company doctor (OHS) and at least one year at an approved (yearly) educational institution in Occupational Medicine (five hospitals + National Institute)
    - Minimum 50% of full-time
    - Up to one year may be replaced by:
      - Research, residency in the relevant specialties / disciplines, work in health management or in general practice.
- Supervision program over two years (twenty meetings of six hours)
  - GP model
  - Includes supervised project paper
- Courses:
  - 300 hours obligatory for Occupational Medicine

- Eleven subjects:
  - Law, Leadership and management, Research Methods, Environmental Medicine, Workrelated muscular / skeletal problems, Psychosocial and organizational factors in the workplace, Psychosomatics, Toxicology, Lung diseases, Dermatology, and Neurology.
- 55 hours of optional courses

After completion of formal program

- No exam!
- The candidate forwards an application for approval.
  - With some additional documentation of skills
    - Attestation forms for procedures and tasks
- No system for recertification for Occ. Med.

Trends/activities?

- Academic positions at the medical schools for all the hospital departments and at the National Institute.
- Adaptation to the takeover from the Medical Association to the Directorate of Health for specialist approval.
- Monitor shift of tasks for doctors in OHS.
- Attestation forms for work in OHS.
- Mentorship for young doctors

### Respiratory Health effects of Welding Tor Erik Danielsen

#### Head of Department, Member of the National Board of Occupational Medicine, National Representative in UEMS Occ. Med. Oslo University Hospital, Department of Occupational and Environmental Medicine

The ability to weld created an industrial "revolution": Metals could be joined faster, cheaper, leaner, and stronger. Welding means a joining of metallic materials of essentially the same kind when heated to such high temperatures that the pieces merge, often using filler metal or under pressure unite in pasty condition.

More than one million workers perform welding. We know that the welding process produces metal fumes and gases that may be harmful to the operator. The exposure composition is dependent on the welding work piece, the electrode and temperature. The particles formed in the welding process are often "ultrafine size range" (0.01-.10 microns), but they often form chains in the process.

There are challenges in relation to the assessment of causality. Health effects can be attributed to the effects of exposure from one profession (welding) and /or specific exposures (welding fumes). Indirect exposure assessment can be made by assessing type of industry, product, steel used, application of the finished product, time period, training, working conditions in general, other exposure, and other exposed.

Gloves and glasses have always been used, because they prevent acute effects. In Norway respiratory protection was in little used before 1970. Appropriate breathing equipment provides significant reduction in exposure. The effects of the exposure are depending on the type of smoke or gas, its physical and chemical properties, dose, exposure conditions, and vulnerability for the exposed.

Relevant respiratory diseases could be asthma, chronic obstructive pulmonary disease (COPD), metal fever, acute chemical or hypersensitivity pneumonitis, lung edema, infections, emphysema, siderosis, and lung cancer.

Welding fumes may cause reversible changes in lung function. There are few animal studies that have examined the effects of welding fumes on lung function. Epidemiological studies have shown an association between exposure to welding fumes and the development of asthma. In Norway occupational asthma is reported frequently from the aluminum industry and among bakers, car painters, welders and metal workers, hairdressers, farmers, nurses and cleaners. These are occupations with mixed exposure to various types of dust, fumes, gas or vapor. Up to 70% of asthmatics in the work may be worse at work and better when they are away from work. For only 15% of them were reported as occupational disease to the Labour Inspectorate.

There are conducted many studies among welders of potential effects on obstructivity and gas diffusion. Some studies have shown an increased incidence of lung disease among highly exposed welders; especially among daily smokers. Groups of welders working with substances which can cause emphysema demonstrated increased cause-specific mortality. This is not well detected in groups with well-characterized exposure.

The pneumoconiosis called siderosis (welders' lung) are directly connected to significant iron oxide exposure. This is a reversible pneumoconiosis with no fibrosis or significant influence of lung function. A high incidence of siderosis could be an indicator of massive exposure to welding fumes.

The association between lung cancer and exposure to welding fumes has been discussed in a lot of papers. Welders are often subdivided in welders at the shipyard, welders working on stainless steel, and welders working with carbon steel. All groups are potentially exposed to carcinogenic substances. However there are limited, but developing evidence from cell / animal studies. Epidemiological studies show different results but indicate 30% - 40% of the incidence of lung cancer among welders. The results for the different subgroups are relatively comparable when summarized in metaanalyzes.

New welding techniques and work with other materials can potentially give relevant exposure to decomposition of plastic (such as isocyanates).

The status for respiratory health effects among welders with the technology in widespread use for more than 60 years is that we need more knowledge about chronic health effects, and more knowledge about potentially new health effects:

NIOSH (in 2003) suggested two complementary types of research to fill knowledge gaps: A continuation of epidemiological studies to provide a better understanding of the role that welding fumes play in immunosuppression, lung cancer development, neurotoxicity, skin damage, reproductive disorders, and other effects that some studies have associated with components of welding fumes.

Toxicology studies using state-of-the-art techniques to examine key biochemical reactions to welding fumes at the molecular level in laboratory experiments. With such data, scientists will have better insight into the ways that subtle genetic and cellular changes might lead to tumor formation, nerve damage, or other adverse changes in tissues and organs.

Summary: Welding fumes are containing respiratory irritants. Exposure is largely preventable. Epidemiological studies of groups of welders have shown variable results, but they indicate an association between exposure to welding and different types of lung effects.

#### Mainstreaming of Occupational and Environmental health in implementation level

#### O P Kansal

#### Advisor-Injection Safety, BD Medical, Gurgaon, Haryana, India

We are in 21<sup>st</sup> Century, in an ecosystem, where technology is fast influencing every sphere of our life. Many efforts are being made at different levels to see that the Occupational and Environmental health is mainstreamed by design and practice. Many policies and practice innovations are in force but there are many gaps too. The author intends to enlighten the audience by sharing few success stories and challenges/gaps that need to be addressed in the issue in focus.

Long working hours; competitive environment; excessive use of technology; pressure to grow profitably; coordinating with colleagues working in different time zones etc. are the factors which need to be balanced adequately in every working environment. Institutions and companies are coming with innovative ideas and programs to limit occupational hazards but not all are visionary and thus not ready to invest a little extra for the benefit of their employees. Simple monitoring mechanisms such as ensuring Hepatitis B Immunization of all Health Care Workers and professionals is missed and the ones who get accidental needle stick injuries may not be addressed appropriately. In contrast, there are gymnasiums; flexible working hours; options to work from home; games and fun competitions and team building events organized at many institutes to ensure that all workforce is optimally balancing their time and thus mitigate the risk due to occupation and environment.

The education system has evolved to train professionals, who then master the art of engaging with stakeholders to ensure that the Occupational and Environmental health issues are taken care of.

#### **Occupational Health Challenges in the unorganised Sectors in India**

#### Satish Sinha

#### Associate Director, Toxics Link, New Delhi

According to the World Health organization (WHO) occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. In India the issues of occupational safety issues gained momentum with the growing industrialization and urbanization. The principal health and safety law The Factories Act, 1948 was adopted to protect the workers from the hazards. And the factories act has been largely being applicable to protect the workers from the established and organized sectors.

With rapid growth and economic development the country has also witnessed incremental growth in generation of waste and mushrooming of recycling industry. Much of this recycling is in the unorganized sector spread across the country and are largely engaged in some of the most hazardous materials and products like electronics waste, lead acid batteries, vehicles, plastics, CFLs bulbs and various wastes etc. And these products contain toxics chemicals like Lead, Cadmium, Mercury, Cupper, Arsenic, Brominated Flame Retardants, etc and are potential human health hazards. As most of these recycling are being done informally in the back yard operation without having any understanding on the impact on the human health and environment. There is very little data on the no of the people working in the recycling business the knowledge on the ground suggests that the numbers are significantly large. The workforce engaged in such recycling operations are from marginalized communities and have no awareness on occupational safety and health issues and are constantly made to compromise their health and safety leading to various long term impacts. These have long term health and financial impacts on the workers and also cause environmental degradation.

Though India has legislations and guidelines to deal with the recalling of the batteries, plastics and Ewaste, however lack of effective implementation of the rules have lead to huge impact of the health of these workers. Further there is no such monitoring system in place in India to monitor these sectors and the people involved in these operations. Therefore these informal workers are not able to get due medical care and attention they require. Further the health professionals in India have a very limited understanding to correlate heath issues with occupational hazards.

# Training of Occupational Health Professionals for Delivery of Occupational Health Services in South Africa

#### Inakshi Naik

# Head: OHS Training Department, National Institute for Occupational Health, Johannesburg. South Africa.

Occupational injuries and illnesses are among the five leading causes of morbidity and mortality in most countries. Interventions by Occupational Health Professionals (OHP) contribute to national welfare and prosperity. They play an important role in prevention, recognition and treatment of injuries and illnesses therefore maximising the opportunities for people of working age to participate in safe and rewarding work. This brings benefits for their own health, their families, their communities and the wider economy.

The delivery of occupational health services (including safety in the workplace) requires effective teamwork and collaboration amongst disciplines such as epidemiology, occupational medicine, occupational health nursing, ergonomics and occupational hygiene supported by clinical referral, diagnostic services, compensation and rehabilitation system.

Awareness to occupational Health and Hygiene has been steadily gaining momentum over the past few years. However, skilled human resources are still very limited with quality training programs especially at Primary Health Care (PHC) level.

The Department of Health is implementing substantial reforms in the health sector in South Africa with the cornerstones being re-engineering of PHC, enhancement of the District Health System (DHS) and the introduction of a National Health Insurance Scheme (NHI).

The paper will be presented on development of occupational health capacity through various levels of training in South Africa with special focus on training of Community Health Workers (CHW), Primary Health Care (PHC) nurses, occupational hygienists, family medicine practitioner and other allied occupational health professionals such as public health officers, policy makers, labour inspectors, and worker health and safety advocates.

#### Capability building to deliver OEH services in the Informal Sector

#### Mahinda Seneviratne

#### Chief specialist inspector, Hygiene & Toxicology, WorkSafe, Australia

A large section of the developing world's workforce is in the informal sector which is also growing in the economies of the North. Informal sector workers in India and many developing countries play an important role in their national economies but face a range of risks in their living and working environments. Workers engaged in situations such as agriculture, street and domestic work are legally unprotected, their illness and injury from work is unaccounted and often untreated and their voices are unheard in policy making and legislation reform.

Better access for informal workers to basic OEH services is crucial to integrate OEH into primary health care and prevent the burden of illness and injury related to work in these sectors. Building capability in hazard communication, health surveillance, hygiene and ergonomic services can strengthen those working with informal sector workers in the delivery of preventive programs.

The *Cancun Charter on Occupational Health for All* (ICOH, 2012) stated that "special attention should be paid on providing adequate occupational health services" for the informal sector. How OEH professionals can collaborate in building capability to ensure these goals will be discussed with reference to recent initiatives on mainstreaming OEH in the informal sector.

#### Air Pollution Trend in Indian Cities and Regulatory Mechanism

#### S. K. Tyagi

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The 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. The PAH contamination particularly Benzo (a) Pyrene has become an imminent environmental risk due to carcinogenic and mutagenic properties of this compounds towards humans and other organisms. In the present study, the air pollution trend in India particularly in four mega cities including Delhi will be discussed for critical criteria pollutants i.e. PM<sub>10</sub>, PM<sub>2.5</sub> & NO<sub>2</sub>, during 2001-2011. The recent trend of PM<sub>10</sub>, PM<sub>2.5</sub>SO2, NO<sub>2 a</sub> and Benzo (a) Pyrene in Ambient air at selected locations in Delhii.e. Janakpuri, Nizamuddin, PitamPura, ShahzadaBagh, Siri Fort, Shahdaraand ITO( a major traffic intersection point) through the years 2009 to 2013 will also be presented. The PM<sub>10</sub> and PM<sub>2.5</sub> are critical from the point of view that they exceed the permissible limit most often, whereas NO<sub>2</sub> approaching towards crossing limit at various locations. The paper focuses only on Benzo (a) Pyrene because of it is being the most carcinogenic of all PAH compounds. It is found that the B (a) P levels in the ambient air of Delhi are almost 3 to 4 times higher than the Indian prescribed limit of one nanogram (ng) per cubic meter of air. In the year 2009, even though the PAH levels all the month remained higher than succeeding years. The improved vehicle norms (BHARAT IV) introduced in 2010 during the Common Wealth Games is a direct contribution to the positive changes in PAH levels observed in the city. The major air quality concern, regulatory framework, National Ambient Air Quality Standards (NAAQS) and mitigative measures will be discussed in the paper besides air quality management in India.

# Mainstreaming 'equipment fallacy for efficient health care' – sphygmomanometer at the eye of the storm

B. N. Mishra

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Introduction – Approach to practice of medicine has changed over time. Present day practice is more gadgets driven. More complex the gadget more scope to err. Production and availability of authentic and accurate equipments must be research driven and policy supported. Whereas their appropriate use and interpretation must be education and training based. When this is compromised patient's safety suffers. Present papers will discuss such an issue concerning the most commonly used equipment in clinical practice i.e. the standing mercury sphygmomanometer. There are many contributors to the present day number one disease i.e. essential hypertension. Out of them the most stressed one are occupational stress, diet and lack of physical activity. Unfortunately the equipment that measures the condition is hardly being questioned. We had two back to back studies to find an answer to our question. Standing mercury sphygmomanometer is advocated as the gold standard for measurement of indirect blood pressure. This is also the most commonly used equipment in clinical practice. Unfortunately its complex nature and casual handling make it one of the most unreliable devices in current use. We tried to study the errors in recording blood pressure. Sphygmomanometers used for BP recording are the most commonly used diagnostic instruments in all clinics. It is being estimated that a steady error of 5 mmHg can double or halve the number of patients diagnosed with hypertension. Even an error of  $\geq 3$  mmHg can result in clinically significant under-and over-detection of hypertensive conditions. One of the important causes for errors in BP measurement by sphygmomanometer is malcalibrated instruments. The calibration defects can arise from deficit in the mercury manometer height, presence of baseline deviation and disproportion in the arm bladder cuff.

The prevalence of under-cuffing was 22.06% in females and 39.71% in males. Studies have shown that by using a small cuff significantly overestimates blood pressure in "obese" people (sometimes called "Spurious Hypertension"). The extent of error due to undercuffing had shown an average error of 8.5 mm Hg systolic and 4.6 mm Hg diastolic. Over-cuffing was 8.82% for males and 14.70% for females. The issue of overcuffing is also equally alarming. Recent studies have shown that a "standard" cuff often underestimates BP in very lean people. Thus, many skinny folks may be told that they have normal blood pressure when in fact they have hypertension. Under such circumstances a large bladder cuff may lead to falsely low reading in the range of 10 mm to 30 mm of Hg. Thus the accuracy of BP recording from these apparatus becomes highly questionable. In another study the cuff in routine use (adult small size) is required for only 3.8% of adult population, where as 56.1% requires the adult medium size and 40.1% need the large adult size. Prevalence for over cuffing was 96.2%.

**Recommendations:** At policy maker's level statutory bodies IMA, MCI & Ministry of Health must lay down strict evidence based guidelines to the manufacturers regarding quality control of equipments and its components. At production level the equipment manufacturers must adhere to the established guidelines and pack all varieties of cuffs along with the sphygmomanometer. End users of sphygmomanometers, like practitioners and hospitals, should check for proper standardization. Equipments once commissioned for use need to be calibrated at regular intervals to prevent the occurrence of erroneous readings. Physicians and other health care provider's myths and misconceptions relating to cuffing issues can be addressed by continuing and sustained medical education and clinical orientation training. Most importantly, public awareness should increase so that they demand for proper and accurate instruments and correct recordings of BP. It is them who are at the receiving end anyway. All equipments more so the basic ones those are in routine use whether it's in the clinic of a general practitioner or an occupational health practitioner must be the focus of detailed investigations.

# Affordable and sustainable Biomedical waste management strategies in a large tertiary care hospital in a developing country: cost containment with optimal care

#### Kirti Srivastava

#### Professor, Department of Radiotherapy, King George's Medical University, Lucknow, India

**Introduction:** A well-developed sustainable biomedical waste management (BMWM) system is largely non-existent in developing countries. Financial constraints with regards establishment and treatment of BMW are the most important causes besides lack of awareness and initiative amongst the health care workers. King Gerge's Medical University, a 3000 bedded hospital in North India has pioneered and established a standard and cost-effective model facility for BMWM. The paper addresses the nuances with regards utilization of sterilized waste for revenue generation as well as minimisation of cost involved in overall healthcare waste management.

Methodology: Cost minimization strategies adopted:

- 1. Reducing the volume of waste generated;
- 2. Good waste segregation practices at point of generation; Design of special trolleys.
- 3. Fuel efficient (green) transportation of waste in healthcare facility;
- 4. In-house processing and decontamination of recyclable infectious waste by non-burn technologies;
- 5. Recycling and revenue generation from various categories of waste so generated;
- 6. Outsourcing for incinerable waste only; minimizing incinerable waste.
- 7. Municipal solid waste segregated into biodgradable (food) waste and plastic waste;
- 8. Bio composting of degradable municipal waste;
- 9. Shredding and recycling of paper waste segregated at the source of generation.

**Results:** Total amount of waste generated in KGMU is approximately 2600 kg/day. By adopting good segregation practices, the percentage of incinerable waste has reduced to 3-4%, which was an important step in achieving cost minimization. The remaining categories of biomedical waste are recycled after autoclaving. Simultaneously recycling of municipal solid waste also contributed to the generation of income.

**Conclusions:** The model of waste management at KGMU, a large tertiary care hospital in a developing country demonstrates that BMWM can be ideal, affordable and sustainable. Minimization of incinerable waste and revenue generation from segregated, autoclaved plastic waste are important strategies towards this end. King George's Medical University, Lucknow establishes a cost-effective biomedical waste management system.

#### Using Different Techniques to Diagnose Colour Blindness in Workers

#### Punita K Sodhi

#### Professor, Department of Ophthalmology, Guru Nanak Eye Center, and Maulana Azad Medical College New Delhi

**Purpose:** The accurate colour vision is required for performing day to day activities with perfection. It is extremely important for making choice of career because various occupations like pilots, industrial workers seamen, signal men and doctors require highly accurate colour vision. It is therefore that additionally, appointment of candidates to various posts in government service and other organizations is done after colour vision assessment. Color vision deficiency is mostly inherited (having X linked recessive inheritance) but it may also be acquired due to diseases like diabetes, glaucoma, macular degeneration and retinitis pigmentosa, excessive use of certain drugs, intracranial injury, etc. The color vision deficiency has a high prevalence which is reported to be 8% in males and 0.4% in females. But one fifth to one third adults are unaware of their color vision deficiency as their visual acuity is otherwise normal. The knowledge of color vision deficiency is extremely vital for making choice of career and for others reasons.

**Methods:** Various tests including screening tests, grading tests, classifying tests and vocational tests are used for colour vision assessment. While most popular screening test is Ishihara's pseudo-ishochromatic plates, Edridge green lantern is most commonly used vocational test. The anomaloscope is considered gold standard and utilized for screening, classifying type of color blindness and grading the severity of defect. The FarnworthMunsel hundred hue test is used for classifying and grading the severity and sometimes as vocational test.

Results: The standard version of Ishihara's pseudo-isochromatic plates contains 38 plates in which dots of primary colour are printed on background of similar dots of confusing colors, which are known to be confusing on account of theoretical properties of colour vision system or on statistical data about confusion colors from known colour defectives. The colour blinds cannot distinguish colors along confusion lines. In plates 2-9, numbers seen by normal are differently seen by defectives; in plates 10-17, numbers seen by normal cannot be seen by colour defectives; in plates 18-21, numbers are not seen by normal but are seen by defectives due to lightness difference; and in plates 22-26, red-green deficiency is diagnosed from comparing relative contrast of paired numbers. The EdridgeGreen Lantern is a device designed to reproduce typical ships' lights at certain distance and simulate signals. As many colours are installed in lantern, and task can be made to simulate real life situation quite closely, thus occupational requirements of any service or branch of a service can be provided for. Classically, there are 8 colours- 2 shades of red, 2 shades of green, white yellow, blue and purple to be identified. The modifying filters simulate foggy, rainy, smoky and other meteorological conditions and apertures simulate changes in distance. The correct color identification is an important test variable and this device tests ability to make differentiation of observed colours. The anomaloscope is the most accurate tool to classify colour blindness. The classical anomaloscope used to identify red-green colour blindness
is based on Rayleigh equation where subjects match pure yellow (589 nm) with mixture of pure red (670 nm) and pure green (545 nm). Anomalous observers require more red in the mixture (protanomaly) or more green (deuteranomaly). Dichromats (protanopes or deuteranopes) will accept a wide range of red green mixture to match yellow because they are matching brightness not colour. The Farnworth Munsel hundred hue testconsists of 85 movable colour samples arranged in four boxes of 22 colours in first and 21 colours in the rest. These are numbered at back according to correct order of hue. The examiner prearranges caps in random order for subject to arrange these in correct order of hue taking first and last cap as reference in 2 minutes time period. Error scores are calculated and score for each cap is plotted on graph and characteristic pattern is obtained in specific defects. Sum of error scores of entire set of caps is used to find total error scores.

**Conclusion:** The Ishihara's charts are readily available but have disadvantage of being liable to be crammed and not being able to diagnose tritan defect. EdridgeGreen Lantern requires expert to administer it and on account of large aperture size, fails to detect individuals who might be colour deficient. It does not specifically screen for colour defects or reveal nature or severity of colour vision defect butcolour perception is graded into a higher and lower grade depending upon size of aperture in lantern through which colours are perceived correctly. The advantage of anomaloscope is that it is impossible to conceal defect and this instrument is used to validate other colour vision tests. However, it is an expensive instrument that requires an experienced examiner. Anomaloscope models programmed for only red-green defect cannot diagnose blue-yellow defects though recent models can diagnose both. The FarnworthMunsel hundred hue test is very sensitive, reliable and effective method for determining colour vision defect. By studying errors made by a subject, this test can detect both severity and type of colour defect.

#### Down the Drain!

#### Ravi Prakash<sup>1</sup>, Pradeep Naraynan<sup>1</sup>, Ashish Mittal<sup>2</sup>

#### <sup>1</sup>PRAXIS, New Delhi; <sup>2</sup>OHS-MCS, New Delhi Occupational and health hazards and perils of contracting faced by sewerage workers in Delhi

**'Down the Drain'** is the report of a study that was organized by Praxis in collaboration with the National Campaign for Dignity and Rights for Sewerage and Allied Workers (NCDARSAW) and Occupational Health and Safety Management Consultancy Services (OHSMCS) with sewerage workers in Delhi, with the primary objective of mainstreaming their health and safety issues.

Rapid Urbanization of Indian population put forward sewage as a key waste management approach. Contours of cities and towns marked increase demand for sewerage and waste management services, employing over one million sewerage workers, working manually or with scarce technical support, forced to work under precarious working condition, despite of several guidelines, rules and standard operating procedure. This study tries to understand the working conditions of sewage workers and challenges they face, especially in reference to health and safety, with a human rights perspective. Against this background, the study covers three specific dimensions of the socio-economic status of the sewerage workers: the nature of employment, sub-contracting and its impact, and occupational safety and health issues. Study was conducted in 12 locations of Delhi, engaging 58 members using participatory and quantitative methodology, bringing out issues like wage disparity, social retardants, ignorance of safety standards laid by department and courts, predominant engagement of SC/ST, contractual nature of job etc. and questions the due importance of sewage waste management in India. Participants of the study identified the common perception of sewerage work as unskilled and its roots in caste-based politics and prejudice as some of the fundamental reasons why this problem continues unaddressed. Government subcontracting of sewerage work has become a way of evading responsibility and enacting long-term occupational changes that could have a meaningful impact in society. Things that needed immediate attention were identity cards, provisions for full body suits and publishing the names and terms of contracts on a website. Short-term demands were recognition of the sewerage work as a technical work, access to all safety equipment and social audits of the workplaces and contractors. Doing away with sub-contracting, mechanization that works with a human interface and orientation to safety norms and practices featured as some of the long-term demands. This can only be achieved with greater political will and by challenging the deep-rooted social perceptions related to sewerage work.

#### Mainstreaming of Rehabilitation of OEH Affected People: Relief & Rehabilitation; Care & support

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The paper shares experiences of working at grass root with victims of occupational accidents and diseases for over two decades. Paper outlines the express needs felt by the victims and perceived needs felt by the sympathizers. Experiences indicate the gaps in Government schemes and services. Mainstreaming care & support as well as relief and rehabilitation is challenging though urgent need of Indian society. Necessity of concrete steps needed to be taken have been stressed. Set of recommendations proposed.

# Scientific

## Abstracts

#### **Scientific Abstracts**

#### Abstract No. 1: Occupational health hazards among teaching Community -A Questionnaire based survey

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**Introduction:** Teachers' role is inevitable in spreading knowledge to pupils. These noble professionals are not exceptional to occupational hazards. The present study dealt with the occupational health hazards among teachers particularly vocal, physical and psychological hazards with respect to their workplaces **Methods:** A total of 3258 questionnaires were distributed to 115schools in Visakhapatnam to examine the prevalence of symptoms related to their occupation **Results:** The Teachers facing the voice problems like Dysphonia (27%), Vocal fatigue(19%), Oral paresthesia (21%) and regular incidence of voice symptoms like tired voice(54%), week voice(43%) observed in this study . Physical symptoms like Cervical Spondylitis (62%) was observed in higher frequency than other physical symptoms like Varicosis (34%), back pain,(18%) Articular pains(42%). Few symptoms like pink eye infection/ Conjunctivitis (9%), dryness of hands(73%), Atopic dermatitis(22%) and Contact dermatitis (34%) were noticed in teachers. **Discussion:** Application of Information and communication Technologies, avoiding usage of Chalk piece& Black boards, use of collar mikes, more time lapse between lecture periods, no extra workload to teachers will minimize impact of the occupational health hazards among teachers.

#### Abstract No. 2: Rapid Urbanization in India and its effect on Human Health

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Abstract: Urbanization refers to a process in which an increasing proportion of population lives in cities and the suburbs of cities. India is urbanizing at a fast pace mainly due to migration of people from rural areas to urban areas. The urban population growth in India represents the 2-3-4-5 syndrome: in the last decade India grew at an average annual growth rate of two percent, urban India grew at three percent, mega cities at four percent, and the slum population rose by five to six percent. The country is passing through epidemiological transition and is facing the dual burden of traditional and modern diseases. Urbanization produces significant changes in dietary practices that affect the nutritional status of people. In urban areas, high inequities in socio-economic, and living conditions are observed, which are also reflected in health. The health status within the city is not evenly distributed rather the poor bear the greatest burden of diseases. The uncontrolled urban growth puts strain on already constrained resources such as food and water supplies, availability of safe housing and health care services and other infrastructure. The reemergence of malaria and the spread of dengue epidemics are also linked to urban environments. Migration 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 affect health of urban dwellers. Air pollution from motorized vehicles and industrial units adds to ill health of urban residents. Indoor air pollution from burning biomass fuels is another problem especially in slums of many cities. There is a huge gap between community needs and existing public health services. To

address the health problems of urban dwellers India need coordinated action from multiple stakeholder so as to develop healthy cities in the country.

Keywords: Urbanization; India; urban health; communicable diseases; non-communicable diseases.

## Abstract No. 3: Study to assess the Knowledge, Attitude and Practices of Biomedical Waste Management among health care personnel at tertiary care hospital in Haryana

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Background: Bio medical waste (BMW) collection and proper disposal has become a significant concern for both the medical and general community. It is estimated that 10-25% of health care waste is hazardous, with the potential for creating a variety of health problems. Handling, segregation, mutilation, disinfection, storage, transportation and final disposal are vital steps for safe and scientific management of bio-medical waste in any establishment. Objectives: To assess the knowledge, attitude and practice among health care personnel's working in a tertiary care centre. Methods: The study was conducted in the months of September and October 2013. It was a hospital based cross sectional study. Study participants included the resident doctors, intern doctors, nursing staff, laboratory technicians, ward boys and sweepers working in the institute who deal with BMW. Participants were selected randomly to make the sample size of 200 with equal representation in each category. A semi-structured questionnaire was used to obtain information from respondents. Results: The study showed gaps in the Knowledge of all categories of respondents. The knowledge of the existence of bio-medical waste (BMW) management was better among doctors(96%) as compared to nurses(88%), paramedical staff(70.9%) or the cleaning staff(16.9%), but knowledge of practical aspects of bio-medical waste (BMW) management was better in nurses, paramedical staff and cleaning staff. The knowledge of biomedical waste (BMW) management among the staff was not up to desired level. Conclusion: The present study highlights the lack of knowledge at every level. Waste management is every body's concern. The need of comprehensive training for all the categories of hospital staff is highly recommended.

#### Abstract No. 4: Prevalence of selected risk factors for Non-Communicable diseases among medical students in PGIMS Rohtak

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**Introduction:** Non-communicable diseases are a major contributor to the total disease burden in developed countries, and are increasing rapidly in developing countries such as India. There are several risk factors associated with non-communicable diseases that are modifiable. Therefore, this study was undertaken to assess the prevalence of selected non-communicabe diseases (NCDs) risk factors amongst medical students of a teaching institution from north India **Methods:** The present cross sectional study was carried out among first year medical (MBBS) students during the month of May and June 2014. Data

collection was carried out using pre-designed, pre-tested semi-structured interview schedule. Height and weight were measured using standard protocol. Data management was done using Excel sheet. **Results:** Nearly, 187 (93.5%) first year students who were covered in the present study. The mean age, weight, height and BMI of study participants were found to be 18.4 years, 60.1 kg, 166.2 cm and 21.02 kg/m2 respectively. Around 20% of study participants were overweight or obese. 35.0% had family history of at least one-non communicable disease. Around 10% of students had ever consumed alcohol and also had consumed atleast one-drink during last 30 days with 16.6 years as the age of starting alcohol. Tobacco product consumption was seen in 2.0% of students with 13 years as age of starting. About two-third of students (62.1%) were involved with sports/rigorous physical activity of at least 30 minutes duration in last 30 days. **Discussion:** There was variable but substantial presence of NCD risk factors amongst medical students. Regular communication on healthy food habits and motivation to uptake sports/rigorous physical activity are required on urgent basis during formative period of medical education.

## Abstract No. 5: An epidemiological cross-sectional comparative study of morbidity profile in an automobile manufacturing unit

#### Dr Rajat Kumar Saha, Dr Rakesh Sharma

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Introduction: Occupational aetiology as a determinant of morbidity risk factor is often correlated but difficult to signify. An automobile manufacturing unit was chosen for study with the aim to study the socioeconomic, demographic & occupational profile of 2 groups- 1) workers & junior management & 2) senior management, to identify & assess the morbidity factors influencing them, to make comparison of the factors between the two groups & deduce inference & to suggest recommendations for controlling them. Methods: The study design used was a cross-sectional study and simple random sampling study was done for selection of participants over a period of 12 months in 2013-14. The sample sizes were 923 & 229 respectively. Study inclusion criteria- All permanent workers working more than 2 years, willing for check-up. Group 1- Upto Manager grade & group 2- senior manager & above. Exclusion criteria-Workers not willing to participate. Study process- Informed consent, structured interview, clinical checkup with documentation & data analysis by MS Excel 2007 software. Results: Average age was 40.05±9.54 years & 46.9±6.22 years respectively, literacy level (more than secondary level) 30% & 100% respectively, experience 15.3±3.1 years & 6.7±2.4 years, job profile- work in hazardous areas & sedentary in group 1 while more of sedentary nature but supervisory in hazardous areas in group 2, comorbid factors like addiction 21±5% & 9±2.74%, obesity 49±9.4% & 65±6.29%, hypertension 20±5.5% & 23±10.25% , diabetes mellitus 4±2.2% & 8±4.5%, high stress levels 5±2.3% & 24±7.9%, dyslipidaemia 4±2.4% & 22±6.97%, with sedentary lifestyle 6±2.3% & 21±5.3%, other morbidities related to work profile like musculoskeletal disorders 55±9.8% & 10±5.3%, allergic/ inflammatory manifestations including skin disorders (viz. dermatitis) 14±5.1% & 4±2.7%, eye complaints (viz. soreness, redness, watering, itching etc.) 32±9.4% 29±3.6%, respiratory symptoms (viz. cough, phlegm, chest tightness, breathlessness) 21±6% & 4±2.5% respectively. Discussion: Morbidities & health risks related to allergic, inflammatory or infective aetiology due to physical, chemical or biological hazards were more significant in the first group but those related to psychosocial hazards viz. occupational stress & lifestyle disorders were predominant in the senior executive group. Thus, control measures aimed at reducing the impact of risk factors & morbidities are to be precisely defined keeping in mind the distinct differences between the 2 groups & their responsible factors.

## Abstract No. 6: Hazard identification & Occupational Health risk assessment for risk prioritisation to adopt control measures in an automobile industry

#### Dr Rajat Kumar Saha, Dr Rakesh Sharma

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Introduction: Every occupation is intricately associated with hazards & risks & the extent of occupational morbidities depend on the spectrum of control measures in place. To develop such control measures, a good HIRA protocol is expected with a significant supportive study of occupational health profile to derive subsequent relation with risk prioritisation. Thus an automobile industry was selected & studied to identify hazards, to assess risks & prioritise them by risk rating & to support with OH data to devise suitable counter-measures for control. Methods: Hazard identification was done through task analysis by making shop floor surveys & studying individual activities & their task components involved in each activity. Hazard implication was deduced to make preliminary hazard prioritisation. Use of supportive data was made like job description, work instruction, SOP, training requirements, records & feedback sheets, suppliers' instructions & MSDS, legal requirements including statutory notification processes, official publications & accident incident records. Gap analysis was next performed. Subsequently risk rating & risk prioritisation were done; risk control measures were studied with assessment of need for further counter-measures. Results: Risk priority number (RPN) derived from OR (Occurrence rating), SR (Severity rating) & DR (Detection rating) varied from high to low for various jobs studied viz. painting, paint mixing, paint stripping (RPN=147, OR=7, SR= 7, DR= 3), welding, buffing & sanding (RPN=126, OR= 7, SR= 6, DR= 3), plating works (RPN=90, OR= 5, SR= 9, DR= 2), grinding, rotary work (RPN=75, OR= 5, SR= 5, DR=3), shot blasting (RPN=75, OR=5, SR=5, DR=3), press for fuel tank, DG house, die maintenance (RPN=54, OR= 1, SR= 9, DR=6), safety personnel's job (RPN=54, OR=6, SR=3, DR=3), test riders (RPN=54, OR= 3, SR=9, DR=2) & office workers (RPN=27, OR= 3, SR=3, DR=3) Discussion: Lacunae in existing counter-measures for risk control associated with various jobs studied could be identified & mended with expectation for subsequent improvement in OH status in a later phase of assessment study.

## Abstract No. 7: Forecasting malaria cases using climatic factors in Delhi, India: A time series analysis

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**Introduction:** Malaria still remains a public health problem in developing countries and changing environmental and climatic factors pose the biggest challenge in fighting against the scourge of malaria. Therefore the study was designed to forecast malaria cases using climatic factors as predictors in Delhi, India. **Methods:** The total number of monthly cases of malaria slide positives occurring from January 2006 to December 2013 was taken from the register maintained at the malaria clinic at Rural Health Training Centre (RHTC) Najafgarh, Delhi. Climatic data of monthly mean rainfall, relative humidity and mean maximum temperature were taken from Regional Meteorological Centre, Delhi. Expert modeler of SPSS ver.21 was used for analyzing the time series data. **Results:** The total number of monthly laboratory confirmed cases of malaria showed a declining trend from the year 2006 to 2011. But it increased during the years 2012 and 2013 due to increase in the amount of rainfall received.

Autoregressive integrated moving average model, ARIMA (0,1,1) (0,1,0)12 was the best fit model and it could explain 72.5% variability in the time series data. Mean monthly rainfall (p-value = 0.004) and relative humidity (p-value = 0.001) which were lagged at one month were found to be significant predictors for transmission of malaria in the study area. Seasonal adjusted factor (SAF) for malaria cases shows that malaria cases peak during the months of August and September. The forecasted model also shows seasonal variation with variable amplitude of fluctuations. **Discussion:** Based on the results of the present study, we believe that malaria cases will continue to occur in the near future if appropriate actions are not initiated on time. The potential implication of this study is that by developing forecasting models for predicting the expected number of malaria cases in advance, timely prevention and control measures can be effectively planned. The study also provides a model to foresee and allocate appropriate resources during peak transmission seasons. **Conclusion:** ARIMA models of time series analysis is a simple and useful tool for producing reliable forecasts for malaria in Delhi, India. ARIMA models will also be useful for administrators in effectively implementing the preventive and control measures for malaria.

## Abstract No. 8: Mainstreaming Occupational Health- A Study on KAP & treatment compliance perspective for morbidity risk factor control & lifestyle management

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Introduction: Diabetes Mellitus, a known morbidity risk factor for CAD was chosen for study in a selected population in Occupational Health background. KAP w.r.t treatment compliance for DM was studied with an aim to assess the need for intervention studies in lifestyle management, to conduct training for increasing awareness & to assess the final intervention impact through statistical tool. Methods: Workplace based cross-sectional study conducted over a 1 month period with the use of predesigned pretested questionnaire for pre & post training assessment of knowledge, attitude & practice towards DM control. Informed consent of participants was obtained & confidentiality of collected data was maintained. Results: The study group- 56 employees were selected for study, with age 50.7 ± 5.4 years, 15% were graduates, rest had completed primary or secondary education, 46 were known diabetics, 3 non-diabetic & 7 failed to comply with survey. Of the diabetics, 20 (43.47%) had a positive family history, 14 (30.4%) had other co-morbidities, 11 (23.9%) had stress at work, 7 (15.21%) had diabetic complications, 25 (54.34%) were addicted to smoking or alcohol. 14 (30.4%) had started early treatment after diagnosis, 20 (43.47%) had started late while 12 (26.08%) were not taking any treatment. Moreover, 27 (79.4%) were on regular treatment, while 7 (20.6%) were irregular. 12 (26%) were getting blood sugar monitored at home regularly, 35 (76%) were following regular exercise program, 43 (93.5%) had changed their eating habits but only 13 (28.3%) were using personalised diet charts. 30 (65.2%) were overweight during diagnosis & 16 (34.8%) had significant weight reduction after following lifestyle modification. 11 (23.9%) had H/O hospitalisation within last 10 years with 3 (6.5%) having H/O undergoing CAG. Training was conducted to increase awareness about DM control & bring about changes in attitude & practice. Post training survey showed a significant improvement in knowledge, attitude & practice (p=0.001). **Discussion:** Although the employees had significant knowledge about control of DM, evidenced by high pre-training value & a mild increase post training, there was marked positive change in their attitude & practice. Thus the need for further awareness

training & evaluation could be confirmed & the necessity of scientific assessment study could be established.

## Abstract No. 9: Results of colour vision testing in Delhi male subjects with use of anomaloscope

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Introduction: Anomaloscope is considered as gold standard for testing colour vision and detecting colour vision defects. The purpose of this study was to find results of colour vision testing in Delhi male subjects with use of anomaloscope. Methods: A total of 502 Delhi male subjects, who were screened with Ishihara's charts, were subjected to testing with anomaloscope. Neitz Anomaloscope having red wavelength of 670 nm, yellow wavelength of 588 nm and green wavelength of 545 nm was used for the study. The subjects were asked to match the upper part of field having red-green mixture with lower part of field having pure yellow colour. The Aq quotient (match mid-point) was calculated by dividing subject's green-red ratio by green-red ratio for normal sample. The length of personal matching line of each subject was also found out. Both these parameters were used to find the type of colour vision defect. Results: The prevalence of colour vision defect was found to be 5.8% i.e. in 29 subjects and 13 subjects (2.6%) had deuteranopia, 8 (1.6%) had deuteranomaly, 6 (1.2%) had protanopia and 2 (0.4%) had protanomaly. The Aq quotient for deuteranopia and protanopia varied between 0 to infinity; for deuteranomaly varied from 1.89 to 2.05; and for protanomaly it varied from 0.28 to 0.31. The mean length of personal matching line for deuteranopia and protanopia was 73 scale units while that for deuteranomaly was 11.0 scale units in right eye and 13.25 scale units in left eye, and protanomaly was 38.0 scale units in right eye and 40.0 scale units in left eye. Those diagnosed as green blind and red blind by Ishihara's charts were classified into deuteranomalous and deuteranopic; and protanomalous and protanopic respectively by anomaloscope. Discussion: Anomaloscope is quick, accurate and objective technique and shades of colour in it cannot be crammed but it needs an experienced examiner. Those diagnosed as colour vision defectives by other tests should be classified with use of anomaloscope. As it is very accurate, other colour vision testing techniques should be validated against it. Additionally, this technique may be recommended for inclusion in protocol for colour vision examination of candidates before appointment in various posts.

#### Abstract No. 10: Menstrual hygiene among adolescent school girls in Block Beri, District Rohtak

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**Introduction:** Menstruation heralds the onset of physiological maturity in girls. It becomes the part and parcel of their lives until menopause. Although menstruation is a natural process, it is linked with several misconceptions and practices, which sometimes result into adverse health outcomes. With

this background our study has following aims and objectives (i) To find out the status of menstrual hygiene among adolescent girls. (ii) To elicit the beliefs, dietary habit and perception regarding menstruation among the study population **Methods:** It is a community based; cross-sectional study conducted from 15th may to 15th june 2014 in Beri, a rural field practice area of Dept. of community medicine Pt. B.D.Sharma PGIMS, Rohtak. Two schools "Govt. girls Sen. Secondary school and Adarsh Sen. Secondary school " were selected for this study. After taking verbal permission from the school principal, rapport was built up with the girl students and verbal consent was obtained from them. Briefing was done to the students regarding the questionnaire provided to them. Then pre-designed, pre-tested and structured questionnaire were administered after taking verbal consent. At the end, open discussion was held to know the queries regarding menstruation. Data obtained were collected and analyzed statistically by simple proportions. **Results:** The participating girls were in the age group of 13-18 years, maximum girls(75)were in the age group of 14-16 years (68.2%) The mean age of the girls was 15.25±1.38 years. Most of the girls (101)attained menarche till the age of 14 years (92%) and the mean age was 12.4 years. 90 (82%) girls were aware about menstruation prior to attainment of menarche. It was also observed that (18) 16.36% girls missed schools for one or two days because of feeling uncomfortable during periods. (20)18.2% girls feels low mood or mood swings, 29 girls 26.36% feels bad odors during menstruation. Most of the girls used both sanitary pad and cloth i.e. sanitary pad first two days and then cloth. 18 (11.25%) girls used only sanitary pads during menstruation, 68 (42.5%) girls used old cloth pieces and 10 (6.25%) girls used new cloth pieces. Practices of Cleanliness of external genitalia was < 2 times in a day in case of 24 (15%) girls. Curd, banana, ice-cream cold food certain legume, pickles, chutney regarded as hot food and there consumption were restricted during menstruation. Going to temple was restricted among, 96 (70.59%) girls and entry was not allowed in kitchen for girls. Discussion: Adolescent girls constitute a vulnerable group, particularly in rural India because of more misconception and poor health facilities. The Government of India in June 2010 proposed a new scheme towards menstrual hygiene by a provision of subsidized sanitary napkins. Issues like awareness, availability and quality of napkins, regular supply, privacy, disposal of napkins, and reproductive health education for promotion of menstrual hygiene.

#### Abstract No. 11: Innovative Practices in Occupational Health at a Large Scale Petrochemical Industry - Task Based Health Risk Assessment

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**Introduction:** All the medical examinations for the workers in an industry are based on prevailing occupational health stressors at work place and their predictive illnesses. Task Based Health Risk Assessment (TBHRA) is an innovation in occupational health services at Reliance Industries Limited by combine input of industrial hygienist and occupational health physician. It is done at the working platform of the workers which helps in mitigation of occupational health hazards and prevention of work related illness/injury. **Aims and Objectives:** 1.To assess the occupational health hazards as per the individual's task. 2.To measure the hazard exposure risk profile of the individual and to rectify it with the help of control measures. 3.To make exposure data linked to each employee or group of employees available during Medical surveillance. 4.To provide a healthy working environment by preventing the occurrence of the diseases among the employees. **Methodology:** Occupational health hazards are measured through various qualitative and quantitative risk assessment tools during the

walk through survey of the individual plant area. As per the duration & frequency of the task performed by the worker at particular location, mapping and analysis of all health hazards are done, like Noise, Heat stress, Indoor air quality, ergonomics, vibration, radiation, illumination & chemical exposure etc. A comprehensive report is prepared with all recommendations, which is shared with the respective plant for corrective measures. The exposure data linked to each employee with the detailed analysis is uploaded in the "Health Management System" & individual worker is assessed at the time of Periodic Medical Examination. Based on his exposure risk profile & medical record further advice is given and follow up is maintained. **Results & Discussion:** Each employee at hazira manufacturing division is mapped as per the job performed & the risk exposure profile is linked with the "Health Management System" which is monitored during the medical surveillance. Various implementations related to Health & Environment are carried out as per the recommendations of Task Based Health Risk Assessment (TBHRA) study. **Conclusion:** Identifying and preventing the development of occupational health hazards as well as strengthening the occupational health services by implementation of Task Based Health Risk Assessment (TBHRA) is the most successful step for any industry to create conducive work environment for healthy work force.

#### Abstract No. 12: A Cross-sectional survey of Breast feeding practices among lactating mothers attending immunization clinic in rural area, District Rohtak, Haryana

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Background: Breastfeeding is one of the most important determinants of child survival, birth spacing, and prevention of childhood infections. The beneficial effects of breastfeeding depend on breastfeeding initiation, its duration, and the age at which the breast-fed child is weaned. Breast feeding practices play an important role in reducing infant mortality and morbidity. In rural area, there is need to know about breast feeding practices among lactating women. Study Design: A community based cross-sectional study. Aims & Objective: To study the pattern of breast feeding practices among the lactating mothers in rural area of district Rohtak. Methods: Setting: Sub-centre Gharonti under block Chiri which is a rural field practice area of Dept. of Community Medicine, PGIMS, Rohtak, Haryana Study Period: April – Sept 2013 Participants: 200 mothers coming to the immunization clinic for immunization of <2 year old children in sub-centre Gharonti, verbal consent was taken from the participants and using a pre-tested semi structured questionnaire mothers were interviewed regarding their breast feeding practices. Sampling: Convenient Sampling Analysis: Data analysis was done in simple proportions, percentages and interpretation were made accordingly. Results: All 200 mothers were interviewed. About one third (33%) of the mothers initiated breast feeding within one hour after delivery. Around one fourth (28%) of the mothers delayed the initiation of breast feeding by more than 12 hours. More than half of the mothers (64%) fed colostrum to their babies. Pre-lacteal feeds were given to 38.5% babies. Honey and sugar solution were the predominant pre-lacteal feeds used. Conclusions: Breast feeding is essential and right of every infant. There is need to improve breast feeding practices among mothers for healthy infants through interventions such as education to mothers during pregnancy, increase IEC activity etc.

#### Abstract No. 13: Indoor Air quality Assessment at the record office, Hospital T, Sabah

#### Lim Jac Fang

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Introduction: Indoor air quality (IAQ) generally refers to the quality of air in a workplace where it is free from harmful contaminants which can affect the health of the workers and consequently influence productivity and quality of work on a day to day basis. Factors that can contribute to poor IAQ includes the poor design and maintenance of the ventilation system of the workplace/building, type of building, humidity, external and internal sources of contaminants, human factors and the surrounding environment. Sick building syndrome can result from poor IAQ. Methods: An indoor air quality survey which included the inspection of the Air Handling Unit and workplace was carried out at the Record office, Hospital Tawau, Sabah State Health Department in response to a complaint received from the Director of Hospital Tawau. The objective of this survey was to assess the parameters for IAQ and to compare the results with The Code Of Practice On IAQ 2005, Department Of Occupational Safety & Health, Malaysia and also with the IAQ Investigator's Guide of the American Industrial Hygiene Association 2006. The survey also includes the health effects of poor IAQ among the workers in this office. Q- Trak Indoor Air Quality Meter 7565 with Probe 982, DustTrak Aerosol Monitor 8520, Mini Rae 2000, TSI Plus Velocity meter and COMARK Thermohygrometer was used for this survey. The sampling for the various parameters was carried out according to The IAQ Investigator Guide and from The IAQ Assessor Course conducted by The Malaysian Industrial Hygiene Association. Results: The workplace was observed to be neat but dusty and had stale smell. No observable external factors contributing to poor IAQ noted. All 12 workers (100%) responded to the IAQ survey using a modified George Washington University of America Indoor Air Quality Questionnaire. The most common symptoms faced by the workers were nasal symptoms (91.7%), eye symptoms (58.3%) and throat symptoms (91.7%) while occurrence of skin symptoms was 75%. Two workers (16.7%) experienced asthma like symptoms since they began working in the record office. The parameters for IAQ (respirable particulates, volatile organic compound, carbon dioxide, carbon monoxide) in the record office was within normal limits, but, the temperature (above 25.5°C) and relative humidity (above 60%) was raised. Measured outdoor air flow was 16cfm per occupant while the Measured outdoor air flow and Carbon dioxide level was at negative levels. The Measured Air Change per Hour (ACH) was 0.25. Discussion: The Air Handling Unit was poorly maintained and the workplace dusty and had stale smell. This was shown by the various parameters which indicated poor air flow and could have contributed to the health effects in the workplace. Measured outdoor air flow was 16cfm per occupant which was below the recommended 20cfm. The Measured outdoor air flow and Carbon dioxide level was at negative levels when it should be at least 20cfm and the Measured Air Change per Hour (ACH) was 0.25, well below the recommended 20ACH for a similar workplace. The whole ventilation system for the record office should be re-inspected to rectify weaknesses in the system (eg., blocked air shafts, modifications to the existing system etc.). IAQ monitoring and regular maintenance of the Air Handling Unit of the hospital is needed to ensure proper functioning of the system. Awareness and training in IAQ to all the staff of the hospital should be carried out on a regular basis. Sick building syndrome may have contributed to the health effects, thus, affecting productivity. Hence, the workplace needs to improve its ventilation system and perform regular monitoring in order to ensure good indoor air quality.

#### Abstract No. 14: An epidemiology of reported needle stick injuries among health care workers in Sabah health government facilities from 1999 - 2008 and a state initiative in the area of needle stick injuries prevention.

#### Lim Jac Fang

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Introduction: Health care workers (HCWs) are at a high risk of occupational exposure to blood and body fluids of patients, resulting in possible transmission of blood-borne pathogens such as hepatitis B virus, hepatitis C virus and human immunodeficiency virus. In Malaysia, data collected by Occupational Health Unit, Ministry of Health from 1998-2005, showed needle stick injury (NSI) was the major cause of injuries among HCW which contributes to a total of 74.9% of all injuries. In Sabah, similar trend was observed whereby NSI was the commonest injuries reported among HCWs in public health care facilities. Therefore the information on epidemiology of needle stick injury among HCWs is useful in recommending safer work practices. Methods: All cases of NSI reported within the period 1999 to 2008 from public health care facilities to Sabah State Health Department were identified and analyzed accordingly. As required by the Ministry of Health, all injuries occurred among HCWs during work must be notified to the State Occupational Health Unit within 2 weeks using WEHU form. All the forms were compiled by years of notification. The data on NSI from these form, were entered into a computer database. NSI is defined as any injury caused by hollow-bore needles or suture needles regardless whether contaminated by blood/body fluids or not. Health care worker is defined as Ministry of Health staff, trainees and health facilities support service workers. The software used for data analysis was SPSS version 15.0. Results: A total of 378 case of NSI was notified after considering NSI definition. Majority of HCWs involved in NSI were from the younger age group (20-29 years old, 61.9%), female gender (76.1%), Kadazan Dusun Murut ethnicity (33.5%), nurses (41.1%) and those who had work more than one year (66.6%). The place of NSI occurred was mostly at Kota Kinabalu district (25.3%), hospital setting (90.5%) and in-patient wards (60.8%). Of this in-patient ward, 64.5% was in medical and surgical wards. About 60% of NSI occurred during the morning shift (7am-2pm). Apparently, the morning shift mostly happens among the nurses (54.0%). The duration of seeking treatment from injury was mostly within 24 hours (83.3%). The mechanism of accident happens while performing disposal activity (35.3%) and followed by any clinical procedure involving needle (31.1%). Other mechanism of accident was recapping (17.6%) and jolted/accident (16.1%). Of all the reported NSI, 53.1% involved intravenous procedure. The body part involved in injury was mostly the right finger (57.1%). Almost all the needles were contaminated with blood or body fluid (90.0%). Post injury management, 73.5% was given first aid treatment and 99.4% was not awarded any medical leave. Existing control measures for NSI were standard operating procedure (SOP) (47.9%), training (36.9%) and PPE (10.5%). Discussion: NSI commonly occurred among nurses, those in the younger age group and those working in medical/surgical ward. Working during morning shift seems predispose nurses to NSI. Since most NSI occurred during intravenous procedure and disposal activity, safer work practices should be emphasized to minimize these injuries. Further study in hospital and primary health care setting will determine the details of contributing factors of NSI. Towards this end, the Occupational Health Unit, Department of Health, Sabah has implemented initiatives to improve the reporting and to reduce the incidence of NSI and would like to share our work in this regard.

#### Abstract No. 15: Prevalence of Depression among Post Graduate Residents in a Tertiary Health Care Institute, Haryana

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**Introduction:** Modern life is full of hassles, deadlines, frustrations, and demands. Chronic stressful life situations can increase the risk of developing depression. Depression is an illness that affects both the mind and the body and is a leading cause of disability, workplace absenteeism, decreased productivity and high suicide rates. Globally, more than 350 million people of all ages suffer from depression. Depression may sap the youthful energy of a medical student. It can make him dull and stifle his capacity to face the challenging situations that arise in medical profession **Methods:** This cross sectional study was undertaken among 120 post graduate residents in Post Graduate Institute of Medical Sciences, Rohtak, Haryana during 1st June to 30th June 2013 using Beck Depression Inventory-II (BDI-II) questionnaire. The BDI is a 21-item self-administered instrument, rated on 4-point scale ranging from 0 to 3 and the total score being 63 **Results:** The overall prevalence of depression was found to be 7% among the post graduate residents. More than half of the residents had change in sleep wake pattern. Nearly 60% of them attributed increased work stress as the cause of Depression.

## Abstract No. 16: Epidemiological lesson learnt: Diarrheal outbreak investigation in a remote village of District Rewari (Haryana), India

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**Introduction:** Diarrheal disease is endemic and epidemic in India and Cholera remains a major public health problem. Globally, every year about 3-5 million cases occur, out of which about 1,00,000 to 1,30,000 patients die. In the year 2010, an outbreak was reported in Odisha state. In this outbreak more than 1000 cases of cholera were reported and 38 cases died. **Methods:** To find out real situation and control of diarrheal outbreak in district Rewari (Haryana). After receiving information from health workers in the village Khaliyawas of district Rewari, a rapid response team was created by civil surgeon district Rewari and the epidemiological survey was carried by visiting house-to-house around local Mela site to assess water storage and drinking practices, sanitation practices, and to find out the probable cause of diarrheal disease. **Results:** Total population of village Khaliyawas was 714 and in this outbreak, 91/714 persons were affected with diarrhea, therefore, the attack rate was 127 per 1000 population. Descriptive epidemiology and the reports of culture of water and stool showed the Vibrio cholerae 01 El Tor, Ogawa serotype. **Discussion:** Immediate rapid response team was sent by district health authority and several interventions were carried to control this epidemic.

#### Abstract No. 17: Risk of occupational exposure to chemical pesticide among farmers of Chitwan district of Nepal

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Introduction: Chemical pesticides increase agricultural production but irrational use may have severe public health and environmental impacts. The aim of this study is to assess the level of knowledge, attitude and practice on chemical pesticide use among farmers in Nepal. Methods: A cross-sectional study was conducted among farmers (N = 266) from 10 villages in Chitwan district. The farmers were selected with a proportionate random method and studied by means of face to face questionnaire interviews and systematic observations. Results: The primary mean of pest control was chemical pesticides (93%). Ninety percent and 76% did not have knowledge on botanical/bio- pesticides and banned pesticides, respectively. Pesticide product labels were rarely read (15%) and familiarity with the color toxicity symbols of the products was low (56%). Twenty five percent exceeded dose recommendations and the majority followed pesticide retailers' advice (82%). Several poor working behaviors were reported: mixing different types of pesticides and micronutrients (76%), spraying in hot and humid climate (74.0%), walking in spraying direction (85.3%), spraying against wind (67%) and allowing children in the field during spraying (93%). The only personal protection used was mask (65%). Pesticides were stored in kitchen (42%) and animal shed areas (37%) and the stored pesticides were accessible to children (78%). Pesticide containers and pesticide remains were found disposed in river, canals, and fields and nearby water sources. Conclusion: Farmers do not have a satisfactory level of knowledge, attitude and practice on chemical pesticide use. Interventions need to be developed and implemented to increase awareness, promote safer use and adopt alternatives to chemical pesticides to promote the public and environmental health of Nepal.

## Abstract No. 18: A study on needle stick injury among the nursing staff of a tertiary care hospital

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**Introduction:** Needle stick injury is one of the most common form of occupational hazards in a hospital setting. The nursing staff of the hospital is the most vulnerable group to this form of occupational hazards. HIV,HBV and HCV are the three most common infections that can be propagated through this route. All of these infections are a big threat to the nursing staff of any tertiary level of hospital.HIV is a fatal disease and both HBV and HCV can also have a significant effect on the quality of life. Perinatal route of transmission of these infections can also risk the foetal life of expectant mothers of this particular group of health care workers. **Methods:** The study was carried out in Pt B.D.Sharma post graduate institute of medical sciences, Rohtak, Haryana. It is 1700 bedded tertiary care hospital which caters to the health needs of a significant population of the state. The hospital employs almost 350 female nurses at various levels. The study was carried out to test the awareness level with respect to needle stick injuries, factors related to needle stick injuries and their response to a injury incident. A sample of 172 nurses was selected by judgemental sampling for the study. Nurses posted in medicine,

surgery, gynaecology and obstetrics including labour room, orthopedics and paediatrics were selected for the study. These particular departments were chosen keeping in purview the heavy load of patients. **Results:** The prevalence of ever needle stick injury was about 45%. The most common mode was during IV access/IM injections followed by recapping of needle. About 80% of the participants with NSI washed the wound with soap and water immediately. Only 8% admitted reporting their needle stick injury incidents to the higher concerned authorities. Awareness about the three main percutaneous blood borne pathogens was present among most of the participants. The heavy load of patients was the main reason attributed by about 70% of the participants having needle stick injury followed by wrong technique and own carelessness. The use of gloves during iv access and other procedures was seen in only 63%. Majority of our participants were immunized with HBV vaccine **Discussion:** The present study showed the prevalence of needle stick injury to be quiet high. A proper reporting format for all percutaneous injury should be made mandatory in all health care settings. Proper training of health care providers regarding techniques to prevent needle stick injuries is the need of the hour. After all health for all also includes the health care providers.

#### Abstract No. 19: Disaster Relief Workers:- Health Issues

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Introduction: Disaster is defined as any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area. Internationally major disasters occur frequently but for one country they are unusual events. It causes severe health damage to that country. In this scenario, our rescue teams/ relief workers risk their own lives to save the life of others. Dealing with disastrous situation make this group more vulnerable than general population. Methods: The concerned topic was searched on internet in different databases with abstract or full free text available in English in previous five years. **Results:** This group is more vulnerable than general population to various accidents even death in relief process and also health problems such as post traumatic stress disorder, mental health risks, heat disorder, radiation exposure, respiratory problems, skin and mucous membrane problems, digestive problems, eye irritation and fatigue etc. In developed countries their problems are dealt with great zeal but unfortunately in our country we fail to address the health issue of these workers inspite of having the most important role in disaster management by providing physical and rehabilitative services to survivors. It has been proven that work output of these workers is enhanced if their health issues are taken care of properly. Discussion: So while discussing about the environmental and occupational health, through this platform we want to acknowledge the health concerns of rescue teams with possible solutions.

#### Abstract No. 20: Sanitation: India's journey to curb open defecation.

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Millennium Development Goals focus on halving the proportion of people without access to improved sanitation as one of the targets. Sanitation improves quality of life by impacting individual health and on the other hand poor sanitation is thought to be a major cause of enteric infections among young children, in turn leading to malnutrition. Diarrheal diseases are also linked with the deaths of hundreds of thousands of young children each year. A major contributor to the transmission of enteric pathogens is thought to be open defecation, which can expose individuals to direct contact with human faeces containing infectious pathogens and also contaminate food and drinking water. It is evident by the currently available reports that India is going to miss this target, with practice of open defecation still being prevalent. It has been found that a vast majority-82 per cent of people around the world practicing open defecation now live in middle-income, populous countries, such as India and Nigeria. Lack of improved water and sanitation facilities is predominantly a rural and poverty-related phenomenon. Building toilets and getting people to use them is critical for public health. The present review focuses on the problems related to availability, acceptance, installation and sustainability of toilets. Success of a sanitation campaign is dependent on how sustainable the outcomes are, and that its sustainability depends on the quality of the processes adopted and their effective monitoring and evaluation.

#### Abstract No. 21: Workplace violence against doctors in a tertiary care hospital in Central Delhi

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**Introduction:** Healthcare workers particularly doctors are at high risk of being the victim of verbal and physical violence perpetrated by the patients. There is paucity of studies on work-related violence against doctors in India. Objective: To assess the exposure of workplace violence among doctors, its consequences among those who experienced it and facility preparedness to tackle it. **Methods:** It was a cross-sectional study undertaken amongst the doctors working in selected a hospital in Central Delhi. A self-administered questionnaire containing items for assessment of workplace violence against doctors, its consequences among those who were assaulted, reporting mechanisms and facility preparedness to tackle this issue, was used for collection of data. The data was analyzed using SPSS 16.0. **Results:** Out of the total 169 respondents, there were 104 (61.4%) males and 65 (38.6%) female doctors. The mean age of the study group was 27.5±6.6 years. There were 30.8% (n=52) of doctors who reported that they have been exposed to violence at their workplace. However, there was no gender wise difference in the exposure to violence (p=0.76). Verbal abuse was the most common form of violence reported by the study group (n=45; 86.5%). Anger, frustration and irritability (n=45; 86.5%) were the most common symptoms experienced by the doctors who were subjected to violence at the workplace. Only 44.2%

(n=23) of the doctors reported the event to the competent authorities. Further, only one-fourth (n=43) of the doctor said that their facility had specific policy or procedure to prevent workplace violence. 'Poor communication skills' was considered the most common physician factor responsible for workplace violence against the doctors. **Conclusion:** Considerable proportion of doctors were victims of violence by their patients. Violence was being under-reported. There is a need to encourage reporting of violence and prepare the facility to tackle this emerging issue for the safety of our physicians.

#### Abstract No. 22: Knowledge, Attitude, Practices among Food Handlers Regarding Food Hygiene Working In Establishments in Medical College Of Delhi.

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**Objectives:** The present study assessed knowledge, attitude and practices among food handlers regarding food hygiene in establishments in medical college of Delhi. **Methods:** A total of 44 food handlers working in 6 food service establishments in a medical college, were interviewed using a predesigned, pre-tested questionnaire regarding their socio-demographic and professional characteristics, knowledge regarding transmission and prevention of food borne /waterborne diseases, attitude towards personal and food hygiene and self-reported practices for hand washing. **Results:** Out of 44 participants in the study all were male and majority were less than 40 years of age (93.18%), Hindu (97.7%), literate (80.1%). Study participants who named at least one food/waterborne diseases were (79.5%) among which mostly named was gastroenteritis (50%), and least named was cholera and pneumonia (2.2%). Attitude of study subjects towards personal hygiene and food hygiene was good (100%). Self-reported hand washing practices before and after handling food and defecation are (100%). Applying cross tab with literacy shows knowledge regarding food hygiene was less among illiterate compared to literate persons. **Discussion:** Knowledge, attitude and practices among food handlers were good as majority of them were following good practices regarding food handling. Further to increase awareness among illiterate persons health education should be provided.

#### Abstract No. 23: Work related satisfaction and mental disorders amongst welder in East and North Delhi

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**Objective:** To assess and compare the work related satisfaction and presence of mental disorders amongst welders residing in East and North Delhi. **Material and methods:** It was a cross-sectional study conducted amongst 50 welders residing in East Delhi and North Delhi. Data was collected using a pretested 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 all the participants for East and North was 30.43±12.97 and 31.6±10.5 years respectively. Regular employment for 10 (10%) and 40 (57%) welders was there in East and North area respectively. Out of the total, 42% and 62% found their work as boring in East and North Delhi

respectively while 39% and 55.5% replied their work to be tiring in East and North Delhi. On item pertaining to their owners' behavior, 17% in East felt that their owners' were not compatible with them as compared to 33% in North Delhi. Nearly One fifth and more than half of them in East and North respectively did not have good relationship with their co-workers. Nearly 37% in East were having substance abuse of one kind or another as compared to 0% in North Delhi. Suicidal thoughts were predominantly more (34.3%) in North as compared to East (14%). **Conclusions:** Majority of participants responded their work to be dangerous in North area. Owners behavior was better in North. Comparatively, in East the work was less tiring, less dangerous and there was good autonomy. The presence of high percentage of suicidal thoughts and stress amongst welders in North highlight the need for interventions to overcome stress and other mental complaints amongst this group of workers. Further, there is a need to improve the working environment to ensure high productivity and satisfaction levels amongst the workers.

### Abstract No. 24: Comparative study of Work profile and hazard exposure amongst welders of Urban and Rural Delhi

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Introduction: Welders are one of the most vulnerable section for the hazardous exposures. The ergonomic condition under which they work has been a major cause to their work related dissatisfaction and has huge impact on their physical condition. There is a paucity of data, which can provide the sufficient evidence about their work profile and various hazards exposures and the prevalent medical illness among this cadre of workers. 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. Methods: It was a cross-sectional comparative study conducted amongst 50 welders residing in East Delhi and North Delhi. Data was collected from 35 welders in East and 70 in North Delhi, 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 all the participants for East and North was 30.43±12.97 and 31.6±10.5 years respectively. Only 10 (28.5%) participants in East and 21 (30%) in North had had technical Qualification. Regular employment was only for 10 (10%) and 40 (57%) welders in East and North area respectively. In East Delhi mean hours of work was 5.2±3.3 and for North was 3.9±2.2. In East Delhi 22%, 23% and 48.6% replied to be exposed to smoke, heat and noise respectively, while in North the percentage is 10%, 14% and 4% respectively for these exposures. In East 34 (97%), were suffering at the time of interview as compared to only 4 (5.7%) in North Delhi. In East Delhi 47%, 31.5% and 5.7% replied to be suffered to skin, lung disease or hypertension (HTN) respectively, while in North the percentage was 3%, 61.7% and 35.8% respectively for these conditions. Assessment of medical history revealed eye symptoms were not the major cause of uneasiness among them. Discussion: Mean duration of work was slightly more in North. Majority of enlisted exposures were found to be more in East Delhi and illnesses were also more prevalent in East Delhi but chronic illness like lung disorders and HTN was more in North Delhi. As welders are exposed to various kinds of hazardous exposure and suffer from acute and chronic illnesses therefore there is a need to undertake further research to understand causative factors and preventive interventions.

#### Abstract No. 25: Measurement of Uranium Concentrations in Drinking Water for Assessment of Health Risks

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Introduction: Uranium is widely spread throughout the environment and so it is impossible to avoid uranium. The health effects of uranium in drinking water are chronic (the delayed result of continuous consumption over a long period of time) rather than acute (the immediate result of consumption). The chemical properties of uranium in drinking water are of greater concern than its radioactivity. Nephritis is a primary chemically induced effect of uranium in human. Studies suggest that ingesting of high levels of uranium may be associated with an increased risk of kidney damage Methods: The uranium concentration values were measured in drinking water samples belonging to different villages/towns of Jalandhar and Hoshiarpur districts of Doaba region of Punjab, India, using Laser induced fluorimetry technique. The water samples were analyzed using a Scintrex UA-3 uranium analyzer. The UA-3 (Scintrex UA-3) uranium analyzer is a compact electro-optical instrument for the measurement of trace uranium in aqueous solutions including naturally occurring waters such as surface waters from rivers and lakes and ground waters from wells or bore holes. The technique is rapid, sensitive and is used for semiquantitative analysis. Results: The Radiological risk (carcinogenicity) and Chemical toxicity risks (noncarcinogenic toxicity for kidney) associated with uranium were estimated to assess the health risks to the residents of the study area. The activity concentrations of uranium in all drinking water samples were found to range from  $2.69\pm0.18\mu$ gl-1 to  $10.25\pm0.10\mu$ gl-1 with an average value of  $6.07\pm0.14\mu$ gl-1. The radiological risks for cancer mortality risk were found to be low, typically ranging from  $8.65 \times 10-6$ to  $3.29 \times 10-5$ , while that of the morbidity risk ranged from  $1.32 \times 10-5$  to  $5.03 \times 10-5$ . However, the chemical toxicity was found to vary from 0.07  $\mu$ g kg-1day-1 to 0.28  $\mu$ g kg-1day-1 which is lower than the recommended acceptable safe level by various international organizations. Discussion: Although the average exposure level of uranium in water samples was comparatively low for the study area but it is suggested that continuous monitoring must be maintained in several high uranium concentration areas in whole country.

#### Abstract No. 26: Environmental Hygienic conditions of the food service establishments in a medical college campus in Central Delhi

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**Introduction:** Food can be a potential source of infection and disease, right from the point of preparation to the point of consumption. It is more likely in the food service establishments where mass food is prepared hygiene practices should be ensured. Objectives: To study the hygienic status of the food service establishments in a tertiary care Medical College and Hospital in central Delhi. **Methods:** Study Design: observational cross sectional study. Study period: June-August, 2014 Study method: It is an observational study where the food handling practices and eating area and kitchen hygiene were

recorded without drawing attention of the workers/ customers. The questionnaire was prepared on the basis of the Standards and Guidelines drawn by Bureau of Indian Standards, MCD and WHO. The checklist contained 12 categories with a maximum possible score of 139 for the vegetarian and 140 for the non-vegetarian food establishments. The classification of the establishments on the basis of score obtained is as follows: Grade 1 = 0-25%, Grade 2= 26-50%, Grade 3= 51-75%, Grade 4 = 76-100% Data analysis: The data has been entered in MS Excel and analysed using MS Excel and SPSS version 20. **Results:** Most of the food establishments were operated on contractual basis. Most were providing non-vegetarian food. None of the food handlers had any uniform during their working hours. Few were using caps but those were not covering the entire hair. The eating areas were clean in all the establishments. **Discussion:** The conditions of the food establishments in the medical college campus are not of prescribed standard and it requires frequent supervision.

#### Abstract No. 27: Personal Hygiene and Self-Reported Hand washing Practices among Food Handlers of a Medical College in Delhi.

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Introduction: Food handlers play a major role in ensuring food safety as mishandling and disregard for personal hygiene on their part may result in food borne-illness outbreaks. Methods: Cross sectional observational study involving about 44 food handlers presently working were included. With structured proforma, details of socio-demographic data and self reported personal hygiene and hand washing practices were carried out. Results: Majority of the study subjects (70.5%) had a 'good' status of personal hygiene. Significantly greater number of study subjects working as servers or helpers had a better status of hygiene as compared to the cooks. The personal income was significantly associated with the status of personal hygiene of the study subjects. Although majority of them were using soap for hand washing after defecation and micturition but only few were using it at the workplace. Although all of them were brushing/cleaning their teeth, 50% were doing it only once in a day. Majority of them were taking bath in summers while 9% were not taking bath in winters. Although majority of them were trimming their nails on a regular basis while 2.3% didn't cut their nails at all. Majority of them used to take medicine during diarrhoea while only 2.3% used to take leave from work during illness. Most of them reported using towel to wipe the sweat. Most of them either cover their mouth or turn face away from food while coughing/sneezing. While 56.8% reported that they chased the stray animal, 20.4% said that animals never enter the premises, 2.3% had the habit of offering food to them. Discussion: There is a lot of scope for improving the standards of personal hygiene practices of food handlers. The important personal hygiene habits that help in prevention of contamination of food should be included in the content of health education sessions.

#### Abstract No. 28: Health status of child laborers in Nepal

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Introduction: The incidence of child labour in Nepal is relatively high compared with other countries in South Asia. There are more female than male child labourers, and the situation is worse in rural than urban areas. In 2010, 44% of children age 5 to 14 were involved in child labour activities in the mid- and far-western regions of Nepal. According to the Nepal Labour Force Survey (NLFS) in 2008, 86.2% of children who were working were also studying and 13.8% of the children work only. Methods: This study compares the status of health between Nepalese child laborers and school going children of similar age. Nineteen different kinds of labor sectors were selected and the child laborers in those work sectors were included in the study. Two medical doctors examined the children individually, and a psychologist assessed the level of stress indicators among the child laborers. Thus, clinical and psychological assessment were done, and compared with the same among school going children. The study was conducted from last week of April till the end of May 2010. Results: A total of 313 child laborers from 19 work sector and 200 school children were included in the study. Most of the laborers (82, 26.2%) were engaged in overland transportation and vehicle repair works. Child workers had significantly poor health status than the school going children, in term of pallor, absence of BCG vaccination, lack of de-worming, dermatitis, discharge from eyes, and ear - nose - throat problems. Two hundred eighty eight (92.1%) of the child workers had at least one psychological stress symptom. Discussion: There were 144 (46%) child workers with clinically diagnosed anaemia, 121 (38.7%) with dermatitis, 36 (11.5%) with discharge from eyes, 233 (74.4%) with ear wax, 77 (24.6%) with pharyngitis, 65 (20.8%) with calluses and more than 100 with some kind of abdominal problems. Another study among Nepalese child workers in carpet factories reported headache (44.2%), stomachache (32.7%), cough (13.5%) and back pain (15.4%). On examination, they found anemia among 11.5%, palpable lymph nodes among 13.5%, vertigo among 42.3%, skin allergies among 5.8%, scabies among 5.8%, tonsillitis among 7.7%, and carpel tunnel syndrome among 13.5% of the working children. It was noted that more child workers than school children were likely to have missed a BCG vaccine (OR - 16.59, Cl 8.61 – 32). In numbers, 161 (51.4%) of child workers did not receive (Bacillus Calmette Guerin (BCG) shots. This finding fits well with the fact that Nepal has a BCG coverage of only 87% in 2008.

#### Abstract No. 29: Medical tourism in India: challenges and opportunities

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**Introduction:** Medical tourism is travelling outside the home country for medical treatment. It is perceived as one of the fastest growing segment in marketing. Worldwide medical tourism market is between \$ 55-60 billion at present, and with annual growth rates of about 20% a year. The different types of medical tourism are price sensitive and quality sensitive. Elements of medical tourism are product, price, promotion, people and process. Objectives: 1. To know the current situation and future scope of medical tourism in India. **Methods:** This study is based on analysis of the secondary data from national and international organization. Both electronic and print databases were searched for studies

related to medical tourism. **Results:** Medical tourism is a growing sector in India. India was visited by 400,000 people in the context of medical tourism in 2012. The revenue generated by medical tourism in 2012 was \$ 2 billion (1200 crore approx). India's medical tourism sector is expected to experience an annual growth rate of 30%, making it a Rs. 9,500-crore industry by 2015. Advantages for medical treatment in India include reduced costs, less waiting time, world class facilities, personalized services and rich cultural heritage. The most popular treatments sought in India by medical tourists are cardiac bypass, knee and hip replacement, dental surgery, bariatric surgery, cosmetic surgery, eye treatments, ayurvedic treatment and treatment of naturopathies. **Conclusion:** Medical tourism added revenues by increase in aviation, hospitality, tourist companies, travel insurance. It can significantly contribute to GDP of India.

## Abstract No. 30: Health impact assessment of ambient air pollution among children of Ulaanbaatar city

#### <u>Enkhjargal Altangerel</u>, Burmaajav Badrakh, Suvd Batbaatar Ministry of Health, Mongolia

Introduction: Air pollution is an increasingly serious problem in Mongolia, especially in the capital city of Ulaanbaatar, Darhan and several other urban areas. The goal of this study is to determine the relationships between air pollutants (PM10, PM2.5, NO2 and SO2) and meteorological parameters and respiratory and cardiovascular morbidity and mortality of all children of Ulaanbaatar. This is a cross sectional study using secondary air quality and health data of children in Ulaanbaatar. The material and methods: Sampling unit is a total number morbidity of respiratory and cardiovascular diseases of children under 16 years old of the selected study hospitals, number of mortality of the selected II and III level hospitals. The result: There were 23695 cases of cardiovascular and respiratory system diseases were registered during period of study time. Boys were more likely to admit to hospital than girls. There was observed direct correlation between diseases and PM2.5, PM10, SO2 and meteorological factors. Based on recent study result, 24.1% of respiratory system disease of children (under 16 years order) can be caused by PM2.5 and PM10 level. As well as, 6.2% of children's cardiovascular disease was also caused due to relative humidity, and PM10 level. Conclusion The direct correlation between respiratory and cardiovascular disease children admission cases of Ulaanbaatar and ambient air pollutions are defined. Children respiratory system disease caused due to SO-2, PM2.5 and PM10 and cardiovascular disease also caused due to some meteorological factors. Also children aged under 16 in Ulaanbaatar has high risk to get RSD due to air pollution.

## Abstract No. 31: A Study to Assess Perceptions and Determinants of Noncompliance regarding Universal Precautions Among Nursing Staff of a Tertiary Care Hospital, Rohtak Haryana.

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**Introduction:** "Universal precautions" aim to prevent transmission of human Immunodeficiency virus (HIV), hepatitis B (HBV), and other blood borne pathogens though, not well understood or implemented

by health care practitioners. Compliance with universal precautions has been shown to reduce the risk of exposure to blood and body fluids. Needle stick injuries are very common among health staff and has potential of transmitting life threatening diseases like HIV/AIDS, Hepatitis B. Universal Precautions are a must for all the health care providers in order of safety of health personnel and to prevent spread of nosocomial infections. Objectives: 1) To assess the knowledge, attitude, practices and barriers to compliance of universal precautions among healthcare workers. 2) To describe the rate of needlestick/sharp injury among nursing staff Methods: A descriptive cross sectional study was carried out at PGIMS, Rohtak during a period of February - July 2013. Rohtak. Using a pretested semi-structured questionnaire, 200 nursing staff from various wards were randomly selected and interviewed. Data was analysed with simple proportions and percentages and interpretation was done accordingly. Results: Majority (84%) had needle stick injury at least once in their life time, with half (52%) of them involving contaminated needle. Around 80% considered universal precautions as effective tool but only 54% ensure it regardless of patient diagnosis. Only 46% of them had ever received training for universal precautions. Most of the nursing staff (85%) was immunized for Hepatitis B. Majority (68%) of the staff stated too much work load a reason for non compliance. Discussion: Needle-stick injuries continue to occur. Occupational health policies for universal precautions need to be implemented in hospitals. Staff vaccination against hepatitis B is recommended. An organizational culture of safety should emphasize the need for adequate staffing on every shift and extra vigilance during periods of high workload.

#### Abstract No. 32: Use of Hand Held XRF Equipment - Challenges in Health and Safety

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The X-ray Fluorescence equipment (XRF) is a non-destructive testing device used to find the presence of elements in solids, liquids and the amount of each element in raw materials and finished products. The test is reliable, fast, non-destructive and inexpensive process compare to establishing a large chemical laboratory and time consuming methods to analyze elements in raw material and finished products. However x-ray being a confirmed carcinogen is a physical hazard causes tissue damage by ionizing radiation. Though XRF technology existed since 1990, the Hand Held XRF (HHXRF) was introduced in 2001 and large scale commercial use started from 2008. Compared to medical radiology where the primary beam is pointed to the patient, in Industrial radiography the primary beam is pointed to the patient x-ray from XRF analyzer creates background radiation is a hazard which needs attention. This article enumerates the challenges to the health and safety of the operator and peers, and safety measures to be implemented at work place where HHXRF analyzers are used.

## Abstract No. 33: Prevalence and pattern of substance abuse among undergraduates of a medical college in Haryana.

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**Introduction:** Being a part of youth population and raising a youth are individually, and collectively, enormous challenges. For many of them, illicit substance use and abuse become part of the landscape of their teenage years. As known, Substance abuse is a complex and multidimensional problem. Rising

standards of living due to industrialization, urbanization and busy lifestyles of the parents have left the youth struggling for their survival; forcing many to seek refuge in the dark world of substance abuse. Tobacco, inhalants, cannabis products, alcohol and stimulants are the most commonly abused drugs by youth in the developing countries. Preoccupation with drugs can crowd out previously important activities, and the manner in which the youth views him or her-self may change in unrealistic and inaccurate directions. So, shaping the attitude of youth and promotion of a healthy lifestyle, including constructive behaviour is essential in the formative years of life. Aim and Objectives: 1.To estimate the prevalence of substance abuse among undergraduates 2. To study the pattern of substance abuse and the factors influencing its use by the undergraduates Methods: The study was carried out in the undergraduates of PGIMS, Rohtak during June 2014. The data was collected on a predesigned, pretested, semi-structured, self-administered questionnaire. A total of 500 undergraduates, 250 from either sex participated in the study considering prevalence of substance abuse to be 12.7%. The data so collected were compiled and analysed using statistical softwares like MS Excel and SPSS (version 20). Results: Out of 500 students, 44.4% (106) of males compared to 11.6% (24) females reported substance abuse. Prevalence of substance abuse in 1st, 2nd, 3rd, 4th year MBBS students and interns were 9%, 16%, 26%, 38% and 45% respectively. Smoking and alcohol consumption were higher in males (38%) as compared to females (9%). Most common reason for substance abuse was celebration (70%) followed by peer pressure (65%) and as method to overcome anxiety related to studies. 100(20%). Discussion: A high correlation is seen between adolescent abuse and becoming a problem drug user in their adulthood; therefore, it can be inferred that many problem drug users start abusing drugs at an early age. Reduction of such risk may require carefully targeted community interventions, including integrated mental health and substance abuse treatment.

#### Abstract No. 34: Needle -stick injuries among residents in a tertiary care hospital of Haryana

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Introduction: Needle stick injuries are a serious concern for all health care workers. Resident doctors are critical and comparatively less experienced section among them. They are frequently exposed to the needle stick injuries which pose a significant risk of occupational transmission of bloodborne pathogens. These pathogens include, but are not limited to, HIV/AIDS, hepatitis B and C infection. Methods: This cross sectional study was carried out to determine the incidence of needle-stick injuries, the circumstances under which these injuries occur and action taken after it. It was undertaken during April-May 2014. A pre- designed, pre- tested semi structured questionnaire was administered to resident doctors working in clinical departments of PGIMS, Rohtak; a tertiary care hospital of Haryana. Informed written consent was taken before administering questionnaire. Collected data were entered in SPSS and analysed using percentages and proportions. Results: Of total 300 study subjects, included in the study, 68% faced needle stick injuries during the previous year. Two third of the injuries occurred either during blood withdrawal or suturing. Most of resident doctors, who received injuries, either washed the injured site with soap and water or applied antiseptic agents. Out of total injured, 61% knew HIV, Hepatitis B and C status of the patient. Although most of the study subjects disposed needles by using hub cutter, there is still a fraction of residents who bent or recapped the needle after use. **Discussion:** The present study highlights a high incidence of needle stick injuries in the resident doctors. It also indicates the need to educate resident doctors about hazards and underlines the importance of adopting proper precautions for needle stick injuries.

#### Abstract No. 35: Morbidity profile and health seeking behavior among law enforcement personnel working in a metropolitan district of India

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Introduction: law enforcement personnel lead a physically challenging life, have irregular diet, mental stress, do shift work, suffer from disrupted sleep and have high rates of substance abuse. Various diseases such as cardiovascular, musculoskeletal, gastrointestinal, chronic insomnia, psychological disorders etc are prevalent among them. The personnel's physical and psychological well-being with safety are responsibility of respective departments. Therefore it is pertinent for them to conduct regular health assessment, facilitate treatment and health promotion services to its staff. Methodology: It was a cross-sectional study conducted in a randomly chosen district of a metropolitan area in North India. Sample size was calculated to be 296, we randomly chose 20 subjects each from 15 designated sites situated in the district and included them in the study. Clerical, gazzeted staff and those with less than 5 years of service were excluded. A Pre-designed, pre-tested, semi-structured interview schedule was designed to assess information like- identification data, presenting complaints, past history of illness or hospitalization, treatment seeking behavior etc. Prior permission was taken from concerned authorities and institutional ethical committee. Analysis was done using SPSS-16 software and confidentiality of data was maintained. Results: One or more present health complaints were found in 149 (49.6%) subjects amounting to mean morbidity of 0.71. Most common were of cardiovascular system (36.24%), musculoskeletal system (30.87%), eye complaints (29.53%), GIT (16.77%) etc. Past 1 year hospitalization was reported by 23 (7.7%) subjects. Among unhealthy subjects only (46.97%) reported taking treatment. Majority were taking allopathic treatment (78.58 %) mostly from public (govt.) health facilities (69.08%). Presence of health complaint was significantly associated with mental stress (p<0.01), high risk sleep apnea (p<0.01) and abdominal obesity (p=0.007) among subjects. Discussion: There is a high burden of life style related disease among law enforcement personnel which warrants immediate attention. Poor health seeking behavior was seen among personnel probably due to odd working hours, lack of awareness, paucity of dedicated health facilities and poor referral system etc

#### Abstract No. 36: Effect of Heavy Metal in Occupational & Environmental Health and its Biosorption by Gellan Gum Beads

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A very small quantity of heavy metals required as essential nutrients that protect our health, but in larger quantity it becomes toxic and dangerous to human being. All the heavy metal and their salts are considered as very important group of environmental pollutant, but among them copper is a destructive one. Many industries like electronic and electrical, metal plating, mining, manufacture of computer heat sinks, copper plumbing as well as biostatic surface, as a component in ceramic glazing, heavy metal

copper (Cu) is used. Cu contaminated aqueous streams from theses industries deteriorate the quality of water and a threat to marine life. Drinking water containing higher levels of Cu may cause stomach cramp to liver and kidney damage, harmful for the women who are pregnant and the baby whom they are carrying in their womb. Unfortunately, Cu is persistent, bio-accumulative and toxic metal that does not readily break down in the environment and is not easily metabolized. Treatments for such metalbearing effluents are therefore very essential. Chemical precipitation, evaporation, ion-exchange, adsorption, cementation, electrolysis and reverse osmosis are the methods currently utilized for this purpose. Due to specific nature of effluents like low pH, variety of cations and anions etc. the effective removal of metal ions has proven to be very difficult and costly process. Recently research is focused on developing novel, cheap and more effective biosorbents. In the present work, we are reporting the biosorption of Cu by engineered polymeric material gellan gum. Gellan gum is an anionic, high molecular weight polysaccharide produced by Pseudomonas elodea. Gellan Gum was crosslinked with calcium chloride to form beads by ionotropic gelation method. The beads thus obtained were kept overnight for drying. The dried beads were investigated in the removal of copper from aqueous solution. Batch adsorption experiments were conducted at a constant temperature of 30°C (±2°C) operating at 100 rpm. Influence of initial solution pH, adsorbent dosage and initial concentration of copper were studied and the single component equilibrium data was analyzed using Langmuir, Freundlich and BET adsorption isotherms. The results reveal that maximum Cu adsorbed at pH 5 and from the solution containing 500 ppm when studied in the range of 100 to 500 ppm. The optimum adsorbent dose was found to be 0.1 gm.

#### Abstract No. 37: Human Physical Drudgery Index (HPDI): A Subjective Assessment Tool for Measuring Women's Drudgery in Agriculture

### <u>Pratibha Joshi</u>, Renu Jethi, Nirmal Chandra, M.L. Roy, H.L. Kharbikar VPKAS (ICAR), Almora

Women development is key indicator of national development. Woman is the molder and builder of any nation's destiny. They play different but crucial roles in agriculture and rural development, and both contribute towards agricultural and food production. Hill women often work a 16-hour day, trying to balance competing demands in agricultural production, household-focused activities and income generation. In hills, the processing of small millets is mainly done by women. The drudgery involved in manual processing of small millets is an important reason of reduction in consumption of small millets. The small seed size also makes processing of these crops difficult and time consuming. Beating of millet bundle on wooden or stone platform is method farmers still practice in Uttarakhand although it has low output, higher grain damage and involved more drudgery to the farmers. . V.P.K.A.S. is continuously involved in development of various farm mechanized technologies suitable for hills of N-W Himalayas. These technologies in-turn are able to reduce drudgery of hill farmers especially of women. Keeping in view the problems of threshing of millets, the institute has developed Vivek millet thresher cum pearler. The mechanized threshers was found ergonomically sound with respect to traditional method of threshing and are helpful in reducing physiological ergonomics parameters i.e. Heart Rate (HR), Energy Expenditure Rate (EER), Blood Pressure (BP), Pulse Pressure, Total Cardiac Cost of Work (TCCW), Physiological Cost of Work (PCW) and Blood Lactate Concentration and postural discomfort. Further subjective assessment with Human Physical Drudgery Index was calculated on the basis of linear combination method using the scores obtained from Time spend on the activity, task performance score, difficulty score of the activity, body posture adopted, frequency of postural change, load/force and postural discomfort. Results of the investigation show the perceived exertion after agricultural activities ranged from 3.77 to 5.8 on the basis of verbal expression of fatigue and moderate to severe pain in all body parts reported by farm women and also demanded the angle of deviation of normal spinal curve by the activity which are the high risk factor for muscular stresses. HPDI reduced with Millet thresher as compared to manual beating with significant reduction of drudgery with the introduction of mechanized VL millet thresher. The percent increase in heart rate by manual beating of finger millet was 8.78 which were reduced up to 3.64 with Vivek millet thresher cum pearler. A high positive correlation was observed between difficulty score and human physical drudgery index in finger millet threshing operation tasks (0.85) compared to temporal cost and human physical drudgery index.

## Abstract No. 38: The effects of night shift schedules on nursing personnel working in a hospital

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**Introduction:** Nurses are key players in health care delivery with night shift nurses having a special role in the provision of health care. Shift work can have an impact on sleep, well-being, performance, and organizational outcomes. The existing scientific studies indicate that shift work affects both sleep and waking by disrupting circadian regulation, familial and social life. Objectives: To explore the effects of night shift duty on the health of nurses in a hospital. **Methods:** Study design: a cross-sectional study. Study area: Lok Nayak Hospital, Maulana Azad Medical College, a tertiary care hospital in Delhi. Study population: The nursing personnel working in Lok Nayak Hospital. Sample size: Taking the prevalence of effects of night shift on nurses as 50% (according to a study done in 2003), with a relative error of 10% and non response rate of 10%, total sample size is calculated to be 106. Study tool: Predesigned, pretested& semi-structured questionnaire will be was used to take interview of eligible nurses. Statistical Analysis: Data will be was analyzed in SPSS software(version 17). Results: The younger population in the age range 21 to 30 years formed a larger proportion of the workforce followed by 31 to 40 year group. Majority of the respondents indicated that night shift carries a heavier workload than the dayshift. Around 70% nurses experience problems with sleeping after night shift. About 80% of the nurses working on night shift revealed that they suffer from ailments for e.g, loss of sleep, irritability, fatigue, body aches etc. Discussion: The study suggests that all age groups are subject to physiological and psychological hazards brought about by night shift. The majority of the nurses complained of a number of problems about working on night shift. There is a need to make provision of resting time and facilities for the nursing staff, which will be helpful in providing the efficient patient care with minimal or no errors.

#### Abstract No. 39: Epidemiology of Needlestick injuries from a Tertiary Care Centre From Rural Uttar Pradesh

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Introduction: Accidental needlestick injuries (NSI) sustained by health care workers (HCWs) are a common occupational hazard in health care settings. The aim of this study was to review the epidemiology of NSI among HCWs at a tertiary care centre. The incidence of injuries as well as the nature and circumstances under which they occurred, were explored. Barriers in seeking care after NSI were determined. Availability and awareness of post exposure prophylaxis (PEP) in the above population were also studied. Methods: The present hospital based cross sectional survey was carried out among 300 HCWs at a tertiary care centre of rural Uttar Pradesh. Study subjects were selected by simple random sampling method. They were interviewed using a self designed, semi- structured interview schedule. Results: 82% of HCWs reported having had one or more NSI in their career, maximum among the nursing staff (91%). The average number of NSIs was found to be 1.85 per HCW per year (±2.29 SD). 18% of HCWs had a NSI involving a high risk patient. Most of NSIs were while recapping a needle after use (31%) or bending the needle for breaking it before disposal (22%). Majority of the NSI were not reported to the hospital administration. 75% of the respondents had heard about PEP and less than 10 % of them knew about the availability of PEP services in the hospital. Discussion: This data emphasizes the importance of increased awareness, training and education of HCWs for reporting and prevention of NSI. Besides health promotion, there should be setting up of an adequate surveillance mechanism, facilities for prompt response and treatment of NSI in each hospital.

#### Abstract No. 40: Assessment of Injection Safety Standards in a selected Primary and Community Health Care Centre in Bhopal.

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**Introduction:** Irrational and unsafe injection practices are rife in developing countries Harming the patient and inviting risks to the health care workers. Aims: (a) To assess the standards of Injection safety in a selected primary & Community health centre.(b) To assess knowledge and attitudes of healthcare workers in the health care facilities with regards to injection safety. **Methods:** A descriptive cross-sectional study was carried out from 1st September to 31st October 2013 in primary and community health centre in Bhopal. In-depth interviews with the unit In-charges/injection provider/waste handlers were conducted using a semi-structured questionnaire. Observation of the health facilities using a structured observation tool was done. EPI info (version 3.5.2) software was used for data entry and generation of descriptive Statistics was done. **Results:** Out of 390 injections observed in the primary health centre and 410 injections Observed in community health centre, 77.3% and 83.4 % of the observed injections in PHC and CHC respectively, were prepared on a clean, dedicated table or tray. All the injections were given through sterile disposable syringes. Absence of recapping of needles was observed in 33 % of the observed injections in PHC. 50 % of nurses in PHC and CHC. Injection safety was present in both PHC and CHC. Injection safety management policy and waste disposal guideline was not available for viewing in any of the

facility. The Waste Handler who disposed the bio-medical wastes did so without taking any safety measures nor they had received any hepatitis B vaccination Moreover, none of these staff had received any formal training in waste management **Conclusion:** The unsafe practices still persists placing patient and health workers at risk of associated hazards. Training concentrating on injection safety, guidelines to dispose bio-medical waste and monitoring of the activity is needed.

#### Abstract No. 41: Potential Side Effects of Back Scatter of Ophthalmic Lasers

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A wide spectrum of laser devices are being used routinely in medicine and especially ophthalmology, mostly belonging to ANSI (American National Standards Institute) class III and IV i.e. having ocular and skin hazards on exposure to both the direct as well as the scattered beam. Thus other than potential side effects to the patient, the laser beam can be hazardous to the treating physician, auxillary staff, nursing staff, laser repair technicians and even bystanders. Although dosimetric evaluation is needed for quantification of back scattered radiations, however negligible, the risk to workers in the nominal hazard zone (NHZ) cannot be overlooked, especially where lenses are used to focus the laser beams. The maximal permissible exposure (MPE) guidelines by ANSI take into consideration the laser wavelength and the exposure duration. Ophthalmic lasers belong to a varied spectrum ranging from visible 400-800nm wavelengths (Argon, frequency doubled Nd:Yag, Diode) to near infra-red invisible (Nd:Yag 1064 nm); the retina is at risk in these wavelengths. The photocoagulative lasers (Diode) have a diverging beam while photodisruptive lasers (Nd:Yag) are converging upto a distance of 1-3m, where the reflected laser light may exceed the MPE. Although the operating microscope and slit lamp have inbuilt filters for safety of the operating surgeon still there have been reports of post procedural transient visual disturbances in the form of colour and contrast vision problems, decreased visual acuity, after images and vitreous floaters. Accidental injury to technicians during maintenance and alignment of laser beams is a major risk as injury is usually foveal/parafoveal in the form of macular hole resulting in central scotoma. Hence protective eye wear, with filter specific to the wavelength being used, should be worn by all in the laser area, thereby easily avoiding ocular injuries.

#### Abstract No. 42: Technique of Using Edridge Green Lantern for Colour Vision Testing

**Dr. Punita Kumari Sodhi**, Dr. Amit Kumar Chawla, Dr. Kirti Singh, Dr. Anju Rastogi, Dr. Jugal Kishore Guru Nanak Eye Centre, Maulana Azad Medical College, New Delhi

**Introduction:** Edridge Green Lantern is incorporated as standard technique for testing colour vision defect (CVD) in Gazette of India and often used as vocational test. However there is paucity of literature on correct method for using this test. **Methods:** A total of 502 Delhi male subjects, who were tested with anomaloscope, were subjected to testing with Edridge Green Lantern. The Edridge Green lantern model had 8 colours - 2 shades of red, 2 shades of green, white, yellow, blue and purple. At 4.9 m distance, the subjects were asked to identify these colours through 1.3 mm (smallest aperture size) and 13 mm (largest aperture size) within exposure time of 5 seconds. The subjects were classified into a higher grade colour perception if they could see more than 4 colours correctly through 1.3 mm aperture and were classified into low grade colour perception if otherwise. **Results:** The responses of colour

vision testing were different in two eyes with Edridge Green lantern unlike anomaloscope. The prevalence of CVD by anomaloscope was 5.8% (4.18% green blind and 1.59% red blind). With Edridge Green Lantern, in right eye, prevalence of CVD to "pure green" was 3.18%; to "pure red" was 0.39% and to both was 1.19%. In left eye, prevalence of CVD to "pure green" was 3.58%; to "pure red" was 0.39% and to both was 1.39%. In right eye, prevalence of CVD to "signal green" was 3.18%; to "dark red" was 0.19% and to both was 0.99%. In left eye, prevalence of CVD to "signal green" was 3.98%; to "dark red" was 0.19% and to both was 0.79%. The Edridge Green Lantern could not divide subjects into deuteranopic, deuteranomalous, protanopic and protanomalous. The subjects having high grade colour perception were 95.61% and low grade perception were 4.38%. **Discussion:** The prevalence of CVD as detected by Edridge Green lantern is less than that by anomaloscope. The Edridge Green lantern is not very accurate as it cannot differentiate colour perception anomaly from total inability to identify a colour. Additionally, which wavelength of red and green colour matches the red (670 nm) and green (545 nm) wavelength used in anomaloscope is to be determined.

#### Abstract No. 43: Occupational Health Problems in IT Industry Workers in Bangalore

#### Dr. Monalisha Sahu

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Introduction: In the last two decades, India has witnessed a very rapid economic growth. One of the most important factors related to this rising growth has been the Information Technology (IT) industry. This research paper is designed to outline and document the major Occupational Health Problems of Information technology Industry Workers in Bangalore. Methodology: A Cross Sectional Study design was adopted to capture the prevalence of Occupational Health Problems consisting of Physical and Mental health issues with specific reference to both the Genders. IT Workers (N=110) of both genders belonging to selected Information Technology Workers located at two different IT firms in Bangalore formed the population of this study. A self-designed pre-tested Questionnaire tool was used to capture the prevalence of self-reported Health complaints among the Call Centre Workers. A Simple percentage technique was adopted to document the proportion of Workers having Occupational Health problems and the Z tests for proportions was used to test the significance. Results: 67% of IT Workers reported some form of Work-related Musculoskeletal disorders (WRMSDs) in the preceding 6 months. Low back Pain was the most prominent WRMSDs among IT Workers (57%); followed by Neck Pain (36%) and pain in small muscles of fingers (17%). A significant proportion of Workers reported to have ophthalmological problems. Moreover, the Stress related Mental Health problems were also noted among the IT Workers. Discussion: This Study concluded that the Occupational Health Problems are widely reported among the Call Centre Workers and an appropriate prevention strategy can help them to reduce their suffering and increase the effectiveness.

#### Abstract No. 44: Assessment of Health Status of Auto-rickshaw Drivers in Delhi

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**Background**- Occupational Health plays an important part in wellbeing of workers and still a neglected field in India. The present study was done to assess health status of workers by preventive health

checkup, health education and special trainings. **Materials and Methods**- A cross-sectional, community interventional study was done by St. Stephen's Occupational Health Centre from May 2013 to January 2014 in association with IGL, under which 11 medical camps were conducted in Delhi and NCR by a team consisting of doctors, pharmacist, nurse, health educator and first aid trainer. A total of 1711 auto drivers were screened. Data was collected through interview and preventive health check-up. Health education and training on First aid and Safety was provided during the camps. **Results**- All auto drivers were male and most of them were of 25-40 age group. Impaired vision was most predominantly seen in 54% followed by overweight in 25%. 8% were found hypertensive, 5% were diabetic. 7% drivers complained of body ache. A significant number of the drivers were found to be addicted to some or the other form of tobacco and alcohol. **Conclusions**- In this study, it was found that a large number of auto drivers are at the risk of having road traffic accident on duty because of diminished vision not corrected, along with the complications of untreated hypertension and hyperglycemia. The drivers are not under any government aided health insurance. They need regular preventive health check-up and health education regarding the work related health hazards for which they should also be insured under occupational health program.

## Abstract No. 45: Perspectives of health care provider regarding TB-HIV current referral strategy and non uptake of HIV testing in Delhi - A qualitative study.

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Introduction: DOTS provider and Medical officer play an integral role in implementation of RNTCP programme. Therefore their perception regarding TB-HIV services is most valuable. Understanding provider perspectives is an integral component of evaluating programs to improve services. It helps to identify the areas for quality improvement and universal HIV testing among TB patients. Objective: The aim of this qualitative study is to describe the perception of health care provider regarding referral strategy and reasons for non-uptake of HIV testing. Methods: It was a cross sectional study undertaken at DOTS cum microscopic centre of TB-Chest clinic of Lok Nayak Hospital and DOTS cum microscopic centre of rural area of west Delhi. We conducted in depth interview of DOTS provider and medical officer in-charge at DOTS centre. A topic outline guide used to assess the perception of study subjects. Thematic analysis of qualitative data was done. Results: The source of knowledge regarding HIV testing among the DOTS Providers were training, monthly review meeting and CME. All the study participants know the rational of HIV testing and the consequences of not being tested and are highly motivated for referring the patients for HIV testing at the earliest. Some of the barriers to HIV testing reported by the health care providers were lack of awareness, associated stigma, long distance to travel by the patients and non-availability of HIV testing kits. Discussion: All health care providers were suggested that this referral strategy was a very welcome initiative. They all were very much motivated to refer all TB patients to achieve universal HIV testing. Some modifiable factors suggested such as long distance, awareness, stigma and shortage of HIV kit should be addressed by policy maker to further improvement of HIV testing in TB patients.

#### Abstract No. 46: A case control study on Byssinosis among Textile mill workers in Ahmedabad city, India

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Introduction: Worldwide, India is the second largest producer of textile goods. However, there are few epidemiological studies from India that have assessed the risk factors associated with byssinosis.[1] Therefore, a case-control study was carried out to find out the risk factors associated with the occurrence of byssinosis. Methods: The study was carried out in two textile mills and three Ginning mills located in and around Ahmedabad city during August 2011 to August 2012. A Pre-designed, pre-tested questionnaire was used to record information which included socio-demographic variables, detailed history of work exposure and Questionnaire for the assessment of respiratory morbidities based on Medical Research Council Questionnaire (MRCQ-UK) and American Thoracic Society Questionnaire (ATS-Q) modified for Indian settings. Pulmonary function test which included spirometry was done for both cases as well as controls. Results: There were 50 cases and 50 controls. Mean age of the workers was 45+9.18 years. The overall prevalence of byssinosis was 13.1% and overall proportion of chronic bronchitis was 3.9%. Risk factors for byssinosis like smoking cigarettes and working in dusty environment of Opening sections were significantly associated (p<0.001) with the occurrence of byssinosis whereas Body mass Index (BMI) and duration of service were insignificantly associated. A logistic regression analysis showed that smoking and working in dusty worksites of opening sections were independent risk factors for byssinosis. Workers in dusty environment of opening sections had 3.5 times more risk of developing byssinosis compared to those who were working in non-dusty environment whereas smoking had 7.07 times more risk compared to those who were not smoking. Present study does not show any difference in duration of work exposure and occurrence of byssinosis between cases and controls. Workers with duration of exposure more than 20 years had similar chances of development of byssinosis with those who had <20 years exposure. Discussion: There is a need for textile mills to reduce the dust levels in the opening sections. The employers should appoint supervisors to ensure utilization of personal protective devices. Though personal protective devices (PPDs) are made available, workers are not found using it at most of the places. So, research should be aimed towards finding various reasons for it. Since heavy smoking is a risk factor for byssinosis, measures should be taken to reduce smoking among textile workers. Workers with longer duration of employment should be rotated in departments (non-dusty sections) to decrease cotton dust exposure on a regular basis thereby reducing the risk. Traditional machinery which carries high risk especially among opening section operatives should be replaced by enclosed machinery to reduce the risk of byssinosis related to cotton dust exposure.

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## Abstract No. 47: Prevalence of Byssinosis among Textile Mill Workers of Ahmedabad city, India

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Introduction: The textile industry in India contributes to the national economy in several ways and provides employment to the rural, poor and the economically backward sections of the society. The textiles sector contains many hazards and risks to workers, ranging from exposure to noise and dangerous substances, to manual handling and working with dangerous machinery. Each processing stage, from the production of materials to the manufacturing, finishing, coloring and packaging poses risks for workers. Therefore, a cross-sectional study was planned to assess the prevalence of Byssinosis in textile mill workers in Ahmedabad city. Methods: The study was carried out in two textile mills and three Ginning mills located in and around Ahmedabad city during August 2011 to August 2012. A Predesigned, pre-tested questionnaire was used to record information which included socio-demographic variables, detailed history of work exposure and Questionnaire for the assessment of respiratory morbidities based on Medical Research Council Questionnaire (MRCQ-UK) and American Thoracic Society Questionnaire (ATS-Q) modified for Indian settings. Pulmonary function test which included spirometry was done for those who had respiratory symptoms. Results: A total of 889 workers were studied from 5 mills. Mean age was 43.5+11.0 years. About 59.5% workers had addiction in form of chewing, smoking or drinking. Median duration of any addiction was 10 years. Majority of the workers had 8 hours duty period. Cumulative cotton dust exposure ranged from 6 months to 57 years with median duration of 20 years. 47.2% workers had more than 20 years cotton dust exposure. Majority workers were from ring frame department (22.3%), followed by opening section (17.9%), weaving (13.8%) & Dyeing department (11.2%). Overall proportion of respiratory morbidities was 27.9%. Coughing was 1.4 times and breathlessness was 1.8 times more common in workers with cotton dust exposure duration >20 years as compared to workers with <20 years of exposure. Overall prevalence of byssinosis was 13.1% and overall proportion of chronic bronchitis was 3.9%. Byssinosis was 2.26 times more common among smokers as compared to non-smokers. Similarly, chronic bronchitis was 2.9 times more common in smokers as compared with non-smokers. Workers with >20 years of cotton dust exposure had overall compromised lung function as compared to those with less duration. However, this difference was statistically insignificant. Discussion: In India, several researchers have studied the problem of byssinosis, Parikh et al found high prevalence of byssinosis in the late 80s in Ahmedabad city. Owing to urbanization and development of advanced textile machinery this prevalence has been reduced but still the adverse working environment exist which has a bearing on the occurrence of byssinosis along with smoking. Regular inspection of working environment by industrial hygienist must be ensured.

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#### Abstract No. 48: Assessment of Health Status of CFL Factory workers in Himachal Pradesh

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Background- Occupational Health plays an important part in wellbeing of workers and still a neglected field in India. The present study was done to assess health status of workers by preventive health checkup, health education and special trainings and to promote health among workers. Materials and Methods- A cross-sectional, community interventional study was done by St. Stephen's Occupational Health Centre on 18th and 19th March 2014 for the workers of CFL manufacturing unit under which medical camp was conducted in Baddi, Himachal Pradesh by a team consisting of doctors, lab technician, pharmacist, nurse, health educator and first aid trainer. A total of 172 factory workers were screened. Data was collected through interview and preventive health check-up. Health education and training on First aid and Safety was provided during the camp. **Results-** Most of the workers are in 25-40 age group. 1/3 workers were females with 78.8% anemic. Among male workers 42.50% were having addiction. Teeth staining and fibrosis seen in most of tobacco addicts and 50% of workers had problems in oral cavity.29.65% had impaired vision,21.5% had lifestyle disorder,15.69% abdominal problems and 27.65% had multiple deficiency diseases. A significant number of the workers were under stress and complained of myalgia. Not all workers were using PPE. Conclusions- Diminished vision not corrected and addiction problem could lead to accidents working with machinery. The factory workers are insured under ESI health insurance but they are provided with medical aid only when sick or in case of accidents. Workers need regular preventive health check-up and health education should be given regarding work related health hazards as most of these work related morbidities are preventable.

#### Abstract No.49: Occupational Hazards and Safety Assessment of Construction Workers: An Overview

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Construction is an industry that requires working at ever-changing locations and work environments. Apart from general workers this industry includes electricians, carpenters and plumbers. Primary responsibilities of a construction labor include erection and demolition of structures, loading and unloading of the materials, distributing the materials, erecting concrete forms and scaffoldings, drilling and blasting of earth or rock, mixing and pouring of concrete and asphalt, leveling of concrete pour, debris removal, cleanup of hazardous spills, control of traffic, operating pneumatic hammers, vibrators and tampers, assisting crane operators to secure special attachments to equipment etc. Workers performing variety of tasks/duties are facing potential hazards such as falls (from heights), fall of roofs, scaffold collapse, fall from ladder, injuries form slips ad trips, electric shock and arc flash/arc blast, repetitive motion injuries etc. Reasons for the hazards/injuries for a labor include risky situations, poor working conditions, insufficient experience, high places, ignoring warning signs, forgetfulness, unstable structures, loss of balance in motion, inappropriate use of protection equipment, the gap between contractors' and inspectors', seasonal variations, Manual Material Handling, Optimism bias, consumption of alcohol and drugs etc. To safeguard the man power in construction industry there is a need to design some safety assessment tools to minimize the occupational risks/hazards discussed in
this article are Quality Function Deployment (QFD), Fuzzy Risk Assessment, Probabilistic decision approach, Workgroup Operational, Risk Model (WORM), Pay for safety scheme (PFSS).

# Abstract No. 50: Health and Diseases among Women working with "Pattiwork" Handicraft (A Study in Aligarh City, U.P.)

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Introduction: Health and work are intimately linked. Women work in entirely different niche. Working and earning makes women independent and increases family income but many diseases and health problem have emerged. Each stage of women's life-cycle has specific health related aspects. The present study focuses on exploring the health problems and disease that the women working with "Pattiwork" handicraft making are suffering from. "Pattiwork" is traditional embroidery (a type of appliqué work) of Aligarh district in U.P. India and is often referred to as "Aligarh work". Methods: The study was carried out in the Aligarh City. In the absence of structured list, snowball sampling method was used. Total sample size was 100 respondents. A checklist was implemented during the survey for the collection of the data. The data collected was subjected to analysis with frequency and percentile method. Result: The study explored that majority of the women were suffering from either one or more of the following health problems - headache (98%), back problems (96%), pain in eyes (99%), sunken eyes (67%), gastric problem (64%), fatigue (57%), neck pain (92%), shoulder pain (54%), and knee pain (62%). Numbness in the tips of pointing finger (98%), pain in palm (78%) and wrist pain (89%) was also prevalent. The percentages above indicated that one women worker was suffering with more than one health problem. **Discussion:** Persistence of these problems had deteriorating effect on their health and handicraft making. It was found that the health problems suffered were linked to the kind of job performed during "Pattiwork" making. Further, low awareness level and lack of consideration about their own health made the workers more vulnerable to above health problems. Moreover, it was observed that urbanisation and increase demands has promoted the "Pattiwork" enterprise while putting more physical pressure on the women engaged in craft making.

# Abstract No. 51: A Proteomic approach for early detection of candidate biomarker for Noise Induced Hearing Loss in Indian mine workers.

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**Introduction:** Noise exposure is one of the most persistent health hazards in mining. Mine workers are exposed to high level of noise, responsible for Noise Induced Hearing Loss (NIHL). Worldwide 16% of the disabling hearing loss in adults results from excessive exposure to noise in the workplace. Noise damages key molecules like proteins present in the micro-machinery of the ear required for the mechanoelectric transduction of sound waves. Inner ear is crucial organ of hearing. There are key proteins present in tectorine membrane, Inner Hair Cells (IHC'S) and Outer Hair Cells (OHC'S) and

Stereocilia in the cochlea. Most studies related to cochlear protein expression/loss have been conducted in animal models. However, with regard to humans, relatively little is known about the cochlear protein expression in NIHL with special reference to presence in blood. The aim of the proposed study, to identify protein biomarkers associated with the occurrence of NIHL in serum samples of mine workers, will be performed by using proteomic approach. **Methodology:** The serum samples will be subjected to 1D and 2D Electrophoresis for the evaluation of differential expression of proteins. Multiplex ELISA will be performed to evaluate NIHL biomarkers. Also, MALDI TOFF, LC-MS will be included accordingly to identify the differentially expressed protein. **Results and Discussion:** The concentration and the stage of the loss or over expression of protein will be the target result of this study. The differentially expressed protein might be used as a signature protein for the early detection of NIHL. **Conclusion:** Based on the results, conclusion will be drawn whether the differentially expressed protein could be a biomarker for the early detection of NIHL.

# Abstract No. 52: A study to assess the knowledge and practices of universal health precautions among the interns of Gauhati Medical College, Guwahati.

#### Dr. Manjit Das, Dr. (Mrs.) Jutika Ojah

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**Introduction:** Universal Precautions should be followed by all personnel at all times on all patients. They are meant to reduce the risk of transmission of infections during care of the patients. Proper knowledge of the universal health precautions is very important for the health care providers. **Objectives:** 1) To assess the knowledge of universal health precautions among the interns. 2) To assess the practices of universal health precautions among the interns. Methods: Study design: Cross sectional study. Study place: Gauhati Medical College and Hospital. Study period: 1st June 2014 to 31st July 2014. Study population: All the interns attending respective duties during the study period were included in the study. Sample size: total 138 interns were assessed. Inclusion criteria: All interns present during the study period and giving consent for participating in the study were included. Data collection tool and technique: Knowledge and practices of universal health precautions among the interns were assessed by a pre-designed and pre-tested schedule containing both open and closed ended questions and also through observation of the participants while attending patients. Data were compiled using Microsoft excel and analysed by SPSS version 16.0. Results & Discussion: Though most of the participants practiced hand washing before and after attending patients (89%), but only 32% followed proper hand hygiene steps according to WHO guidelines. Proper knowledge of infectious waste disposal was seen among 71% of the participants.

# Abstract No. 53: Mental Health Status of Nurses working in Gauhati Medical College & Hospital

#### Dr. Mintu Dewri Bharali

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**Introduction:** Shift working pattern and high work load can be a potential psychosocial stressor. Night shift work is suggested as a risk factor for mental health. The incidence of mental ill- health is increasing

which is becoming a matter of concern in terms of occupation related diseases. **Objectives:** The objectives of this study is to assess the mental health status of nurses working in Gauhati Medical College and Hospital. Methods: A cross-sectional study was conducted among 100 randomly selected nurses working in Gauhati Medical College and Hospital. Depression condition and minor psychiatric disorder (MPD) were assessed by PHQ-9 and SRQ-20, respectively. Data will be compiled using Microsoft-Excel and will be analysed by using SPSS-16.

# Abstract No. 54: A study to assess the determinants of occupational hazards among workers in machine tool manufacturing factory in selected industrial area, Batala Punjab (India).

### Ms.Harjinder Kaur Kang

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**Introduction:** The function of occupational safety and health services at the workplace is to provide preventive measures and advisory roles and being responsible for assisting employers, workers and their representatives in establishing and maintaining a safe and healthy working environment including the adaptation of work to suit workers capabilities. Working environment conditions are among the major factors that affect public health conditions, because many workers spend a large part of their time at work. Objective: To assess the major determinants of occupational hazards among workers in machine tool manufacturing factory, Batala Punjab (India). Methods: Setting: An institutional based crosssectional study was conducted from March 1 to 15, 2014 to investigate the risk factors of occupational hazards in Rajindera machine tool manufacturing factory. It was established in 1959 in Batala city near bus stand District Gurdaspur, Punjab. Its having seven branches and There are total 200 male workers working in this factory. It is engaged in the production of Planner, Lathe which used in rolling mills, sugar mills and power plants for the repairing of machines. In the factory there is an insurance mechanism for workers those are potential for injuries during work. This encouraged the workers to report every accident they faced while working. All workers were considered as a source of population and workers who were directly engaged in the production processes were considered as a study population where as administrative workers were excluded from the study assuming that they were not exposed to occupational injuries. Sampling: 100 factory workers were selected by random sampling technique from Rajindera machine tool manufacturing factory, Batala. Data collection: the data was collected from March 1 to 15, 2014. The data was collected using structured questionnaire through face to face interview by data collectors. Results: Many factors including working for a long time, sleep disorders and job satisfaction can cause occupational hazards in machine tool manufacturing factories. Level of education, Age of worker, Working hours >48 hrs/wk, Manual handling Objects, Visual Concentration, Sleep Disorders and Job Satisfaction were significant at p< 0.05 level for the occurrence of occupational hazards.

# Abstract No. 55: A Quasi-experimental study to assess the effectiveness of structured teaching module on the knowledge of staff nurses regarding Hospital Acquired Infections (HAI) in Guru Nanak Mission Hospital, Dhahan Kaleran, SBS Nagar (Punjab).

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**Introduction:** Occupational health for health care providers encompasses multiple areas eg. Infections, Needle injuries, Back injuries, Allergy-causing substances, Violence, Stress etc. It is noteworthy to mention that more than one million cases of hospital acquired infection(HAI) are found every year in India alone. The arena of HAI's include the nosocomial infections and cross infections which both the patient and health care provider get in the hospital as a result of lackadaisical attitude of health care providers and faulty health practices and skills adopted by the former while caring for the patient.Keeping this in view a health information program in the form of a quasi experimental study was planned by the investigator for the staff nurses working in Guru Nanak Mission Hospital, Dhahan-Kaleran, Dist.SBS Nagar, Punjab so as to reduce the incidence of HAI's in the hospital. Objectives: 1.To assess and compare the pre-test knowledge of HAI among experimental and control group of staff nurses. 2. To assess and compare the post-test knowledge of HAI among the experimental and group of staff nurses. 3. To compare pre-test and post -test knowledge of HAI among experimental and control group of staff nurses. 4.To evaluate the effectiveness of structured teaching module on the knowledge of HAI with selected variables:-Age ,Academic qualification ,Area of work ,Years of experience ,In-service education. 5.To develop the structured teaching module on HAI for staff nurses to make their practice more effective. Results: 1. Maximum numbers of respondents were in age group of 20-25 years i. e 53.33% in both control and experimental group and minimum numbers of respondents in age group of >30 years i. e 13.33% in both control, and experimental group.2.Maximum numbers of respondents had academic qualification of 10+2(Arts)i. e 86.67% in both control and experimental group . minimum numbers of respondents i. e 13.33% in both control group had academic qualification of 10+2(medical ) and 13.33% respondents from experimental group had academic qualification of 10+2(Non medical).3.There was equal numbers of respondents i. e. 20% from each area of work emergency ward. Gynecological ward and surgical ward, and operation theatre ,medicine ward in both control and experimental group.4. Maximum numbers of respondents had experience of more than 2 years i. e. 53.33% in both control and experimental group. minimum numbers of respondents had 0-1 years experience i. e. 20% in control group and in experimental group minimum number of respondents had 1-2 years of experience i. e. 20% .5. None of the respondents had any exposure to in service education i. e 100% in control and experimental group. 6.In the pre-test in both control experimental group 66.6% of respondents had poor knowledge score (n=10), 33.3% had average knowledge score (n=5).7. In the post test in control group 66.6% respondents had poor knowledge score (n=10) and 33.3% respondents had average knowledge score (n=5).in experimental group 66.6% respondents had average knowledge score (n=10) and 33.3% had good knowledge score (n=5).8. There was statistically highly significant increase in post test knowledge score in experimental group and p<0.001 level.9. There was statistically no effect of variables on post test knowledge score of experimental and control group.

# Abstract No. 56: Health status among biscuit factory workers in Greater Noida, Uttar Pradesh: A cross sectional study

# **Dr. Pinki Kumari Roy**, Dr Rupali Roy , Dr S Mukherjee Dept. of Comm. Medicine, SMS&R, Sharda University, Noida

Background: Today the trend in all countries is towards industrialization. As industries are developing, occupational diseases are becoming more prominent. Purpose: The purpose of this study is to see the effect of different environmental hazards like sugar dust, flour dust, vibratory sieves, effect of ammonia, etc. on the skin of oven operators, cuts and burns at mixing section, effect of noise at mixers, compressors, generators, blowers of ovens etc. on the health status of the biscuit factory workers. **Objective:** To study the health status among biscuit factory workers in Greater Noida, Uttar Pradesh. Materials and methods: A cross sectional study was done among the factory workers of Anmol Biscuit factory, Greater Noida, Uttar Pradesh. A sample size of 250 has been taken according to the prevalence. Duration of study was for one month from 1st June to 1st July, 2014. Data on health status was collected in Anmol biscuit factory, Greater Noida through general physical examination like Anthropometric measurements, assessment of pallor, icterus, oedema. Systematic examination of respiratory system, cardiovascular system and other systems in body and findings were evaluated. Results: The data was statistically analyzed and outcome drawn that there is a significant effect of the environmental status on the health status of biscuit factory workers. Conclusion: Most of the biscuit factory authorities do not invest much in the safety and other measures for protective equipment for their workers. These short term benefits may prove counter productive in the long term. Proper safety measures should be adopted by using Food Safety Program like ISO2200. ISO14000, OHSAS18000 for safety of its personnel and property.

# Abstract No. 57: Prevalence and pattern of substance abuse among under-graduate students of a medical college in Haryana

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**Introduction:** Substance abuse is a complex and multidimensional problem. Rapid industrialization, urbanization and changing lifestyles have left the youth struggling for their survival; forcing many to seek refuge in the dark world of substance abuse. Tobacco, inhalants, cannabis products, alcohol and stimulants are most commonly abused drugs by youth in the developing countries. Shaping the attitude of youth and promotion of a healthy lifestyle, including constructive behaviour is essential in the formative years of life. **Aims and Objectives:** 1.To estimate the prevalence of substance abuse among students of a medical college 2.To study the pattern of substance abuse and the factors influencing its use by the students. **Methods:** The study was carried out in the students of PGIMS, Rohtak during December 2013. The data was collected on a predesigned, pre-tested, semi-structured, self-administered questionnaire. A total of 500 students, 250 from either sex participated in the study considering prevalence of substance abuse to be between 32.5% to as high as 81.2% among medical students, interns and house physicians. The data so collected were compiled and analysed using statistical softwares like MS Excel and SPSS (version 20). **Results:** Out of 500 students, 42.4% (106) of males compared to 9.6% (24) females reported substance abuse. Prevalence of substance abuse in 1st, 2nd, 3rd, 4th year MBBS students and interns were 8%, 15%, 24%, 38% and 45% respectively. Smoking

and alcohol consumption were higher in males (36%) as compared to females (8%). Most common reason for substance abuse was celebration (70%) followed by peer pressure (65%). **Discussion:** Reduction of such risk may require carefully targeted community interventions, including integrated mental health and substance abuse treatment.

### Abstract No. 58: A study on exposure related health problems in textile industry

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Introduction: The concept of occupational safety and health is in its initial stage in Nepal. Because of exposure to noise, chemicals and air borne particulate, manual handling and working with machinery in textile industry, workers are at risk of specific and non-specific health problems. This study identified health problems related to exposures in textile industry and the practice of safety precautions among workers. Methods: A cross sectional study was conducted in Pragati Textile Industry located at industrial corridor of eastern Nepal. All the workers (219) present at the time of study were interviewed by using pretested semi- structured questionnaires. General physical examination was done. Blood pressure, height and weight were measured. Ethical consideration was maintained. Walk-through examination was done using observational check list. SPSS V.16 was used for analysis of data. Results: About 31% workers had been working for more than 10 years. High intensity of noise was noticed in weaving and winding departments while low intensity of noise was noticed in other departments. Low level of dust was noticed in the industry. Only 16% workers used personal protective equipments. Ear muffs were used by only 7.3% workers. Respiratory problems (20.5%), ear problems (23.8%), eye problems (33.8%), skin problems (14.2%), hypertension (6.4%), gastritis (5.9%), musculoskeletal problem (4.6%), undernutrition (11.4%) were prevalent among workers. The proportion of workers reporting hearing problem in weaving and winding departments was more than that in the other departments. Discussion: The occupational health hazard results from an occupational exposure to dusts, chemical, noise and hard physical work which are common in developing countries. The Labour Act, 2048 (1992) Chapter V contains sections 27–36, which entirely pertain to the health and safety of workers in the establishment. Studies have highlighted cough (43%), chronic bronchitis (5.7%) or byssinosis (2.3%), chest tightness (4.3%), upper respiratory disease (7.2%) and noise induced hearing loss (34%) in textile industries. The prevalence of diseases was affected by work experience and working unit and the use of personal protective equipments. Our study showed eye problem was the most common problem followed by ear problem, respiratory problem and skin problems. Other health problems related to cardiovascular, skin, musculo-skeletal, gastrointestinal that were prevalent in our study were also different in proportion than in other studies. The difference in the morbidity might be due to different environmental conditions and duration of exposure. As with other studies, hearing problems of the workers was more in departments exposed to high noise as well as personal protective equipment by workers was less practiced. The presenting health problems, occupational safety and working conditions indicated potential risks of health hazards at workplaces in the textile industry.

# Abstract No. 59: Analysis of Accidents in Shop Floor Machine Operations According to Indian Standard (IS: 3786)

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Industrial accidents while working on machines, on most occasions result due to deviations in operating procedures. Accidents related to different type of machines at a specific facility has been considered in this study for analysis as per guidelines of Indian Standard 3786. The root causes of accidents are studied. This paper on analysis of accidents during machine operations in shop floor identifies unsafe acts and unsafe conditions pertinent to various accidents /injuries and brings out focusing areas for preventive measures to be adopted. The study on accidents also reveals that the deviations are often attributable to either faulty condition of the machine and/or unsafe acts of employees.

# Abstract No. 60: Household air pollution and its adverse health effects –a comparative risk assessment.

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Background-Global Burden of Disease 2010 assessment attributed, around 1.04 million premature deaths & 31.4 million disability-adjusted life years to household air pollution(HAP) as a result of solid cook fuel in India. It was estimated to be ~6% of National burden of disease. According to Indian National Census 2011, around 780 million people use solid cooking fuels in form of wood, dung and crop residues. Objective-Critical analysis of studies of household air pollution in Indian scenario Methodology-19 community based studies (last 25 years) reported for HAP in India were analyzed. In all studies wood is used as a type of fuel, 7 also considered cow dung, 3 added charcoal or crop residue and in one mixture of all used. Results-Indoor air pollutants as measured by these studies- 7 of them observed Total Suspended Particles (290-26147µg/m<sup>3</sup>), 6 contemplated Particulate Matter {2.5,4,5,10} as (87-1535µg/m<sup>3</sup>) and 7 others also comprised Carbon Monoxide (7-74.4mg/m<sup>3</sup>). In one of the study highest L/K ratio for SO<sub>2</sub> was found in LPG. Health outcomes given in accordance to Relative Risk are: low birth weight (1.23-1.7), still birth (1.34-1.5), acute lower respiratory tract infection (1.52-3.76), COPD (2.1-3.04), TB (0.6-2.54), cataract (1.6-2.37), blindness (1.32). Out of these only 3 studies used NFHS questionnaire rest others relied on meta analysis of various studies. Conclusion -There is lack of consistency in the way indoor air pollution exposure has been measured .Studies differ in use of monitoring equipment ,methodologies, monitoring period .They gave different range of relative risk of various health outcomes while none of them clearly shows the exact picture. Limited studies have been reported for evaluation of interventions i.e. about situation before intervention was introduced why intervention sustained in context (not in others) and effects of interventions. All these become obstacles for mounting standards and making a policy for household air pollution.

# Abstract No. 61: Perceived occupational hazards and opinion regarding their prevention among medical interns in a tertiary care institution in Delhi- a qualitative study

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Introduction: Medical interns are exposed to several occupational hazards such as needle prick injuries, exposure to blood and body fluids, skin infections, respiratory infections physical and mental hazards. These problems are under reported and understanding perception of interns regarding occupational hazards and universal precautions is essential for planning of programmes for prevention of occupational hazards Methods: Focussed group discussions (FGD) were conducted among Medical interns in three health centres of Maulana Azad Medical College after taking written informed consent. The topic was related to occupational hazards- perception, occurrence, practices, opinion on preventive measures during clinical postings and health centres. Data was collated, pile sorted and analysed. **Results:** We conducted FGDs with medical interns. The perceived occupation hazards during clinical posting includes needle prick injuries, infectious diseases such as tuberculosis, acute respiratory infections, scabies, blood borne infections etc. more so in the medical ward. Most of knew about universal precautions, few only practiced. In the words of an intern "Workload is very high in the ward. Sometimes due to time constraints we are unable to wash our hands and to change gloves after seeing every patient". Some of the opinions on the preventive measures are: "All doctors should be vaccinated against hepatitis B, patient's vomit or blood splash should be cleaned immediately in the wards, TB patients should wear face mask at all times, training needed for proper and safe techniques of procedures such as canula, ryle's tube insertion, tapping, gloves should be available, facility for detection of HIV/hepatitis B for interns with needle pricks even during Sundays, limit long duty hours to avoid hazards due to fatigue and lack of concentration etc." Discussion: The study findings suggest the need for training of interns in safe procedural practices, making availability of gloves, masks etc. and cutting down long duty hours in the hospitals and health centres.

### Abstract No. 62: Occupational health – A grim scenario in India

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**Introduction**- At present, a number of labour related programmes for occupational safety and health have been formulated in India. Only 2.8 crore workers exist in the organized sector while 43.7 crore are in the unorganized sector (NSSO, 2009-10). **Objectives**- 1.To assess the availability and adequacy of existing policies and programmes for providing occupational health and safety of workers in both organised and unorganised sector in India.

2. To bring to light the different health problems among workers in various sectors in India.

**Materials and methods-** This study is based on analysis of the secondary data from websites of the Ministry of Labour, National Institute of Occupational Health, Central Labour Institute, All India Institute Of Hygiene And Public Health. A systematic search was conducted by collecting scientific research papers on 'Occupational Health in India' from medical libraries and through Pubmed, google scholars, PLOS, google, Index Copernicus and MedlinePlus. **Results-** In India, statistics for the overall incidence and prevalence of occupational disease and injuries for the country is inadequate. The major

occupational diseases of concern include silicosis, musculoskeletal injuries, coal workers' pneumoconiosis, chronic obstructive lung diseases, asbestosis, byssinosis, pesticide poisoning and noise-induced hearing loss. However, occupational health is not integrated with primary healthcare, and is the mandate of the Ministry of Labour, therefore has to compete with primary health and curative health for its budget. More than 90% of the Indian labour force does not work in factories and they fall outside the purview of the major acts. There is a need for policymakers to change their attitude toward occupational health and recognize that occupational health improvement is a vehicle for socioeconomic development. **Conclusion** – India urgently requires modern occupational health safety legislation with adequate enforcement machinery.

# Abstract No. 63: A Study of morbidity profile amongst Police Personnel in Lakhimpur (Assam) with special reference to hypertension and its associated risk factors.

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**Introduction:** Lifestyle and working environment of police personnel have a great impact on their health status. To maintain a stable law and order condition they need to work day and night and sometimes also in dangerous area as a result they are in constant stress with a high rate of smoking and alcohol consumption. Due to overtime and hectic duty time they also suffer from sleep disorder. Cumulative effect of all these result in increased morbidity mainly due to hypertension. **Methods:** The study will be conducted at unit Hospital of 13th Assam police Battalion, Laakhimpur ,Assam from June to August,2014.It is a cross sectional study and here those police personnel were selected for study who comes to unit Hospital OPD for treatment of their health ailments from 1pm to 4pm from Monday to Saturday. The study instrument is based on the WHO STEPS approach, which includes collecting information using questionnaires step1, taking physical measurements step2 and taking blood samples for biochemical assessment step3.Due to limited resources available for collection of blood samples only step1 and 2 were included. The aim is to collect data from approx.100 police personnel both male and female of age groups 20 to 60years. **Results:** Results awaited.

# Abstract No. 64: Socio-demographic factors affecting the health status and morbidity among rickshaw pullers in central area of Delhi

#### Mohit Batra, Panna Lal, S.V. Singh

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**Introduction:** The strenuous work done by manually pulling rickshaws affects the overall health of rickshaw pullers working in harsh urban environment. Stress, pollution, noise, physical exertion and substance abuse all contribute to negative impact on their health **Objectives:** This study was conducted to find out various socio-demographic factors affecting the health status and morbidity among rickshaw pullers in central area of Delhi. **Methods:** A total of 70 rickshaw pullers selected from three sites of central Delhi (Karol Bagh, ISBT, Paharganj) were interviewed by predesigned pretested questionnaire. Questions were asked in Hindi language. During the interview, detailed information was collected

regarding personal identification and factors affecting the physical health status, for example height, weight, nature of work, stress, lifestyle, smoking and alcohol consumption and use of other substances, family history of diseases, dietary habits etc. **Results:** Final results are awaited. Arbitrary results showing 60-70% rickshaw pullers were consuming alcohol and doing smoking. The status of around 80% rickshaw pullers was found to be not healthy **Discussion:** The health profile of rickshaw pullers was not good. Many of them were having unhealthy lifestyle.

# Abstract No. 65: Perception of Biomedical Waste Management (BMW) among Dental Health Care personnel of various Dental Colleges in NCR, India – a KAP study

#### Dr. Sanchit Pradhan

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Introduction - Dental practices generate large amounts of Bio-medical waste which are contaminated with blood/body fluids, mainly saliva. Proper disposal of waste should be done by the dental health care personnel to prevent diseases. Aim-To assess and compare the knowledge, attitude and practice of Biomedical waste management among dental health care personnel. Method - A cross-sectional study was conducted using a closed-ended questionnaire. The questionnaire consisted of 22 questions in both English and Hindi language. Forms were distributed to 150 dental healthcare personnel in various Dental colleges of NCR, India. The study was approved by Ethical Committee. Confidentiality of the participants with respect to Dental Colleges were maintained. The resulting answers were analyzed by using ANOVA and Chi-square test. Results-Results showed that Level of Knowledge among four groups are significant for colour coding of general waste from College(p<0.05), Types of BM waste(p<0.05), Agencies which regulate BM Waste (p<0.05)and colour code of BM waste which are autoclaved and disinfected (p<0.05). The level of attitude among four groups are significant for instruments which are sterilized before shredding and disposal (p<0.05), labeling of container before filling it with waste(p<0.01). The level of practice among four groups are significant for BM waste colour coding segregation(p<0.01), following colour coding disposal of BM waste(p<0.01) and statements which are true for hazardous waste(p<0.05). Conclusion- It is imperative that waste should be segregated and disposed of in a safe manner to protect the environment and to prevent emergence, occurance and reoccurance of various diseases. Regular monitoring and training regarding Biomedical Waste is required at all levels.

# Abstract No. 66: Construction of national standards of growth curves of height and weight for children using cross-sectional data

#### Rachana Patel

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**Introduction:** About every second child aged below 5 years is malnourished (<2SD) in India according to WHO growth standard (NFHS 2006-07) and Government programs may not be able to reach the targeted population due to financial constraints and other serious problems in the country simultaneously. Eventually, it necessitates to scrutinize the global growth standard used for national estimates. However, some other researcher has also argued on acceptability of global growth standard. **Aim:** Growth curves are the most important evaluation tools for the assessment of growth of children

which could further helps to develop preventive interventions. This study aims to construct national growth curves using anthropometric measurements namely children's weight and height from National Family and Health Survey cross sectional data which were collected at every five years by Government of India. Methods: Factors which influence the nutritional status of children were examined for selecting standard reference population like standard infant feeding practices, sanitation, non-congestion, nonsmoking mothers, children belonging to richest household etc. The flexible distribution, Box-Cox Power Exponential distribution was used that offers the possibility to adjust kurtosis, thus providing the framework necessary to test if fitting the distribution's fourth moment improves the estimation of extreme percentiles. Results: Model fitted with the best fit on the basis of AIC, GAIC values and standard based on height and weight for children aged 0-60 months was obtained after iteration for degrees of freedom for the parameters. Weight showed a good fit at all ages since birth compared to height. Both mean birth weight and height of girls were lower to boys; however similar growth curves (mean z-scores and percentiles) were obtained for both the sexes. Discussion: The mean of this study was to construct new growth curve for girls and boys separately in reference to the growth of healthy children in Indian environment. Well defined decisive factor was applied in this study design to achieve the aim and construction of child growth curves followed a careful, methodological process. For choosing standard reference population from such a cross-sectional data was logical and socio-economic criterion was chosen based on literature such as maternal, child and household factors. Conclusion: Since, different growth curves for boys and girls were obtained and lower values for girls were noticeably found to set as growth standard compared to boys therefore on national level it may to help identify undernourished children considering child sex inclusively instead of global standard.

# Abstract No. 67: Supporting the Millennium Development Goals by tackling Household Energy issues

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Half of the world population depend on solid biomass fuels (wood, dung, agricultural residues) and coal, to meet their cooking energy needs. Cooking with solid fuels on open fires or traditional stoves results in high levels of Indoor Air Pollution (IAP) comprising of a range of health-damaging pollutants. According to WHO nearly two million deaths, 44% from childhood ALRI, 54% from chronic obstructive pulmonary disease (COPD) and 2% from lung cancer are due to IAP. In developing countries, IAP is to blame for 3.7% of all deaths, making it the most lethal killer after malnutrition, unsafe sex and lack of safe water and adequate sanitation. When addressing energy access issues, it is often neglected in policies and poverty alleviation strategies. Tackling indoor air pollution will help achieve the Millennium Development Goals (MDGs). MDG 1: Eradication of extreme poverty and hunger- Wood collection for fuel and cooking consume lot of women's time in rural areas adversely affecting her education attainment and productivite work. Goal 2: Achieve universal primary education- Children often spend time for fuel collection with their mothers resulting in less available time for school attendance and homework. Provision of clean energy can free women and children's time for education and income generation activities. Goal 3: Promote gender equality and empower women- Involving women in household energy decisions will contribute gender equality and women empowerment. Goal 4: Reduce child mortality-Exposure to IAP may contribute to perinatal mortality, low birth weight and a major risk factor for a variety of diseases during childhood especially ARI. Goal 5: Improve maternal health- Cutting

down indoor air pollution will contribute to better respiratory health for women who are customary involved in cooking particularly young mothers spending time close to the fire after childbirth. Goal 7: Environmental sustainability- Clean household energy can help ensure sustainable development. Thus the improvements in access to cleaner energy can support in achievement of MDGs.

# Abstract No. 68: Comparative analysis of Mental Health Status of Housewives and Day-shift Working women in Rural Delhi, India

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Introduction: There is a proven role conflict between women's indoor and outdoor activities that has posed a serious challenge to her mental health. This study aimed to compare the mental health of housewives and working women in Barwala, Rural Delhi, India. Methods: This cross-sectional study was done in catchment area of Rural Health and Training Centre, Barwala (Rural Delhi) from October-December, 2013. A semi-structured questionnaire was used for collecting information on mental health status using internationally validated symptom checklist (SCL-90). A total of three hundred women were studied in two groups; group I consisted of 150 housewives and group II included 150 working women. Data was analyzed using SPSS-16. Results: It was observed that working women had better mental health scores than housewives (p=0.00). Surprisingly, there was a significant association between mental health and educational level of housewives (p=0.00). Moreover, among the working women, job profile also had a significant association with their mental health. There was no significant relationship between SCL-90 scores and the number of children and also working history of women. But, the relationship between mental health of working women and their spouse' satisfaction of their jobs stood significant (p=0.00). **Discussion:** The study concluded that working women were mentally healthier than housewives. This could be due to their higher financial independence and job satisfaction. Moreover, the type of job was also found to have a significant impact on their mental health. It also highlights the role of spouse' satisfaction of their working status on positive mental health. However, the effect of culture on mental health differences between working women and housewives stands unexplored in this research.

# Abstract No. 69: Environmental Exposure to Persistent Organochlorine Pesticides and Risk of Breast Cancer in Indian Females.

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**Introduction:** In India, breast cancer is the most common type of cancer among women, although the incidences are very low i.e., 19 per 100,000 compared to United States and United Kingdom, where the incidence rates are quite higher i.e., 101 in United States and 87 in UK. But the death per incidence ratio

is highest in India is about 50%, followed by 30% in China and 18% in the United States. The etiology is remains unknown but environmental, genetic, nutritional and hormonal factors are established as contributory risk factors. The majority of breast cancers have been proposed to be of environmental origin. Among the environmental factors organochlorine pesticide have been suggested to play a causative role in the etiology of breast cancer. Organochlorine pesticides are widely dispersed and persist in the environment, act as xenoestrogen, get stored in adipose tissues and act as tumor promoter.

**Methods:** This case-control study was design to investigate the relationships between concentration of organochlorine pesticides in different biological media i.e., blood, tumor and adipose and risk of breast cancer. For this study we recruited 100 patients of breast disease. **Results:** The isomers of hexachlorocyclohexane such as alpha, beta gamma and delta and metabolites of DDT such as p,p-DDT, o,p-DDT, p,p-DDE, and p,p-DDD were frequently detected in all specimens. Organochlorine pesticides were found higher in study group (50 cases) than in those of controls (50 cases). Concentration of gamma, delta and total HCH were significantly higher (p<0.05) in blood of the females having breast cancer. **Discussion:** This pilot study with limited statistical power supports a positive association between exposure to organochlorines and risk of breast cancer and paves the way for a larger Indian study with greater statistical power encompassing different regions of the country to enable statistically sound conclusions.

# Abstract No. 70: Bullying prevalence, sociality and self-esteem: a cross sectional study in school adolescents of Ujjain block

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Introduction: In view of increasing violence in society worldwide, there is an urgent need to recognize the root cause of it and take timely preventive measure. It was well established that school bullying among pupil not only affect physical and psycho-social health, but it also affects school performance and increase antisocial behaviour. Methods: A Cross-sectional study was conducted in six middle and high school of the Ujjain tehsil from 1st September 2011 to 30th August 2013 extending for a period of two years. Restructured self-administered Proforma was used for data collection. Results: Bullying prevalence was 48.3% out of them 12.5%, 20.2% and 15.6% students act as simply a bully, only victim and both bully-victim respectively. Prevalence of bully behaviour was more in rural areas (30%) as compared to urban area (23.7%) and victimization was more in urban areas (38.3%) as compared to rural area (33.3%). Bullying was more prevalent in Boy's schools (73.8%); and it was least (29.4%) in girls' schools. Bullying was found statistically significant associated with residence, type of school, class and gender (p <0.05). Association bullying with other study variable: Proportions of bully, victim and bully-victim were lower in student with pro-social behaviour compare to social. Bullying was statistically highly significantly associated with sociality of participants (chi-squire value 19.509, p=0.000, df 3). Selfesteem was statistically highly significantly associated with bullying issues (chi-squire value 53.023, p =0.000, df 6).

Sociality was significantly associated with self-esteem of study participants (chi-square value 7.379, p = 0.025) Correlation among major study variables: Bully score significantly positively correlated with victim score (r = 0.259, p =0.000). Bully score significantly negatively correlated with pro-social score (r = -0.154, p <0.001). Victim score significantly negatively correlated with pro-social score (r = -0.107, p =0.019). Victim score significantly negatively correlated with self-esteem (r = -0.194, p =0.000). Self-

esteem score significantly positively correlated with pro-social score (r =0.2, p <0.01). Above correlation shows that pro-social behaviour and self-esteem can contribute in reduction of risk of victimization and pro-social behaviour can contribute in reduction of bully behaviour. By reducing risk of victimization simultaneously bully behaviour also decreases. **Discussion:** Bullying was found statistical significant associated with residence, type of school, class, gender, sociality, self-esteem and psychological distress (p <0.05). This highlight bullying is multifactorial phenomena. As victimization increases, bully behaviour among pupil also increases. Pro-social (helping behaviour) as increases bully behaviour and victimization both are reduced. As pro-social behaviour increases, self-esteem of pupil increases and as self-esteem increases, victimization of pupil decreases.

### Abstract No. 71: Health and Environmental Hazards of Electronic Waste (E-waste) in India

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Introduction: Hazardous technological waste in the form of Electronic waste or E-waste is one of the severe threats encountered by almost all the countries, irrespective of develop or developing, across the globe today. Composition of E-waste is incredibly miscellaneous. E-waste may contain complex mixtures of potential environmental contaminants that are distinct from other forms of waste. E-waste treatment including unregulated recycling and disposal practices expose the workers, dealing with such processes and the general population residing in the vicinity of the E-waste treatment and disposal sites, to high level of toxicity through mechanisms such as inhalation, contact with soil and dust, and oral intake of contaminated locally produced food and drinking water. E-waste impacts human health and the environment by entering the food chain in the form of chemical toxicants and exposing the population to the perilous chemicals, mainly in the form of polycyclic aromatic hydrocarbons (PAH) and persistent organic pollutants (POP). Heavy metals present in the E-waste are other major concerns. The substances present in the E-waste have the capacity to bioaccumulate and biomagnify along the food chain. Methods: The paper tries to trace the environmental and health implications of E-waste, especially in the context of India. Issues such as: 1. Hazardous substances in E-waste, 2. Effects of E-waste compounds on food crops, child health etc, 3. Contamination of food chains, 4. Hazards and risks associated with manual disassembling of cathode ray tubes (CRTs), printed circuit board assemblies (PCBA), recovery of metals, processing of plastics and 5. Major environmental pollution from E-waste such as air, water and soil pollution are addressed in detail in the paper. Secondary sources of data like recent newspaper and journal articles, authentic internet resources, etc were evaluated for the purpose of this study. Results: The paper concludes that it is essential to study the illicit dumping, crude recycling, improper treatment and disposal practices of E-waste in order to minimise the detrimental health and environmental consequences of the same. Discussion: The paper discusses the detrimental environmental and human health consequences of E-waste along with the hazardous materials present in the E-waste, their impacts on the food crops; food chain and child health; various pollution caused by E-waste etc. Mostly the chemicals present in the E-waste are persistent organic pollutants (POPs) having long term effects, both on the human health and the environment. The effects of heavy metals such as mercury and lead were observed among the workers working in rudimentary recycling workshops. Now the challenges in front of the global electronic manufacturing giants lie in producing electronics with minimum chemical toxicants. For instance, although the "energy star" products are green and ecofriendly, they are not affordable to most of the consumers.

# Abstract No. 72: Musculoskeletal disorders among textile mill workers of Ahmedabad city, India

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**Introduction:** Musculoskeletal disorders (MSDs) are a common health problem throughout the world and a major cause of disability. The economic loss due to such disorders affects not only the individual but also the organization and society as a whole. At the present time, MSDs is one of the most important problems ergonomists are encountering in the workplace all over the world. Textile industry is one of the most tedious professions, requiring long hours of static work and can be a high-risk occupation for developing MSDs as awkward posture, repetitive movements and contact stress are common. Therefore, the study was undertaken with the objective to determine the MSDs among textile mill workers.

Methods: The study was carried out in two textile mills and three Ginning mills located in and around Ahmedabad city during August 2011 to August 2012. A Pre-designed, pre-tested questionnaire was used to record information which included socio-demographic variables, detailed history of work exposure, MSDs and Questionnaire for the assessment of respiratory morbidities based on Medical Research Council Questionnaire (MRCQ-UK) and American Thoracic Society Questionnaire (ATS-Q) modified for Indian settings. Results: Mean age of the workers was 43.5+11.0 years. 32% of the workers were <40 years of age, 33% 40-49 years of age and rest were >50 years of age. Majority (66.2%) workers belong to Socio-economic class (SEC) III, 30.6% belong to SEC IV and rest belong to SEC II. Around 35.2% workers had addiction of smoking. Majority of the addicted belong to SEC III. Duty hours of 89.4% workers consisted of 8 hours, rest had 12 hours duty. Fifteen percent workers were obese and 22% were nonobese. Mean cotton dust exposure was 20.54+5.3 years. Fourty percent workers belonged to departments which involved prolonged standing hours while 33.1% workers belonged to department which involved working while sitting in awkward positions. Prevalence of Musculoskeletal disorders was 17.9% among which 1.7% workers had MSDs involving upper limb, 2.8% had MSDs involving lower limb and 13.4% had problem of low back pain. The proportion of MSDs was 2.6 times more in untrained workers on how to operate machine safely as compared to trained workers. Obese workers had 1.3 times higher history of musculoskeletal disorders as compared to normal. **Discussion:** Poor work pattern and working environment gives unnecessary physical efforts, which reduce efficiency and productivity also. Several work place factors, such as repetitive work, awkward and static postures, have been identified as being associated with upper extremity pain and discomfort. Attention to such problems is of importance, because in the one hand, the resulting disturbance in individual is either irreversible or needs very lengthy treatment, and on the other hand, it results in other sufferings with financial losses to the individual, his family, surroundings and the community in turn.

### **Abstract No. 73: Predicting the future Air Quality Index of Pollutants**

### <u>Sri Nagesh Mavilati</u>, Dr. Anubha Mandal Delhi Technological University, New Delhi

Air pollution is one of the key research interests in environmental studies besides air quality prediction plays an important role in the management of our environment, at present. Urban area being the most polluted as well as densely populated gets most concern. The largest sources of pollution include the motor vehicles, variety of manufacturing processes (industries) such as brick kilns, cement, metal processing, tanning, etc., residential fuel usage, biomass burning and road dust (especially in the cities of developing countries). It has been added that inhaling polluted air cause detrimental effects. For the better prediction of pollutant concentration in near future, there arises a necessity to define an Index; called AQI (Air Quality Index).

### Abstract No. 74: Human Factors and Behaviour Safety

### Ankit Aggarwal

People at work have experience, expectations, ambitions and skills. The problem with people is that they are inconsistent, they make mistakes, forget things, don't pay attention, don't understand things quite correctly and get their priorities wrong. In some cases, they wilfully disregard the safety rules, putting themselves and others at risk.

The last decade has seen considerable attention paid to the human factors aspects of health and safety at work. Much of this increased emphasis has been brought about as a result of the contribution of human failure to disasters, such as those at Bhopal in India, Moorgate, Kegworth and Longford, Victoria, South Australia, together with the Piper Alpha incident.

'Human factors' is an area of study concerned with people, the organizations they work for and the work they undertake. It is also concerned with communication systems within organizations and the training systems and procedures in operation, all of which are directed at preventing human error.

This session is about human factors and the behavioural aspects of safety. It talks about psychological factors such as attitude, motivation and perception, theories of accident causation and the relationship of human reliability to accidents, together with the increasingly significant areas of ergonomics and stress at work.

One of the principal objectives of any organization is that of developing and promoting the right safety culture, an aspect which requires a significant human factors input if it is to be successful. This session will explain this aspect, along with important features in the development of a safety culture, such as communication, training and interpersonal skills.

# Abstract No. 75: Significance of uses of personal protective equipments during application of organophosphate pesticides

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Aims:- The purpose of this study was to evaluate the role of Personal Protective Equipments (PPE) while applying organophosphate pesticides. The serum cholinesterase enzyme (SChE) changes associated with uses of personal protective equipments while applying the organophosphates (OPs) in factory workers. Materials and Methods: A cross-sectional study with an interview for use of personal protective equipments and blood test for the level of serum cholinesterase enzyme (SChE) was performed among 100 factory male workers. The workers were divided in two groups on the basis of extent uses of PPE like grade I and grade II. The serum cholinesterase enzyme was estimated by using Sigma Diagnostic Kits (Procedure No. 20). Results: None of the workers were using recommended personal protective devices. Moderate level of PPE were used by workers which included complete clothing (28%), ablution cloth changing & bathing (56 %), gloves (36%), Goggles (30%), Nose protection – gas mask only 14%, cloth on face (42 %), Foot wear-gum boot (18%), shoes (46%) and slippers (36%). The SChE mean level was compared on the basis of extent use of PPE like grade I and grade II. The grade I level of PPE users had significantly (p<0.01) higher mean value of SChE (57.13 ±15.73 U/ml) rather than grade II level users of PPE (34.48 ±11.51U/ml). The use of personal protective equipment (PPE) was significantly associated with higher SChE levels. Conclusion:- Significant reduction in level of SChE was found in workers those were using minimal level protective equipments as compared to those were using more appropriate Personal Protective Equipments. Therefore, on the basis of findings it can be concluded that the proper use of protective equipments will helped workers to prevent the hazards due to pesticide exposure. The use of correct PPE is highly recommended.

### Abstract No. 76: Occupational and Environmental Stress among Doctors in a Teaching Hospital

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**Introduction:** Being a doctor has a lot of allure, especially if you like making a high level of income and carrying prestige in your community. However, having a medical degree and owning a nice house don't insulate you from some of the hazards that you face as a medical practitioner. Many physicians are highly driven and competitive, observedemanding work schedules typically neglect their own healthcare needs and don't carve out time for leisure activities or family life. This all adds up to an increase instress and vulnerability for depression, anxiety and substance abuse problems. **Objective:** To assess physical and mental stress among doctors and their satisfaction level. **Methodology:** Study Design: Cross sectional study. Study area and study population: Doctors working at a teaching hospital in New Delhi. Sample size: A convenience sample of 50 doctors will be taken over a period of two months. Study Tool: A pre-tested, pre-designed, semi structured questionnaire containing items to assess personal and job information, working environment, employment opportunities, job satisfaction, mental demands, non work activities, social support, work hazards and workload, etc is used. The questionnaire is filled up by the subjects after taking their verbal consent. Data is analyzed by using SPSS 17 version software. **Results:** These results are based on a pilot study done on 20 doctors in a month time. 43.5% faced lack

of mutual assistance in their work place group. 58% said it would be difficult to find a job as good as present one. 37% had anxiety episodes at work place. 51% said often their job requires them to work very hard and fast. 48.2% reported their job to be mentally challenging. 27% were not satisfied with their job profile. 64% enjoyed a healthy social support and 55.6% enjoyed good physical working conditions. **Conclusion:** Present study concludes that doctors face many challenges in their workplace and need stress management sessions.

### Abstract No. 77: Rural posting: Perception, Acceptance and Plausibility

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Introduction: Difficult access to health care in the rural region is an important hindrance to a better quality of life in developing countries including India. Resources for heath care in India are available, may even be not adequate; but its distribution is highly skewed. Recently, the government mandated rural posting of all MBBS doctors which was widely opposed by the medical fraternity. **Objectives:** To study the perception of undergraduate students to the aforementioned rural posting and to comment on the achievability of compulsory 1 year rural posting. Methodology: Study design: Qualitative analysis by focus discussion in groups from medical colleges in Delhi. Study population: Undergraduate students from 2 medical colleges of Delhi. Sample size: First group of 15 from one college and second group of 15 students from another college were taken for group discussion, each lasting for approximately 1 hour. Ethical considerations: 1) The confidentiality of the subjects was ensured; 2) Informed consent from each subject was taken (in English as study group is English speaking); and 3) data will be presented in aggregates. Results: 12 participants (80%) from the first group and 15 (100%) from the second group were against compulsory rural posting post MBBS. All participants from both the groups found the idea of rural posting agreeable provided the government was willing to make certain changes in the infrastructure of the centers. Safety came out as an important concern too, especially for female doctors. Participants came up with a number of ways to implement the posting, alternative to the present proposed method of making it a prerequisite to appearing for PG entrance exams. **Conclusion**: The government can mandate rural posting for graduating MBBS students, provided certain changes are made. The overall attitude of majority of the student population is positive and in favour of serving the rural population.

# Abstract No. 78: Family Planning: Is the Key Hidden In the Work Profile of the Urban Indian Women?

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**Objective:** To Study the relation between the women's occupation and her fertility behavior and to study the difference in empowerment of women according to their work status. **Material& Methods:** A Community based, Cross-sectional study was done among 280 married women of reproductive age group residing in Agra City, using a standardized questionnaire to assess their fertility preferences& practices USAID scale for empowerment of women (Subscales: Mobility scale, Freedom from family dominion& economic empowerment scales) were also used, after translation& validation. **Results**:

Significant difference was found between Contraceptive prevalence rate (CPR) among working women(71%) versus that among housewives(48%). Among working women currently using a modern spacing method, majority(58%) prefer Oral pills, followed by condom(21%), injectable contraceptives(13%) and Intra-uterine devices(08%); whereas among housewives currently using a modern spacing method, condom(38%) is the preferred choice, followed by injectables (34%) and Oral pills (24%). The mean empowerment score of working women (Score of 8 out of 10) was significantly higher than that of housewives (4 out of 10) Strong positive correlation (r= 0.704), was found between the empowerment score and the number of times the women conceived. On comparing the empowerment Score with the unmet need of Family planning, it was realized that a statistically significant (p=0.05) association existed between the women scoring low (<5/10) on the empowerment scale and their need of family planning being unmet, than those scoring high (>5/10). **Conclusion**: There exists a difference in the contraceptive prevalence as well as contraceptive choices among women depending on their work status. Working status of women plays a critical role in their empowerment and hence also in their freedom to plan their conceptions.

# Abstract No. 79: Impact of occupational stress and salivary cortisol on periodontal disease amongst skilled industrial worker-a clinical and laboratory study

#### Dr Mansi Atri

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Introduction: Periodontitis is a multifactorial disease, commonly associated with most of the life style diseases. In the recent years the association between periodontitis with occupational stress has evolved in various studies in many developed settings. Objectives: This study aims at studying the prevalence of periodontal disease and its relationship with job stress among industrial labor workers covered under ESIC Scheme. Methods: The study included 180 subjects who were informed about the research goals, and also requested to sign consents. The questionnaire included parts from the generic job stress questionnaire from the National Institute of Job Stress and Health. Dental examinations based on Community Periodontal Index protocol was done using WHO probe. Participants with moderate to severe periodontitis (score3, 4) were informed about the salivary cortisol test. The saliva samples were collected and transported to the lab. Data was entered in Epiinfo 3.1.1 and analyzed in SPSS 14. The Chisquare analysis was done to measure association and logistic regression analysis was done to identify the independent association of job stress to periodontitis. Results: The study shows that 48% of the participants reported to have job stress and 55% had periodontitis. The mean salivary cortisol level was 3.42ng/dl. The results also indicated a higher odd of having low levels of salivary cortisol amongst those who reported job stress. Bi-variate regression analyses show the relationship of periodontitis with job stress to be much higher on controlling for other risk factors. The odds of having periodontitis in relation to positive job stress were 6 times higher than those who did not have positive job stress. **Conclusions:** This study shows high prevalence of job stress related periodontitis amongst industrial workers in India. This research recommends the health and labour ministry to improve access to dental care especially in rural areas and include psychiatric units and oral health care as a part of primary health care. Promoting health education to remove stigma against visiting psychiatrist. The factories administration should encourage recreation and retreat of the workers so as to reduce the level of stress at work. The factory adminastration were recommended to have counsellors to help their employees.

# Abstract No. 80: Assessment of the living conditions and physical health profile of house maids in resettlement colonies of Central Delhi

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Introduction: Majority of urban domestic workers live in poor areas, lack basic health services and have an unhealthy and unsafe environment. The conditions under which they live are precarious and unsafe and could be deleterious to health. Therefore their health is a matter of considerable concern. Objective: To study the living conditions and health profile of paid housemaids with the age range of 15 years and above, in the study area. Method: Interview using a semi structured pre-designed, pre-tested questionnaire regarding their socio-demographic status, working conditions and physical health profile, through house to house survey in two urban resettlement colonies of Delhi. Data was collected after obtaining written consent and analysed using MS excel and SPSS. Results: All the participant were female, live-out housemaids, aged 15-68 years (Mean age 38.9 years). 68% were illiterate and most of the rest had attained till primary education. 62% were residing in rented house, (3% in jhuggi, 1% kaccha house). 38% had own house (5% in jhuggi, and other in pakka house). Sanitation around 97% of the houses was bad, and almost all were overcrowded. 85% of them working in Delhi for more than 10 years. Only 37.5% of them are residents of Delhi rest (62.5%) are migrants. 32% of them are the only bread winner for their family.88% of the families had per capita income per month below Rs. 1500. 47% are working for more than 8 hours a day with no paid monthly offs. 63% had been victim of workplace violence most commonly verbal abuse. 13% had suffered work related injuries.38% reported substance abuse. 88% had ever suffered from infectious diseases, most common among which was vector born diseases: malaria (47%), dengue (17%), others mainly food and water borne diseases. 33% had skin diseases or allergy of any kind. 93% had low back ache, 62% had joint problems and 18% suffering from cervical spondylosis. 7% had respiratory disorders (asthma, bronchitis). 54% had hypertension and 21% were diabetic. 7% had been hospitalised in the last one year for any reason. Conclusion: Living conditions and the health profile of the housemaids are poor. They should be treated as an employee in any other sector and should have all the rights as available to other workers. There is need to accept the fact that domestic work is not just their need but their work is society's need indeed.

# Abstract No. 81: Household Fuels consumption and its effects on health status of the workers in Delhi

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**Introduction:** Indoor air pollution is a growing concern as it causes considerable mortality particularly in developing countries. It is observed that three quarter of household in India use unprocessed biomass as their primary fuel for cooking. Cooking smoke is a known risk factor for a number of respiratory diseases including tuberculosis and lung cancer. However, blindness, perinatal effects, and cardiovascular diseases are also associated with indoor pollution. **Objective:** To study the health profile of workers in relation to their working environment with household fuels. **Methods:** In a baseline survey of 60 small and medium size factories located in different areas of Delhi, 631 workers were interviewed after taking their consent and then clinically assessed for their illnesses, symptomatology, blood pressures, Peak Expiratory Flow Rates (PEFRs), body mass indices (BMIs), personal habits, socioeconomic status, amount

of time spent indoor, and types of cooking fuel. Data was analysed with the help of Epi-info computer software package and appropriate statistical tests were applied. **Results:** Mean age of workers was 32.27<u>+</u>9.15 yrs and only 8% were females. Compared with wood, coal, and dung, cleaner fuel like Liquid Petroleum Gas (LPG) was significantly less associated with symptomatology both in smokers and non-smokers. However, the difference was more in smokers. Disease frequencies were also more in workers using biomass fuels but none of the disease reached to the significant level. In non-smokers, body mass index was significantly less in biomass fuel users. **Conclusion:** The study concluded that indoor air pollution due to household fuel consumption has severe health impact but need further study. However, people need to be educated, particularly industrial workers who are already exposed to many pollutants in their working environment, specially smokers. Cleaner fuels such as LPG may be healthier for the community in long run.

# Abstract No. 82: Lifestyle habits of first year medical students in a medical college in Delhi, India

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Background: The incidence of non-communicable diseases and its risk factors among students, trainees and qualified physicians internationally is increasingly being reported in the literature. Most of the studies have looked for stress level and physical health of medical students while well advance in their course; none has attempted to find out the lifestyle behaviour of students just starting their medical or dental course. Objective: To assess the prevalence of risk factors for NCDs and lifestyle habits among first year medical undergraduate students of a medical college in New Delhi. Material and Methods: It was a cross-sectional study undertaken in a government medical college in New Delhi. A selfadministered questionnaire adapted from the WHO Step study scale of life style was given to all the first year medical students at the time of their admission after taking informed consent from them. The data was analyzed using SPSS 16.0. Results: Out of the total 241 students, 63.1% (n=152) were males and 36.9% (n=89) were females. The mean age of the study group was 18.17±1.16 years (Range=16-24 years). Majority were eating vegetables (n=185; 76.8%) and fruits (n=97; 40.2%) on all days in week. Further, only 5.8% (n=14) were eating outside for ? 3 days/week. Nearly 73.0% of the study group reported that they walk for atleast 10 minutes in day. Majority of them (83.3%) were watching TV or working on computers for less than 3 hours in a day. None of them reported to be taking alcohol or tobacco. **Conclusions:** The lifestyle habits of the study group were healthy. However, there is a need motivate them to continue with the healthy life style and learn to manage stress that they might face during their medical training to become healthy medical professionals.

# Abstract No. 83: Environmental effects of personal protective measures against mosquitoes

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Background: Mosquito borne diseases constitute an important cause of morbidity and mortality. The use of personal protective measures (PPM) like mats, bednets, screening, repellents, liquid vaporizers, mosquito coils etc. has been advocated as an effective tool in control of mosquito borne diseases. But data about the environmental safety of personal protective measures is still scarce. Keeping the above aspect in view, secondary data was analyzed to study the environmental effects of personal protective measures used against mosquitoes. Methodology: The analysis is based on a community based cross sectional study among 350 adult individuals in selected rural and urban areas in Delhi Data was collected using pretested semi structured questionnaire after taking written informed consent about the usage of various personal protective measures by study subjects. Prevalence of use of personal protective measures was calculated. This was followed by searching the studies from different search engines about the environmental effects of the personal protective measures. Calculations were done for the environmental effects for personal protective measures used in the study areas. Findings: Out of 350 families selected, 210 belonged to rural area and 140 to urban area. Personal protective measures were used by 132 (62.8%) subjects in rural and 87 (62.1%) subjects in urban area. Liquid vaporizer was the most preferred method (41.4%). Coils were used by 21% subjects in rural area and 30% subjects in urban area. Data shows that burning of one mosquito coil results in emission of formaldehyde that almost equivalent to burning of 51 cigarettes. This shows that monthly formaldehyde emission of coils in the house from use of single coil daily is equivalent to 1530 cigarettes which can be a significant source of indoor air pollution. Conclusion: There is a need to educate the people about the environmental effects of the personal protective measures against mosquitoes. Further research is also needed to develop environmental friendly personal protective measures against mosquitoes.

# Abstract No. 84: Iodine content of some commercial table salts in Kano – Nigeria as a factor affecting dietary iodine levels

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Kano, the most populous state in Nigeria located in areas remote to the coast where most food with natural dietary iodine content is comparatively low. To complement this in the state and others, the salt iodization was initiated and the programme has been strengthened using potassium iodate (KIO3) with the dosage of 50 microgram per gram. In this research, titrimetric analysis was used on ten different samples each of five different commercially-sold table salt brands randomly bought from selling points for the analyses of their iodine levels and compared with the WHO standard value. The study found that only sample B representing Mr. Chefs table salt has its average value (23.79 microgram per gram) below even the minimum value recommended by World Health Organization. The highest value of 50.23 microgram per gram was obtained for sample A representing Masa table salt. This is then followed by sample E representing Anapuna table salt with average value of 47.57 microgram per gram, sample D representing Dangote table salt with an average value of 42.29 microgram per gram and then sample C

representing Royal table salt with an average iodine value of D representing Dangote table salt with an average value of 33.30 microgram per gram. it can inferred that although all the sample salts have their iodine content not exceeding the recommended value, it is clear that only sample B falls below the WHO recommended value (30 - 50 microgram per gram) while the remaining samples are just within the range. Results were significant at 0.05 level. Recommendations were made.

# Abstract No. 85: Prevalence of Tobacco Use among medical college staff in Delhi

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Introduction: One in three adults, worldwide smokes tobacco which is associated with high morbidity and mortality. Health workers of a medical college are expected to be more aware of harmful effects of tobacco use and should consume less tobacco as compared to general public. However, not much data is available of prevalence rate of it in them. Objective: To find out the prevalence of tobacco use and smoking and nicotine dependence among class III and IV staff of a medical college. Methods: A cross sectional study was done comprising of an interview schedule using a predesigned and pretested questionnaire to describe the demographic characteristics, educational level, socio economic status and tobacco use followed by Fagerstrom test to screen the patients with nicotine dependence. The study was done on class III and Class IV employees of a Medical College in New Delhi. The subjects included five males and females between 18 and 60 years of age picked randomly from each department. Tobacco users and smokers were labelled when they do so for last 7 days. Subjects were excluded who had any serious physical or mental illness. An educational package consisting of health education, self help material and behavior modification strategies was made available to the participants. For drug treatment and physician's advice, the tobacco dependent staff was referred to the anti-smoking clinic of the hospital. The data was entered in Microsoft excel 8.0 and analysed using EPI- INFO 3.5.1. Results: In total 115 employees were enrolled for the study of which 61 belonged to class IV and 54 to class III. Prevalence of tobacco use in class III & IV was 38% with significant male preponderance (57.4%) and out of this daily user group accounts for 28.7%. Prevalence of tobacco use was significantly higher in class IV being 51% as compared to 24% in class III. Very high nicotine dependency is seen among 31-40 years olds (57.1%). As education level increased so the percentage of tobacco users declined. Prevalence of tobacco usage among employees with middle school education, high school education, graduation and post graduation was 58%, 41.4%, 14.3% and none respectively. With rising income level also the tobacco usage decreased and rate of quitting increased. Discussion: Tobacco use among medical college staff was high and the major concern was nicotine dependence. The prevalence was associated with socioeconomic factors such as age, marital status, educational and economic conditions. This also highlights the need of tobacco cessation program.

### Abstract No. 86: Occupational stress among Nurses of government hospital

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**Introduction:** Occupational stress is defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker.

Nursing is a challenging situation. Job related stress and job satisfaction are increasing among nurses. Their health, stress and working environment is very much important to our health care delivery system. Aim & Objective: To assess the stress level among Nurses in a tertiary care hospital. Methodology: It was Study is a Cross sectional study conducted amongst in Nurses working at government hospital, Central Delhi. A convenience sample of 50 nurses will be was taken over a period of two months. A pretested, pre-designed, semi structured questionnaire where used. Verbal consent was obtained prior to study. Questions regarding occupation stress, working environment and health related to job stress were asked. Data was fed into excel and where analyzed using SPSS.16 version software. Results: Pilot study was done on 20 nurses in a month time. The prevalence of occupational stress among nurses from the sample was 80%. 71% have reported that their working environment is awfully crowded and 50% nurses have reported health problems due to occupation related stress. 44 Other major stressors are mental demand requirements, working load and responsibility. Social support by spouse families and friends were major stress relieving factor. Conclusion: Thus the study concluded that there is stress among nurses. Preventing occupational stress and environment hazards are so important in hospitals and have to be managed by stress management, better health hospital policies and establishment of employee assistance programme for better health care delivery system.

# Abstract No. 87: Lifestyle habits among women members of a spouse welfare association of a Government Public Sector Unit (PSU) in Mumbai, India

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Background: The burden of non-communicable diseases (NCDs) is increasing worldwide largely due to prevalence of various risk factors, which can be controlled. The major risk factors for the NCDs are associated with lifestyle and behavioral patterns, which are largely a result of practices adopted by the population. Objective: To assess the practices regarding major preventable risk factors for chronic noncommunicable diseases in educated, affluent women members of a spouse welfare association in Mumbai Material and Methods: It was a cross-sectional study undertaken amongst the woman members of a spouse welfare association. This association is formed by the wives of the officers of a Govt. PSU for welfare of the employees and also some work of social importance A workshop was conducted by AACCI for stress management and taking care of their health The participants of the workshop belonged to a highly educated and affluent section who were aware and could afford to follow a healthy life style: healthy food, time for exercise etc. A self-administered questionnaire adapted from the WHO Step study scale of life style was given to all participants. The data was analyzed using SPSS 16.0. Results: There were 28 women who were members of the organization. The mean age of the study group was 46.5±8.8 years (Range: 25-66 years). Out of the total, 11 (39.3%) were working and majority were post graduates (n=19; 67.9%). All of them belonged to upper middle class socio-economic status. There were only 28.6% (n=8) of women who were eating fruits on  $\leq$  3 days in week and 10.7% (n=3) were eating vegetables on  $\leq$  3 days in week. Eating outside at least once a week was accepted by 67.9% (n=19). Only 28.6% (n=8) were using vegetable oils for cooking. Nearly a quarter of the study group was eating fried snacks for 2-3 times in week. About 39% (n=11) were not physically active at all. None of them consumed alcohol or tobacco. About half of them were found to be obese (n=14; 50%) while 21.4% (n=6) were found to be overweight. There were 64.3% (n=18) women who were hypertensive while 78.6% (n=22) women were diabetics. However, there were only 3 women (10.7%)

who got their blood pressure measured in last 12 months. Only one third (n=10; 35.7%) got their blood sugar tested in last 12 months. Only 5 women (17.9%) were getting their weight measured on monthly basis while only one women had her waist circumference measured in last 3 months. There were 8 women (28.6%) who felt very stressed because of their job. Occupation (more amongst housewives) was significantly found to be associated with presence of hypertension (p=0.008). However, no significant difference in prevalence of diabetes, obesity and stress was found with occupation. **Conclusions:** In spite of high education and affluence these woman were not following healthy life style. Physical inactivity and eating outside specially calorie dense unhealthy fried food was very high especially when there is high prevalence of diabetes and hypertension. Nearly one third of them also felt stressed out at work. Thus, there is a need to educate and motivate woman to develop healthy life style and learn to manage stress.

### Abstract No. 88: Effect of training on knowledge, attitude and practices regarding Universal Precaution among Nurses working at a rural Hospital, Delhi, India

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**Background:** Occupational exposure to blood and body fluids is a serious concern for health care workers. Universal precautions are not well understood or implemented by health care practitioners, though crucial in the prevention and transmission of blood-borne pathogens like HIV. Every nurse is expected to have proper knowledge of universal precautions, which can be improved with training. Aim: The objective was to find out the impact of training on knowledge of nurses regarding universal precautions. **Materials and Methods:** A hospital based intervention study was carried out amongst 74 nursing staff working in secondary level hospital in North Delhi. Pretested, pre-designed erforma for data collection was used and training was done as intervention that included power point presentation containing knowledge regarding universal precautions, followed by interactive session to solve queries. Impact of training was assessed after 3 & 9 months. **Results:** Out of 74 nurses, 8(10.8%) were males and 66(89.2%) were females; mean age of nurses was 29.31 (SD=4.19); average duration of experience of staff was 4.77 years (SD=3.83). Baseline knowledge of nursing staff regarding universal precautions was 83.6% and which was improved up to 93% at 3 month & decreased to 88.1% at 9 month after training. **Conclusion**: Improvement of knowledge was observed after training in nursing staff that suggests a regular training of nursing staff for their safety.

# Abstract No. 89: Effectiveness of training on Knowledge, Attitude, Behaviour and Practices of health care workers regarding universal precautions and biomedical waste management in ESIC Hospital Basaidarapur, Delhi.

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**Background:** Over the past two decades, occupational transmission of blood borne pathogens has emerged as a significant hazard for health care workers. Out of 45 million new HIV infections up to 4 million will results from unsafe blood transfusions, unsafe medical injections and other procedures

performed in the absence of universal precautions and improper biomedical waste management. **Objectives:** This study has been conducted to assess the effectiveness of training on knowledge, attitude, behaviour and practices of health care workers regarding universal precautions and biomedical waste management in ESIC Hospital, Basaidarapur, Delhi. Material and Methods: This was a hospital based intervention study including all health workers working in ESIC Hospital, Delhi. Around 200 subjects were selected randomly for whom training was conducted regarding universal precaution and biomedical waste management. Predesigned and pretested questionnaire was used for data collection during pre & post training assessment of the training for knowledge, attitude, behaviour and practices regarding universal precautions and biomedical waste management of study subjects. Data collected in the study was analysed by using SPSS 17. Results: Overall improvement after training was 13.43% in total. After training, there were improvement of 20.58%, 7.41% and 7.75% in knowledge, attitude and behaviour & practice respectively. **Conclusions:** The study indicates the importance of training of all the hospitals workers should be done at regular intervals in order to prevent them from occupational related injuries. Hospital administrator should strive to create an organisational atmosphere in which adherence to recommended universal precaution and proper biomedical waste management protocol was considered an integral part of providing high quality care.

# Abstract No. 90: Compliance of smoke-free public policy: Evidence from primary and secondary school survey in a Rural Taluk in South Karnataka, India

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Background: India has a comprehensive tobacco control law 'Cigarettes and other tobacco product Act -COTPA, 2003' which is in force since 2<sup>nd</sup> October 2008. Only when Law is being implemented, can result in social good it is intended for. Primary and secondary schools have been pivotal in spreading health education among students, their parents and community members. Anti-tobacco law compliance in these public places could help us to understand the status of the implementation of the law and could guide for further actions at policy as well as at implementation level. **Objective**: The objective of the study is to assess the compliance to the prohibition of smoking at public places (COTPA Sec. 4) and prohibition of selling of tobacco within 100 yards of school (COTPA Sec 6). Material and Method: An observational cross-sectional study was conducted at 11 different primary and secondary schools in a rural Taluk in South Karnataka, India. The compliance survey tool developed by THEUNION, Campaign for Tobacco Free Kinds and John Hopkins School of Public Health (2<sup>nd</sup> edition, May 2014) was adapted to accommodate Indian anti-tobacco legal provisions. School campuses were visited and observed using a structured checklist, which included the evidence of direct or indirect tobacco use, active tobacco use smoking and tobacco use, display of signage etc. Results: Out of 14 parameters used, only 5 parameters were found to be complied with uniformly across the schools as per Indian law. Overall compliance rate for each school was merely 35.7%. And Section 4 and Section 6(b) of COTPA were partially complied in all the schools. Though there was no evidence of active smoking during the visit in these public facilities however tobacco pouches and cigarette butts were seen in the school campus. No schools had 'No-Smoking' signage as specified by the Indian Law. No school had displayed 'sale of tobacco to the minors is prohibited' warning notice. There was no selling of tobacco products were seen within 100 yards of the school campus. Conclusion: Compliance survey indicated low level of compliance with anti-tobacco Law in schools in a rural Taluk suggesting lack of awareness among school administrators. In rural areas

selling of tobacco products within 100 yards may not be a measure problem. Government need to sensitize these schools through administrative procedures as well as creating awareness through IEC campaign. These schools also need to be supplied with notice/warning boards for display.

# Abstract No. 91: Prevalence of substance use and stress related problems among security personnel working in a medical college in Delhi

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Background: Security men are subjected to a considerable degree of stress related problems due to their working hours and working environment. Chronic stress in them could be the cause of increased prevalence of addiction to tobacco and alcohol. Objectives: The study aims to assess the prevalence of addiction to tobacco and alcohol among security personnel and the degree of stress related problems they face in their day to day life as a result of their occupation. **Methods**: A total of 50 private security men working in a medical College were studied using a detailed questionnaire on their sociodemographic data, personal lifestyle habits and stress related problems. Their responses to stress related problems were quantified on a Likert's scale. Anthropometric measurements were also taken. Results: The prevalence of smoking, chewing tobacco and alcohol consumption were 48%, 30% and 54% respectively. 24% (n = 12) had considerable amount of stress in most of the days of their life. 15% (n = 30) considered changing their present posting if allowed. 60% (n = 30) told that they would pursue another career if they had to do it all over again. 94% (n = 47) were comfortable in having shift duties only. Conclusion: Prevalence of tobacco and alcohol use is higher in security men. A considerable degree of association between the stress related problems and addiction to tobacco and alcohol was found. Therefore, it is recommended that a program for stress free working environment and to reduce their dependence on tobacco and alcohol should be formulated.

# Abstract No. 92: Prevalence of mental health problems and depression among security personnel in a medical college in Delhi

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**Background:** Security personnel are chronically exposed to stressful conditions as a part of their occupation. This has led to an increased prevalence of mental health problems and depression among them, unable to cope up with their stressful working conditions. **Objectives:** The aim of the study is to find the prevalence of mental health problems among security men. The study also aims to assess the degree of depression among them. **Methods:** A total of 50 security men working in Maulana Azad Medical College were studied using a detailed questionnaire on their socio-demographic data, mental health problems and symptoms related to depression. Depression was assessed based on the Prime MD Health questionnaire for depression. **Results:** The common problems experienced by the security men were recurrent headache, altered appetite, sleep disturbances, nervousness, loss of interest and

difficulty in enjoying daily activities. **Conclusion:** Security men should be provided healthy working environment to minimize the effect of occupation on their mental health. Persons with severe symptoms related to depression and mental health should be identified, provided adequate counseling and treatment.

### Abstract No. 93: Stress Reduction to Promote Health & Wellbeing at Work

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Workplace stresses are mainly of two types:

- 1. Positive Stress: <u>Eustress</u>, which is short term, motivating, improves performance, and generates feeling of optimism that everything is possible, and
- Negative Stress: <u>Distress</u>, which can be long term, decrease performance, generates feeling of pessimism, nothing is possible, causes anxiety, unpleasant emotions and which can lead to mental and physical problems.

Cognitive appraisal decides whether it is eustress or distress while managing any given situation. Broadly, enhanced stress at workplace decreases productivity, increases morbidity and to some extent, mortality also. Our modern culture is largely devoid of behavioral skills. Meditation or Yoga are methods which are free of cost, without side effects and just requires 20 minutes of time a day. Sudershan Kriya practitioner claim profound subjective experiences, some claim to be almost magical. SKY has four breath components in Three stages- slow Ujjayi (2-4 cycles/min against airway resistance), Bhatrika (30/min with forced inhalation followed by exhalation using strong abdominal contraction), Om chanting and Sudershan Kriya (utilizing three rates of breathing , slow 8-14/min, medium 30/min and fast 150-180/min) making it a cyclical rhythmic breathing. Practicing SKY lead to calmness, besides feeling alert and attentive during its 3 stages. There occurs a shift to parasympathetic dominance via vagal stimulation from vagal somato-sensory afferents in the glottis, pharynx, lungs and abdominal viscera. During SKY, its medium and fast cycles are proposed to activate thalamic projections that excite sensory-motor cortex and quiet frontal and parietal occipital cortex. A sequence of breathing technique of different frequencies, intensities, lengths and with end inspiratory and expiratory holds, creates variegated stimuli from multiple visceral afferents, sensory receptors and baroreceptors. These probably influence diverse fiber groups within the vagus nerve, which in turn induce physiologic changes in organs, glands and ascending fibers of thalamic generators, the limbic system and cortical areas. SKY has psychological, physiological effects and effects at Molecular level also. Well published and researched low cost indigenous technique which requires few minutes time and has proven benefits for workplace distressing, apart from improving cure in any other medical condition like asthma, gastric & duodenal ulcers, Irritable Bowel Syndrome, Menstrual tension, Menopausal symptoms, anxiety, depression, Post Traumatic Stress Disorder (PTSD), Stress related medical illness, Substance Abuse and even Rehabilitation of criminal offenders. Defined mechanism of action is through penetration of oxygen into each cell of body, which elevates mood and alleviates disturbing emotions like stress, anger, anxiety, worries etc. Medical literature is available to document the benefits of these breathing exercises for both preventive as well as curative purposes. Even during acute illness, the worker may be benefitted using them as adjunct to the standard management.

### Abstract No. 94: A Study of the health profile of Rubber Plantation Workers in Rural Kerala

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**Introduction**: The rubber industry is a significant contributor to Kerala's economy. The state of Kerala produces nearly 90% of India's natural rubber output. Rubber plantation workers, being in the informal sector, do not enjoy the health benefits that their counterparts in organised sector enjoy. Hence, monitoring their health needs to be done periodically. **Objectives**: 1] To assess the health status and common illnesses of rubber plantation workers.

2] To detect the prevalence of non-communicable diseases like hypertension and diabetes among rubber plantation workers. **Methods**: It was a descriptive, cross-sectional study. The study was conducted in and around the village of Thekkemala in Pathanamthitta District, Kerala, over a period of two weeks in November 2013. A total of 154 workers were recruited for the study. A pretested predesigned questionnaire was used to elicit information like basic identification data, behavioural risk factors like smoking and alcoholism, clinical history, etc. Anthropometric measurements and general examination of subjects were done. Blood pressure and fasting blood sugar was also checked. **Results**: The most common health complaints of the rubber plantation workers were musculoskeletal problems (66.2%) and respiratory illnesses (31.2%). 31 subjects (20.1%) were found to be diabetics while 18 (11.7%) were found to have impaired fasting glucose. 46 subjects (29.9%) were hypertensives while 37 (24%) were prehypertensives. Most of these workers were either unaware of their health condition or not on regular treatment. **Conclusions**: Awareness of non-communicable diseases & the need for early diagnosis and continuous treatment should be increased. Hence, periodic health checkups is a must to improve health of informal sector workers.

# Abstract No. 95: A Study of the Substance Use Patterns and associated Risk Factors Amongst Construction Site Workers in NCR Delhi

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**Introduction:** Construction is one of the important industries employing a large number of people on its workforce. Workers represent half the world's population and are major contributors to economic and social development. Construction is a very stressful environment to work in. **Objective:** To assess the substance use patterns and associated risk factors among construction site workers in the NCR of Delhi **Materials and Methods:** Construction workers working at various construction sites in the National Capital Region of Delhi were identified and Multistage Random Sampling Design was used to select the study subjects with a sample size of 451. A predesigned, pretested, semi structured questionnaire was used for the purpose of the study. Pattern and type of Addictions and Substance Use which included information on whether any form of addiction present, type, duration, frequency and expenditure on the addiction. Also smoking, chewing oral tobacco and alcohol intake were assessed with respect to age of initiation, duration of habit, frequency and expenditure. **Results:** In the construction workers studied, two thirds (67%) of the respondents had the habit of substance use and the difference in substance use among males and females was found to be significant ( $_x$ 2=56.55, p<0.05) and higher in males. Out of these, interestingly majority (75.5%) were consuming multiple substances. Among the substances used,

the use of tobacco in various forms was the most prevalent (90.4%), followed by the use of alcohol (38.3%). Also 257 (85%) of the respondents were chewing oral tobacco in some form either alone or along with smoking/alcohol. **Conclusions :** The substance use patterns among constructions workers indicate need to implement effective intervention measures and also at the same time there is a need to make recommendations for improving the working environment and health education and training programs for alleviating the problems identified.

### Abstract No. 96: Knowledge and Use of Personal Protective Measures Against Mosquito Borne Diseases in a Resettlement Colony of Delhi

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Background: Mosquito borne diseases (MBDs) are major public health problem in India. State of Delhi is endemic for dengue and other MBDs. The increasing incidence of MBDs in Delhi in recent years warrants a pro-active approach for their prevention. Knowledge and use of personal protective measures (PPMs) presents an effective strategy for prevention and control of MBDs. Aim: The present study was conducted to assess the knowledge and use of PPMs against MBDs in an urban resettlement colony of Delhi. Subjects and Methods: It was a cross-sectional study carried out in a resettlement colony of Delhi. A total of 100 families were selected by systematic random sampling. Data was collected using semi-structured questionnaire and supplemented by spot survey by the investigator in the community. The results were analyzed in SPSS version 16.0 (Chicago Illinios, USA). Results: Out of the 100 respondents, 65% (65/100), 58% (58/100) and 13% (13/100) had heard about dengue, malaria and chikungunya, respectively. Nearly, one-fifth (20/100; 20%) of the participants reported incorrect breeding sites for mosquitoes. The knowledge regarding PPMs was very high (93/100; 93%) and about (90/100; 90%) families were actually using at least one of the PPMs. However, very few families were using them correctly (1/90; 1.1%) and adequately (5/90; 5.6%). The most common PPM being used by the study population was liquid vaporizers (54/90; 60%). Nearly one-third (29/90; 32.2%) of the participants reported side - effects due to PPMs with irritation to smell being the most common reported side-effect. On house visit, adult mosquitoes were seen in 67% (67/100) of the houses, while potential mosquito breeding sites were found in and around 56% (56/100) houses. Conclusions: There were crucial gaps in knowledge and practices of participants with regard to prevention and control of MBDs. Thus, there is a need to intensify efforts toward creating public knowledge and mobilizing community about correct use of preventive measures against MBDs.

# Abstract No. 97: Depression among First Year Medical Undergraduate Students in a Medical College in Delhi

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**Background:** Medical students are confronted with significant academic, psychological and existential stressors. Consequently, prevalence of depression is higher in medical students compared to the general population particularly when they begin their medical school. **Objective:** To discover the prevalence of

depression in first year medical students in a medical college in Delhi **Material & Methods:** This is a cross-sectional, questionnaire-based study. All first year medical undergraduate students were included in the study. Patient Health Questionnaire (PHQ-9), based on PRIME-MD Today, was used to make a provisional diagnosis of depression. **Results:** Out of the total 241 students, 63.1% (n=152) were males and 36.9% (n=89) were females. The mean age of the study group was 18.17±1.16 years (Range=16-24 years). The overall prevalence of provisionally diagnosed depressive and moderately severe depressive disorder using PHQ-9 was 28.3% and 1.2% respectively. **Conclusions:** This study has shown that the prevalence of depression in medical students is high. Initiatives need to be taken to decrease the prevalence of depression in medical students.

### Abstract No. 98: Need of skill development of health volunteers within the community in imparting Preventive Health Education: An Experience

<u>Neeta Kumar</u>, Chesta Naval, Neeru Gupta, Tulsi Adhikari, Kalyan Ganguly ICMR, New Delhi

Background: Under ICMR ongoing operational evaluation of Health Account Scheme, health diaries are to be distributed to community and monthly updating is done for morbidity, treatment, effectiveness, needs and test report of the consumers by themselves. Methods: Among 491 health diaries distributed 480 were in use after six month of follow-up, there was 98% acceptability and staff was required to help filling 19.7% diaries in last month, 45.6% were filled by health volunteers generated from within community. 12 local unemployed, student youth were helping diary updation and worked as health volunteers. It was observed that community is not well versed in preventive health strategies for communicable and non-communicable diseases as well as social stigma was associated with many disorders like STDs and infertility, tuberculosis. Relative effectiveness was explored what if preventive health education is imparted to both scheme staff and health volunteers in the scheme to increase benefit of the scheme. Subsequently response of scheme staff and volunteers was evaluated for this possibility. Observation: It was found that despite well educated, scheme staff was unable to connect to community, since they don't belong to that place and didn't show imparting education for preventable ailments, however health volunteers were very receptive for such training for imparting preventive health education and expressed that it will not only build their skills, but also increase their acceptability in the community to better assistance in health diary updation. Conclusion: A preventive health module should be prepared, that is easy to impart to 10<sup>th</sup>, 12<sup>th</sup> pass health volunteers and will be of help in imparting preventive health education by using this local, no cost indigenous human resource.

# Abstract No. 99: Relationship between Occupation and morbidity prevalence in a North Indian site

<u>Neeta Kumar</u>, Chesta Naval, Neeru Gupta, Tulsi Adhikari ICMR, New Delhi

**Introduction:** Occupation and morbidity are seldom used for policy planning of health services. To look into pattern of distribution of morbidity among different occupations in community information of occupation was collected while conducting survey for health account scheme (all participants were

given a health account number for keeping their health records) among 5279 participants. Rural (n=2781) and urban (n=2498) participants were surveyed for their morbidity and occupation using indepth interview on pretested questionnaire after written informed consent. Methods: Information of occupation was categorized into 9 categories and self reported morbidity supported by prescription slips was collected during April 2013 to Jan. 2014. Overall 15.8% morbidity was reported by 821 persons including all age and gender groups. Pattern of morbidity in relation occupation was analyzed on SPSS package version 19. Information of 0-6 yrs age was (n= 685) was excluded. Results: Out of 5279 participants, 485/2781 (17%) reported morbidity in rural- Badhaicha village and 336/ 2498 (13%) in urban (Hardoi district) area. Occupation wise there were 28.2% housewives, 38.7% of students, 0.9% skilled workers, 22.5% unskilled workers, 2.4% business, 3.4% unemployed, 1.6% private job, 1.7% Government job and 17% pensioners in rural community. There were 26.5% housewives, 38.9% students, 1.6% skilled workers, 6.9% unskilled workers, 6.5% business, 3.2% unemployed, 5.3% private job, 7.6% government job and 3.5% pensioners in urban community. Distribution of morbidity among different occupations compared and was more pronounced in rural population, especially among unemployed (31 out of 82, 37.8%), students (84 out of 947, 8.8%), housewives (181 out of 691, 26.2%), pensioners (10 out of 17, 58.9%) and government job (10 out of 42, 23.8%). Rest of groups has less morbidity, ranging 5.2 to 18.6%. Compared to rural, in urban population there was non-significant difference in morbidity among housewives (26.2% vs. 29.8%), however significantly high differences (p<.05) were observed in morbidities among unemployed - 21.6% in urban vs. rural unemployed, 37.8%, rural pensioners- 58.9% vs. urban pensioners 44.4% and among unskilled worker-20% rural vs. 12 % urban. Marginal difference (p=0.7) was observed among students (8.8% in rural vs. 3.3% in urban). **Conclusion:** There is gross difference in prevalence of overall morbidity in rural and urban population from occupation point of view and there is need of health services targeted towards unemployed, unskilled and pensioners that too more in rural area.

# Abstract No. 100: Association between Emotional Intelligence and Perceived stress among dental students

#### Dr. Vipul Yadav, Dr. Vikrant Mohanty

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**Background:** The rising alertness on the part emotional intelligence play in work plays has made it popular in human resource management emotionally intelligent people do extremely well at the work place. Emotional intelligence, an essential factor responsible for determining success in life and psychological wellbeing, seems to play an important role in shaping the interaction between individuals and their work environment. Therefore, the aim of this study was to assess the association of Emotional Intelligence (EI) and perceived stress among Dental students. **Methodology:** A Cross-sectional, convenient sampling based Survey was conducted among Dental undergraduates from a Dental Institution. All the Dental undergraduates were included in the study. The study included questionnaire regarding Socio-demographics, perceived stress among genders was calculated by using student t test. **Results:** The result of the study indicated that the majority of students experience a high level of occupational stress while they have a low level of emotional intelligence. The results showed that emotional intelligence was different by gender, with females evidencing higher EI than males but was found to be non- significant. Females also reported slightly higher perceived stress, but the gender

difference was not significant. **Conclusion:** Therefore, we suggest that the training courses should be held to keep the stress level of the dental students lower and help them to stay healthier as well as by holding training courses on emotional intelligence improving their social skills and increase their efficiency at work and to enhance their productivity.

# Abstract No. 101: Perceived Sources of Stress among Undergraduate Dental Students in a Dental Institution in North India

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Background & objective: Stress among dental students has been reported widely across the globe. Contemporary curricula require the students to learn theoretical knowledge and clinical skills. The education process creates high occupational stress during training. The present study attempts to identify the possible sources of stress among dental students in a dental institution in North India. Material and methods: Along with the general information (age, gender and year of study), a modified Dental Environment Stress (DES) questionnaire consisting of 38 questions (responses based on a Likerttype scale) was administered to first to fourth year undergraduate students. Questions related to clinical training (Q. No: 3, 4, 10, 16, 18, 19, 25, 26, 27, 28, 29 and 38) were excluded from the questionnaire administered to non-clinical students (first and second year). Student's t-test was used for group comparisons such as gender differences and between the preclinical and clinical groups. Results: Receiving an overall response rate of 93.1%, factors such as fear of unemployment, patients missing appointments and examination grades were the most stressful items experienced. Factors pertaining to workload and adjustment problems were more stressful preclinical students and examinations, patient work and future insecurity was more stressful in clinical year students. Confidence and adjustment problems were more in males and performance pressure was seen more in females. Conclusion: The dental education system has an impact over the degree of stress experienced by dental students. The education system thus should be reconsidered providing a protective effect towards the dental students.

# Abstract No. 102: Needle Stick Injury Reporting Behaviour and Risk Perception among Sanitation Staff in Tertiary Care Hospitals.

<u>Dr. Puneet Chahar,</u> Dr. Vikrant Mohanty Maulana Azad Institute of Dental Sciences, New Delhi

**Background**-Hospital Sanitation Workers are exposed to a wide range of biological, chemical, and physical hazards. Needle stick injuries (NSI) constitute a recognized physical hazard in hospitals. Very few studies have been conducted to document the Needle stick injury among Sanitation staff, therefore the study aims to find Needle Stick Injury (NSI) Reporting Behaviour and Risk Perception among Sanitation Staff in Tertiary Care Hospitals. **Method**-A cross sectional study will be carried out amongst all the outsourced hospital sanitation workers in three tertiary care hospitals. A structured self-designed questionnaire consisting of 14 multiple choice questions will be used. It intends to elicit information on demographic data, awareness of NSI, Associated fear, risk perception and their reporting behaviour.

Data will be analysed using SPSS version11.5. Along with descriptive information, chi-square test will be used to see the difference and spearman test will be used for determining the association among the study variables. **Results**-The pilot study revealed that about 41.5% (n=7) of sanitary staff experienced a NSI and only 51% (n = 3) reported the incident. Most of the workers had knowledge about NSI and its prevention. 52.9% (9) considered both HIV/AIDS and Hepatitis as consequence of NSI with 12% (2) having no idea about the same. 58% (10) considered HIV/AIDS as a fear for not reporting the NSI. **Conclusions**- There is a definite scope of improvement in terms of reporting and prevention of needle stick injuries. There is a need to emphasize more on improving knowledge and eradicating fear regarding NSI by health education through lectures and demonstrations.

### Abstract No. 103: Musculoskeletal problems in Endoscopic Surgeons: A real Health Hazard

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**Background:** Advancements in the surgical technologies have included endoscopic techniques for various surgeries in different medical streams. These are patient friendly in terms of less painful surgery and shorter hospital duration but at the same time are more demanding from the surgeons point of view as they have a longer learning curve and are technically more skilful. Surgeon has to work harder and in a more remote manner from the operative field. As a result the surgeon is at risk of health risks involving the musculoskeletal system. **Aims & Objectives:** To study the effects of working with endoscopic techniques on

musculoskeletal system in endoscopic surgeons. **Methods:** This study was carried out by analyzing the questionnaire filled by endoscopic surgeons working at DMC&H to find out the health problems in relation to the musculoskeletal system faced by them after performing endoscopic surgeries. **Observations & results:** Majority of the surgeons were in the age group of 36-55 yrs and belonged to general surgery and Obst. & Gynae. Duration of work in endoscopy was > 10 years in 70 % of the participants. Majority had a complaint of neck pain

(56.67%) followed by backache and pain in legs (40.00%). A few had tennis elbow and pain in the right wrist (26.67%).

### Abstract No. 104: Occupational Health & Safety Management Systems

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Directors and managers are required by law to have policies and procedures in place to safeguard the occupational health and safety of their employees and those who directly interact with their business. This extends to planning and monitoring the company activities, with regard to operational risks identified in the health and safety arena. This requirement is now becoming one of the most important legal requirement, ethical and social responsibilities in the developed world, as well as in countries seeking to gain global recognition. Organisations that adopt and implement an Occupational health and safety management system to OHSAS 18001 can benefit from:

- Reduced costs due to less incidences Reduced Liability Claims
- Reduced risk of accidents
- Improved shareholder confidence
- Reduced insurance premiums
- Proactive risk management

- Prevention of prosecution
- Valued public image
  - Better management control

Improved confidence in operations

Reduced loss of productive time

One of the most important aspects of the Occupational Health & Safety Management System is its requirement for proactive identification, monitoring and management of health and safety risks. Once implemented, it perpetuates good practice in order to minimize operational risk. How do you keep up with legislation and set up a system that protects you and your company? The answer is to introduce an Occupational Health & Safety management system.

# Abstract No. 105: Health Profile of caregiver and their attitude towards elderly in a rural area of Delhi

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**Introduction:** Since elderly population is increasing and they face multiple chronic health problems require continue care usually by family members. On average, informal caregivers devote 4.3 years to this work. Family caregivers often feel unprepared to provide care, have inadequate knowledge to deliver proper care, and receive little guidance from the formal heath care. Caregiver mastery can reduce caregiver distress by influencing the availability of healthy problem-coping strategies to meet care demands. In the changing social and medical scenario attitude of caregiver towards elderly is changing and which depends on their mental and physical health. **Objective:** To assess the health status of caregivers and their attitude towards elderly patients in rural Delhi. Methods: A community based non-comparative study is carried out in a village Barwala a field practice area of the Department of Community Medicine, Maulana Azad Medical College, New Delhi. Only one eligible caregiver per elderly is included in the study. Elderly is the one who has completed the age of 60 years and above. A semistructured pretested questionnaire containing items on demography, attitude and health status of caregiver is used. Results: The data of 15 care recipients is analysed. 47% (7) are females and 53% (8) are males. However, 80% (12) of caregivers are females and 20% (3) are males. 53% are of the age of more than 60 year and rest are found between 40-60 years of age. All the care givers are family members; of which 47% are daughter in law, 33% husband, 2 are wives and one is son. According to caregiver financial resources are adequate in 53% and rest 47% says it is inadequate. None of them reported their physical health as bad. 80% reported as fair and 20% as good. 40% of the caregivers are suffering from arthritis, 33% from back pain, diabetes and HTN reported by one each. 60% of care givers feel privileged to care for elderly and rest of them neither agree nor disagree about it. All of them disagree that other has dumped caring on them. Conclusion: Caregivers are commonly females and family members of the care recipients who also suffer number of chronic illnesses. Therefore concept of occupational health needs to be introduced in rural India so that their efficiency can further improve.

# Abstract No. 106: It's time to blink, Eye blink sensor: A boon to occupational dry eye syndrome

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Introduction: Dry eye represents a multifactorial, heterogeneous disorder of the preocular tear film, which results in ocular surface disease. It is a condition resulting from focusing the eyes on a computer display for protracted, uninterrupted periods of time. Reduction in quality of life is inevitable when symptoms of dry eye occur. These symptoms range from mild transient irritation to persistent dryness, burning, itchiness, redness, pain, ocular fatigue and visual disturbance. The patho-physiology of dry eye is reduced blink rate of the eyes with use of electronic display devices (computer monitors, Smart Phones etc). Currently diagnosis is made on indirect evidence of Schirmer's test which determines whether the eye produces enough tears to keep it moist or not but due to lack of any self regulated real time treatment, patients eye health continue to degrade. About the device: In order to provide an effective real time diagnosis and self regulated real life treatment for dry eyes, we evaluated the Eye blink sensor integrated in the spectacles. The eye blink sensor emits a very low IR energy signal which reflects back to sensor when the eye is closed or blinked. The primary proof of concept is studies and it effectively measures the eye blinks. The software on the chip is developed to give eye blink rate/sec and it can further compares the values with the below threshold to provide early diagnosis of a number of diseases; Dry eye syndrome, early detection of Parkinson's Disease, schizophrenia, Tourette syndrome and Strokes or other neurological disorders of the nervous system. With the availability of real time blink rate we can provide the self controlled autonomous eye blink stimulus mechanisms which can be configured with various conditions and real time eye blink rates. The device can be modified in term of software and electronics to meet various occupational health challenges like automobiles drivers, pilots and train drivers awake state monitoring and alert generation etc.

### Abstract No. 107: Road Safety in India: An Investigation

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This analysis tries to investigate the road safety issues in environmental, social, and occupational perspective. Transportation improves quality of life by giving people access to important things such as employment, education and health services. However, safety measures must go hand in hand with road infrastructure development or transportation can come at a high price. More than 90% of road traffic deaths occur in low and middle-income countries (LMICs). The number of deaths in these countries is projected to rise more than anywhere else in the world into the future. The global monetary cost of road traffic injuries is more that US\$ 500 billion each year or 1-3% of each country's Gross National Product (GNP). This reflects costs of medical treatment, rehabilitation, loss of productivity (fewer days at work), legal costs and much more. Road traffic crashes cost LMICs amounts that exceed the total funds they receive in official development assistance. More than half of all road traffic deaths occur among individuals between 15 and 55 years of age and 73% of those who lose their lives are males. This means that victims are in the prime of life and often breadwinner for their families. Their loss can push their families further into poverty. On a national level, this will lead to major losses in productivity and
workforce, which can seriously challenge the economic sustainability of a country. With more than 130 thousand deaths every year India is second largest country as far as the fatalities are concerned. A few possible reasons are Road Design, Road Condition, Traffic Volumes and Speed, Hazards of Night Driving, Driver Inattention/ Driver Distraction, Driving Hazards in Hilly Areas, Alcohols and Driving, Information Factor, Ineffective Enforcement Systems, Overloading of Trucks.

## Abstract No. 108: A Work place exposure assessment study in an operation theatre at a Tertiary care Hospital

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Health care workers are exposed to a number of risks in the course of their work. This includes issues regarding workplace, interpersonal relations, health hazards at their time of work. The study was done to have preliminary data regarding the same in OT setting at a tertiary care Hospital. The study was conducted at operation theatre complex of DMCH among the consenting staff (OT Nurse, OT technicians). The sample was taken across staff in various OT's including Emergency, Surgery, Gynaecology, Neuro Surgery, Eye etc. 30 staff members consented to participate in the study. The working hours were more than 8 hours with shift duties and night duties (including prolonged standing). Sometimes conflicts happened which were dealt and resolved with mutual consent. All the Personal Protective Equipments (gloves, mask, gown, goggles, caps, shoes) were available in all OT's. At times participants were exposed to infected material (blood, pus etc.). Most of the respondents were aware of Biomedical waste management and had knowledge regarding work place related specific injury risk factors (excessive heat, cold, vibration, radiation etc.) Needle stick injuries have been reported in self and colleagues and there is availability of post exposure prophylaxis. More hazards are recognized, preventive steps/procedures and precautions are taken at personal and institutional level. Most of the respondents were aware of work place related risk factors. There is exposure to infected materials but availability of PPE's is always there. There is a good reporting system regarding these and there is availability of post exposure prophylaxis.

## Abstract No. 109: Occupational Health Problems in Modern Dentistry: Revisiting the Common Enemy

<u>Kanika Makker</u>, Vikrant Mohanty Maulana Azad Institute of Dental Sciences, New Delhi

An occupational hazard refers to a risk or danger as a consequence of the nature or working conditions of a particular job. Despite technical advances in the recent years many occupational hazards still persist. The range of hazardous agents varies from physical, chemical, biological and more recently psychological, financial and legal hazards. Physical agents like ionizing and non-ionizing radiations have a detrimental effect on many body tissues especially the eyes. Hazards from physical agents also include tinnitus and progressive loss of hearing as a result of chronic exposure to noise from dental equipment. Chemicals in various dental materials pose threat too. Mercury in amalgam is most infamous and may

cause neurological and dermatological disorders. Other chemicals known to be hazardous are acrylate, nitrous oxide gas and developing and fixing solutions used in radiology. Biological hazards in this occupation are many. They range from aerosol transmission of infection to life-threatening percutaneous injuries. Strained posture at work leads to musculoskeletal disorders involving mostly the neck and back. Apart from physical ailments, dentists also suffer from work related stress. Awareness through continuing dental education along with appropriate and timely intervention is required to alleviate these occupational hazards and mitigate their effects. The aim of this review paper is to bring to light the various occupational hazards that dentists are exposed to and to recommend the various preventable measures that could be taken to reduce their impact. It also intends to recommend the need for reorientation of dental education in order to sensitise and control the impact of such hazards and enhance productivity.

#### Abstract No. 110: Role of Dentists in Disaster Management

#### Dr. Abhishek Mehta,

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Dentists along with other health professionals can act as first responders in case of emergency or natural disaster. Dentists are well prepared to play an important role in response to various catastrophic events, as they are - experts in barrier techniques and infection control, trained and skilled in administering drugs by injection, skilled in placing sutures and controlling bleeding and are able to participate in interdisciplinary professional groups.

Dental professionals can prove to be helpful during a major public health disaster in the following areas:

- 1. Supporting other Health Professionals
- 2. Dental Offices acting as Medical Sites
- 3. Dentists can contribute to bioterrorism surveillance
- 4. Forensic Assistance
- 5. Triage Services
- 6. Definitive Treatment
- 7. Distribution of Medication
- 8. Immunization

In case of disaster events, due its magnitude, the hospitals and clinics become overwhelmed with the victims. Even emergency medical service personnel can be rendered compromised due to the damage to the local infrastructure, clinics and hospitals. The dentists and dental auxiliaries can play a vital role in disaster response by wide range of skill sets based on their personal experience, training and enthusiasm. Although dentists comprise an important aspect of health team, their role or utility has not been emphasized. Oral health care personnel can be successfully integrated into the emergency medical response system in building needed partnerships, identifying and garnering resources, and facilitating training, policy development, surveillance, and evaluation.

#### Abstract No. 111: Estimation of fertility among Bidi Workers of District Sagar of MP

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For the present study cross sectional data on socio-demographical profile was collected form 119 household of district Sagar of Madhya Pradesh. A semi structure schedule was used to collect information on age, sex, age at first birth, fertility detail such as total numbers of live births, numbers of children died, number of child surviving, pregnancy experienced by mothers and reproductive wastage etc. The total numbers of pregnancy 499 were experienced by 112 mothers, out of which total live birth 452, child loss 68 and feotal loss 47 were found. By using these variable and measurements fertility was estimated, rates and ratio such as Child women ratio, Crude birth rate, General fertility rate, Age specific fertility rate, General marital fertility rate, Gross reproduction rate, Total fertility rate etc were calculated. Among bidi workers the mean age of mother at first birth was found 21.31±12.5 year and the little lower crude birth rate (CBR) 24.6 and slightly higher total fertility rate was 5.5 found as compared to vital rate of Madhya Pradesh and Nation, whereas General fertility rate was 100 and General marital fertility rate was 138.2 were reported. The total fertility rate (TFR) was found 5.5 and Gross reproduction rate was 2.69 where as the highest ASFR was found 333.3 within 20-24 years of age group. Bidi workers are low wage earner and most of them illiterate and socioeconomically backward. At last it can be summarized that the Bidi workers are requiring special attention and effective implementation of development programmes.

#### Abstract No. 112: Musculosketal disorders in dental health care provider

#### Dr. Nilima Sharma

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Periodontal instrumentation is characterized as a repetitive task. Periodontal instrumentation requires excessive upper body mobility while the tendons and muscles of the forearms, hands, and fingers overwork. The dental healthcare professional has a high risk of musculoskeletal injury when repetitive motions are combined with forceful movements, awkward postures, and insufficient recovery time. This paper attempts to list the commonly occurring musculoskeletal disorders among dentist and the strategies for its prevention.

Key words: Work-related musculoskeletal disorder (WMD), Repetitive Task, Ergonomics.

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