

Occupational Health 2017



6th International Conference and Exhibition on

OCCUPATIONAL HEALTH & SAFETY

September 13-14, 2017 | Dallas, USA

Scientific Tracks & Abstracts Day 1

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The study on the process and impact of external-care-seeking behavior in Shanghai

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Statement of the Problem: As a regional medical center in China, medical institutions in Shanghai take a lot of patients from out-of-Shanghai. This external-care-seeking behavior places big and increasing burden on Shanghai's health care system, considering limited medical resource for residents and escalating medical expenses. The purposes of this study are to evaluate the impact of external-care-seeking, explore the framework to regulate patients' seeking doctor behavior and to promote better medical resources allocation.

Methodology & Theoretical Orientation: The data was obtained from regular reports of public medical institutions in Shanghai, and patients who seek doctors from out-of-Shanghai residence and local patients were compared in terms of the quantity of service, types of diseases, medical expenses, etc.

Findings: On one hand, external-care-seeking has a large quantity, especially in hospitalization. In 2012, the number of discharged population from out-of-Shanghai accounted for 22.74% of the total discharged number the proportion was even higher than 30% in tertiary hospitals. Tertiary hospitals had a significant attraction effect, concentrating 59.42% of the outpatient and emergency visits and 71.82% of the amount of hospitalization, with corresponding cost of 75.86% and 82.56%. The top three divisions in tertiary hospitals for external-care-seeking were surgical, obstetrics and gynecology, internal medicine. On the other hand, out-of-shanghai patients are conducive to improvement of medical skills the efficiency of health resource. However, the residents may have less accessibility of high quality of medical service. External-care-seeking will have a more far-reaching impact on the health care system in Shanghai, some interventions should be necessary, including rationally allocating medical resources based on the estimates of external-care-seeking and establishing a medical service supervision mechanism. Recommendations are made for regulating external-care-seeking.

Biography

Chunlin Jin is a Professor of Tokyo University, Executive Deputy Director of SHDRC, Director of Shanghai Medical Information Center and Director of Shanghai Population and Development Research Center. His main research areas are health economics related administrative research and hospital management. He has been the Primary Investigator of more than 40 research projects, published over 160 papers, 70 of which as the first author. His research findings have won the Bronze Prize of Shanghai Science and Technology Progress, Silver Prize of Shanghai Municipal Government Decision-Making Advisory, Bronze Prize of China Hospital Association for Science and Technology Innovation, Bronze Prize of Shanghai Medical Science and Technology Award and Silver Prize of East China Science and Technology Information Achievements, and Award of Excellent Outcomes in Chinese Health Economics Association for many times.

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Ensuring women health in readymade garments (RMG) industry

Farhtheeba Rahat Khan
SNV Bangladesh

Statement of the Problem: Bangladesh is the world's third largest garment producer. An estimated 3,000+ factories currently employed around 4 million workers and 85% of them are women. The industry is the single largest source of employment for 14-35-year-old women, largely migrants from rural areas and from disadvantaged backgrounds. These women have limited or almost no access to healthcare.

Methodology & Theoretical Orientation: Most workers do not know the importance of sexual and reproductive health. Health issues including malnutrition, communicable diseases, and pregnancy complications, incorrect use of family planning materials, reproductive infections and diseases undermine their productivity.

Findings: The incidence of suffering from health issues was found higher among married (66%) workers in comparison to unmarried workers (44%). Elder workers appear to be more prone to SRHR issues than younger workers. Family Planning (31%), MR/Menstrual Hygiene/Abortion/Unwanted pregnancy (24%) and Menstrual Hygiene (19%) were the top-3 SRHR issues. Due to long working hours with little time to spare, and financial constraints a significant portion of the workers are unable to seek healthcare services and commodities from the formal providers. In addition, there is social stigma that hinders them from accessing proper healthcare. 89% access pharmacies and unqualified providers. Illness leads them to loss of paid days. Women report missing up to 4-6 days' works a month because of reproductive health issues. In the absence of affordable healthcare services, and no support/subsidy from government, women end up with a huge medical expenditure, which in turn lowers their financial capacity leading to poor living conditions, poverty and affecting women empowerment.

Conclusion & Significance: Sustainable healthcare solutions that ensure easily accessible and affordable services for RMG workers need to be established across the sector. And a holistic approach from information to behavioral change towards availing services needs to be in place

Biography

Farhtheeba Rahat Khan is a Development Professional with experience backed up by private sector interventions and development sector working realities and challenges. As the Lead of 'Private Sector Health project', she has undertaken studies to understand private sector healthcare market dynamics and simultaneously worked on the policy front with Ministry of Health and Family Welfare and its directorates in addressing the supply side issues of healthcare market. She has provided technical assistance for formulation of policy framework, guidelines and accreditation systems in the health training, and emphasized on avenues for women employment in the health sector. Currently, she is the Team Leader for the Working with Women project implemented by SNV where she is facilitating interventions in garment factories, following a gender sensitive and gender-specific approach to ensure equity in healthcare service provision for female garment workers.

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Antidotes for occupational exposures: Poisoned cases report and literature review

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Introduction: Most poisoned cases caused by occupational exposures were accidentally due to errors of personal or mechanical operations. Certain poisons, such as cyanide and cyanogenic compounds, caused by occupational exposures may be lethal, but only few antidotes had been used to rescue these occupational workers.

Material & Methods: This was a retrospective study of poisoned cases caused by occupational exposures and the use of antidotes between 2007 and 2015 in Division of Clinical Toxicology, Department of Emergency Medicine, Taichung Veterans General Hospital, Taiwan.

Results: According to the category of poisons, five index poisoned cases caused by occupational exposures were reviewed, including acrylonitrile, aniline, mercury, 2-chloroethanol and hydrogen fluoride. Routes of exposures and the use of antidotes were reported in poisoned cases.

Discussion: In general, management of poisoned cases caused by occupational exposures included decontamination for respiratory tract, skin and mucosa; resuscitation to stabilize poisoned patients with airway protection, oxygen and fluid. The use of antidotes for specific situations according to the characteristics of occupational poisons. Acute life support was an important issue for all poisoned cases, but only few specific antidotes were undertaken for detoxification through different mechanisms which were described as follows. Sodium nitrite oxidized hemoglobin to methemoglobin which binds the free cyanide and could enhance endothelial cyanide detoxification. Methylene blue converted methemoglobin (Fe³⁺) to hemoglobin (Fe²⁺). DMPS was a chelating agent for chelation of metal ions. Fomepizole was a competitive inhibitor of the alcohol dehydrogenase which is found in the liver. Calcium gluconate rapidly combines with fluoride ion in the tissue.

Conclusion: Primary prevention for occupational exposures through education, personal protective equipment and the checkpoint of the environmental safety was recommended. Decontamination, resuscitation and the use of antidotes for specific situations should be undertaken immediately to reduce injury if the occupational exposures occurred

Biography

Sung-Yuan Hu has his expertise in Internal Medicine, Emergency and Critical Care Medicine, Occupational Medicine and Toxicology. He is the Director, Division of Clinical Toxicology, Department of Emergency Medicine, Taichung Veterans General Hospital, Taiwan.

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A randomized controlled trial to evaluate the effectiveness of participatory training for sick leave reduction in China

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Occupational injuries and illness not only threaten worker's health, but also cause a great deal of loss like sick leave in economy. In this project, we first observed 31.7% workers reported sick leave with losing 3 workdays averagly. Then, we used Logistic Analysis with Backward stepwise method to estimate odds ratios and 95% CI of factors associated with sick leave, and found the possibility for taking sick leave increased in workers with being female, more working hours per week, longer service, higher tress, and younger age. To evaluate the effectiveness of participatory training for sick leave reduction, we led a one-year Randomized Controlled Trial, with 918 and 2,561 workers receiving participatory and didactic training, respectively. Participants were asked to report workdays lost caused by sick leave during the previous 12 months before training and the next 12 months after training. We found that the propotion of workers taking sick leave in the intervention group reduced from 34.5% to 25.2% ($P < 0.001$), and the rate reductions in the control group was not statistically significant. At one-year follow up, the workdays lost in intervention group and control group didn't reduced significantly. Finally, we developed a method to measure the cost-benefit ratios of the programs and found that the participatory training was more effective in saving cost for sick leave reduction than the didactic training.

Biography

Lin Hui has received his Master's degree from Tongji Medical College of Huazhong University of Science and Technology. He has published six papers in reputed journals and has been serving as an Occupational Diseases Doctor for eight years.

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Exploring factors related to acute and chronic fatigue on production and packaging workers of manufacturing company

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Statement of the Problem: In the modern era, company tends to sacrifice their worker's health aspect to pursue higher productivity by implementing longer work hours and shift works which may lead to fatigue. Research has identified multiple factors contributing to occupational fatigue; however, to differentiate between the acute and chronic fatigue yet is still lacking. The usual mechanism of acute fatigue developed into chronic fatigue properties that are not adaptive still difficult to understand fully. This research aims to study the factors related to acute and chronic fatigue in production and packaging workers of Manufacturing Company X. The studied variables in this research is comprised into individual factors such as age, time to sleep, commuting time, and job factors such as duration, shift work, location of work, and overtime.

Methodology & Theoretical Orientation: The Occupational Fatigue Exhaustion Recovery (OFER) scale is used to measure acute and chronic fatigue among 78 workers. This research is a descriptive analytic study using cross sectional study design.

Findings: The results showed that the sleep time and commuting time has a significant effect on acute fatigue in workers, while the sleep time and duration of the work has a significant impact on chronic fatigue in workers. Workers who experience high level of acute fatigue and chronic fatigue are 2.6%. Also, moderate recovery rate of 61.5% and a high recovery rate is approximately 34.6%.

Conclusion & Significance: Not all job and individual factors are associated with acute and chronic fatigue. In addition, the number of high chronic fatigue is not high because recovery can be achieved well.

Biography

Amalia Oktaviana is currently pursuing her degree in Master of Science in Occupational Health, Safety, and Environment, University of Birmingham. Her other research is about fatigue among shift worker nurses.

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The differences of pulse, core body temperature, and weight: Before and after work in the heat stress environment at a tea company-filling process

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Statement of the Problem: Heat stress in the work environment affects worker's physical condition; the blood vessel capacity increases and dilates. Also, heat stress can trigger the heart to pump more blood to the skin to release heat. This leads to an increased pulse rate. Furthermore, it affects the evaporation mechanism of the body and causes changes in body temperature and continuous sweating affects the composition of body fluids. The purpose of this study was to determine the differences in pulse, core body temperature, weight of the workers before and after work in the heat stress environment of a tea filling process at 30.8 °C room temperature in average.

The design of this study: Utilized cross-sectional methods: 15 tea workers were samples of a total workforce of 20. The data was analyzed using a Paired t-Test and Wilcoxon Signed Ranked Test.

Findings: The results showed that 80% of respondents experienced an increasing of pulse rate, 100% of respondents experienced an increasing of the core body temperature, and 66.7% of respondents experienced weight loss.

Conclusion & Significant: The results of the Paired t-Test revealed there was a significant difference in pulse rate before and after working in the hot environment ($p=0.007$), there was also a significant difference in body core temperature before and after work in the hot environment ($p=0.001$). However, there was no significant difference in weight loss before and after working in the hot environment ($p=0.630$).

Recommendations: To improve the work environment temperature by installation of proper ventilation, to manage the schedule of the workers, to provide drinks for the workers and to provide adequate cool rest facilities for break times.

Biography

Gustina is pursuing her MSc in occupational safety, health, and the environment at University of Birmingham, United Kingdom. She has graduated BSc in Occupational Safety and Health at Diponegoro University, Indonesia. She has working experiences in oil and gas industry as Health, Safety and Environmental Engineer and Specialist. She was a Process Advisor in repetitive stress injury prevention and based-behavior safety in a company of Indonesia. Her passion in Health and Safety field leads herself to conduct the fascinating researches. She believes that her researches can contribute the new knowledge on its fields.

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Bed Adjustment while Treating Patients

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Background: Health care providers, especially those with direct patient contact, are one of the occupational groups most injured by WRMD. A combination of lifting heavy loads with awkward postures is most hazardous, especially for low back pain. Adjusting the bed, during performance of manual tasks, creates a more erect thus safer for the therapist's lumbar spine.

Objectives: To compare adjusted bed height between two passive manual tasks and to find an optimal topographic location to rely on when adjusting bed height.

Design: Cross-sectional study.

Methods: Eighty physical therapy students performed two specific passive movements: shoulder flexion (SF) and straight leg raise of thigh (SLR), each task executed either on a standard bed and an adjustable one. The lumbar angle was measured at the beginning and at the end of each task using a smartphone, which served as an inclinometer. The rate of perceived exertion (RPE) was measured after each task. Distances from anatomical points on the hand and pelvis to the floor were measured.

Results: The mean bed height for SF was significantly higher than for the SLR. The third knuckle hand technique and the radial styloid process of the wrist (RSP) were established as the most valuable anthropometric points to rely on when adjusting the bed height. Both tasks had higher RPE rates and the subjects experienced more of a bent back bent when performing the tasks on a standard bed height compared to an adjustable one.

Conclusions: Each manual task requires its own bed height adjustment. Moreover, it is essential that any manual task entailing lifting appears to place the therapist at risk for lower back pain as a result of awkward postures. The third knuckle and RSP are recommended as reference points when adjusting the bed height.

Biography

Dr. Deborah Alperovitch-Najenson has her expertise in ergonomics. She lectures Ergonomics in Ben Gurion University of the Negev in the department of Physical Therapy, and in Tel Aviv University in the Department of Environmental and Occupational Health. She does research in the field of Ergonomics and she guides students in their thesis.

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Para-counsellors: The soldiers in resolving women mental health problems

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SNV, Bangladesh

Statement of the Problem: The normal life a Bangladeshi women garment worker starts at 4am, cooks food in the common kitchen available for 4-5 families, goes to work at 7am, and has a longer work day till 7 pm, then is back to take care of her family and goes to bed between 10-11pm. She has no time of her own, a victim of violence and abuse both in the factory and work, no one to share her pain.

Methodology & Theoretical Orientation: A lot of mental distress affect their work life, productivity and end up having a poor-quality life. There should be structures within the factory to address this issue. The management should start realizing that when psychosocial challenges and issues go unaddressed, they impact worker's effectiveness in the work place. Fourteen welfare officers, who are the first contact point for workers in factory, were trained and mentored by certified trainers in counselling; and, 14 trained para-counsellors were institutionalized inside factory from December 2016.

Findings: Interestingly, women workers are visiting the counselling center in the factory, on being referred by the para-counsellors. The latest record collected as of 5th Jan 2017 reflects, 3 women came with anxiety and one of them had 4 sessions with the counsellor for mental relief; 3 women reported work stress and took 3 separate counselling sessions, others include conflict with supervisor, family conflict, financial crisis, relationship issue and the resulted anxiety.

Conclusion & Significance: The incidence report within this short duration of less than a month itself is the evidence for counselling need and the vacuum in services. Still, in a factory where 600+ workers are employed this number is just minimal, and the para-professionals have an important role to play to facilitate the workers in identifying such mental health issues and referring them to the counselors.

Biography

Farhtheeba Rahat Khan is a Development Professional with experience backed up by private sector interventions and development sector working realities and challenges. As the Lead of 'Private Sector Health project', she undertook studies to understand private sector healthcare market dynamics and simultaneously worked on the policy front with Ministry of Health and Family Welfare and its directorates in addressing the supply side issues of healthcare market. She has provided technical assistance for formulation of policy framework, guidelines and accreditation systems in the health training, and emphasized on avenues for women employment in the health sector. Currently, she is the Team Leader for the 'Working with Women' project implemented by SNV, where she is facilitating interventions in garment factories, following a gender sensitive and gender-specific approach to ensure equity in healthcare service provision for female garment workers.

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Day 2

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Safe and sound: the latest user-friendly application to address the poor data on occupational diseases and work performance across companies in Indonesia

Aldila F Zulfah¹ and Fiqhi R Dengo²¹University of Birmingham, UK²University of Sheffield, UK

Occupational diseases are the occupational health problem that receives serious concern in every industry sector, particularly in developing countries. However, in Indonesia, the lack of attention to health as well as the weakness of its prevention system make the occupational diseases often become a neglected problem. As a result, the data on health, work performance, and work-related diseases in the company became very minimal and improper to serve as a source of information. To improve it, safe and sound comes as a local network-based application that is user-friendly to record the health and work performance as measured by certain aspects. Each worker can access the safe and sound account using a personal access card to input daily health and performance records that include mental health conditions, physical conditions after work, and other forms of complaints. This database will be assessed each month to summarize the performance of workers in a graphic form and to categorize the workers into the vulnerable groups based on medical history and daily health reports. Also, it will shape the mindset of the company to promote the prevention system of occupational disease to improve the quality of working life (QWL). In the future, the amount of data on occupational diseases and work performance in developing countries such as Indonesia will increase and the collection process will improve, so that they will be able to overcome the complexity of occupational health problems. Other features such as online book the medical examination and mailing list will be available to ensure employee engage in every formulation of the program and decision-making process in the company. The secrecy of this database is highly secured and will only be accessible to the worker as well as the occupational health and safety practitioner that is responsible for the program.

Biography

Aldila F Zulfah is a Master candidate of Occupational Health at the University of Birmingham. She and her friend Fiqhi R Dengo are currently building a first non-governmental organization in Indonesia focusing on public health that is based on the principle of health and safety. Also, they are currently focused on publishing some of their scientific work in some conferences that have a theme of health and safety.

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Occupational health compliance programs promoting gender equity

Ilise L Feitshans

Work Health and Survival Project, USA

Abigail Adams penned a letter to her husband, John Adams, in 1776. In the letter, written 95 days before John Adams signed the Declaration of Independence, Abigail urged her husband to “remember the ladies” when declaring independent suffrage for human beings lacking the divine right of kings. She wrote in her letter: in the new code of laws which I suppose it will be necessary for you to make, I desire you would remember the ladies and be more generous and favorable to them than your ancestors.” Mrs. Adams First Lady when her husband was elected the 2nd President of the US and was also the mother of John Quincy Adams, the 5th President of the U S. She successfully ran the family farm while her husband was away, rising above the challenges of business, accomplishing child rearing and education, and combating their illness although she was not allowed to vote or own property min her lifetime. The concept of gender equity is therefore an old conundrum as old as our American Revolution, problem, but this problem has garnered significant attention in recent decades, both in individual nations and under international law. Many of the concerns expressed by Mrs. Adams are still relevant in contemporary discussions of gender equity. International and US regulations associated with gender equity have been in place for several decades, but implementation is slow. This presentation examines some occupational safety and health (OSH) problems that have still not been resolved regarding the role of women in paid work: because health at work impacts men and women differently and offers methods for implementing equitable occupational health programs under law, using due diligence and discrimination law as a guide. This presentation examines, how safety professionals implement gender equity within our safety compliance programs that effectively comply with laws promoting women’s rights?

Biography

Ilise L Feitshans is a Guest Researcher at National Centre for Research on the Work Environment, Copenhagen Denmark and Legal Advisor of The Greek National Platform on Nanomedicine. She is Executive Director of The Work Health and Survival Project.

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Health insurance for garment workers: A window towards sexual and reproductive health and rights (SRHR)

Farhtheeba Rahat Khan
SNV, Netherlands

Statement of the Problem: Healthcare costs usually stand in the way to access quality health services by the poor, especially when there is no structured govt. support to bear the financial burden. In Bangladesh 66% of the expenses are out of the pocket. The support services available even for rural poor is not available for the urban garment worker due to long and confined working hours. So who should provide the support? What modalities are feasible?

Methodology & Theoretical Orientation: Health Insurance can reduce the financial burden. A new insurance scheme for garment workers was introduced; collaboration between an insurance company and a healthcare service provider was built. The premium was set as BDT 500 per worker with an annual coverage of BDT 15,000. This was piloted in 3 factories.

Findings: Workers started accessing the services under the cashless transaction modality. The highest service accessed annually by a single worker amounted to BDT 5500, and the lowest being BDT 650. This information was enough to convince the workers of the benefit received with a minimal annual premium-pay of BDT 500. In the first year, the insurance premium was paid by the donor funds, but in the second year the factories and workers are sharing BDT 200 and now buyer and brands are coming forward to support the initiative.

Conclusion & Significance: The question which I raised in the problem is leading to the solution. A collaborative model where the main stakeholder's factories and buyer's join hands in ensuring healthcare, especially SRHR, in a more affordable manner for workers – because it is a cyclic effect – if the worker is healthy, she is productive and less absent from work, leading to meeting shipments and orders by factories, which in turn leads to buyer retention. At the broader level a sustained international market for Bangladeshi garment and thus better living for workers.

Biography

Farhtheeba Rahat Khan is a Development Professional with experience backed up by private sector interventions and development sector working realities and challenges. As the Lead of private sector health project, she undertook studies to understand private sector healthcare market dynamics and simultaneously worked on the policy front with Ministry of Health and Family Welfare and its directorates in addressing the supply side issues of healthcare market. She has provided technical assistance for formulation of policy framework, guidelines and accreditation systems in the health training, and emphasized on avenues for women employment in the health sector. Currently, she is the Team Leader for the 'Working with Women' project implemented by SNV, where she is facilitating interventions in garment factories, following a gender sensitive and gender-specific approach to ensure equity in healthcare service provision for female garment workers.

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Prevalence of multi-drug resistant tuberculosis and implementation of infection prevention steps in a tertiary care hospital in south Asia for M D R tuberculosis

Ruchi Girotra
SCMA®, Canada

Multi Drug Resistance (MDR) in tuberculosis (TB) is a global threat especially in Immunocompromised patients with India and China carrying the greatest estimated burden of multidrug tuberculosis (MDR), multidrug-resistant (MDR) tuberculosis is defined as disease caused by strains of *Mycobacterium tuberculosis* that are at least resistant to treatment with Isoniazid and Rifampicin. WHO's refreshed policy document continues to strongly advise that Xpert MTB/RIF be used as the initial diagnostic test in both adults and children who are at risk of MDR-TB or HIV-associated TB, and that these two groups should be prioritized for testing with Xpert MTB/RIF when resources are limited. We Used Xpert MTB/RIF system in our Hospital to predict prevalence of MDR pulmonary TB in at risk population and thereby suggest Infection prevention measures to prevent the spread. The case finding for clinical tuberculosis was based on clinical history criteria defined according to WHO's guidelines for the programmatic management of drug-resistant TB. A total of 100 sputum specimens of patients >18 years of age and suspected of MDR pulmonary TB were followed over a period of 6 months. Average age of patients was 37 years and 52 specimens tested positive for pulmonary TB and rifampicin resistance was detected in 49% of positive cases indicating high prevalence of rifampicin resistance and thereby suggesting multi drug resistance. Rifampicin resistance is a reliable proxy for MDR-TB in patient groups in many countries. Based on the findings, the infection prevention department suggested the following infection prevention steps in chest and tuberculosis department of the hospital to prevent TB exposure to staff and patients, and to reduce the spread of infection by ensuring rapid diagnosis and treatment. They are: Screening of TB suspects or patients on TB medications, education of patients, separation of TB suspects from other patients, triaging, regular training programs, use of respirators (N-95) were promoted in bronchoscopy or specialized treatment centers and implementation of environmental measures. This study suggests that XpertMTB/RIF can be used as a rapid indicator of M D R tuberculosis in resource limited hospitals to enable smooth implementation of infection prevention measures.

Biography

Ruchi Girotra has her expertise in infection prevention and infectious diseases. She is currently working as a General Manager for Specialty Certified Medical Assistant (SCMA) and oversees the development of all study guides, exam content and other published materials for the medical assistance designation. She has also played an active role in initiation and maintenance of Joint commission international standards, safe healthcare practices, sterilization and disinfection, antibiotic stewardship programs in various hospitals. She has published several research papers in international and national medical journals.

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Environmental impact assessment and health aspects in Sudan: A diagnosis cure approach

Osman M M Ali

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Statement of the Problem: Sudan is witnessing an increased tempo in development projects in the wake of the severance of southern Sudan in 2011. The investment activities are mainly based on the exploitation of the country's natural capital. Though EIAs are mandatory conducted, the health impacts that inevitably accompany these activities are not sufficiently assessed. The purpose of this article is to make a diagnosis of the status of health considerations in EIA studies and to propose measures to make the assessment more effective.

Methodology: EIA reports for water diversion (dams), irrigation, oil development and gold mining projects were reviewed, taking on board cases from African EIAs. Controversial issues are highlighted taking the case of Onchocerciasis.

Findings: Health impacts are included in most EI statements but not as a chapter on itself. For hydropower projects emphasis has been on the upper stream region. TB health impacts in EIA are reviewed in the case of GERD. Health issues in EIA are becoming more pressing with the proliferation of artisanal and licensed mining. Health impacts due to the expected change in livelihoods are not investigated. The health implications of climate change, as an overarching leverage, are overlooked in EIAs.

Conclusions: Health issues in EIA in Sudan are lightly touched and no sole HIA is conducted. There is a need for health issues to be the core aspect in EIA studies. The issue of transboundary diseases is emerging strongly with the construction of GERD. Recommendations are made to make health assessment more effective in Sudan through, inter alia, the attention to zoonotic diseases in agricultural EIA studies, the inclusion of health monitoring near the spillways to assess black fly activity, the consideration of transboundary health aspects and the upgrading HIA to the tier of SEA.

Biography

Osman M M Ali is an Associate Professor at the Institute of Environmental Studies, University of Khartoum. He has completed his Ph.D in Limnology (Study of inland waters) from the University of London. His main academic interest is environmental studies with emphasis on water resources management and aquatic macrophytes. He has a long experience in the field of environmental impact assessment via teaching, research and consultations. He acted as team leader for over 30 EIA studies in the realm of oil development, gold mining, hydropower projects, roads and water harvesting. He is a Member of the IAIA, Member of East Africa Association of Impact Assessment and the National Coordinator. He was Lead Author for the Africa Chapter on Water Policies as part of UNEP GEO-5 Report which was presented at Rio+20 in 2012. He has participated in over 50 national and international workshops and conferences.

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Identification of the proteins related to HQ-induced cytotoxicity by proteomic analysis

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Hydroquinone (HQ), one of the most important metabolites derived from benzene, is known to be associated with acute myelogenous leukemia risk; however, its carcinogenic mechanism remains unclear. Recently, we reported that ROS participated HQ-induced cytotoxicity in TK6 cells. To explore the molecular mechanism of cell response induced by HQ in TK6 cells. We treated TK6 cells with HQ 20 μ mol/L for 24h, to further identify the proteins related to HQ induced cytotoxicity by using the techniques of 2D electrophoresis and MALDI-TOF-MS/MS. After HQ treatment, cells were lysed in lysis solution, then the supernatant were collected and . The total cellular proteins were separated using two-dimensional gel electrophoresis and visualized by colloidal comassie blue staining. Digital image were analyzed using ImagerMaster 2Dplatinum 5.0 software. The differentially expressed protein spots were picked and digested in gel then identified by MALDI-TOF-MS/MS. Among the 31 differential proteins identified, 21 Down-regulated proteins identified in the TK cells induced by HQ were found to be mainly involved in cell proliferation and migration, DNA replication, tumor protein and cytoskeleton protein , including purine biosynthesis protein, Ras GTPase-activating protein-binding protein 1, Keratin. Meanwhile, 8 proteins involved in some oxidative and ubiquitination were up-regulated in the TK6 cells induced by HQ , including NADH-ubiquinone oxidoreductase, HSP70 and Ubiquitin-conjugating enzyme E2N. And we applied western-blot to validated HSP70 and Ubiquitin-conjugating enzyme E2N in TK6 cells treated by 0,5,10,20 μ mol/L HQ treated for 24h. The results showed that the protein expression level of HSP70 and Ubiquitin-conjugating enzyme E2N were up-regulated along with the different concentration of HQ treatment. Our research indicated that oxidative stress, RAS pathway and ubiquitination may be involved in HQ induced acute cytotoxicity in TK6 cells.

Biography

Yan Sha received her Ph.D in toxicology from Sun Yat-sen University at Guangzhou, China. She completed her visitor scholar fellowship in Oregon Institute of Occupational Health Sciences, Oregon Health and Science University, Portland, Oregon. Dr Sha is a researcher from Shenzhen Prevention and Treatment Center for Occupational Diseases, her research focused on both DNA repair and molecular mutagenesis induced by workplace chemicals. She has published about 15 papers in reputed journals.

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6th International Conference and Exhibition on

OCCUPATIONAL HEALTH & SAFETY

September 13-14, 2017 | Dallas, USA

Ergonomic hazards and injuries among small scale miners in the Philippines

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Statement of the Problem: Worldwide, small-scale mining (SSM) provides employment to about 13 million people and affects the livelihood of 80-100 million.

Methods: This study investigated the ergonomic and safety hazards of small-scale miners in one of the largest small-scale mining area in the Philippines which is the area of Itogon, Benguet. There were 93 small-scale miners who were included in the study as they complied with the inclusion criteria. The methods consisted of survey questionnaires, health physical examination guide, individual interviews, and work process observation tool.

Results: The results showed that the small-scale miners worked for an average of 10.7 years, and a maximum work year of 40. The most widely employed mining technique was the dog-hole mining consisting of several sub-processes-tunneling, ball milling and gravity concentration, cyanide leaching, and smelting. The ergonomic and safety hazards identified were noise exposure from the dynamite blast, temperature extremes, and exposure to dust from dynamite blasting. The miners experienced prolonged crouching and bending, prolonged handling of tools, and carrying heavy sacks filled with mineral ores. There were no standard work protection and safety measures followed by the miners. They resorted to improvised protective equipment such as wearing of sleeveless shirts and drinking water for temperature extremes, distancing themselves from the mining blasts during dynamite blasting, and intermittently used carts with manual handling in the transport of ores packed in sacks. In the ball milling and gravity concentration process, machine-related accidents were noted such as experiencing cuts from the crusher. In the cyanide leaching which uses massive amounts of cyanide, the most prevalent hazards were heat, dust, and chemicals such as cyanide fumes. In the smelting process, smoke from burning ore and coal as well as exposure to borax and nitric acid fumes. Burn injuries were reported among miners. A third (31.2%) of miners have experienced accidents. The most common injury was laceration at 47.8%, followed by methane inhalation, fracture of hand digits, and contusion at 17.4%. The most prevalent health symptom reported by the miners was muscle pain which points to exposure to ergonomic hazards and risks.

Conclusion & Significance: It is suggested that intervention programs for ergonomics and safety measures be implemented by the local government, and health and safety nets be provided for the small-scale miners in Itogon, Benguet.

Biography

Jinky Leilanie Lu holds a Master Degree of Occupational Health and Ph.D, and a Research Professor of the National Institutes of Health, University of the Philippines Manila with the Institute of Health Policy and Development Studies. She has authored two books, *Gender, Information Technology*, and *Health* which won the National Academy of Science and Technology book award in 2010, and reprinted by the University of Hawaii Press, 2007, and *Basics of Occupational Health and Safety: Guidebook for Practitioners and Industries*. She has produced 51 journal articles, and 28 of which are science citation indexed. She has also contributed a chapter in the *Handbook of Anthropometry Physical Measures of Human Form in Health and Disease*, published by Springer in 2012. She is a staunch Advocate, both as an engaged Academic and Scientist, in promoting epidemiology of occupational health and safety.

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